

The Eisenbarth well fire: Ohio fails in a fracking emergency



The Eisenbarth well fire, photo by Sardis Volunteer Fire Department

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This report aims not to detail the complex physical and political nature of fracking or to get at all of the problems fracking can and has caused in Ohio. Rather, it lays out potential problems resulting from poor communication from drillers to first responders and emergency planners, the roots of those problems and opportunities to improve that communication. The authors focus on a specific actual emergency which occurred recently in Monroe County and make recommendations for improvement.

Executive Summary

Danger lurks throughout the fracking process, specifically danger of chemical exposure. Current laws and enforcement fail to prepare first responders for emergency situations where human life and environmental damage depends on responders' knowledge of with what they're dealing.

The U.S. EPA, Ohio EPA, and Ohio Department of Natural Resources (ODNR) all fail to rigorously enforce existing laws. However, even adequate enforcement falls short of compensating for inadequacies in state and federal law to handle the sheer volume of hazardous chemicals streaming into the rural communities of Ohio's oil and gas fields. For example, Ohio¹ law requires drillers to disclose chemicals to emergency responders only *after* a well has been drilled. This scenario fails to account for accidents which might occur after chemicals are brought on site, but before drilling is completed.

In 2014, Ohio saw a serious oil and gas emergency in Monroe County. If emergency responders had been better prepared *before* the incident, the crises could have been averted faster and more effectively with less confusion and damage.

The political influence of the oil and gas industry hinders improvement to fracking emergency preparedness in Ohio. The Ohio Department of Natural Resource's emergency response website, which the industry helped design, provides no help to first responders in an actual emergency situation.²

We recommend that the State Emergency Response Commission (SERC) take a more aggressive role in compelling timely chemical disclosure from drillers, vigorously enforce existing law, and use its power to enact fracking chemical disclosure rules more appropriate to the unique, fast-paced nature of modern fracking operations.

Furthermore, we recommend that either Governor Kasich or the legislature initiate a legislative fix requiring fracking chemical disclosure to emergency responders in advance of drilling activity.

¹ORC 3750.05(B) and ORC 1509.10(H)

²<https://gis.ohiodnr.gov/website/dog/emergencyoilgas/>

Finally, we recommend that first responders utilize little-known power to compel chemical reporting from drillers in their jurisdiction.

The fracking process and what can go wrong

The oil and gas industry frequently uses the word “fracking” in an intentionally confusing way. They often refer to fracking as the instant in which shale rocks deep underground are fractured. The authors use “fracking” to mean the whole set of processes involved with extracting oil and gas using high volume slick water hydraulic fracturing and horizontal drilling.

Contact with fracking chemicals increases risk of serious health problems, including organ damage, respiratory system damage, developmental problems and cancer. A key study from 2011 identified 750 different chemicals in fracking fluid. It highlighted 23 commonly used chemicals harmful enough to be regulated by either the Safe Drinking Water Act or the Clean Air Act. The same study found that in many instances, the drilling companies didn’t even know what was in the fracking fluid because they buy chemical mixtures that have trade secret chemicals in them³. The documents that come with these mixtures (Material Safety Data Sheets or MSDSs) will sometimes be missing this proprietary information.

Despite a federal mandate, Ohio has failed to require “secondary containment” to catch spills at well sites, which exacerbates problems from spills or accidents all through the fracking process, by allowing unfettered access to surface water.

The table below outlines opportunities for chemical exposure at each step of the fracking process.

Process	Opportunity for chemical exposure
Leasing	Typically drillers lease rural land in the jurisdiction of volunteer fire companies with fewer resources and less training to combat fracking emergencies. Fewer resources and less training means more risk when accidents occur.
Trucking chemicals and other materials on to the site	Leaks and spills on route and on well pads.
Drilling the well	If drillers encounter unexpected pockets of gas while drilling, pressure can cause well head failure

4 U.S. Congressional report at <http://democrats.energycommerce.house.gov/sites/default/files/documents/Hydraulic-Fracturing-Chemicals-2011-4-18.pdf>

	and spill “drilling mud”, a semi-liquid substance used to cool the drill bit. This very situation occurred in Morgan county earlier this year, contaminating a creek with 330 barrels of synthetic oil and an unknown amount of “wet gas”, killing aquatic life and endangering drinking water downstream. ⁴
Installing “casing” into the well - steel pipes surrounded by cement	Drillers use acid to remove drilling mud from installed steel pipes to ensure that subsequently poured cement adheres. Acid can spill and contaminate surface water. Also, both cement and steel deteriorate eventually. Fracking an old, deteriorated well may allow fracking chemicals to leak into ground water.
Mixing chemicals with sand and water and injecting under high pressure to fracture shale	Malfunctioning pump trucks may spill or leak chemicals on the drilling site. This also increases risk of fires and explosions.
Collecting oil and gas, which returns to the surface with about half of the fracking fluid (“flowback”) and salty, sometimes radioactive, “produced water”.	Oil and gas, flowback and produced water all may leak or spill, either on site or on route to disposal in underground injection wells. The law classifies produced water as non-hazardous ⁵ , despite the presence of large quantities of salt and occasionally chemicals, like benzene, which is known to cause cancer.

A case study in failure: the Eisenbarth well fire

Just after 8:00am on June 28th, the Eisenbarth well in Monroe County– owned by Norwegian driller Statoil and being fracked by Halliburton, experienced a fire followed by more than 30 explosions, which sent shrapnel flying around the well pad. Monroe County Emergency Management Agency Director Phil Keevert said “It was like a bomb had gone off.” Eight volunteer fire departments, the U.S. EPA, and the Ohio EPA arrived to deal with the emergency. As a precaution and owing to the potential for

⁴<http://www.dispatch.com/content/stories/local/2014/05/07/Morgan-County-fracking-well-leaking-since-Sunday.html>

⁵<http://www.epa.gov/osw/nonhaz/industrial/special/oil/og88wp.pdf>

catastrophic chain reaction explosions if the wells themselves caught fire, local authorities evacuated 25 families living within a mile radius of the well site.



Figure 1-wreckage from the Monroe County fire - courtesy of FracTracker.org, photo by Bill Hughes

The initial U.S. EPA incident report provides not only important details about the response, but also details exact quantities of chemicals lost in the fire. If fire fighters had this list before the incident, they would have been better prepared to minimize the damage. As it was, only two sources of information existed – FracFocus.org and the Tier 2 form filed by Statoil in December 2013- before the accident. Unfortunately neither of them contained accurate information.

For example, the incident report lists the following as having been lost in the fire:

- 250 gallons of hydrochloric acid (28%),
- 7,040 gallons of GasPerm 1000 (terpenes, terpenoids, isopropanol, citrus extract, and proprietary components),
- 3300 gallons of BE-9 (tributyl tetradecyl phosphonium chloride),

30,000 gallons of WG-36 (polysaccharide gel),
1,000 gallons of FR- 66 (hydrotreated light petroleum distillate),
9000 gallons of diesel fuel,
300 gallons of motor and hydraulic oil.
330 gallons of LCA-1 (paraffinic solvents),
1900 gallons of LGC-36 UC (hydrotreated light petroleum distillate, guar gum),
1000 gallons of BC-140 (monoethanolamine borate, ethylene glycol),

Fracfocus.org – a national online database of industry reported chemicals – failed to list the final three of the chemicals listed above. Because certain chemicals will explode when mixed with water, omissions can be deadly. Fracfocus also included no individual chemical volumes, which when known, help to scale a response accordingly. In fact, each chemical is presented as a percentage of total frack fluid mass, unnecessarily confusing the issue of volume.

Furthermore, Fracfocus misrepresented the hydrochloric acid on site as a less dangerous concentration (7%) than the incident report (27%). Possibly worse for a fire fighter on the way to an emergency, Fracfocus indicated that fracking was complete on the 27th, which it clearly was not. Finally, Fracfocus would have been an unreliable source even if it had been accurate, as it can only be accessed online and internet access in rural Ohio is only intermittent.

The Tier 2 form was least helpful of all, listing only produced water and condensate on site, as of March, when the report was filed. What happened to the required reports to be filed either 30 or 90 days after new chemicals were brought on site?

The law provides for a back-up plan for providing chemical information in cases of emergency, by requiring each site to store a Material Safety Data Sheet (MSDS) for each chemical. Unfortunately, fire fighters discovered the trailer containing the information was already on fire when they arrived⁶ The law further requires facilities to provide specific trade secret chemical information to first responders immediately upon request in emergencies, yet Halliburton, failed to do so until five days after the incident. In both cases, advance reporting could have avoided confusion.

In all 54,000 gallons of 16 hazardous chemicals were lost from the pad, along with 300,000 gallons of water and foam used to control the blaze. With no secondary containment in place, everything washed down into a tributary of the Ohio River, killing approximately 70,000 fish.

⁶ <http://www.dispatch.com/content/stories/local/2014/08/31/fracking-fire-points-out-failings.html>

How could this happen?

The current reporting system is too slow

The Emergency Planning and Community Right to Know Act (EPCRA), passed in 1986, requires all industries handling hazardous chemicals to report them to State Emergency Response Commissions (SERC), county Local Emergency Planning Committees (LEPC), and the local fire department with jurisdiction over each facility. Facilities use “Tier 2” forms which also include emergency contact information. Both the Occupational Safety and Health Act (OSHA) and EPCRA requires facilities to store on site Material Safety Data Sheets (MSDs) for each hazardous chemical.

Facilities must report any chemicals stored on site in quantities of 10,000 lbs⁷ or more every March. Lower reporting thresholds apply for individual chemicals designated as “extremely hazardous” – typically much less than 10,000lbs. Each new facility must report its hazardous chemicals within 60 days of beginning operations. As new hazardous chemicals appear on site, facilities must report them within 90 days, or within 30 days in the case of a new extremely hazardous chemical. In emergencies the owner or operator of the facility must give complete chemical information, including trade secret chemical identities, to doctors or nurses within a half hour of receiving a request for chemical information.⁸

EPCRA’s reporting windows are too long to prevent threats from fracking chemical accidents. Wells are drilled and fracked within weeks, not months. Current reporting deadlines fail to prepare first responders in case of an emergency. By the time the 90 day reporting clock begins ticking, fracking could already be finished and chemicals and chemical-laden waste moved on to another site without a report ever being filed.

Ohio exempts oil and gas drillers from Ohio’s emergency planning laws

Currently the Ohio law, or the Ohio Revised Code, exempts oil and gas drillers from reporting hazardous chemicals directly to emergency planners and first responders. ORC Section 3750.081 exempts oil and gas drillers from observing reporting requirements all other chemical-intensive industries must meet. Drillers instead follow their own set of standards laid out in ORC 1509, which stops the flow of information directly from drillers to first responders and emergency planners by routing it through the ODNR and Fracfocus websites. First responders may then access information through these websites, which are confusing and unwieldy. Neither the ODNR emergency response website nor Fracfocus originated with first responders.

⁷42 U.S.C. 11022 e(3)(b)

⁸42 U.S.C. 11043

Rather than listing chemicals in use at each well site, the website offers material safety data sheets for all chemicals in use in the state, listed by chemical manufacturer. How this information is to assist a first responder headed to an emergency remains a mystery, especially owing the nature of intermittent internet access in the rural areas where fracking takes place.

Ohio's exemption for the oil and gas industry puts the wrong agency in charge of emergency planning and response for fracking emergencies. By giving emergency planning authority to the ODNR, Ohio law usurps the power of the State Emergency Response Commission, which handles emergency preparedness for every other chemical-intensive industry in the state.

Ohio's oil and gas chemical disclosure laws encourage secrecy

The rules signed into law in 2012 for fracking chemical disclosure do not prepare first responders and medical professionals for emergencies. The law requires drillers to report chemicals used to the Ohio Department of Natural Resources (ODNR) within 60 days after completing a well, except for those considered "trade-secrets."⁹ The law further allows drillers to claim any chemical a trade secret without justification. Drillers can even keep these chemicals secret from the ODNR. The reporting delay in Ohio's law, just as with EPCRA, allows too much time between the appearance of chemicals on site and when any agency or first responder receives information that could save lives or prevent damage to natural resources. Allowing carte blanche trade secrecy aggravates the problem even further.

Obstacles to progress

Lack of enforcement or initiative at the State Emergency Response Commission

EPCRA provides specific methods for getting chemical information to emergency responders and medical professionals in emergency situations. Those mechanisms failed during the Eisenbarth well fire. For 12 years Ohio's SERC did not enforce EPCRA over the oil and gas industry. It took citizen pressure on state agencies and the U.S. EPA to finally get even the tier 2 reporting enforced.

According to EPCRA¹⁰, facilities must provide chemical information for any chemical, regardless of the reporting threshold, when requested to by local fire departments. This under-utilized mechanism for obtaining complete chemical information acknowledges

⁹ORC 1509.10(H)(I)

¹⁰40 CFR 370.10

fire departments' right-to-know and provides a possible legal framework for solving the unique problems with chemical reporting by the fracking industry. Rather than relying upon this rarely used provision, the authors recommend that the onus of communication be on those bringing hazardous chemicals into communities, not on first responders.

Oil and gas influence in policy and elections

The oil and gas lobby in Ohio exerts undue influence in our political process. Over the past 13 years Ohio law has progressively favored oil and gas companies' interests over those of the public. This trend includes exempting oil and gas drillers from Ohio's emergency planning law, removing local authority to regulate oil and gas drilling, and the current ODNR-based chemical disclosure laws. The industry poured \$1.8 million into political campaigns from 2010-2013¹¹, gaining it the political influence to both pass its own legislation and hinder efforts to pass laws unfavorable to its interests.

For example, Senate Bill 315, signed into law by Governor Kasich in June 2012, contains many of the most generous provisions for oil and gas development and set the stage for rapid exploitation of the Utica shale, at the cost of public health, safety and environmental concerns. Written by the Ohio Oil and Gas Association, it contains many of the, inadequate chemical disclosure laws described in this report and enshrined in Ohio law.

Recommendations

Ohio's fracking chemical disclosure situation could be vastly improved for the health and safety emergency responders, people that live in oil and gas drilling areas, and oil and gas workers themselves.

For Ohio's administration and legislature

Ohio should emulate the gold standard of strong chemical disclosure laws that will better protect citizens. If Wyoming requires chemical disclosure before drilling ¹² why not Ohio? These laws must acknowledge the need for first responders to have complete access to chemical information for a facility before an emergency occurs.

Repealing the oil and gas exemption from direct reporting to first responders would be a good start.

For the State Emergency Response Commission

If the current administration and legislature refuses to act, due to the influence of oil and gas money in Ohio elections, the State Emergency Response Commission has untapped power to itself ensure Ohioans' health and safety. A 1992 decision by the

¹¹ Common Cause Ohio, "Deep Drilling, Deep Pockets", September 2013
<http://www.commoncause.org/states/ohio/reports/deep-drilling-deep-pockets.PDF>

¹² <http://www.propublica.org/article/wyoming-fracking-rules-would-disclose-drilling-chemicals>

Ohio Supreme Court in *Chamber of Commerce v. State Emergency Response Commission* found that the SERC does have authority to enact stronger provisions than required by federal emergency planning law.¹³

SERC should require oil and gas drillers to report non-trade secret chemicals directly to SERC, the LEPCs and fire departments *before* chemicals are brought on site, regardless of amount or reporting threshold. This would not only benefit emergency planners and first responders, but also the community, as the LEPCs are a primary source of public information about potential chemical hazards. SERC should penalize oil and gas drillers that do not follow the law, whether in the initial reporting stage or during emergency procedures. SERC should coordinate with county LEPCs and local fire departments so that every currently legal precaution is taken.

For first responders

Until such time as the state mounts better enforcement and Ohio's laws improve communication of chemical information in a timely manner to emergency planners and first responders, first responders themselves should take the initiative to find out what chemicals are being used at well sites in their jurisdiction. Using the little-known provision under EPCRA to compel drillers to report all chemicals on site, regardless of reporting thresholds, can temporarily fill the knowledge gap that may make all the difference in an emergency.

Conclusion

The complex process of fracking provides many opportunities for spills and accidents that endanger people, property and natural resources. Minimizing this potential must be a priority addressed by foreknowledge. Ohio and federal fracking chemical disclosure laws fail to protect us. Despite the authority to set tougher requirements than the federal law, Ohio crafted fracking chemical disclosure laws worse than the general hazardous chemical reporting standards put in place in 1986. Existing law and reporting rules failed to anticipate the unique and dynamic nature of modern fracking operations and must be updated.

The Eisenbarth well fire demonstrates that oil and gas drillers must provide chemical information directly to emergency planners and first responders before chemicals are brought on site, because the potential for confusion in an emergency is too great.

¹³ Chamber of Commerce v. State Emergency Response Commission, http://www.leagle.com/decision/199268364OhioSt3d619_1579.xml/OHIO%20CHAMBER%20OF%20COMMERC%20v.%20STATE%20EMERGENCY%20RESPONSE%20COMM.