

Dr. Bernhard Debatin

67 Morris Avenue
Athens, OH 45701
November 29, 2015

RE: **PERMIT** # APATTO27661

To: Chief Simmers, ODNR, Division of Oil & Gas Resources, oilandgas@dnr.state.oh.us
ODNR Division of Oil and Gas Resources Management
2045 Morse Rd., Building F-2, Columbus OH 43229-6693

CC: Ms. Susan Hedman, Regional Administrator, USEPA Region 5, hedman.susan@epa.gov
State Senator Lou Gentile: gentile@ohiosenate.gov,
State Rep. Debbie Phillips Rep94@ohiohouse.gov,
Athens County Commissioner Lenny Eliason leliason@athensoh.org

CONFIRMATION OF RECEIPT REQUESTED
PLEASE PROVIDE A RESPONSE TO THE INDIVIDUAL POINTS

Dear Chief Simmers:

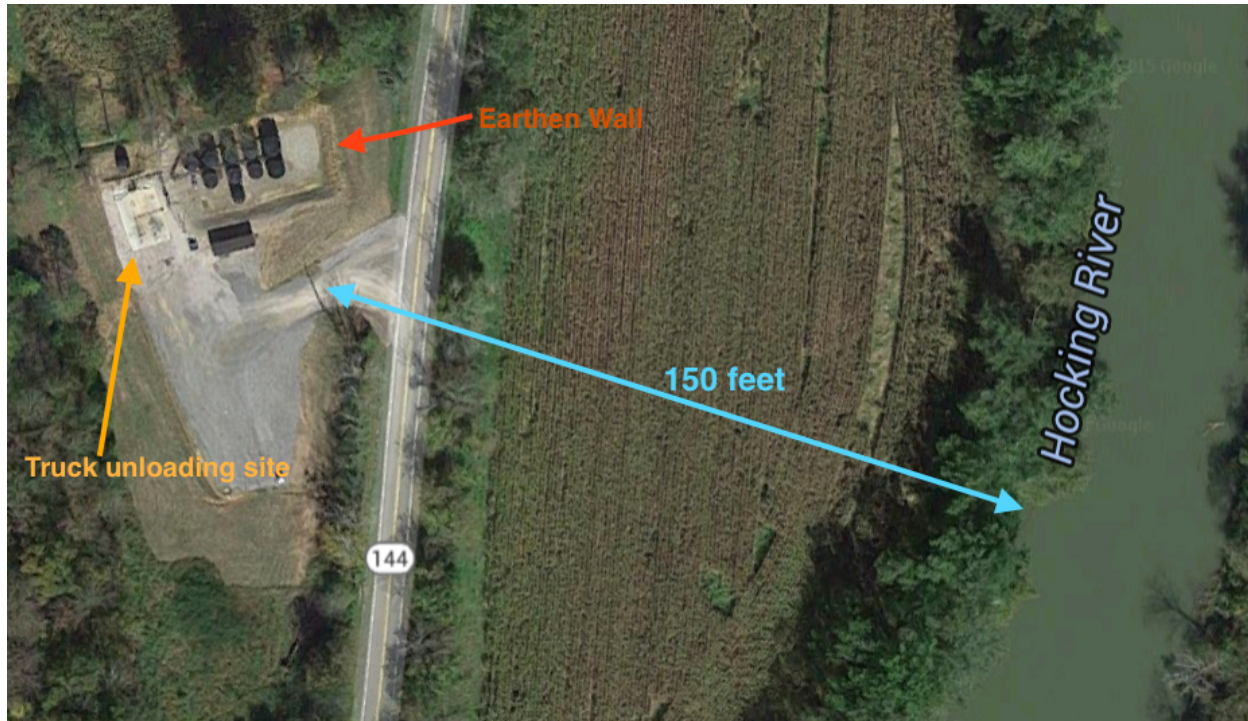
I am writing to you to express my deep concern about and my strong opposition to the proposed Athens County injection well Atha #2, #APATTO27661. Based on my substantive and relevant concerns regarding public health, safety, and environmental conservation, which I am explaining in detail below, I am requesting a public hearing in Athens County before a final decision about the permit is made. I am basing my request upon the Ohio Revised Code that requires that the Chief grant a public hearing if any comments are substantive and relevant to health, safety, or good conservation practices. (OAC 1501:9-3-06 (H)(2) (c)).

1. Concerns Specific To The Location

Let me point out first that I am very familiar with the area around the Atha Well and that I have good reasons, as shown below, to believe that this location is extremely ill-suited for a high-volume injection well. I know that low-volume injection wells have been around for long time, but it is only since the advent of high volume, horizontal hydraulic fracturing that high-volume injection wells for fracking waste fluids are needed and operated. It is simply inconceivable that the same rules and regulations are applied to these high-volume injection wells as to the old-fashioned ones, as the new ones are qualitatively and quantitatively different and more risky.

As you know, the Atha Injection Well site is located right next to the Hocking River on County Road 144, a small, curvy, and hilly road. The site itself only has a gate but is not even fenced in, and the 10 main tanks are sitting on a small hill in a man-made basin that is surrounded by an earthen wall that is only 2 to 3 feet high. A serious accident with a spill would (a) quickly escape outside of the wall and (b) also quickly soak through that wall and eventually erode it. The Hocking River is only 150 feet east of the site, which means that a spill would immediately pose a serious public health risk for people who live downstream.

Moreover, the waste fluid delivery trucks are unloading their waste on a platform that is not even protected with any wall structure. The whole area is tilted toward the street and the Hocking River, which means that any spill from the trucks (or the tanks) would, again, immediately flow toward the Hocking River. I am not sure how familiar you are with the site, as the application did not even include a map. For your information, and to illustrate the urgency of the problem, I am including an annotated screenshot of the site from Google Earth:



I have been to the site many times and I have often seen it being unsupervised, particularly during weekends. Given these circumstances, any spill or leaking tanks could remain undetected for days and cause great damage to the environment and to human health, as the runoff would flow directly into the Hocking River, which is, as mentioned, only 150 feet downhill.

You may not know, though, that County Road 144 gets flooded whenever the Hocking River has high water, which happens frequently in spring and fall. In this case, the only access to the Atha injection well is via Lightner Road, ca. 750 feet south of the Atha site, a small, difficult, and steep dirt road, not suited for trucks or any other heavy equipment that might be needed in case of a spill. This serious concern magnifies the risk of uncontrolled spills exponentially. I urge you to take a little field trip to the area to get a first-hand impression of the site and its risks due to its location. In fact, I would be happy to give you a guided tour.

You also may not know that the currently operating Atha #1 injection well is the result of a rather opportunistic choice, but not of proper planning and geologically sound exploration. The well, located on the grounds of the Frost family, was chosen when the original gas well, for which the Atha Company had leased the mineral rights, run dry. At that point (and against the initial will of the owner), the Atha Company decided that they could simply repurpose the now unproductive gas well for an injection well.

However, no geological studies were done regarding the appropriateness of the site, nor were there any other studies conducted with regard to any of the above-mentioned problems with the specific location of the site. Local citizens, including relatives of the Frost family, have been quite upset about this uncalled-for repurposing of the site, not least because the site is so closely located to the Hocking River and many residents living downstream get their drinking water directly or indirectly (through riverbed-fed aquifers) from the Hocking River. Furthermore, millions of people get their water from the Ohio River, into which the Hocking River empties only ca. 10 miles downstream. A serious toxic spill would have devastating consequences.

2. General Concerns and Objections

As a university professor, teaching environmental and science journalism among other subjects, I have studied the impact of fracking and injection wells for more than a decade by now. The growing history of injection-well induced earthquakes, groundwater contaminations, and air pollution has shown that injection wells are far from risk-free and therefore require strict regulation, close monitoring, and very tight safety precautions.

Based on my studies and the research of many of my colleagues in the natural sciences, social sciences, and jurisprudence, I strongly believe that the way how injection wells are permitted and operated in Ohio is extremely risky and also against Ohio law and federal law. All in all, I can confidently state that the planned injection well (as well as the existing Atha #1 well) is very likely to cause long-term harm to our community's air, water, public health, and property values and that it is a great safety concern due to its location (see above, point 1).

Here's a summary of general concerns regarding the planned Atha #2 injection well (please feel free to contact me for further details):

(a) Increased Risk of Earthquake Incidents

Experience all over the country has shown that high volume injection of fracking wastewater increases the likelihood of earthquakes. Multiple such seismic events linked to injection wells and to fracking have occurred in recent years in Ohio, including the magnitude 4.0 earthquake near Youngstown on December 2011. States such as Oklahoma, where large-scale injection of fracking waste is practiced, have shown skyrocketing earthquake incidents.

The current application does not include any seismic data, nor is the actual geological situation of the site known, such as fissures, fractures, voids, and faults. An ODNR report about the 2011 Youngstown earthquake (which is no longer available online) stated, "Evidence gathered by ODNR regulators and geologists suggests that fluid from a deeply drilled injection well intersected an unmapped fault in a near-failure state of stress causing movement along the fault." (Original link: <http://ohiodnr.com/downloads/northstar/YoungstownFAQ.pdf>)

It is a known fact that fracking fluids contain lubricants and sand, used to lubricate and prop open the fracked shale formation in order to release the trapped oil or gas. Fracking waste fluids have a similar lubrication effect when introduced into an injection well and thus facilitate cracking and slipping. Both the injection pressure and the injected volume exert considerable

pressure on the area where the fluids are stored. This can result in the creation of new fractures or the extension of already existing fractures. In other words: Polluted fracking waste fluids may migrate laterally and upwards into underground aquifers. A USEPA training document states:

“If faults or fractures are present, the injected fluid, introduced into the injection interval at an elevated pressure, will seek the path of lower pressure and move upward into a USDW.” [USDW = underground source of drinking water]

(<http://water.epa.gov/learn/training/dwatrainig/upload/dwaUIC-uicpermit.pdf>)

We all remember that Athens County experienced a magnitude 3.5 earthquake near Nelsonville in November 20, 2013, which demonstrated that we live in a seismically active area, regardless of whether it was caused by natural tectonic movement or induced by the injection wells in our area (see <http://earthquake.usgs.gov/earthquakes/eventpage/usb00012y3#summary>). The mere occurrence of this earthquake makes injection wells in our area a potentially dangerous and irresponsible activity. Every earthquake, injection-induced or not, may introduce new faults and fractures or extend existing ones that then can serve as a migration path for polluted waste water into underground sources of drinking water.

Also, due to the lack of geological data, it is simply unknown what kind of interactions may occur between the two adjacent injection wells and whether the injected waste from the two wells will compete for space, which would create additional pressure. A possible outcome of such a scenario could be that wastewater migrates laterally and upwards into aquifers or that well casings, exposed to increased pressure, may crack and open up additional migration paths (see also below in the next point).

(b) Risks of “Normal” Operation

Even under normal circumstances wastewater may migrate through cracks in the casing and tubing of the injection well. A 2012 report in the investigative journalism magazine *ProPublica*, titled “Injection Wells: The Poison Beneath Us,” found that injection wells are often poorly regulated and that they experience high rates of failure, which in turn may lead to pollution of underground water supplies (see <http://www.propublica.org/article/injection-wells-the-poison-beneath-us/single>). Studies, such as those done by A. Ingraffea, have shown that fracking wastewater corrodes the tubing and cement, with damaging impact on their integrity and that up to 40% of the casings are faulty from the get-go due to wrong cement/water ratios (see, for instance, <http://www.pnas.org/content/111/30/10955>). The Atha #2 injection well application does not address any of these issues and consequently does not provide any measures to prevent them.

Moreover, previous public record requests regarding geological data in the area (concerning the permit of the closely located K&H #2 injection well) revealed that no specific geological data exist, which implies that the decisions are made blindly at the desk without an actual site-specific geological evaluation of the strata. The application itself does not contain any geological data, either, so that it is entirely unclear how it may show any probable cause that the protection of land, surface water, and drinking water sources as required by Ohio law (OAC 1501:9-3-04) is guaranteed. In other words, this application is highly deficient and should be rejected by ODNR

Also, the application does not map any nearby aquifers, nor does it provide any information as to how surface water contamination, including major truck or equipment spills into the Hocking River, can be prevented. ODNR is charged with these environmental, safety and health protections by state and federal law. The lack of aquifer mapping and of their potential impact on the siting and plans for this well is in gross violation of the Safe Drinking Water Act (SDWA) and general USEPA standards. This, too, should be enough for ODNR to reject the application and demand proper documentation as required by law.

(c) Lack of Monitoring and Site Surveillance

The application does not include any water-monitoring plan and ODNR does not monitor drinking water or ground water sources in the vicinity of injection wells, including the current Atha well. Fracking wastewater injection wells are classified as Class II wells that do not require such monitoring. However, it is noteworthy that the same waste fluids, produced by any other industry than the oil and gas industry, would be classified as toxic waste and required to be disposed of under special monitoring and safety precautions, so as to satisfy the Safe Drinking Water Act (SDWA). After all, fracking wastewater contains toxic substances such as benzene and other volatile organic compounds, heavy metals, radioactive materials, and other carcinogenic chemicals. The exemption of the oil and gas industry from the SWDA and other major environmental laws is commonly known as the “Halliburton Loophole.”

The lack of proper monitoring implies that neighbors and people who live downstream will not know when contaminants find a pathway to groundwater from the Atha injection wells. Indeed, there is no assurance that the existing Atha #1 injection well has not already contaminated local drinking water sources and the Hocking River.

It is also a known fact, substantiated by many studies, that waste emissions from the fracking fluids contain benzene and other volatile carcinogens, often at extremely high and illegal levels. The application does not include any air-monitoring plan and ODNR does not monitor the air around the injection wells, including the Atha injection well, so that residents living near the well will not know if and when toxic chemicals from the waste fluids may be airborne and pollute the air they breathe. The existing Atha well with its multiple storage tanks continually vents toxic hydrocarbons and volatile organic compounds directly into the adjacent community, leading to chronic exposure of chemical combinations for anyone living along the river. I have visited four of the injection well sites in Athens County (including the Atha facility) multiple times with my students and we have always witnessed the presence of volatile organic compounds of the BTEX group near the storage tanks and pits, or when waste was pumped from the trucks into the facility tanks, as it smelled strongly like a gas station, even from a distance.

Finally, the increase in waste fluid truck traffic also leads to significantly increased air pollution due to the diesel engines that are not only running during transportation but also when the fluids are being pumped and often while trucks are waiting in line for emptying out their load. The recent VW scandal has brought back into public awareness that diesel fumes are a major air polluter. Diesel fumes from trucks are even more problematic, as they are typically not mitigated by any type of catalyzed soot filter.

(d) Concerns About Infrastructure, Public Safety, and Property Values

The operation of a second injection well at the Atha facility will further increase heavy truck traffic, which has a known damaging impact on roads and bridges. Communities near injection wells have to carry the burden without receiving any benefits, since "Ohio's total tax burden on the oil and gas industry is lower than or as low as every other state with a severance tax." http://www.cleveland.com/open/index.ssf/2015/10/lawmakers_say_ohios_oil_and_ga.html)

Additionally, roads may become less safe. As experience from fracking sites shows, high volume truck traffic poses a particular danger to the safety of our children who are being bussed to and from their schools. The increased traffic will particularly impact children from the Federal Hocking High School, which is located only 3.5 miles upstream on County Road 144.

Similarly, local residents have to expect that their property values will decrease with the crumbling infrastructure and the continuing danger of air, water, and surface contamination due to the transportation, storage, and injection of contaminated fracking fluids. As far as I know, neither ODNR nor the State of Ohio provide any compensatory mechanism for such damages. Residents will be left alone and will have to deal with the consequences without any support and legal protection.

For all these reasons, I request a public hearing in Athens County based on my substantive concerns with the serious deficiencies of this permit application to prevent contamination and pollution of surface of the land, surface water and groundwater, as required by Ohio Administrative Code 1501:9-3-04, which states: “(A) All persons engaged in any phase of saltwater disposal operations shall conduct such operations in a manner which will not contaminate or pollute the surface of the land, or water on the surface or in the subsurface...”

My concerns, substantive and relevant to public health, safety and environmental conservation, merit a public hearing because Ohio law requires that the Chief grant a public hearing if ANY comments are substantive and relevant to health, safety, or good conservation practices. (OAC 1501:9-3-06 (H)(2) (c)).

Finally, this is the third time that I am writing to you, hoping that ODNR may consider serious concerns regarding the permit of an injection well in Athens County. I wrote to you on November 26, 2013, with regard to the K&H 2 injection well application and I wrote to you on January 4, 2015, with regard to the K&H 3 injection well application. Both times, you did not even acknowledge receipt of my letter, not to mention a substantive answer.

I urge you to acknowledge this letter, to take it seriously, and to make an honest effort in considering my concerns in an impartial and dispassionate manner.

Sincerely,



Dr. Bernhard Debatin

67 Morris Avenue
Athens, OH 45701