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Jully Bowser
WABASH CO AUDITOR

Your Work is Just Beginning

I understand that you will vote today to accept or reject an ordinance prepared by the Wabash County Planning and Zoning Department that defines requirements for Carbon Capture and Sequestration (CCS) Projects in Wabash County. A third option which is the appropriate action is to decline the ordinance and return it to the Planning and Zoning Department for further study, as the ordinance suggests in paragraph 5. I have watched the CCS issue unfold in Wabash County for over a year and the creators of this document have not shown any observable signs of a rigorous and thorough study of CCS, nor utilizing risk analysis of the different facets of the CCS project. The creators have not shown any interest in informing the public how they arrived at setback requirements nor the fee schedule. I can only conclude that the creators of this ordinance have made decisions without the best academic standards available as defined by scientific, engineering, economic and legal disciplines.

. The interpretation utilized in the ordinance of House Act 1209 and certain Indiana codes is problematic as described to me during a couple of discussions with Indiana Department of Natural Resources (IDNR) personnel who have current knowledge about class VI wells. Indiana provides authority, but no regulation of class VI wells, at least not yet. There is work being done at the state level to acquire primacy for regulation, but for now Region 5 of the Environmental Protection Agency has full jurisdiction for the permit application process, regulatory oversight, site assessment, compliance and enforcement. The region 5 office in Chicago consists of a variety of 30 or 40 people that include scientists, engineers and attorneys, all with credible academic qualifications, and work experience. I have experienced excellent communication with the IDNR and EPA Region 5. For example, when I send a morning email inquiry to these offices, typically I get a telephone call within a few hours conducive to good discussion.

The use of words "recent" or "new" relative to CCS technology deserves scrutiny. Italian Physicist Cesare Marchetti had been investigating CCS and published about the concept in 1977. Now I graduated from veterinary school in 1977. My grandchildren do not think of that as a

“recent” or “new” event in my life. Experimentation with CCS continued after 1977 which led to the first scientific research and large-scale commercial demonstration of CCS in Norway in 1996, and the world’s most complete multidisciplinary research project in Canada began in 2000. Both projects continue today having accumulated over 25 years of research data.

In 2009 ADM’s ethanol plant at Decatur, Illinois was chosen as the first pilot project overseen by the EPA. The University of Illinois and the U.S. Department of Energy were active in the project. Data collected from 2011 to 2014 from the pilot well was favorable for the construction of a commercial well in 2017. There is now 9 years of experience from the commercial well, and 15 years’ experience from the entire project. During that time the oversight and enforcement roles of the EPA Region 5 were utilized a couple of times and demonstrated the effectiveness of those roles. When the problems were analyzed and corrected, injection activity resumed and currently continues. There is a lot to learn from the pilot and commercial projects at Decatur because data collected there is quite relevant to our local project. Our local project will inject into the same geologic stratum as that at Decatur. The city and the CCS project are situated in Macon County. There are no local ordinances concerning CCS in Macon County. Folks there have confidence in the roles of the Region 5 EPA. An important activity at Decatur that has grown out of the CCS project are CCS Learning Days held every few months. Attendees are able to have one on one discussions with a variety of people from state agencies, a university and a college, and folks with hands-on experience with the ADM project. What is so good about attending is that attendees can openly, and respectfully, discuss their opinions and fears with credible people in their academic disciplines and CCS experienced people.

It is extremely unfortunate that the conversation about this proposed CCS project has been defined from the beginning as “for” or “opposed”. The appropriate conversation should have begun with plans of how to rationally use risk analysis and assessment of various possible scenarios associated with the project.

On your commissioner’s webpage you have posted all, or I assume, all the letters presented by citizens of Wabash County by describing them as “for” or “opposed”. I have counted 880 redundant “opposed” postings, but in case I did not count correctly let’s round up to 1,000. The 2025 numbers I could find for the population of Wabash County is about 30,000. It is simple math to determine that your posted redundant letters of opposition consist of 3 percent of the population of Wabash County. 3 percent by statistical methods does not indicate significance, nor does the federal or state constitutions provide for government decisions based on 3% of the will of the people. You cannot vote rationally to accept this ordinance, especially since it is government intervention into private enterprise without pursuing the thoughts of at least 47% of the remaining 97% of Wabash County Citizens.

To pursue this a bit further, there are effective arguments, with which I agree, that governing by simple majority in our republic is problematic, but in a highly pluralistic society simple majorities are about the best we can do, and 3% is not close to a simple majority.

Section 45Q of the Internal Revenue Code has been presented in this county as a get rich scam for a few. Quite to the contrary! Section 45Q of the internal Revenue Code was originally established by The Energy Improvement and Extension Act of 2008. That was a bipartisan legislative action embedded in H.R. 1424 of the 110th Congress. Final house votes were 263-171, final senate votes were 74-25, both far beyond a simple majority and obviously nothing close to only 3%. Section 45Q has been amended several times since 2008. Significant amendments were supported in 2018, 2022, and most recently on July 4, 2025.

The conclusion that Carbon Dioxide is a pollutant was established by evidence-based knowledge acquired by well-established scientific methods. Categorizing CO₂ as a pollutant was not established by legislative action but by a 2007 Supreme Court Ruling in *Massachusetts v EPA*. This case concluded that greenhouse gases threatened public health and welfare which established the legal basis for regulation. This fits nicely with the often-overlooked inclusion in the preamble to the Federal Constitution that a reason for government and the pursuit of a "more perfect union" is to promote the general welfare of the people. There is much more to the story of this concept of pollutant and the reason for 45Q. Your job is to establish further details to the story which will include that 45Q and other similar incentives are economic stimulants. It is not money that is a direct profit to the receiving company as some, including elected public servants in this county have stated. These incentives encourage companies to invest in capital intensive projects with effects in the economy beneficial to manufacturers, engineers, construction workers, equipment operators, suppliers, local businesses, and countless others.

A real case scenario of the value and effect of government financial incentives is the federal tax credit I utilized for the investment in electrical generation by solar panels. The increase in employment rate and manufacturing related to the solar power industry was extremely positive, including the production of more PV panels here in the United States, rather than in China. Based on this PV history, 45Q, has the potential for similar positive effects on the economy.

It is true that the CO₂ released from the fermentation occurring at an ethanol plant is last summer's CO₂ brought to the ethanol plant by the corn. It is a pretty neat, closed loop system. Ethanol production plants have been identified as a good way to fulfill societies' request to reduce the addition of CO₂ to earth's atmosphere. That is because ethanol biorefineries localize

a lot of last summer's atmospheric CO₂ making an ethanol plant an efficient single collection point from something like an 8,000 square miles area. Some ethanol plants have a ready market for carbon dioxide to the soft drink industry, and to municipal water treatment facilities. Many municipal water treatment facilities use a highly caustic cation precipitation process. The addition of CO₂ is a preferred method of acidification of the water to a near neutral pH instead of strong acids such as sulfuric acid.

To my knowledge, our local Poet Plant has not been able to establish a ready market for its captured CO₂, and being situated above a geologic stratum conducive to long term carbon sequestration ccs can be utilized locally to meet societies request.

Seismic studies show that Mt. Simon Sandstone in our local area is capped with a contiguous sedimentary stone layer which prevents migration of injected CO₂ from migrating out of the sandstone reservoir. There are many examples of how this works in the oil and gas industry. Not far from here is the Royal Center Storage Field for Natural Gas. NIPSCO is a company that injects natural gas into a deep underground formation pipelined to the storage reservoir during the summer so that it can be drawn out during high consumption times in the winter as a readily available source of natural gas for upper Midwest consumers.

A fascinating local story is the Trenton Oil and Gas Field in east central Indiana and extending into Ohio. It was formed about 450 million years ago when a tropical shallow sea was in this area. The oil and gas formed from marine life was safely sequestered at a nominal depth of 300 to 2000 feet deep for millions of years until the late 19th century when an accidental boring entered the reservoir. There was up to 800 psi measured initially in the reservoir. Because of mismanagement and ignorance extraction ended by about 1920.

The source of inherent pressures in underground oil and gas reservoirs is complex. Pressures exceeding 20,00psi have been found. Extraction from some of those could not be attempted until safe technology controlling such high pressure was developed. The point is that there are many real-world examples of the earth sequestering pressures far above the proposed pressures of CO₂ injection for very long periods of time.

It has been said in this county that at some point Indiana tax money will be needed to be invested in the oversight and maintenance of CCS injection wells. This is not true, but the story has likely been propagated by social media which is not a reliable source of information. Two Carbon Dioxide Storage Facility Trust Funds have been created by the state of Indiana described in I.C. 14-39-2-10 which pays for the long-term monitoring, safety management, and maintenance of carbon sequestration projects. Storage operators fund these trusts through per-ton injection fees over the life of the project. The Administrative Trust Fund covers administrative expenses. When that trust fund exceeds \$750,000, the excess reverts to the

Indiana General Fund. The other trust fund has no upper limit with no funds ever reverting to the state general fund.

A fear of asphyxiation events due to CCS has been said in this county. The potential for asphyxiation as a toxic event can be readily analyzed with some degree of the quantification of risk. Keep in mind that the word toxin never stands alone but is defined by location, duration, and concentration. When a person drowns in a lake, location, duration, and concentration of water defines water as a toxin.

Exhaled air from our lungs can reach 40,000 ppm. In an enclosed space, like breathing into a plastic bag, Enclosed Space Hypoxic Syndrome will occur at CO₂ concentrations of 40,000 ppm level. So, in risk analysis of asphyxiation from the local CCS project a scenario must occur that 40,000 ppm must occur over a large distance for an extended period. The Poet project will have one 4" pipe 250' to 500' long at roughly 1,400 psi. That pipe is all on Poet private property. It will be continuously monitored for proper functioning. Data from risk modeling of an open pipe by a couple of methods for a 4" line showed CO₂ concentrations of 30,000ppm less than 700' from the pipe for a duration of 4 minutes. Atmospheric currents dissipated the CO₂ within that 4-minute time period. The examples used to create fear of asphyxiation is a couple of volcanic lake eruptions of CO₂ in Africa. Those events are described as Limnic Eruptions and depend on activity at the bottom of deep volcanic lakes. The topography of the region allowed a large plume of gas, more than the atmosphere could quickly dissipate, to move down a valley creating the tragic events of many deaths. None of the effects of limnic eruptions are relevant to the local CCS project.

Another large release of CO₂ to the atmosphere that has affected the thinking by some folks in Wabash County is a rather extreme weather-related rupture of a 24" pipeline with valves about 9.5 miles apart. This was the Denbury Gulf Coast Pipeline carrying CO₂ at about 1,400 psi for the purpose of enhanced oil recovery. This was near Satartia, MS and occurred on February 22, 2020. The data collected is available in the U.S. Department of Transportation report of the incidence. This event of a ruptured 24" pipeline which was thoroughly investigated, again, is not relevant to the local project with a short 4" pipe. The data from the Denbury rupture confirms that the local project will not require electric vehicles for our emergency response teams, as some in the county have suggested.

Another fear expressed in the county is some sort of contamination of our water supply. The geologic stratum above the sandstone reservoir is shown to be adequate to contain the injected CO₂. The risk of water contamination is extremely small. Charles Harvey of MIT has influenced some folks thinking about the acidity of a CO₂ brine that could affect the chemistry of heavy metals that would cause them to be carried along with the movement of a salt brine. Harvey's investigation and publication on this phenomenon was done under rather unique circumstances

in Bangladesh. The risk of contamination by heavy metals of our water supply by the local CCS is extremely small, if not zero. There have been some statements or implications in the county that CO₂ would be a contaminant of our water supply. As noted earlier, municipal water treatment plants use CO₂ to acidify the water after a very alkaline process. My discussions with Duane Stokes in the lab at one of the Columbus, Ohio water treatments plants informed me that on that day 75,000,000 gallons of water was processed, and 30,000 pounds of CO₂ was used. That is 4 ppm CO₂ in water sent out to Columbus residents. Most of the carbonated drinks consumed by humans measure 5,000 to 8,000 ppm. To achieve those concentrations the water and the CO₂ need to be near freezing temperatures. I cannot create a scenario in my mind of CO₂ itself being a contamination of our water supply by anything that could occur at our local CCS project, and I find no cases in the literature.

My heart, soul, and brain have been, and is, most at home in the scientific community. There are other scientific aspects to the local CCS project that could be discussed, but a few comments about human interaction may be as important. These human interactions are extremely important and deserve serious contemplation, but they are not subject to examination by any sort of risk assessment. Therefore, the feelings associated with human interactions are extraneous to the decision process about CCS.

In the early stages of the local CCS project I was surprised by the public relations approach of the parties involved and can understand, at least to some extent, the source of some of the disgruntled statements made on the subject. Sadly, some of those statements have contained an element of disrespect. My hope is that respectful discussions between affected parties can occur proceeding to some form of reconciliation. An example worthy of note is the statement made more than once that Vault 44.01 is only 4 years old and has never drilled a well. Vault 44.01 does not exist as some separate entity, separate, that is, from the folks that make it up. The folks in Vault 44.01 with whom I have related are folks with years of experience and credible education and licensing applicable to CCS. I find the implications disrespectful and wonder if I would receive the same disrespect if I had practiced veterinary medicine for 15 years and then teamed up with another veterinarian with equal experience and start a new practice in a new location. Would I be seen as a veterinarian who did not know what I was doing because of the change in the business arrangement? Let's be clear the skills are with the people, not the business name.

Vault 44.01 is properly permitted and drilling at the Cardinal Ethanol site in Randolph county at this moment. The EPA press release includes this information from EPA Region 5 administrator, Anne Vogel. "Following a thorough, science based technical review and extensive public engagement, EPA is approving this permit with stringent safeguards and long-term monitoring to protect underground sources of drinking water. This carbon storage project is expected to

spur economic development in Randolph County by supporting local jobs and attracting private investment.”

You, the commissioners of Wabash County, have but one logical choice, that is to reject a poorly prepared ordinance; prepared primarily, from my perspective, by misinformation producing prejudice and bias resulting in resistance to a vigorous pursuit of risk analysis and the utilization of appropriate scientific disciplines.

One final story: A few years ago I sat in this room discussing solar energy. One person said that so many awful chemicals drip from solar panels that nothing, nothing would ever grow there again. I did not confront the person publicly for giving out false information. In retrospect I wish I had invited the person to visit my farm with 64 solar panels and a church with over 500. Some of the healthiest looking grass on the properties grow under the solar panels.

Why this story? Because you cannot believe everything that is said in this room. Your job is just beginning because you need to scrutinize every detail of the ordinance presented to you today and everything that is said in this room. I am not exempt from your scrutiny. In fact, I encourage it because, finally after at least a year perhaps you will find reason to have healthy interaction with me and at the least acknowledge my existence as a fellow human being.

John Hartsough