

Heather Cantino testimony to USEPA re Ohio UIC program
September 18, 2013

Ms. Susan Hedman
Regional Administrator
USEPA Region 5
77 W. Jackson Blvd.
Chicago, IL 60604-3590

hedman.susan@epa.gov cc Steven.Blalock@ohiosenate.gov, Rep94@ohiohouse.gov

Dear Ms. Hedman,

I write to urge USEPA to act swiftly and thoroughly to curtail Ohio's UIC illegal, ineffective, and dangerous UIC program, which jeopardizes drinking water supplies, human health and community safety. Ohio primacy must be revoked and USEPA take control of permitting and enforcement as required by federal mandate (see R. Groff testimony for legal basis).

As an Athens County resident, I was one of nearly one hundred people to protest the permitting of the D.T. Atha injection well on State Rte. 144 in Troy Township, Athens County (Application #aAMY0000706, D.T. Atha Permit # 3761) in September 2012. All comments addressed substantive issues of health, safety, and environmental conservation. By law, the Chief of Oil and Gas should therefore have granted a public hearing. He did not. Even the Athens County Commissioners received the same form letter in reply to their comments of concern. The well has since been permitted. The latest travesty concerning the Atha permit is a letter from the well owner to the superintendent of the local public school district (attached) acknowledging the risk of truck-bus accidents, which residents had addressed in dozens of letters, due to the narrow, winding road and proximity of the well to the regional public high school. If this well were under the jurisdiction of USEPA, truck contents would be tracked and disclosed, because this is would be a commercial well subject to commercial well application requirements. As it is not, there is no restriction on contents or any information on contents, including radioactive hazards, available to emergency responders in the case of the accident that Mr. Atha now fears and that the public has warned about for over a year.

I am also one of over a hundred writers who protested the likely imminent granting of the permit by K&H Partners of West Virginia, UIC Permit Application APATT022697 for yet another Class II Injection Well in Athens County. Our concerns addressed the highly deficient application that will not prevent pollution of land, surface water, and drinking water sources as required by Ohio law (OAC 1501:9-3-04).

We requested a public hearing in Athens County based on 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 [sic] will not contaminate or pollute the surface of the land, or water on the surface or in the

subsurface...” Our 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)). Ohio has NEVER granted a public hearing on an injection well permit application.

My concerns addressed the following substantive and relevant deficiencies of the K&H2 permit application:

1. The application states, “*K&H #1 Unloading and Containment Facility will be used for the #2 well.*” There is no schematic or description of this facility, built for K&H Partners #1 well. How does this existing facility get evaluated by the public? How does the public know the facility’s capacity for containment and mitigation?
2. In #32-D -- nothing attached. Therefore the unloading facility, which can affect the likelihood of spills and explosions and therefore surface contamination of land and water as well as air pollution affecting the health, safety, and environment, including wildlife and environmental protection required by “good environmental conservation” (OAC 1501:9-3-04), cannot receive public scrutiny here. It did not receive scrutiny when K&H 1 was permitted because it was only added to the application after the comment period closed. This is a serious and substantive concern, especially given that the total volume daily for K&H Partners’ #1 and 2 wells is 5500 barrels a day or almost 84,000,000 gallons a year to be unloaded *ad infinitum* at this facility that has not received any public scrutiny.
3. There is no information on how the waste will be transferred from the holding area to the injection well. This is a serious and substantive deficiency of this application that affects the operator’s legal obligation to prevent pollution of the surface of the land, surface, and groundwater and public health, safety, and environmental conservation (OAC 1501:9-3-04). (See also #2 above)
4. *How can a maximum psi also be an average* as stated in the public notice?
5. ***How can the average psi be zero as listed on this application?*** This is a serious and substantive concern with this application that will affect public health, safety, and environmental conservation, given that the permit application allows up to 4000 barrels a day of injectate, or 60,000,000 gallons a year, *more than 10% of the total amount injected into over 170 Ohio Class II wells in 2012*. Together with the allowable volumes in the nearby K&H 1, the volumes permitted into the land near Torch and the Ohio River come to more than 83 million gallons a year, more than 125 Olympic size swimming pools worth of fluids ANNUALLY AND WITH NO LIMIT EVER, YEAR AFTER YEAR. This application does not and cannot support the *Division’s legal mandate to require that this operation will not pollute groundwater or surface water or area drinking water supplies.*
6. The unrealistically low maximum psi, given the high volumes that can be injected daily into non-porous shale through a 2 3/8" tube, suggest that the psi will likely be increased after the permit is granted as occurred in Youngstown, where levels of 2500 p.s.i. were eventually allowed and earthquakes occurred.
7. Earthquakes associated with injection of fluid have no upper bounds according to emerging peer-reviewed literature. Furthermore, the 5.1 quake in Oklahoma linked to injection wells occurred years after initial injection, and in Colorado, “the largest

earthquake (Mw 5.2) occurred on 10 April 1967 more than a year after injection ceased on February 1966 [Healy et al., 1968].”¹

8. Whether seismic activity occurs immediately or not does not mean it won't happen years later, meaning that reducing pressure at that point may be too late to prevent future quakes. Given that nearby Washington County has experienced recent earthquakes associated with increased deep well activity and that Youngstown, which had never experienced quakes, had close to 100 earthquakes associated with injection wells,² please provide to the public, in a manner in which the public can respond before a permit is issued, the evidence used to determine that seismic testing was not necessary for this well and the peer-reviewed science on which this determination was made.
9. The application does not provide information that allows citizens to determine how the director reached the conclusion that seismic testing and a seismic survey were not necessary. Given the huge amount of frack waste liquids permitted for injection in this well and for the nearby K&H #1 and the recent documentation of the problems caused by injection wells in Youngstown, this is a serious and substantive deficiency.
10. What is the seismic detection capability of the region, as is necessary to know if your assessment of no seismic potential (assumed) is incorrect? Authors Kim et al.³ state that “the locations of these shocks [initial small quakes] were not very accurate due to sparse seismic station coverage.” Where is evidence that ODNR has determined that drinking water, surface land and water, public health and safety can be adequately protected per state and federal mandates if this issue is nowhere addressed?
11. No analysis is provided to show how the maximum p.s.i and maximum allowable injectate volume were determined. If Ohio were not a state with primacy, the applicant would be required to determine maximum p.s.i. based on the largest specific gravity of waste contents, as necessary to be protective of water resources and public health and safety in setting maximum p.s.i., which it cannot do because OHIO DOES NOT REQUIRE REPORTING OR ANALYSIS OF COMPLETE WASTE COMPOSITION. This is a substantive concern relevant to public health, safety, and environmental conservation that warrants a public hearing. The application cannot provide protection of groundwater, surface water, and public health and safety as required by Ohio law and therefore USEPA must intervene as required by federal statute.

USEPA REQUIREMENTS TO DETERMINE MAXIMUM P.S.I:

As a reminder to operators, permit conditions in Class II UIC permits are established at the time the application is reviewed and the final permit issued. **It is UIC Branch's policy when calculating [maximum injection pressure](#) (MIP) for Class II commercial wells to use the [specific gravity](#) of the heaviest brine from the various approved sources of fluids because the maximum injection pressure is dependent on the specific gravity.** As you can see in the equation below, the allowable pressure decreases with an increase in specific gravity. **Therefore, any proposed new source with a specific gravity higher than the value used to calculate the permitted MIP will require a recalculation of the MIP using the higher specific gravity. This revised**

¹ Kim, W.-Y. (2013), Induced seismicity associated with fluid injection into a deep well in Youngstown, Ohio, J. Geophys. Res. Solid Earth, 118, 3506–3518, doi:10.1002/jgrb.50247, p. 3515

² *ibid.*

³ *op cit.* p. 3508

MIP will be incorporated into the permit by a minor permit modification to reflect the appropriate reduction in the maximum injection pressure. [emphasis added]

USEPA permit application for a Class II injection well require the operator to list “Specific gravity from chemical analysis: ____+.05 = ____” and “Composition of the annulus fluid.” Ohio’s much less specific permit requirements cannot possibly be comparably protective of groundwater, surface water, health, safety, and environmental conservation as required by Ohio and federal law, since this information is totally lacking and *unavailable because Ohio does not require tracking of this data.*

12. Weight and thickness of 2 3/8” tubing are not specified. How can the applicant assure that it will hold up under continued exposure to unknown corrosive chemical mixtures for eternity? How will ODNR know whether tubing or casing has failed given that no monitoring of surrounding soil and groundwater is required or done?
13. What is the expected longevity of this well and how was it determined, given that Ohio well standards do not even meet industry standards for well construction? Given requirements of OAC 1501:9-3-04 and 40 CFR 144.12 to prevent pollution and contamination of drinking water, land, surface, and subsurface waters, this question is relevant and substantive to health, safety, and environmental conservation.
14. ODNR repeatedly claims that its permitted wells have not caused contamination. Yet it does no monitoring of surface or groundwater to determine how often contamination has already occurred. Since this monitoring is not done, ODNR has no basis on which to claim that it has not and will not contaminate our ground-, surface waters and drinking water supplies per OAC 1501:9-3-04 and 40 CFR 144.12. This is a flagrant breach of its responsibility and of USEPA’s responsibility to ensure that drinking water sources are not endangered through Ohio primacy.
15. Whether or not some of the toxic material injected as “brine” into Class II wells has been exempted from regulation as “hazardous waste” does not mean it is not highly toxic and therefore must be handled in a way so as not to endanger drinking water supplies per Ohio and federal law. This exemption does not relieve USEPA of its responsibility for protecting drinking water supplies per federal law (see Groff testimony, attached). Benzene is benzene is benzene. According to USEPA documents, “We all should recognize...that some Class II fluids are ten times nastier than some Class I injectates...” ([water.epa.gov/learn/training/dwatrainig/upload/dwaUIC-
uicpermit.pdf](http://water.epa.gov/learn/training/dwatrainig/upload/dwaUIC-
uicpermit.pdf), p.1 -7) This USEPA document further states, “There are many solvents, for example, that would be classified as hazardous and the wells injecting them as Class I if they were not used in conjunction with oil and gas production... On any given day, the injectate of a Class II-D well has the potential to contain hazardous concentrations of solvents, acids, and other listed and characteristic RCRA hazardous wastes.” (p. 1-8) Whether or not the injectate has been exempted from hazardous waste regulation does not obviate the Ohio UIC program and USEPA Region 5 of preventing pollution and contamination by these toxic, radioactive waste constituents per OAC 1501 and 40 CFR 144.12 and other federal mandates.
16. Ohio is required to protect drinking water sources per 40 CFR 144.12. Primacy is based on being able to fulfill this requirement. USEPA Commercial Class II Injection Well permit application requirements indicate a standard that at least considers protection of groundwater resources. If Ohio did not have primacy over its UIC –

underground injection well control program and a USEPA permit were required, K&H Partners would be subject to USEPA Region 5 Commercial Class II well permit requirements because K&H Partners will be injecting waste that it does not produce. (epa.gov/r5water/uic/forms/commercial1.htm) This USEPA Commercial Class II permit would mandate, among other requirements, the following, NONE OF WHICH IS REQUIRED BY OHIO:

- *Restrictions on injected fluids, approval of new sources and exceptional circumstances [Part I(E)(18)],...*
- *Restriction of fluids injected to a list approved by USEPA for injection into the commercial well and contained in the permit [Part III(D)];*
- *Submission of the brine manifest records (or equivalent information) associated with hauling brine to the well [Part II(B)(3)]; and*
- *Submission of quarterly analyses of samples taken from the location identified in the permit [Part II(B)(3)] for the normal brine constituents: sodium, calcium, total iron, magnesium, barium, sulfate, chloride, bicarbonate, carbonate, sulfide, total dissolved solids, pH, resistivity, and specific gravity,...*

An owner/operator applying for a new (proposed) commercial permit must include the following information with the permit application:

- *Information regarding site security;*
- *Brine analysis, locational information, field name* and formation name for each source known at the time of the application. [further requirements must be met for additional sources the operator wishes to add later]*

Other USEPA requirements that are *not met* in Ohio's application include provision of information on:

- *For Class II wells the testing program must be designed to obtain data on fluid pressure, estimated fracture pressure, physical and chemical characteristics of the injection zone...*
- *Construction Procedures -Discuss the construction procedures (according to §146.22 for Class II) to be utilized. This should include details of the casing and cementing program, logging procedures, deviation checks, and the drilling, testing and coring program, and proposed annulus fluid.*
- *Operating Data- source and analysis of the physical and chemical characteristics of the injection fluid. [Instructions director the applicant to:] Estimate the proposed maximum injection rate in barrels per day (BBL/Day). The proposed maximum injection pressure should be calculated using the following formula: $P_{max} = \{ [0.8 - (0.433) (\text{specific gravity of injection fluid} + 0.05)] \times \text{upper depth of injection formation} \} - 14.7$. For a fracture gradient above 0.8 psi/ft, the owner/operator needs to submit justification data such as charts, graphs and jobs tickets from a step rate test or fracturing operation. Field data from a well in the same field, which is injecting in the same formation, may be used to justify a fracture gradient of greater than 0.8 psi/ft. This data should include charts, graphs and job tickets from a step rate test or fracturing operation on the well....*
- *Formation Testing Program: The testing program, if necessary, must be designed to obtain data on fluid pressure, estimated fracture pressure, physical characteristics of the injection zone. The permittee must notify the UIC Branch at least (30) days prior to any testing and wait for approval.*
- *Construction Procedures-This should include details of the casing and cementing program, logging procedures, deviation checks, drilling, testing program, and the nature of the annulus fluid.*
 - *Surface casing size and **weight**, setting depth, # of sacks of cement, hole size*
 - *Intermediate casing size and weight, setting depth, # of sacks of cement, hole size*
 - *Longstring casing size and weight, setting depth, # of sacks of cement, hole size*

- Size **and weight** and length of the tubing,
 - Size and model of the packer and the setting depth ...
- *Attachment M: Construction Details-Submit schematic or other appropriate drawings of the surface and subsurface construction details of the well. **Include a description of the exact point at which the injection fluid will be sampled.** Sample well schematics are attached...*
- *Attachment R: Necessary Resources: Submit evidence to verify that the financial resources that are necessary to close, plug and abandon the well are available. One of the following mechanisms may be used to meet the UIC requirements:*
 - A Surety Bond along with a Standby Trust Fund
 - A Letter of Credit along with a Standby Trust Fund
 - A Trust Fund
 - State Mechanisms (the permittee needs to provide a copy of the state mechanism such as a surety bond, a letter of credit, a certificate of deposit or a blanket bond) along with a letter requesting acceptance of the state mechanism. Whenever a state blanket bond is used as a financial mechanism to cover the cost of plugging the well, the permittee is required to provide a list of all wells (producers and injectors) covered by the blanket bond and the estimated plugging cost for each well.
 - Financial Statement Coverage - the following are required when financial statement coverage is used as financial mechanism: chief financial officer's letter, an independent auditor's opinion of examination of the company's financial statements and a public accounting firm's statement of validation of the financial information in the chief financial officer's letter. Enclosed is a brochure discussing financial mechanisms.
- *Attachment S: Aquifer Exemptions-If an aquifer exemption is requested, submit data necessary to demonstrate that the aquifer meets the following criteria: (1) does not serve as a source of drinking water; (2) cannot now and will not in the future serve as a source of drinking water; and (3) the TDS content of the ground water is more than 3,000 and less than 10,000 mg/l and is not reasonably expected to supply a public water system. Submit data to demonstrate that the aquifer is expected to be mineral or hydrocarbon producing, or can be demonstrated by a permit applicant as part of a permit application for a Class II operation to contain hydrocarbons that considering their quantity and location are expected to be commercially producible. (epa.gov/region5/water/uic/forms/act-samp.pdf) among other requirements.*

ODNR's permit application CANNOT provide a comparable level of protection as required to protect water resources (OAC 1501:9-3-04 and 40 CFR 144.12), **given especially that corrosive action of fracking waste increases the rate of well degradation and likelihood of leaks.** The inability of Ohio's application to be protective of water resources is a substantive concern and relevant to health, safety, and good conservation practices. ODNR has until Oct. 9 to grant a public hearing on this substantive concern with the K&H2 permit application. We will soon see if Ohio's record of zero public hearings on Class II injection wells is broken!

17. The K&H2 application lacks description of aquifers in the area or "method of identification and/or sources of information used to identify the USDW location" as would be required under a USEPA application. The application CANNOT provide comparable protection of surface and groundwater supplies per Ohio law and 40 CFR 144.12. FURTHERMORE, THERE IS NO MAPPING OF AQUIFERS THROUGHOUT SE OHIO, so ODNR cannot possibly meet its requirement per Ohio

and federal law to protect aquifers, especially given its shoddy application process, well construction standards that don't even meet industry standards, and complete and consistent disregard for science, water monitoring data collection, public concerns, waste constituent tracking, enforcement of penalties, adequate staffing, and truth.

18. According to USEPA, primacy means a state program has to be “at least as stringent” as USEPA’s program; 40 CFR 144.120 requires the state protect drinking water sources. To meet this standard would require that the K&H application list “all USDWs that may be affected by the injection operation. Note that this may require evaluation of formations extending some distance from the site, especially in areas where pressures may be affected by injection activities for a significant lateral area from the injection well. The list must include the geologic name and the depth to the base of all USDWs that may be affected. Again, unless some extraordinary circumstance arises, it is likely that any USDW near the facility is going to potentially be affected by injection, especially if one considers a worst case scenario of a release into USDWs from a major mechanical integrity failure in a well...The permit applicant should provide detailed information regarding USDWs. Citations should be provided that will allow...review [of] information the applicant used and check it to see if it is accurate and complete.” (water.epa.gov/learn/training/dwatrainig/upload/dwaUIC-uicpermit.pdf) See #17 above for discussion.
19. This K&H application lacks complete information on Geologic Data on Injection and Confining Zones as would be required for a non-primacy state under USEPA jurisdiction. USEPA requires the applicant to “Provide the name, depth, thickness, and lithologic descriptions of the injection and confining zones.” ODNR’s application CANNOT provide comparable protection of surface and groundwater supplies as required by OAC 1501:9-3-04. No mapping of geology is provided. USEPA documents state, “There are multiple ways that injected fluids could get into a USDW to endanger it. The review of geologic data helps ensure that natural conduits do not exist that may endanger a USDW. It is important that the formations intended to seal the injection interval from the USDWs are free of intersecting faults and fractures. 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.” (water.epa.gov/learn/training/dwatrainig/upload/dwaUIC-uicpermit.pdf per 40 CFR 146.22(a)) *ODNR does not require this review and necessary assurance that there are no faults, fractures, or fissures that could provide pathways for toxic injectate to get into drinking water sources.*
20. There are no core samples or reports of porosity and permeability of the formation or data to determine the structural setting of the reservoir. There is no geologist’s report with any reference to the formation into which the waste will be injected. The assumption made by ODNR apparently is that whatever formation is in this permit application is already deemed safe with no explanation of why there would never be any penetration of the formation by the toxic, radioactive waste, as indicated in the following written response from ODNR to a written question asked at an “open house” put on by ODNR in November, 2012 in Athens about how a rock formation is determined to be impermeable: “Rocks are designated as impermeable due to the minute size of pore spaces or lack of permeability that is typical of fine grained rocks. Low permeability rock typically restricts vertical or horizontal migration of fluids and/or gas and are known as

confining zones.” “Typically”?! This certainly does not meet the standards of NO POLLUTION OR CONTAMINATION required by OAC 1501:9-3-04.

21. There is no documentation required in Ohio of any provisions made to determine the financial viability of the company and capability to plug or remediate well failure as required by USEPA for commercial Class II wells.
(epa.gov/region5/water/uic/forms/techrev2.pdf) Given that OAC 1501:9-3-04 requires prevention of contamination and pollution, this question is substantive and relevant to health, safety, and environmental conservation. Will ODNR grant a public hearing based on expression of this concern by numerous area residents during the public comment period? If not, will USEPA step in to rectify this abrogation of responsibility as mandated by federal law?
22. My K&H2 public comments asked what emergency provisions are in place to protect the surrounding communities and water supplies in the event of accidents or well failure. Given that OAC 1501:9-3-04 requires prevention of contamination and pollution of “surface of the land, or water on the surface or in the subsurface” this question is substantive and relevant to health, safety, and environmental conservation.
23. If Ohio did not have primacy and this operator were subject to USEPA application requirements, he would be subject to the following rules:
Should upward fluid migration occur through the well bore of any previously unknown, improperly plugged or unplugged well due to injection of permitted fluids, injection will be shut in until proper plugging can be accomplished. The Underground Injection Control Branch of the USEPA must be notified immediately. Should any problems develop in the casing of the injection well, injection will be shut-in until such repairs can be made to remedy the situation. Operations shall not be resumed until the Director gives approval to recommence injection in writing. (epa.gov/region5/water/uic/forms/act-samp.pdf)
I asked ODNR: How does this application, with no equivalent requirements, provide sufficient protection of surface and groundwater supplies as required by OAC 1501:9-3-04? Since ODNR does not assure this protection, it is up to USEPA to step in. Federal mandate requires this.
24. How can the local water system, Tupper Plains, whose wells are downstream from this injection well and which serves 13-14,000 people, be assured that their water source — groundwater obtained from water wells drawn from the Ohio River Valley Aquifer — is protected as required by Ohio law, based on this highly deficient application that does not even map nearby aquifers? Where are the maps to show that this application will not lead to aquifer contamination? USEPA must step in to protect this water supply in accordance with its Congressional legal mandates.
25. ODNR has no evidence on which to base its repeated claims that Ohio injection well permitting does not lead to contamination. My K&H2 comments asked, “Where are the latest EPA reports on ground water surveys that have been conducted since the increase in the number of new injection wells in Ohio? Since there are no laws requiring monitoring wells for Class II wells, how is it determined that there is no contamination? Heidi Hetzel-Evans’ baseless statement to me at Wayne National Forest Headquarters in July, 2012, that ‘We would know if there was contamination’ is not reassuring.” USEPA *must* step in to curtail the illegal and irresponsible behaviors of this rogue agency per its federal mandates.
26. My K&H2 comments asked, “On what basis will the operator be limited to the “brine” specified in #31 of the application since tracking of truck contents is not

required except in an annual report that does not specify complete contents of the injectate?” Such a question addresses relevant and substantive issues and warrants a public hearing. Will Ohio respond by the fast-approaching 30-day deadline to this clearly substantive and relevant concern?

27. How will radiological testing of this frack waste be conducted and reported that would assure the public that workers and anyone exposed to the injectate or the equipment over time will not be exposed to unsafe levels of the strontium, barium, beryllium⁴, and other radiologically active materials found in Marcellus waste at over 3600 times safe drinking water levels by U.S. Geological Survey in 2011?
28. How will the complete lack of testing for radiation comply with OAC 1501:9-3-04 that this permit will not lead to pollution or contamination of surface land, surface water, ground water, or drinking water supplies?

It is clear that the K&H application, like the Atha application, now permitted, can not assure the public that this well will meet USEPA’s requirement that:

All UIC wells are prohibited from endangering USDWs (40 CFR 144.12). The prohibition on endangerment includes not only everyday operations, but construction, conversion, well maintenance and plugging and abandonment. The entire purpose of EPA’s requiring permits, your reviewing the application and writing conditions into the permit is focused on this one goal. The non-endangerment standard applies from the time the well begins construction until the end of time! As stated in the nonendangerment standard of 144.12: ‘The applicant for a permit shall have the burden of showing that the requirements of this paragraph are met.’ So, the permit application must clearly demonstrate that USDWs will be protected and will not be contaminated throughout well construction through the operational life of the well, and even during and after plugging and abandonment of the well.

(water.epa.gov/learn/training/dwatrainig/upload/dwaUIC-uicpermit.pdf p. 1-25)

Damaged aquifers and contaminated water sources cannot be restored to their original state. This is a significant concern since there are over 55,300 oil and gas wells in Ohio, 197 injection wells and fewer than 50 inspectors. These and other public health and safety issues ***must be addressed by USEPA*** since ODNR refuses to comply with ANY standards of safety or respond to ANY concerns, no matter how relevant and substantive, raised by Ohioans.

We in Ohio are at the mercy of a criminal state government that is enabling discharge of highly toxic, radioactive waste directly and with absolutely no restriction into our communities exactly because its laws and regulations do not and cannot protect us or our drinking water, as USEPA jurisdiction would at least minimally. We are subject to hundreds of millions of gallons of waste per year injected into our communities, MOST FROM OUT-OF –STATE BECAUSE USEPA REQUIREMENTS DISCOURAGE WELL PERMITTING IN NEARBY STATES.

⁴ acfan.org/2013/beryllium-one-of-most-toxic-substances-known-in-fracking-flowback/

It is incumbent on USEPA to initiate removal of primacy forthwith, based on its mandate from Congress as codified in 42 USC 300h-4, to ensure “effective program (including adequate record-keeping and reporting) to prevent underground injection which endangers drinking water sources.” Section 1425(a) and (b) (42 USC 300h-4(a) & (b)) require USEPA to assure continued effectiveness whenever “...*new information about the endangerment of drinking water supplies necessitates...*” House Report No. 96-1348 affirms that this demonstration must be rigorous (see testimony submitted by Roxanne Groff on further legal basis for this requirement that USEPA prevent further endangerment by Ohio of public and private drinking water supplies).

There is certainly plenty of “new information” about potential and actual endangerment of drinking water supplies that requires a thorough review of Ohio’s primacy and an *urgent end to this dangerous abrogation of USEPA responsibility for drinking water protection*.

Such new information includes but *is not limited to*:

- 1) the advent of exemptions to federal environmental laws in 1988⁵, the 2005 Energy Bill, and elsewhere, which led even USEPA’s own training manuals to note, “We all should recognize...that some Class II fluids are ten times nastier than some Class I injectates...” (water.epa.gov/learn/training/dwatraining/upload/dwaUIC-uicpermit.pdf, p.1 -7), and “There are many solvents, for example, that would be classified as hazardous and the wells injecting them as Class I if they were not used in conjunction with oil and gas production...On any given day, the injectate of a Class II-D well has the potential to contain hazardous concentrations of solvents, acids, and other listed and characteristic RCRA hazardous wastes.” (p. 1-8)) as well as state non-disclosure laws⁶,
- 2) the advent of high-volume, horizontal fracturing and concomitant increased volumes and concentrations of highly toxic⁷, radioactive⁸ waste produced and entering Ohio in large volumes, especially because adjacent states are not permitting injection wells (98% of PA waste came to Ohio wells in 2011⁹),
- 3) the growing peer-reviewed science and documentation, of fluid migration, often associated with excessive pressure, even *in Ohio Class I wells*¹⁰; inevitable well failures¹¹; and earthquakes¹² associated with waste injection, again often due to

⁵ s3.documentcloud.org/documents/371040/epa-rcra-exemptions-oil-gas.pdf

⁶ morrowcountysentinel.com/2013/03/local-organization-seeks-right-know-fracking-waste-transported-to-stored-county-wells/

⁷ Colborn et al., Natural Gas Operations from a Public Health Perspective, *Int. J. of Human and Ecological Risk Assessment*, 17 (5), 2011; vindy.com/news/2013/feb/14/lupo-charged-with-federal-law-violations/?nw;

ecowatch.com/wp-content/uploads/2012/07/Brine-Testing-Results-API-34009227040000.pdf; athensohiotoday.com/news/prof-says-purported-athens-county-well-sample-is-hazardous/article_2037aa44-c47b-11e1-b6e4-0019bb2963f4.html;

files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/MarcellusShale/Frac%20list%206-30-2010.pdf

⁸ ellwoodcityledger.com/news/energy/report-radioactive-waste-from-fracking-plagues-ohio/article_8a66ff33-598d-5d51-941b-43d156f6770f.html; pubs.usgs.gov/sir/2011/5135/pdf/sir2011-5135.pdf

⁹ Bloomberg businessweek.com/articles/2012-03-22/fracking-fluid-soaks-ohio

¹⁰ propublica.org/article/injection-wells-the-poison-beneath-us

¹¹ scientificamerican.com/article.cfm?id=are-fracking-wastewater-wells-poisoning-ground-beneath-our-feeth&page=6;

scientificamerican.com/article.cfm?id=are-fracking-wastewater-wells-poisoning-ground-beneath-our-feeth&page=7;

scribd.com/doc/80574646/Well-Failures, scribd.com/doc/65577477/How-Gas-Wells-Leak,

- increased pressure and volume, which are not adequately controlled in most Ohio injection wells or calculated based on specific gravity of injectate contents,
- 4) the extensive and numerous substantive and relevant public comments submitted to ODNR on Athens County Class II injection well applications in the past year: the Atha Application #aAMY0000706, D.T. Atha Permit # 3761, in September 2012 and the K&H2 well Permit Application APATT022697 in September, 2013 (attached), including comments by Athens County Commissioners and statehouse representatives
 - 5) ODNR's refusal to grant a public hearing on the D.T. Atha permit in spite of the approximately one hundred substantive and relevant public comments that included comments from the Athens County Commissioners, who received the same standard response form letter that other commenters received,
 - 6) the complete lack of ANY public hearings and ANY denials of permits by ODNR in spite of outrageously flawed and inadequate permit applications and extensive relevant and substantive public comments and concerns expressed, including by local government officials,
 - 7) extensive financial conflicts of interest rampant in Ohio's regulatory, administrative, and legislative structures, including ODNR's funding from waste disposal permits issued (none of which have EVER been denied),
 - 8) the violation history of Ohio class II injection wells (examples attached),
 - 9) photographic record documented by Ohioans (attached),
 - 10) violations and criminal records of operators allowed to continue operations (Ben Lupo¹³; Harch Environmental Services¹⁴, among others),
 - 11) virtual lack of fines imposed by ODNR¹⁵,
 - 12) lack of documented remediation before wells in violation re-open,
 - 13) length of time during which wells in non-compliance continue to receive waste¹⁶,
 - 14) complete inadequacy of Ohio regulations and enforcement to protect drinking water supplies from radioactive contamination from waste shipped to and injected into Ohio land resulting from ODNR's weak UIC program¹⁷
 - 15) arrogance, non-answers, inaccessibility and incompleteness of records¹⁸, and downright falsehoods (for example, Ms. Hetzel-Evans' repeated claim that Ohio wells have not contaminated groundwater is contradicted by Groundwater Protection Council data citing close to 200 cases of water contamination in Ohio wells between 1983 and 2007¹⁹) in virtually every ODNR communication with the public,
 - 16) and complete inability of the public to be heard or in the slightest way be effective in mitigating or preventing ODNR's criminal endangerment of drinking water supplies.

switchboard.nrdc.org/blogs/ksinding/cracks_in_the_foundation_new_i.html; damascuscitizensforsustainability.org/wp-content/uploads/2012/11/PSECementFailureCausesRateAnalysisIngraffea.pdf, hydroquest.com/Hydrofracking/Ohio%20-%20Muskingum%20Watershed%20Hydraulic%20Fracking%20Report%2010-17-12.pdf

¹² earth.columbia.edu/articles/view/3072#.UVL1DqJPNPI

¹³ vindy.com/news/2013/feb/17/ben-lupo-has-history-brine-dumping-violations-stre/?fracking

¹⁴ theintelligencer.net/page/content.detail/id/586317/Accused-Company-Still-Operating.html?nav=515

¹⁵ earthworksaction.org/issues/detail/ohio_oil_gas_enforcement_penalties_sanctions#.Uj-sS2Q4VEw

¹⁶ acfan.org/wp-content/uploads/2012/05/Ginsburg-report2.pdf

¹⁷ rwma.com/OHIO_FACT_SHEET_6-13-13.pdf

¹⁸ acfan.org/wp-content/uploads/2012/05/Ginsburg-report2.pdf

¹⁹ eenews.net/stories/1059969729

Ohio primacy should be ended as quickly as possible before any further irresponsibly permitted wells are forced upon our helpless communities. It is USEPA's legal responsibility to step in immediately before *any more* wells are permitted, before any more criminal operators continue violating Ohio and federal law, and before Ohioans are subject to any more threat of the inevitable contamination of our water supplies and ruination of our communities.

USEPA is allowing Ohio to be the sacrifice zone for the region and even the nation, especially once barging is permitted on the Ohio River. **THIS IS ILLEGAL AND CRIMINAL** as well as immoral and unjust. You have the legal and moral responsibility to act **NOW!!** The need for action is urgent and long overdue.

I look forward to your prompt attention to this grave situation.

Heather Cantino
Athens Ohio 45701