

RE: Petition to Review (Appeal) Permit for Windfall Oil & Gas, Inc.
PERMIT#: PAS2D020BCLE
PERMITTED FACILITY: Class II-D injection well, Zelman #1
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November 26, 2014

Clerk of the Board
U.S. Environmental Protection Agency
Environmental Appeals Board
1201 Constitution Avenue, NW
WJC East, Room 3334
Washington, DC 20004
PHONE NUMBER - 202-233-0122
Via FedEx

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ENVIR. APPEALS BOARD

Dear Environmental Appeals Board,

On behalf of Brady Township, I hereby submit this petition for review (appeal) of the EPA permit for Windfall Oil & Gas for a disposal injection well in Brady township, Clearfield County, Pennsylvania.

The basis for this appeal is predicated on the position that Windfall has failed to meet its burden to satisfy the provisions of 40 C.F.R. §146.22 (a) All new Class II wells shall be sited in such a fashion that they inject into a formation which is separated from any USDW by a confining zone that is free of known open faults or fractures within the area of review, and C.F.R. §146.22(c)(2) & (d)(2) Well injection will not result in the movement of fluids into an underground source of drinking water so as to create a significant risk to the health of persons.

Specifically, proximate old gas wells, i.e., permit #'s: 20325, 20327, 20333, 20341, 20553, 20597 and 20626. These wells are located on the permit maps. They are all potential conduits from the injection zone to the 33 nearby residential private drinking water sources. Supportive of such concerns, a recent ProPublica(A. Lustgarten, "Injection Wells, The Poison Beneath Us", June 21, 2012) review of well records, case histories, and government summaries of more than

220,000 well inspections found that structural failures inside injection wells are routine. From late 2007 to late 2010, one well integrity violation was issued for every six deep injection wells examined - more than 17,000 violations nationally. More than 7,000 wells showed signs that their walls were leaking. Records also show wells are frequently operated in violation of safety regulations and under conditions that greatly increase the risk of fluid leakage and the threat of water contamination.

Additionally, several geologic fault zones as plotted on the permit maps, penetrate the injection zone area and others are close. The representation in the permit is that they create a confining zone. There appears to be no specific data presented to draw that conclusion. Common geologic knowledge of faults is that they are zones of weak fractured rock along slip planes within subsurface rock. Such fractured rock zones are transmissive to water. Additionally, increases in hydrostatic or hydrodynamic pressure and/or stresses due to normal geologic tectonics can cause the faults to move. Such movement is occasionally triggered and lubricated by fluids under pressure in or about the fault.

There was no detailed analysis of earthquake potential in the application relative to earthquake sensitivity and earthquake hazard specific to the pressurization of the injection well. This omission is critical. Public awareness and sensitivity has been heightened from injection well operations that have resulted in numerous earthquakes.

Notably, a 5.62 magnitude earthquake in Oklahoma on November 6, 2011, was injection well-related. Geophysicists at the University of Oklahoma, Columbia University and the United States Geologic survey found that an old oil well used for pressure injection of wastewater near a fault line triggered a small quake which in turn triggered the large earthquake plus a third (smaller) aftershock.

The large earthquake was the largest recorded in Oklahoma history. It destroyed 14 homes, injured 2 people, buckled pavement and was felt in 17 states. The injection well was near a fault that was not known for earthquakes.

A University of Oklahoma geophysicist stated that seismicity can be delayed as much as 20 years after injection and perhaps as little as 5 years from substantial increases in injection pressure. It's likely that the fluid injection triggered the earthquake. Existing pent-up tectonic stresses within the earth, especially along faults, will

cause the rock strata on either side of the fault to move (slip) in response to fluid injection under pressure, thereby causing earthquakes.

Increased earthquakes in Oklahoma, Texas, Arkansas, Ohio and Colorado have all been related to injection wells. In fact, in Colorado, by state law, a state seismologist has to review the location and design details of an injection well permit before it is issued. EPA should require this same scrutiny.

The United States Geologic Survey has noted that the frequency of quakes induced by waste fluid disposal wells for oil and gas operations has been increasing (Remarkable Spate of Man-Made Quakes Linked to Drilling, USGS Team, Energy Wire, March 29, 2012, Mike Soraghan). The USGS also expressed concerns that quakes may damage underground gas, oil and waterlines and wells that were not designed to withstand them. (How Fracking Disposal Wells are Causing Earthquakes in Dallas-Fort Worth. State Impact Texas, NPR 06/08/2012, Terrance Henry)

Within the planned location of the injection well, the PA Geologic Survey has mapped (Geology and Mineral Resources of the Southern Half of the Penfield 15-minute Quadrangle, Pennsylvania, William E. Edmunds and Thomas M. Berg, Atlas 74 cd, 1971, also see Plate 12) a number of persistent northeast striking reverse faults with probable splay faults between them.

The presence of the faults is a result of substantial tectonic forces in this area. These forces are unique to the area between the Chestnut Ridge Anticline and the Punxsutawney-Caledonia Syncline - the area of the proposed injection well. The tectonic forces focused on this locale long ago. They were partially relieved by the faulting, but never completely. Typically, the mechanics of the force, i.e., plate movement, continue to build stress. The residual stresses plus additional cumulative stresses create the potential for earthquakes induced by a trigger mechanism such as fluid injection.

This site is close to two mapped geologic faults of the above referenced fault system. The issuance of this permit at this location is inappropriate. It should not be issued as a result of the scientifically established correlation with the earthquake trigger mechanism, i.e., pressurized fluid injections near faults.

Also, the injection permit will allow the disposal of spent fracturing fluids. These fluids consist of 90% water, 9.5% sand and 0.5%

chemical additives. The additives, usually up to 12, are of substantial concern. A report (Chemicals Used in Hydraulic Fracturing, Committee of Energy and Commerce, U.S. House of Representatives, April 18, 2011) prepared for House Democratic members stated that of 2500 hydraulic fracturing products " more than 650 contained chemicals that are known possible human carcinogens, regulated under the Safe Drinking Water Act, or listed as hazardous air pollutants."

Consequently, the disposal of fracturing fluids (containing known carcinogens) in close proximity to a number of domestic USDW's with a high risk factor, due to proximity, conduits (faults, gas wells) plus long term pressurization, is unwise, imprudent and unsafe.

Other Permit Deficiencies

1. Testimony at the public hearing on December 10, 2012, indicated that the Oriskany formation is fluid saturated. Gas company operators and drillers stated that water has to be removed from the Oriskany regularly from gas wells in order to sustain gas production at a reasonable level. Since fluids are not compressible, the pressures developed by the injected fluids will displace the existing connate water beyond the zone of influence in short order to be followed by the waste water. The fluids will move along zones of weakness (joints, faults, bedding planes and inhomogeneities in the mineral and physical composition of the rock formations. [Variability in the mineralogy and physical characteristics of rock formations is normal, whereas homogeneity is abnormal.] Due to these variations, fluid movement beyond the zone of influence will be extreme at some locations and less so in other areas. The injected fluids will not spread uniformly about the injection well. Geology and hydrogeology are not sciences of exactitudes.

2. The application is deficient relative to its determination of the strength, porosity, permeability and transmissivity of the geologic materials within which the waste water is being pressurized for disposal. The EPA should not issue a permit without site specific geologic and hydrogeologic characterization so that accurate critical determinations can be made. Hydrogeologic and physical parameter characteristics used from sites that are many miles removed from this location is highly presumptive and devoid of scientific reason. Only the well area can provide the site specific information necessary for calculations of critical elements such as the porosity, permeability, maximum surface injection pressure, injection rate and the injection zone geometry. The applicant should have performed detailed subsurface seismic mapping; additionally, a professional geologist

should be present while drilling a pilot hole, log the lithologies, take samples, perform lab testing, run down hole geophysical tests, measure the porosity and permeability and conduct an injectivity test. The data should be scrutinized by a knowledgeable, experienced geologist in such matters whose well development recommendations are meaningful.

3. The application for the injection well permit presents no proof that the applicant has obtained subsurface fluid migration rights as required by Pennsylvania property law. Without compelling the applicant to obtain such rights from the owners of the subsurface, the EPA, by issuance of the permit, would be authorizing a defacto trespass violation by the applicant.

The draft permit under PART I, A. Effect of Permit, states: "Issuance of this permit does not convey property rights or mineral rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights or any infringement of State or local law or regulations." It is incomprehensible that the Federal EPA would not require the applicant for an underground injection well permit to provide proof of rights to inject wastewater fluids within someone else's subsurface ownership rights as a pre-condition of the issuance of the permit.

Beneath the Zelman and adjoining properties the gas is leased by CNX Gas which is a subsidiary of Consol Energy Corporation. The gas and mineral rights are owned by John and Brandon Fairman, each owning 50%.

Most owners of gas and mineral rights would not agree to have wastewater within their property. Especially wastewater which cannot be discharged unless substantially treated. Its presence compromises the owners' ability to fully develop and use their resources, i.e., a taking without compensation.

The Zelman property (surface rights only) is 19.87 acres. The Zelman's do not own the subsurface rights. The area of review used to evaluate the well is ¼ mile or a 1320 foot radius around the proposed injection well or 125.6 acres. The area of review is substantially larger than the Zelman surface property. The point being: the injected wastewater will be trespassing. No subsurface rights were presented by the applicant; therefore no permit should be granted.

The Supreme court of Texas in an opinion of the court, dated August 26, 2011, found that physical trespass by subsurface migration from an injection well was an appropriate basis for a claim for damages.

4. Given the potential risk to public and private water supplies, township infrastructure and earthquake damage, the township requests that the applicant post a performance bond of \$5,000,000 with them, for:

(1) Potential private water supply impact or loss.

(2) Potential impact or loss of the public water supply wells for the Brady-Troutville Water Association, which derives its water from multiple deep groundwater wells in the township and serves over 1000 residents.

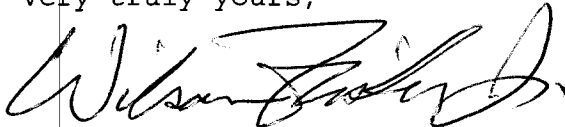
(3) The township roads to be used for access to the injection well will require excess maintenance given the multiple heavy trucks expected to travel on them during the development and service of the well. [PennDot roads also may require maintenance bonding.]

(4) Damages to homes and infrastructure from potential earthquakes.

(5) Insure the maintenance, proper closure and monitoring of the injection well in the eventuality of bankruptcy by the applicant.

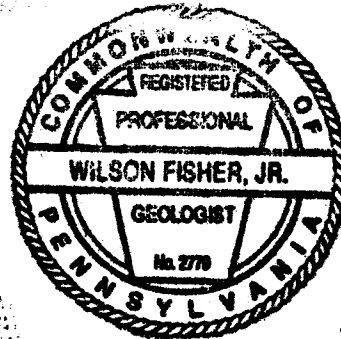
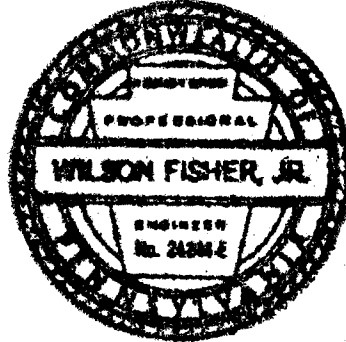
Your consideration of these matters is requested.

Very truly yours,



Wilson Fisher, Jr., P.E., P.G.
Brady Township Engineer

cc: file



RE: Windfall Oil & Gas, Inc.

Permit#: PAS2D020BCLE

Permitted Facility: Class II-D injection well, Zelman #1

Certificate of Service

I hereby certify that copies of the above appeal were sent to the following persons in the manner indicated:

By First Class U.S. mail:

Windfall Oil and Gas
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Shawn M. Garvin
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By Electronic Mail (e-mail)

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On November 26, 2014 by:

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