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RE: Windfall Oil & Gas, Inc.
Permit # PAS2D020BCLE
PERMITTED FACILITY: Class II-D injection well, Zelman #1

Clerk of the Board
U.S. Environmental Protection Agency
Environmental Appeals Board
1200 Pennsylvania Avenue, NW
Mail Code 1103M
Washington, DC 20460-0001

February 13, 2015

Dear Clerk Durr,

I am submitting this MOTION FOR LEAVE TO FILE A REPLY TO REGION III'S RESPONSE TO PETITIONS FOR REVIEW of UIC Permit # PAS2D020BCLE for Windfall Oil & Gas to construct and operate the Zelman #1 Class II Disposal Injection well.

This MOTION FOR LEAVE TO FILE A REPLY TO REGION III'S RESPONSE TO PETITIONS FOR REVIEW of UIC Permit # PAS2D020BCLE complies with word limitations. I did participate in the public hearing and the two public comment periods regarding this matter.

Sincerely,

Richard L. Atkinson

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A: CNX Gas Company sign on well # 033-20333

End - Certificate of Service

PETITIONER RICHARD L. ATKINSON'S MOTION FOR LEAVE TO FILE A REPLY TO REGION III'S RESPONSE TO PETITIONS FOR REVIEW

This Petitioner is requesting that the EAB grant him relief from 40 CFR §124.19 (a)(4)(ii) and leave to file this reply to response No. 6.c. in Region III's Response to Petitions for Review (Administrative Record, 2015 EPA Response to Petitions for Review, No. 6.c., pages 42-43).

Response No. 6.c. deals with monitoring and controlling the pressure in the open annulus between the long string casing and the 1000 foot surface casing (UIC Petition for Review No. UIC 14-188). Below the seat of the surface casing at the 1000 foot level, this same annulus is between the long string casing and the bare wellbore. Below 5500 feet (approximately), the annulus is sealed, possibly imperfectly, with cement.

The Region apparently has decided that it is not necessary for it to deal with the possibility of USDW contamination resulting from insidious injectate accumulation in the open annulus. This accumulation could be from a slow leak which bypasses the cement sheath at the base of the long string casing. The primary basis of their lack of concern appears to be the fact that the issue was not raised in a timely manner, and not the validity of the well engineering concepts involved.

Speaking of well engineering, it would be unreasonable for the EAB to expect a citizen, even if he already has an engineering degree, to become proficient in comprehending the intricacies of disposal injection well design problems, all of the associated geological factors, and the maze of relevant Federal and State regulations, in the limited amount of time allowed for public comment.

Furthermore, common sense would dictate that if there is a practical technological improvement that can be made to enhance the safety of disposal injection wells, then all parties would benefit; this includes the drilling industry itself and those who provide financial resources.

The EAB should consider the fact that the Region has not stated in Response 6.c. that they have never had a situation where the injectate has flowed up and out of the open annulus between the surface casing and the long string casing of a Class II Injection well, including all of the Class II Enhanced Recovery wells in Pennsylvania.

The EAB should note that after the public hearing, the confining zone was changed by the Region. Originally, the Statement of Basis (Administrative Record, E SOB, page 2) designated the confining zone to be 50 feet of the Onondaga Limestone immediately adjacent to the injection zone.

When it was pointed out during the public hearing (Administrative Record, F Hearing transcript, page 48) that the Onondaga was shown to be only 14 feet thick in the applicant's well schematic (Administrative Record, B-5 Application 5, page 14), the confining zone suddenly turned into multiple unspecified confining zones in the Region's 2014 Response to Comments (Administrative Record, CC 2014 Response to Comments, page 13).

Finally, this Petitioner discovered that the designation of the ultimate confining zone is hidden in 40 CFR §146.23 (a)(1) as being adjacent to the lowermost USDW. The title of 40 CFR §146.23 is “Operating, Reporting and Monitoring Requirements”. Therefore, it should not be unreasonable that the comment period had expired before this Petitioner became aware of the regulation which determines the ultimate confining zone.

The elephant in the room is the Marcellus Shale, which is only 14 feet above the top of the injection zone. See the map titled “Subsurface Rock Correlation Diagram Oil and Gas Regions of Pennsylvania” (Administrative Record, G-3 2012 written comments C, p. 45) and the Wellbore Schematic (Administrative Record, B-5 Application 5, page 14). Nearby Marcellus well fractures may increase the possibility of a pathway from the injection zone to the bare wellbore above 5500 feet.

The EPA’s UIC regulations do not deal directly with proximity issues between Class II Disposal Injection wells and horizontal hydraulically fractured wells in the same area. The comment period had expired before this Petitioner could reasonably be expected to realize that this proximity issue existed.

After the public comment period had expired, the Region announced for the first time that they may modify the Area of Review (Administrative Record, CC 2014 response to comments, page 16, end of 2nd paragraph). The regulations do not require the Region to make the Area of Review larger than the original ¼ mile radius circle. If anything, the Region would have incentive to make the Area of Review smaller, in order to maximize the amount of natural gas that the gas leaseholder can harvest by horizontal drilling and hydraulic fracturing of the Marcellus Shale. All of the conventional gas wells in the area of the proposed disposal injection well have CNX on their labels. See exhibit A. Therefore, Windfall Oil & Gas does not own the gas rights and CNX would have to cooperate by allowing Windfall to infringe upon CNX’s gas rights.

Finally, the NETL Report TRS-3-2014, cited by this Petitioner in UIC Petition for Review #UIC 14-188, Exhibits D, E and F, was not released until Sept. 14, 2014. The main importance of the conclusions of that study, relative to the Windfall injection well, is that the Tully Limestone is not necessarily the barrier to vertical hydraulic fractures from horizontal wells that the Tully Limestone was previously assumed to be. This discovery occurred after the comment period was over.

Since the vertical hydraulic fractures extend upward higher than previously thought before the NETL study was conducted, the cement sheath at the bottom of the long string casing of the Windfall injection well may have to extend further upward than the 5500 foot depth level. This would be to prevent leakage around the cement sheath at the base of the long string casing into the injection well open annulus via the Marcellus well fractures.

Contrary to the final two sentences in the Region's Response to Petitions (Administrative Record, 2015 Response to Petitions for Review, number 6. c. on page 43), this Petitioner was not considering leakage of injectate from the annulus between the injection tube and the long string casing. The concern of the petitioner was an insidious leak of injectate from the injection zone to the wellbore above 5500 feet deep. This is a leak that would not be prevented by the cement sheath around the base of the long string casing and an intact confining zone adjacent to the injection zone. (see UIC Petition for Review UIC No.14-188, page 11, Exhibit B)

At the public hearing on December 10, 2012, the Region displayed a topographic map with a revision date of July 13, 2012. In the Area of Review, this map showed a fault north of the proposed disposal injection well and a fault south of the proposed disposal injection well. These faults come together just east of the boundary of the Area of Review, forming a "V" shape. (see Administrative Record, B-11 Application 11- map A July 2012)

During the public hearing, it was pointed out by this petitioner that this "V" fault structure would influence the flow and pressure distribution of the injectate and native brines as they were forced away from the disposal injection wellbore (Administrative Record, F hearing transcript, pages 48-50).

Before the public hearing was adjourned, it was announced that the comment period would be extended until December 31, 2012.

On December 12, 2012, two days after the public hearing and during the extended comment period, Windfall Oil & Gas submitted a comment to the Region (Administrative Record, G-14 2012 written comments N, pages 13-15). Windfall claimed that the northern fault that was shown on the July 13, 2012 map "is not located as mapped and if it does exist, it falls outside the AOR." Windfall also claimed this assertion was documented by a tabulation of formation tops from well records, but this petitioner has found no such tabulation included with Windfall's comment.

These faults shown on the map were touted by the Region as a beneficial containment barrier for the injectate (Administrative Record, CC 2014 Response to Comments, page 10, end of the first full paragraph). However, a direct response to Windfall's comment regarding the uncertainty of fault locations does not appear in the Region's Response to Comments. No notification was made that the UIC permit applicant's topographical map (see Administrative Record, B-11 Application 11- map A July 2012) was no longer valid.

The final Permit, in Part III B. 5 states, "Injection between the outermost casing protecting underground sources of drinking water and the wellbore is prohibited, as is injection into any USDW." The Region needs to clarify this permit requirement, because they likely are referring to injecting into the open annulus between the longest water protection casing and the long string casing. The annuli outside of the open annulus are filled with cement (UIC Petition for Review UIC No. 14-188, Exhibit A). This permit requirement is most likely an acknowledgment of the danger to USDWs that is imposed by having pressurized injectate between the long string casing and the bare wellbore just below the 1000 foot water protection casing.

The risk to USDWs posed by overpressuring the annulus was explained in a 1985 study (30 years ago). This study can be found in UIC Petition for Review UIC No. 14-188, Exhibit H.

The bottom hole maximum allowed injection pressure of 6425 psi is sufficient to support a column of injectate with a specific gravity of 1.26 that has a height of 11,767 feet. In the case of the Windfall injection well, this injectate column would extend 4461 feet above surface level if it were contained in an open tube extending upward from the injection zone into the sky. This concept illustrates the significance of the high level of pressure that is imposed on the injectate and the danger of it having a pathway back to the surface.

The State of Pennsylvania has a regulation (25 PA Code 78.73 (c)) dealing with the pressure at the bottom of the longest water protection casing. (See UIC Petition for Review #UIC 14-188, Exhibit C) This regulation requires the pressure to be less than 80% of the fresh water pore pressure at the depth of the casing seat.

The following parameters are relevant to the issue in UIC Petition for Review #UIC 14-188.

- 62.4 lb / ft³ density of fresh water
- 144 in² area at the bottom of a one foot cube (12" X 12" X 12")
- .433 psi / ft pressure gradient of fresh water (62.4 lbs. / 144 in²)
- .546 psi / ft pressure gradient of injectate (Specific Gravity (S.G.) 1.26 X .433 psi/ft.)
- .7 psi / ft fracture pressure gradient FPG (generally accepted conservative value)

The following pressures are critical at the seat of the 1000 foot surface casing:

- 346 psi 80% of fresh water pore pressure @ 1000 feet (.80 X .433 psi / ft X 1000 ft)
- 433 psi fresh water pore pressure at 1000 feet (.433 psi / ft X 1000 ft)
- 546 psi bottom pressure of 1000 foot column of injectate S.G. 1.26 (1.26 X .520 psi)
- 700 psi fracture pressure @ 1000 feet FPG = .7 psi / ft (.7 psi / ft X 1000 ft)

There is a difference of 154 psi between the last two lines. A 1000 foot column of injectate with 154 psi of gas pressure above it would fracture the confining zone at the seat of the 1000 foot casing.

If the annulus is only partially filled with liquid and there is sufficient gas pressure above the liquid, the PA DEP regulation (25 PA Code 78.73 (c)) could be violated. The liquid pressure and gas pressure add together to constitute the total pressure at the seat of the 1000 foot casing.

Since the PA DEP regulation (25 PA Code 78.73 (c)) covers oil, gas, and disposal injection wells, the Region may have the option of saying it is the state's responsibility to monitor the open annulus pressure at 1000 feet. The state inspectors would have to have a way of determining any liquid pressure at the seat of the 1000 foot casing. Monitoring would be simple if the annulus contains no liquid above the 1000 foot level. If the annulus is full to the surface with fresh water, injectate or native brine, then the 80% fresh water pore pressure limit would be exceeded.

It is possible that the USDW at 800 feet could become contaminated with injectate and no one would know unless someone drills an 800 foot deep well and tests the water for contaminants.

If the Region and the drilling industry are truly concerned about protecting the 800 foot deep USDW, the UIC Permit and the EPA regulations should be modified to include a method for detecting and removing liquid from the open annulus between the longest water protection casing and the long string casing.

This petitioner is of the opinion that the best way to dispose of fluids produced in association with oil and gas production operations is to inject it deep underground. If there is a method of enhancing the safety of the injection process using relatively simple technology, that method should be employed. (See UIC Petition for Review #UIC 14-188, Exhibit B)

After the public hearing, changes occurred relative to the original conditions contained in the UIC Permit Application, Statement of Basis and Draft Permit. This petitioner had no way of finding out what changes had been made until the Response to Comments had been issued. Since there was no new comment period offered after these changes were made, no one had an opportunity to comment on the changes.

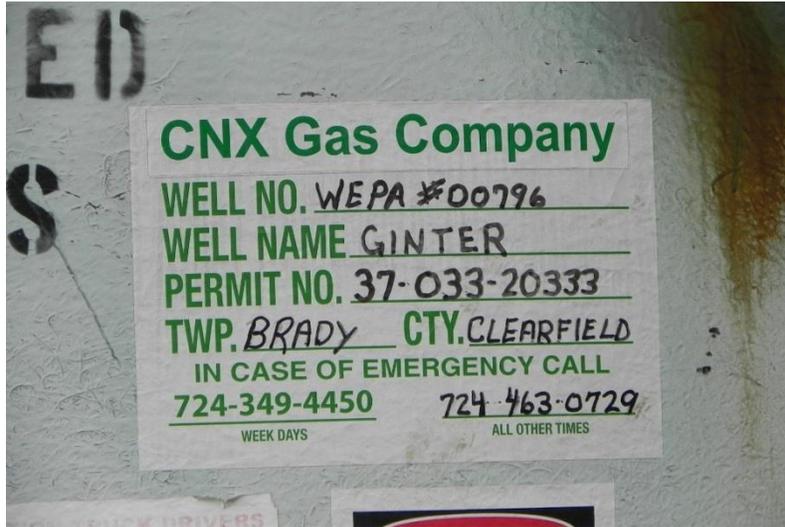
After the public hearing on December 10, 2012, the following changes occurred:

1. The northern non-transmissive geological fault was removed from consideration in the Area of Review.
2. The original confining zone that was adjacent to the injection zone, as designated in the Statement of Basis, was disregarded and the ultimate confining zone became adjacent to the lowermost USDW.
3. It became more apparent, mainly because of #2 above, that there would be horizontal drilling and hydraulic fracturing of the Marcellus Shale in the vicinity of the disposal injection well.
4. The NETL report TRS-3-2014 was released on Sept. 14, 2014. It said that the Tully Limestone was not a barrier to hydraulic fracturing, contrary to what was previously believed. (see UIC Petition for Review UIC No. 14-188, Exhibits A,D,E, and F)

Therefore, it would be prudent for the EAB to grant this Petitioner relief from 40 CFR §124.19 (a)(4)(ii) and leave to file this reply to response No. 6.c. in Region III's Response to Petitions for Review (Administrative Record, 2015 EPA Response to Petitions for Review, 6.c., pages 42-43).

Exhibit A

CNX Gas Company sign on well # 033-20333



To attempt to ascertain whether other parties concur or would object to this motion, other parties were contacted via electronic mail on February 11, 2015, including Region 3/Nina Rivera and Windfall Oil & Gas. Nine petitioners responded, stating that they did not object to the motion. Region 3/Nina Rivera replied that she would object. Windfall Oil & Gas did not respond.

Date: February 13, 2015

Respectfully submitted by,

Richard L. Atkinson

Certificate of Service

I, the undersigned, certify that the foregoing *MOTION FOR LEAVE TO FILE A REPLY TO REGION III'S RESPONSE TO PETITIONS FOR REVIEW* of UIC Permit No. PAS2D020BCLE was filed with the Environmental Appeals Board via Certified First Class Mail, return receipt requested and served on the following via Certified First Class U.S. Mail, return receipt requested and was also electronically filed by email with the EAB, US EPA Region III and Windfall Oil & Gas:

Permitting Authority

United States Environmental Protection Agency
Region III
Attention: Shawn M. Garvin, Regional Administrator
1650 Arch Street
Philadelphia, PA 19103-2029

Windfall Oil & Gas
377 Aviation Way
Reynoldsville, PA 15851

The foregoing *MOTION FOR LEAVE TO FILE A REPLY TO REGION III'S RESPONSE TO PETITIONS FOR REVIEW* of UIC Permit No. PAS2D020BCLE was electronically filed by email with the following:

A Torrell <mandyrwells@yahoo.com>; B Marsh <barbaramarsh.marsh@outlook.com>; B Peoples <peeps29@verizon.net>; Brady LaBorde <patbrady2@verizon.net>; Brady Township Supervisors <bradytwp@hotmail.com>; C Thompson <cabailor@yahoo.com>; City of DuBois <bobbie.shaffer@duboispa.gov>; Clearfield Co <cccomm@clearfieldco.org>; D & C Cryster <dancinj@comcast.net>; D & T Marsh <tdmarsh@windstream.net>; D Boring <d_boring@yahoo.com>; D Kovall <dmkovall@yahoo.org>; D Stolfer <deborahstolfer@gmail.com>; D Work <work309@comcast.net>; Diane Bernardo <honey0510@comcast.net>; E Zimmerman <ezimmerman@clearfield.org>; Harriet Moyer <hjmjm@windstream.net>; J Genevro <JohnBonnie@outlook.com>; J Greathouse <jmg_1197@hotmail.com>; J Kaufman <jlkaufman@drmc.org>; Jack and Judy Chewing <jlchewing@comcast.net>; Joan Spafford <jdspafford@comcast.net>; John Hook <johnhook411@msn.com>; K Armagost <kdfinalle@verizon.net>; K Bojalad <kerrilynn9172@yahoo.com>; L Martinez <lesha3@windstream.net>; Lesli Swope <leslieannbarr@yahoo.com>; Loretta Slattery <lorslat2@yahoo.com>; Lorraine Shaddock <medoado@verizon.net>; M Atkinson <marianne5@windstream.net>; M Schwabenbauer <mrschwab2@comcast.net>; Monica Lockhart <qchamp1969@hotmail.com>; Nora Jenney <thejenneys@windstream.net>; P Erickson <erickson1@windstream.net>; Pauline & Robert Wells <pewdubois@yahoo.com>; R & E Stewart <maliya54@hotmail.com>; R Reitz <rockietop@verizon.net>; Ralph Hamby <Rhambyrn@yahoo.com>; Randall Baird <fairway08@windstream.net>; Rep. M Gabler <mgabler@pahousegop.com>; Ronald Greathouse <rhg_9711@hotmail.com>; Rosemay Frizzell <rfrizzell@windstream.net>; S Zimmerman <szimmerman@clearfield.org>; Sandy Township Supervisors <info@sandytownship.org>; Stephen Way <steveway@verizon.net>; T Bodt <mittdob@hotmail.com>; Ted & Rona Cryster <ronated@comcast.net>; Terry & Carole Lawson (lawson_carole@yahoo.com); Tom & Sue Nelen <tsdbn@verizon.net>; Travis Smith <jsmith315@windstream.net>; Valerie Powers <brickie3@comcast.net>; W Fisher <wilsonf@hessfishereng.com>; W Lockwood <wlockwood@verizon.net>

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