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Clerk of the Board
U.S. Environmental Protection Agency
Environmental Appeals Board
1200 Pennsylvania Avenue, N.W.
Mail Code 1103M
Washington, D.C. 20460-0001

Dear Clerk Durr:

Enclosed for electronic filing is a Petition For Review of UIC Permit No. PAS2D020BCLE, which also includes a Statement Of Compliance With Word Limitations and Certificate Of Service. We are filing the petition on behalf of our clients, Mr. Richard Atkinson and Mrs. Marianne Atkinson. Pursuant to Section II.i.1.c. of the Board's Practice Manual, we have mailed a hard copy of the petition and exhibits, which total more than 50 pages.

Please do not hesitate to contact us if you have questions.

Sincerely,

/s/ Emily A. Collins

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**BEFORE THE ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.**

In re:)
)
)
Windfall Oil and Gas)
)
UIC Permit No. PAS2D020BCLE)
)
Zelman #1 Class II-D injection well)
)

PETITION FOR REVIEW

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TABLE OF CONTENTS

1	Table of Authorities
2	Introduction
3	Threshold Procedural Requirements
4	Factual and Statutory Background
6	Issues Presented for Review
8	Argument
8	<i>Area Of Review</i>
11	<i>Seismicity</i>
17	<i>Faulting</i>
20	<i>Casing and cementing</i>
23	<i>Monitoring</i>
26	<i>Financial responsibility</i>
28	<i>Wastewater characterization</i>
30	<i>Injection rates and volumes</i>
30	<i>Corrective action</i>
34	Conclusion
34	List of Exhibits
end	Certificate Of Identity
end	Certificate Of Service

TABLE OF AUTHORITIES¹

	<i>Statutes</i>
5	33 U.S.C. § 1251 <i>et seq.</i>
passim	42 U.S.C. § 300h
5	42 U.S.C. § 300h-1
	<i>Regulations</i>
32	40 C.F.R. § 124.3
8, 10, 13	40 C.F.R. § 124.7
18	40 C.F.R. § 124.9
passim	40 C.F.R. § 124.19
24	40 C.F.R. § 144.1
23	40 C.F.R. § 144.3
29	40 C.F.R. § 144.6
5	40 C.F.R. § 144.11
6, 21, 25	40 C.F.R. § 144.12
33	40 C.F.R. § 144.25
27	40 C.F.R. § 144.28
27, 33	40 C.F.R. § 144.31
25, 29	40 C.F.R. § 144.51
27, 31, 33	40 C.F.R. § 144.52
33	40 C.F.R. § 144.55
10, 11	40 C.F.R. § 146.6
33	40 C.F.R. § 146.7
21, 22	40 C.F.R. § 146.22
25, 31	40 C.F.R. § 146.23
33	40 C.F.R. § 146.24
21, 22, 23	40 C.F.R. § 147.1955

¹ There does not appear to be any express requirement to add a table of authorities to a petition for review; however, because the sample petition template in the Practice Manual contains one, Petitioners have erred on the side of caution by including one.

Cases

- 10, 11 *In re West Bay Exploration Company*, UIC Appeal No. 13-01, 13-02 (EAB Apr. 16, 2013) (Order Dismissing Petitions for Review as Moot)
- 14 *In re Stonehaven Energy Management, LLC*, UIC Appeal No. 12-01 (EAB Mar. 28, 2013)
- 9 *In re Shell Offshore, Inc., Kulluk Drilling Unit and Frontier Discoverer Drilling Unit*, 13 E.A.D. 357 (EAB 2007)
- 27 *In re Puna Geothermal Venture*, 9 E.A.D. 243 (EAB 2000)
- 9 *In re Steel Dynamics, Inc.*, 9 E.A.D. 165 (EAB 2000)
- 16 *In re NE Hub Partners, L.P.*, 7 E.A.D. 561 (EAB 1998), *review denied sub nom. Penn Fuel Gas, Inc. v. U.S. EPA*, 185 F.3d 862 (3rd Cir. 1999)
- 27 *In re: Envotech, L.P.*, 6 E.A.D. 260 (EAB 1996)
- 10 *In re Romic Chemical Corp.*, 3 E.A.D. 533, 1991 WL 158261 (Adm'r 1991)
- 10, 11 *In re Pennzoil Exploration and Production Co.*, 3 E.A.D. 389, 1990 WL 324272 (Adm'r 1990)

Other

- 5 H.R. Rep. No. 93-1185 (1974), reprinted in 1974 U.S.C.C.A.N. 6454
- 13 H.R. Rep. No. 93-1185 (1974), reprinted in 1974 U.S.C.C.A.N. 6484

INTRODUCTION

Pursuant to 40 C.F.R. § 124.19(a), Richard and Marianne Atkinson (husband and wife) (“Petitioners” or “Atkinsons”) petition for review of the conditions of UIC Permit No. PAS2D020BCLE (“the Permit”), which was issued to Windfall Oil and Gas (“Permittee” where reference is after permit issuance, and “Applicant” where before) on February 14, 2014, by the United States Environmental Protection Agency (“EPA”). The Permit authorizes Permittee to operate a Class IID injection well (“Zelman #1”) in Brady Township, Clearfield County, Pennsylvania. Petitioners contend that certain permit conditions are based on clearly erroneous findings of fact and conclusions of law. Petitioners also contend that certain permit conditions

are based on an exercise of discretion or an important policy consideration that the Board should review.

Specifically, Petitioners challenge the following permit conditions:

1. General authorization “to construct a Class II-D injection well, the Zelman #1, and inject fluids produced in association with oil and gas production into the Huntersville Chert/Oriskany formation....” (General Authorization)
2. Part I.A. (Effect of Permit)
3. Part II.C. (Monitoring Requirements)
4. Part III.A.2. (Construction Requirements; Casing and Cementing)
5. Part III.A.5. (Construction Requirements; Corrective Action)
6. Part III.B.1. (Operating Requirements; Injection Formation)
7. Part III.B.3. (Operating Requirements; Injection Volume Limitation)
8. Part III.B.4. (Operating Requirements; Injection Pressure Limitation)
9. Part III.C.1. (Plugging and Abandonment)
10. Part III.D. (Financial Responsibility)

THRESHOLD PROCEDURAL REQUIREMENTS

Petitioners satisfy the threshold requirements for filing a petition for review under Part 124, to wit:

1. Petitions have standing to petition for review of the permit decision because they participated in the public comment period on the permit. See 40 C.F.R. § 124.19(a). Petitioners’ written comments are attached as Exhibits A and B.
2. The issues raised by Petitioners in this Petition were raised during the public comment period and therefore were preserved for review. Citations to documents in the administrative record that support this contention are provided below. *See generally*, Exhibits A-L.

FACTUAL AND STATUTORY BACKGROUND

Statutory Background

Congress amended the Public Health Service Act in 1974 to create the Safe Drinking Water Act. Pub. L. No. 93-523 (1974) (codified as amended at 42 U.S.C. § 300f et seq. (2006)). Congress's purpose was to "assure that water supply systems serving the public meet minimum national standards for protection of public health." H.R. Rep. No. 93-1185 at 1 (1974) *reprinted in* 1974 U.S.C.C.A.N. 6454, 6454. Moreover, Congress was concerned that the Federal Water Pollution Control Act, 33 U.S.C. § 1251 et seq. (2006), was not sufficiently protective of underground sources of drinking water. *Id.* at 3, 6457.

To address these concerns, Congress took the bold step of prohibiting any "underground injection ... which is not authorized by a permit issued by the State" or by the Administrator on behalf of the State. 42 U.S.C. §§ 300h(b)(1)(A) and 300h-1(c). To ensure that State programs meet minimum standards, Congress further required the Administrator to "publish proposed regulations for State underground injection control programs," § 300h(a), and conditioned EPA approval of State programs on the States meeting those minimum requirements. § 300h(b)(1). Pennsylvania has not submitted an application for primary enforcement responsibility of its UIC program, and so EPA administers Pennsylvania's program. *Id.*

EPA issued its final rulemaking for technical criteria and standards for the underground injection control program under Part C of the SDWA in 1980. 45 Fed. Reg. 123 (June 24, 1980) (codified as amended at 40 C.F.R. Pt. 146). In 1983, EPA split its UIC regulations partly into new 40 C.F.R. Part 144. EPA echoed the SDWA's prohibition against unpermitted injection in 40 C.F.R. § 144.11, stating: "Any underground injection, except into a well authorized by rule or except as authorized by permit used under the UIC program is prohibited." To obtain authorization to inject, the permittee must "satisfy the [permitting authority] that the underground injection will not endanger drinking water sources." 42 U.S.C. § 300h(b)(1)(B). EPA affirms the permittee's duty to protect USDWs in its regulations. "No owner or operator shall construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity

in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water,” if that contaminant would violate primary drinking water regulations or otherwise adversely affect persons’ health. 40 C.F.R. § 144.12(a). As a consequence, the Director “shall prescribe such additional requirements for construction, corrective action, operation, monitoring, or reporting [of injection wells] ... as are necessary” to prevent movement of contaminants into USDWs. 40 C.F.R. § 144.12(b).

The cumulative effect of the SDWA and the federal UIC regulations found at 40 C.F.R. Parts 124, 144, 145, 146, and 147 is that all underground injections are prohibited unless authorized by rule or permit. When issuing a permit, the permittee must satisfy EPA or the delegated state agency that its injection will not endanger USDWs, and the permitting authority is required to proscribe such permit conditions as may be necessary to ensure that no risk of endangerment is present.

Factual Background

On April 11, 2012, Windfall Oil and Gas Inc. (“Windfall”) submitted an Underground Injection Control (“UIC”) permit application (“Application”) for the construction and operation of one Class II-D injection well known as Zelman #1. Statement Of Basis at 1 (Exhibit M). The proposed injection well construction site is located in Brady Township, Clearfield County, Pennsylvania, Latitude 41°04’55.00” Longitude -78°44’48.95”. Windfall proposed using the well for the disposal of fluids produced in association with oil and gas production operations. *Id.* The Environmental Protection Agency Region III (“EPA”) reviewed the Application and issued a Notice Of Deficiency (“NOD”) that cited several significant deficiencies related to the area of review, the injection and construction procedures, the monitoring program, the plugging and abandonment plan, and the geological data provided. Exhibit N. Windfall proceeded to submit an incomplete response to the NOD. Exhibit O. EPA subsequently developed a draft permit (“Draft Permit”) claiming that the permit deficiencies were resolved. Exhibit P.

EPA originally noticed the Draft Permit on November 7, 2012, and held a public hearing on December 10, 2012, at the Brady Township Community Center located in Luthersburg, PA.

EPA Region III took oral testimony presented at the hearing as well as written comments received during the public comment period. The deadline for submission of public comment was New Year's Eve of 2012. On December 29, 2012, Attorneys for the Petitioner sent a request to Mr. Steve Platt to send a copy of the full administrative record for the permit. Email Correspondence With Stephen Platt, Exhibit Q. Mr. Platt did not offer a response until January 2, 2013. *Id.* In his already late response, Mr. Platt failed to provide the information that was requested by Petitioner. *Id.*

In addition to denying the Petitioner access to essential information, the public hearing was severely mishandled. The public hearing period scheduled for December 10, 2012 at 7:00 p.m. began approximately an hour late. Many members of the public, interested parties, who planned to attend the hearing only for the scheduled times were not able submit oral statements concerning the draft permit because they were unable stay at the hearing past the scheduled end time of 9:00 p.m. After denying the Petitioner access to necessary information and botching the public hearing, the EPA asserted that it conducted a thorough review process. On behalf of Petitioners, the Clinic made a Freedom Of Information Act request for the entire administrative record, dated January 24, 2013, and we received some information, but not as much as we thought we would (as detailed below). Exhibit R.

Due to the news of injection-induced earthquakes in nearby Ohio, the difficult public comment process, and other serious concerns about the Draft Permit and Application, the Clinic, on Mrs. Atkinson's behalf, commissioned Philip R. Grant, Senior Geologist, with Terra Dynamics, Inc., in Austin, Texas, to review the administrative record and opine on any issues related to the Application, EPA's Statement Of Basis, and the Draft Permit. CV of Mr. Grant (Exhibit S). Mr. Grant completed that report on April 26, 2013. Grant Report (Exhibit T). On April 29, 2013, the Clinic submitted the Grant Report to EPA because of the many areas of technical deficiency that were identified by Mr. Grant.

EPA re-opened the public comment period on August 11, 2013, to specifically allow additional comment on seismicity issues raised during the original public comment period.

Supplement to the Statement Of Basis (Exhibit U). On September 11, 2013, the Atkinsons and the Clinic submitted comments on the seismicity aspects of the Draft Permit. Exhibits V and W, respectively.

Despite Windfall's error-filled application and EPA's review of the deficiencies laid out in public comment, on February 14, 2014, the EPA announced the issuance of a final permit under the authority of the federal UIC regulations at 40 CFR Parts 124, 144, 146 and 147 to Windfall Oil and Gas. Final Permit or Permit, Exhibit X. The Final Permit authorizes the construction and operation of a UIC Class II-D (brine disposal) injection well, located in Brady Township, Clearfield County, Pennsylvania.

ISSUES PRESENTED FOR REVIEW

Petitioners present the following issues for review:

1. With regard to the Area Of Review, the Statement Of Basis is not adequate and so is insufficient to demonstrate prevention of endangerment to USDWs.
2. With regard to pressure and seismicity, EPA's permit decision and the permit conditions related to maximum injection pressure and operational restrictions, including Part III.B.4., do not meet the endangerment standard regarding the potential for induced seismic events caused by the authorized wastewater injection.
3. With regard to injection and faulting, because the Statement Of Basis was inadequate, EPA abused its discretion and failed to meet the endangerment standard in authorizing injection without considering the effect of a non-transmissive fault in the Area Of Review, rendering Part III.B.4. inadequate to protect USDWs.
4. With regard to casing and cementing requirements, the Statement Of Basis was not adequate, and the Permit's requirements themselves are not adequate to prevent endangerment to USDWs.
5. With regard to monitoring, the Statement of Basis was inadequate, and Part III.B.4. of the Permit itself is not adequate to ensure protection of USDWs.
6. With regard to financial assurances for plugging and abandonment, the Statement of Basis was inadequate, and Part III.D. of the Permit itself is not adequate to ensure protection of USDWs.
7. With regard to wastewater characterization, the Statement of Basis was inadequate, and Part II.C.3. of the Permit itself is not adequate to ensure protection of USDWs.

8. With regard to injection rate and volume, the Statement of Basis was inadequate and so does not ensure prevention of endangerment to USDWs.
9. With regard to Application completeness, to Petitioners' knowledge, Applicant never submitted a complete corrective action plan despite EPA's request for one, so EPA should not have issued the Permit because the Application was incomplete.

ARGUMENT

1. With regard to the Area Of Review, the Statement Of Basis is not adequate and so is insufficient to demonstrate prevention of endangerment to USDWs.

With regard to the Area Of Review (“AOR”) calculation, the Statement Of Basis was inadequate. It is not lawful to issue a permit based on an inadequate statement of basis. It is also not lawful to issue a permit that contains conditions based on clearly erroneous fact findings or legal conclusions. 40 C.F.R. § 124.19(a). At the very least, both constitute an exercise of discretion or an important policy consideration that the Board should review. *Id.* In this regard, the Atkinsons contest the Permit’s General Authorization to construct and inject, as well as Parts I.A., III.A.-C., and any other section of the Permit that is not severable from those parts. The Board should remand the permit and instruct EPA to notice to the public an adequate statement of basis for this issue because without that, EPA will not have fulfilled its obligation to prevent endangerment to USDWs.

Legal background

EPA must prepare a statement of basis that “briefly describe[s] the *derivation* of the conditions of the draft permit and the *reasons* for them....” 40 C.F.R. § 124.7 (emphasis added). By the plain language of the rule, an adequate statement of basis must at a minimum contain *derivations* of conditions, and *reasons* for those derivations. A statement of basis “presents the Agency’s technical basis for the terms and conditions of [a] proposed permit and also provides the basic information needed to judge the adequacy of the draft permit and allow informed public comment.” *In re Shell Offshore, Inc., Kulluk Drilling Unit and Frontier Discoverer Drilling Unit*, 13 E.A.D. 357, 358 n. 3 (EAB 2007). The statement of basis must include “explanation of the derivation of the conditions of the permit and significant questions considered in preparing the

draft permit.” *In re Steel Dynamics, Inc.*, 9 E.A.D. 165, 180 n.15 (EAB 2000). The “[p]reparation of an adequate Fact Sheet or Statement of Basis [] is important to informed public participation in the permit-writing process[,]” and remand is an appropriate remedy for an inadequately statement of basis. *In re Romic Chemical Corp.*, 3 E.A.D. 533, 1991 WL 158261, *2 (Adm’r 1991). In the context of a petition for review regarding a UIC permit application, the Administrator has held that while a statement of basis need not be lengthy, it must nevertheless be adequately detailed to afford a meaningful opportunity to comment. *In re Pennzoil Exploration and Production Co.*, 3 E.A.D. 389, 1990 WL 324272, *3 (Adm’r 1990) (cited favorably in the context of a petition for review filed by someone other than a permittee or applicant *In re West Bay Exploration Company*, UIC Appeal No. 13-01, 13-02, 3 n. 3 (EAB Apr. 16, 2013) (Order Dismissing Petitions for Review as Moot). Where EPA provided little substantive information and made conclusory statements, the statement of basis was deemed inadequate. *In re Pennzoil* at *3-*5.²

AOR is determined either through a calculation of the zone of endangering influence (ZEI), or through selection of a fixed quarter mile radius. 40 C.F.R. § 146.6. The goal of correctly defining the AOR is to identify an area within which there are USDWs that are or may be endangered by the injection process. § 146.6(a)(1). Failure to establish the appropriate AOR would be in direct contradiction with the SDWA’s goal of preventing endangerment of USDWs. The regulation provides for “one form which the mathematical model may take” and provides some input parameters, but leaves room for different forms and inputs depending on the site-specific characteristics. § 146.6(a)(2) (emphasis added).

The Statement Of Basis is not adequate and therefore cannot establish that the proposed AOR will prevent endangerment to USDWs; its inadequacy also disallows the public from being able to adequately comment.

The Statement of Basis is inadequate as to the AOR. First, while it is proper for EPA to have performed a ZEI calculation to confirm Applicant’s choice of the fixed quarter mile radius, EPA

² Because numerous arguments in the Petition go to the inadequacy of the Statement Of Basis, this legal background section should apply throughout the Petition.

never provided the actual calculation for public review. It is nowhere to be found in its Statement Of Basis or Response To Comments. Exhibit Y. Despite our Freedom Of Information Act request for the entire administrative record, dated January 24, 2013, we did not receive any such calculation in the response. Exhibit Q. The rule states that “*one form* which the mathematical model may take” is called a “modified Theis equation[.]” 40 C.F.R. § 146.6(a)(2) (emphasis added). We do not know whether EPA used the modified Theis equation. Even if it reveals that it did, it must also explain its reasons for using that mathematical model and not some other, especially where the use of other models is expressly contemplated by the rule. A statement of basis must contain the derivations of permit conditions and the reasons for those derivations. 40 C.F.R. § 124.7. It must be “sufficiently detailed to afford the applicant a meaningful opportunity to comment.” *In re West Bay* at *2, n. 3 (citing *In re Pennzoil* at 392). The public cannot comment on the appropriateness of the ZEI calculation without the ZEI calculation, which constitutes the derivation of various permit conditions, and without the reasons for those derivations. As the Grant Report notes, there is no way to evaluate EPA’s ZEI calculation when EPA has not provided the relevant inputs, methodologies, or calculations. Exhibit T at 2.

Second, and highlighting why the availability of the ZEI calculation is so important, the Applicant provided an incorrect pressure value and EPA may have used that incorrect value in its ZEI calculation, which would have rendered an incorrect result. The Grant Report notes that the Applicant used an incorrect value of 15 psi for surface reservoir pressure. *Id.* at 2. In Applicant’s response to the NOD, it corrected the mistake and used the value of 90 psi for that pressure. *Id.* Because we have not seen the ZEI calculation, it is not possible to know whether EPA used the surface reservoir pressure value at all, let alone whether it used the corrected one.

Finally, when discussing the AOR, EPA appears to be mistaken about the number of water wells located within the fixed quarter mile radius. While it does not even address the issue in the Statement Of Basis, in the Response To Comment EPA says that “there are no drinking water wells located within the one-quarter mile area of review.” Exhibit Y at 11. This seems to be flatly contradicted by the well plat map provided by the Applicant in Attachment C of its Application,

which shows at least 14 water supplies within a quarter-mile radius. Exhibit Z. Additionally, there are numerous plugged and unplugged gas wells that lie within and just outside of the fixed radius AOR. *Id.* If EPA based its findings on these mistakes, then it made a decision based on clearly erroneous findings of fact. 40 C.F.R. § 124.19. The existence of these artificial penetrations within and just outside of the fixed radius AOR highlights the importance of calculating the correct AOR through a ZEI. If anything, EPA should at least take advantage of some of the nearby gas wells and utilize them as monitoring wells, as it did with a recently issued permit. Permit No. PAS2D025BELK, issued to Seneca Resources Corporation (see Part. II.C.2.), available here http://www.epa.gov/reg3wapd/pdf/public_notices/SenecaFinalPermit.pdf (last checked March 13, 2014).

The issue of AOR determination was raised during the public comment period. For support, please see:

- Exhibit A at 3-6 and 8³
- Exhibit B at 7
- Exhibit E at 1 and 5
- Exhibit G at 1 (item #1), and 2
- Exhibit T (Grant Report incorporated into comments submitted by Clinic)
- Exhibit Y at 11

2. With regard to pressure and seismicity, EPA's permit decision and the permit conditions related to maximum injection pressure and operational restrictions, including Part III.B.4., do not meet the endangerment standard regarding the potential for induced seismic events caused by the authorized wastewater injection.

With regard to seismicity and pressure, the statement of basis was inadequate. It is not lawful to issue a permit based on an inadequate statement of basis. It is also not lawful to issue a permit that contains conditions based on clearly erroneous fact findings or legal conclusions. 40 C.F.R. § 124.19(a). At the very least, both constitute an exercise of discretion or an important policy

³ Unless otherwise indicated, page numbers in these bullet-pointed sections refer to pages in the PDF file; any more specific citational references are provided in parentheses.

consideration that the Board should review. *Id.* In this regard, the Atkinsons contest the Permit's General Authorization, as well as Parts I.A., III.A.-C., and any other section of the Permit that is not severable from those parts. The Board should remand the Permit and instruct EPA to notice to the public an adequate statement of basis for this issue because without that, EPA will not have fulfilled its obligation to prevent endangerment to USDWs.

Legal background

In determining whether to issue any Underground Injection Control (UIC) permit, Congress required that “the applicant for the permit to inject must satisfy the [permitting authority] that the underground injection will not endanger drinking water sources.” 42 U.S.C. § 300h(b)(1)(B). Congress established a minimum standard for endangerment of drinking water sources as the following:

Underground injection endangers drinking water sources if such injection may result in the presence in underground water which supplies or can reasonably be expected to supply any public water system of any contaminant, and if the presence of such contaminant may result in such system's not complying with any national primary drinking water regulation or may otherwise adversely affect the health of persons.

Id. at § 300h(d)(2). In setting this standard, Congress insisted that the definition of endangerment be “construed liberally” so that any amount of contamination from subsurface placement of fluids would be prohibited. H.R. Rep. No. 1185, 93d Cong., 2d Sess., *reprinted in* 1974 U.S. Code Cong. & Admin. News at 6484 (stating that the endangerment of drinking water sources would include “[i]njection which causes or increases contamination of [USDWs] may fall within [the endangerment] definition even if the amount of contaminant which may enter the water source would not by itself cause the maximum allowable levels to be exceeded.”). Congress' no tolerance attitude toward endangerment was captured in a House Report exploring the intent behind the definition of endangerment as follows:

The definition [of endangering drinking water sources] would be met if injected material were not completely contained within the well, if it may enter either a present or potential drinking water

source, and if it (or some form into which it might be converted) may pose a threat to human health or render the water source unfit for human consumption.

Id. Thus, during permitting, EPA may not authorize injection activity that *may* cause injected wastewater to come into contact with a USDW. If EPA is uncertain of the result of injection, Congress' endangerment standard requires that EPA find that the Applicant has not fulfilled its burden of convincing the permitting authority that the underground injection will not endanger drinking water sources. 42 U.S.C. § 300h(b)(1)(B). In situations where EPA cannot resolve an uncertainty, such as in the case of insufficient local and regional geologic data or a lack of clarity regarding the seismic risk of certain geologic features under heightened pressure, EPA may not issue the permit because of the endangerment potential to USDWs. According to Congress, any risk of contamination is too much when deciding whether to issue a UIC permit.

Notably, EPA has insisted in this proceeding and in the *Stonehaven Energy Management* matter that it is not required to review Class II permit applications by virtue of an omission in its rules about seismicity. Exhibit Y at 3 (“the SDWA regulations for Class II wells do not require specific consideration of seismicity...”). However, the Board has acknowledged that EPA’s duty to review site specific geologic data and faulting defined by rule does require EPA review of seismicity issues. *In re: Stonehaven Energy Management, LLC*, UIC Appeal No. 12-02 at 15. Even more important, Congress’ endangerment standard demands that the Region consider any seismic risk presented by injection activities.

Inadequate Statement of Basis

The public cannot adequately critique the EPA’s determination of the risk to USDWs from the authorization of operation of the Zelman Well without additional information on EPA’s maximum injection pressure calculations. EPA’s rules require that a statement of basis “...briefly describe the *derivation* of the conditions of the draft permit and the *reasons* for them....” 40 C.F.R. § 124.7 (emphasis added). Neither the original nor the supplemental Statement Of Basis provides enough detail for the public (or the oil & gas drilling and injection well expert hired by our client) to understand how EPA derived the injection volume and

pressure conditions of the Draft Permit or the Final Permit. The Response To Comment does not resolve the deficiencies in the original and supplemental Statement Of Basis.

EPA provides a limit for the maximum injection pressure without describing the reasons that EPA believes that the maximum allowable surface injection pressure is appropriate. Exhibit U at 2 (“the draft permit limits the rate and the volume of the fluid to be injected, which limits the increases in pore pressure and thus the potential for seismicity.”); Exhibit Y at 6 (“[t]he permit limit for the surface injection pressure and the bottom-hole injection pressure was calculated to ensure that, during operation, the injection will not propagate existing fractures or create new fractures in the formation.”). Though it claims that over-pressurization will not result from the operation of this injection well, *id.*, EPA never identifies the specific pressure increase calculations around the proposed well over the lifetime of the well. EPA does not identify the permeability value, the data on regional rock stress components, or the net fluid balance.

Similarly, in the supplemental Statement of Basis, EPA states that injected wastewater “should be confined within the fault block as long as injection pressure is maintained below a critical stress, such as fracture pressure.” Exhibit U at 2. However, EPA has not told the public what it believes that critical stress and fracture pressure to be. The Grant Report states that these inputs are available to the Applicant and to EPA from published regional rock data. Exhibit T at 4 (Geology). Yet, EPA has not provided the public with any information about the inputs that it has used to determine the proper maximum injection pressure and volumes. Once that data is obtained by EPA, the agency should also disclose the methodology and results used by EPA in their calculations used to determine maximum injection volume and pressures.

Even though EPA received detailed public comment on the need for this data and the methodology used to determine maximum injection pressures, Exhibit W, dated September 11, 2013 by the University of Pittsburgh School of Law Environmental Law Clinic on behalf of Marianne Atkinson, EPA did not remedy the deficient Statement of Basis in its Response to Comment. Exhibit Y at 3-9. Instead, EPA continued to list the factors that may be used to determine whether seismic activity may be induced by a given injection operation, but failed to

disclose the data and calculations that it used to make a decision pursuant to the endangerment standard. Inexplicably, EPA changed the maximum injection pressures from the Draft Permit to the Final Permit as follows:

	Surface Injection Pressure Max	Bottom Hole Pressure Max
Draft Permit	2,593 psi	6,575 psi
Final Permit	2,443 psi	6,425 psi

While it is clear that EPA made a change in the maximum allowed pressures, it is unclear how EPA arrived at these numbers and whether it was due to the Grant Report's advice that a margin of safety of "at least 100-200 psi" be used. Exhibit T at 5.

The Board has previously stated that it "will not hesitate to order a remand when a Region's decision on a technical issue is illogical or inadequately supported by the record." *In re NE Hub Partners, L.P.*, 7 E.A.D. 561, 568 (EAB 1998), *review denied sub nom. Penn Fuel Gas, Inc. v. U.S. EPA*, 185 F.3d 862 (3rd Cir. 1999). EPA makes general assertions without any support in the supplemental Statement of Basis and the Response to Comment about the limits on rate and volume of injected wastewater reducing the potential for seismicity. Exhibit U at 2-3. EPA fails to describe how the particular limits on the rate and volume of the fluid to be injected reduces the potential for seismicity. As such, EPA's permit decision and the maximum injection pressure permit conditions are based on clearly erroneous findings of fact and conclusions of law and involve an exercise of discretion and important policy considerations that the Board should review and, ultimately, remand to the agency to allow for a meaningful public notice and comment process.

Evidence that Permit conditions are insufficient to protect USDWs

In its Supplemental Statement of Basis and again in its Response To Comments, EPA admits that the presence of faults in the area and the history of seismic events in the County create more

vulnerable conditions for a future seismic event. Yet, EPA provides the following conclusions that it apparently believes to demonstrate that the injection well will not cause endangerment of USDWs because of induced or natural seismic events:

- Class I and II wells can withstand significant amounts of pressure,
- the wells are cased and cemented according to industry standards,
- EPA is limiting the surface injection pressure to 2,443 psi and the bottom-hole injection pressure to 6,425 psi, which was apparently “calculated to ensure that, during operation, the injection will not propagate existing fractures or create new fractures in the formation,”
- post-permit issuance mechanical integrity tests and continuous monitoring will be conducted, and
- “[i]f a seismic event were to occur, [sic] that affected the operation and mechanical integrity of the Windfall injection well, the well will be designed to automatically detect a failure due to pressure changes in the well and this would cause the well to automatically stop injection.”

Exhibit Y at 3-9.

The Grant Report provides strong evidence that the operating requirements and siting decision made by EPA are insufficient to meet the endangerment standard as they relate to seismicity. First, EPA should not simply consider the fracture gradient of the injection zone. Exhibit T at 6. Instead, the agency should also incorporate fracture pressures of the adjacent overlying Onondago Limestone. *Id.* Second, the Grant Report found that the Applicant’s inputs and calculations of permeability, pressure increases over time, fracture gradient, reservoir surface pressure and maximum wellbore pressure are all questionable. *See generally* Exhibit T. For injection rate, the Applicant has used an incorrect formula that assumes a linear relationship between injection rate and pressure. *Id.* at 5 (Operating Data).

For monitoring, merely requiring continuous monitoring of tubing and annulus pressures is far from sufficient when such a high level of risk is present from injection-induced seismicity in

the region. *Id.* at 7-8. Even with continuous monitoring of the tubing and annulus pressures, EPA has not provided for minimum annulus and differential pressures to make its token monitoring program effective. *Id.* Despite any operational testing required by EPA, the Grant Report states that seismic activity could occur without warning due to the maximum injection pressure allowed by EPA. *Id.* at 4. While EPA has since revised the maximum injection pressure, contamination of USDWs due to a seismic event would occur despite the Permittee's automatic cessation of injection during a seismic event.

Finally, a great deal of uncertainty surrounds the issue of induced seismicity and the degree of risk present in the context of injection operations. Just this week, in nearby Eastern Ohio, the Ohio Department of Natural Resources ordered a hydraulic fracturing operation to cease development because of seismic events. Amel Ahmed, *Ohio earthquakes linked to fracking*, Aljazeera America, March 10, 2014 *available at* <http://america.aljazeera.com/articles/2014/3/10/ohio-earthquakeslinkedtofracking.html> (last checked March 13, 2014). Due to this uncertainty and the lack of data to backup EPA's endangerment determination related to seismicity, we request that the Board find that EPA's permit determination was clearly erroneous and order a remand.

The issue of seismicity and pressure was raised during the public comment period. For support, please see:

- Exhibit T (Grant Report incorporated into comments submitted by Clinic)
- Exhibit V, generally
- Exhibit W, generally

3. With regard to injection and faulting, because the Statement Of Basis was inadequate, EPA abused its discretion and failed to meet the endangerment standard in authorizing injection without considering the effect of a non-transmissive fault in the Area Of Review, rendering Part III.B.4. inadequate to protect USDWs.

With regard to injection and faulting, the Statement Of Basis was inadequate. It is not lawful to issue a permit based on an inadequate statement of basis. It is also not lawful to issue a permit that contains conditions based on clearly erroneous fact findings or legal conclusions. 40 C.F.R.

§ 124.19(a). At the very least, both constitute an exercise of discretion or an important policy consideration that the Board should review. *Id.* In this regard, the Atkinsons contest the Permit's General Authorization to construct and inject, as well as Parts I.A., III.A.-C., and any other section of the Permit that is not severable from those parts. The Board should remand the Permit and instruct EPA to notice to the public an adequate statement of basis for this issue because without that, EPA will not have fulfilled its obligation to prevent endangerment to USDWs.

Inadequate Statement of Basis

There are several ways in which EPA or an applicant can determine structural geology: (1) examination of rock cores obtained during drilling, (2) well logging and testing, and (3) prior experience with similar wells. U.S. Environmental Protection Agency, Office of Drinking Water, *Final Injection Well Construction Practices & Technology* 11 (1982) at 11. However, EPA does not provide data related to any of these possible ways of determining the geology and seismic risk related to injection from the Zelman #1 Well.

EPA asserts in the Supplemental Statement of Basis that “there is no geologic evidence that [nearby] faults provide a mechanism for the transmission of formation fluids or that the other conditions necessary to cause seismic activity are present.” Exhibit U at 2. Unfortunately, EPA lacks geologic evidence because the Applicant failed to respond to the agency's NOD on the question of faulting in the injection zone and injection-induced earthquakes. Exhibit T at 4. If the applicant fails to provide required information, according to Congress' endangerment standard, EPA does not have the authority to issue the permit. 42 U.S.C. §§ 300h(b)(1)(B), 300h(d)(2).

EPA also appears to claim in the Supplemental Statement of Basis and the Response to Comment that gas well production history in the area is evidence of the nontransmissive nature of the fault in the injection zone. However, EPA never shared the historical records that it relied upon in making this determination. While gas production data in the area was clearly used for surface-measured fracture breakdown pressure, Exhibit T at 6, EPA has not described a link or a methodology that allows it to draw conclusions from that information and the nontransmissive nature of the fault in the injection zone. According to EPA's own rules, the administrative record

is required to consist of “[a]ll documents cited in the statement of basis.” 40 C.F.R. § 124.9(b)(4). EPA did not provide such documents in the administrative record.

EPA did not provide its reasons for determining that the fault in the injection zone is non-transmissive. In addition, EPA did not describe the impact of a finding of non-transmissivity on its maximum pressure calculations. In fact, EPA simply did not provide its calculations for the maximum pressure conditions in the Permit in the Original or Supplemental Statement of Basis or the Response to Comment. Therefore, the permit decision and conditions related to maximum pressure were based on clearly erroneous findings of fact or conclusions of law. The decision involved an exercise of discretion and important policy considerations that the Board should review and, ultimately, remand to the agency to allow full disclosure of the inputs used to model and determine the maximum injection pressures.

Evidence that Permit conditions are insufficient to protect USDWs

While Applicant and EPA acknowledge the presence of a fault in the area of review, EPA does not look at the fault, even assuming that it is nontransmissive, as a mechanism to increase pressure in the reservoir. Exhibit T at 3-4. EPA continues to have no direct evidence of the lateral and vertical sealing of the fault even though the Applicant has the ability to determine whether the fault is nontransmissive. *Id.* EPA uses the assertion of the nontransmissive nature of the fault as a reason that the injected wastewater will remain contained, but does not account for the increased pressure that will result due to a laterally-sealed fault within the injection zone. Thus, the Applicant has not met its burden to show that its proposed injection will not cause endangerment of USDWs. EPA may not issue a UIC permit unless the endangerment standard is met.

The issue of injection and faulting was raised during the public comment period. For support, please see:

- Exhibit T (Grant Report incorporated into comments submitted by Clinic)
- Exhibit V, generally
- Exhibit W, generally

4. With regard to casing and cementing requirements, the Statement Of Basis was not adequate, and the Permit's requirements themselves are not adequate to prevent endangerment to USDWs.

With regard to the casing and cementing issue, the Statement Of Basis was inadequate and the requirements in the Permit are not adequate to prevent endangerment to USDWs. It is not lawful to issue a permit based on an inadequate statement of basis. It is also not lawful to issue a permit that contains conditions based on clearly erroneous fact findings or legal conclusions. 40 C.F.R. § 124.19(a). At the very least, both constitute an exercise of discretion or an important policy consideration that the Board should review. *Id.* Without an adequate statement of basis, EPA cannot ensure that the casing and cementing requirements will prevent endangerment to USDWs, nor can the public adequately scrutinize the proposed authorization. In this regard, the Atkinsons contest the Permit's General Authorization, as well as Parts I.A. and III.A., and any other section of the Permit that is not severable from those parts. The Board should remand the Permit to EPA and instruct EPA to notice to the public an adequate statement of basis with regard to casing and cementing, and to eventually alter the casing and cementing requirements in the Permit so that they sufficiently prevent endangerment to USDWs.

Legal background

EPA cannot authorize underground injection that may endanger USDWs. 42 U.S.C. § 300h(b)(1)(B); 40 C.F.R. § 144.12. Class II injection wells must be “cased and cemented to prevent movement of fluids into or between [USDWs].” 40 C.F.R. § 146.22(b)(1). The casing and cementing must be “designed for the life expectancy of the well.” *Id.* EPA must consider information on three factors: depth to injection zone; depth to bottom of all USDWs; estimated maximum and average injection pressures. *Id.* EPA also may consider the following factors: nature of formation fluids; lithology of injection and confining zones; external and internal pressure, and axial loading; hole size; size and grade of casing strings; and class of cement. 40 C.F.R. § 146.22(b)(2). EPA's decision whether to consider the subsection (b)(2) factors must be informed by the statutory obligation that it only authorize well injection in a manner that prevents endangerment of USDWs; therefore, even when the regulations do not expressly

mandate consideration of certain factors, EPA abuses its discretion when it fails to consider those factors if consideration of them could better ensure protection of USDWs. Also, Class II injection wells must have surface casing present that extends “from the surface to at least 50 feet below the base of the lowermost USDW” and cemented back to surface. 40 C.F.R.

§ 147.1955(b)(1). Again, EPA has flexibility to specify different casing and cementing requirements on a case by case basis, 40 C.F.R. § 147.1955(c), and the exercise of that discretion must be framed by the statutory obligation to prevent endangerment to USDWs.

The Statement Of Basis is not adequate and cannot therefore establish that the proposed casing and cementing process will prevent endangerment to USDWs; its inadequacy also disallows the public from being able to adequately comment.

The Statement Of Basis is inadequate as to the casing and cementing standards. On page 2, EPA provides a conclusory statement that the proposed construction will meet the criteria in 40 C.F.R. § 146.22. EPA makes that conclusion without expressly considering at least one factor that it *must* consider, namely the estimated maximum and average injection pressures. 40 C.F.R. § 146.22(b)(1)(iii). Nowhere in the paragraph titled “Underground Sources of Drinking Water (USDWs)” (the only one in the Statement that addresses casing and cementing) does EPA account for injection pressure estimates and conclude *based in part on them* that the proposed casing and cementing requirements will be sufficient to protect USDWs.

Also, in describing that USDWs are aquifers or portions thereof that contain up to 10,000 mg/l Total Dissolved Solids (TDS), EPA added that they could only qualify as USDWs if they were also being used or “could be used” as a source of drinking water. Exhibit M at 2 (emphasis in original). It is not clear why EPA underlined the word “could”. Perhaps EPA did so to imply that certain aquifers that may be deeper than the one identified at 800 feet do not constitute USDWs meriting protection because they cannot be used as drinking water sources; however, even assuming that, it provided no evidence whatsoever that that was true. If EPA does not believe that a deeper aquifer could qualify as a USDW due to lack of use potential, it must say so clearly and must support its conclusion with adequate evidence and with an explanation for why

it did not require the Applicant to acquire more geologic formation data to clarify the USDWs' location.

Finally, EPA does not account for the fact that many of the gas wells located within and just outside of the fixed radius AOR may have been fractured. There are numerous such gas wells near the proposed injection well. Exhibit Z. If those wells were fractured, those fractures may extend toward the injection well, causing more pathways for wastewater to travel to USDWs. Neither the Applicant nor EPA has provided any affirmative demonstration either that there was no fracturing of those wells, or that the fracturing would not create pollution migration pathways that would endanger USDWs.

The Permit at Part III.A.2. contains conditions for casing and cementing that will not adequately prevent endangerment to USDWs.

There is strong evidence that the surface casing requirement in Part III.A.2. is not adequate to prevent endangerment to USDWs. Part III.A.2. requires installation of surface casing from the surface to a 1,000 feet depth, and cementing of the casing back to the surface. According to the Statement Of Basis at page 2 and Response To Comments at pages 2 to 3, EPA claims this is to protect the lowermost USDW as is required by rule. 40 C.F.R. § 147.1955. However, the lowermost USDW is likely at a lower depth, which means the surface casing must be run deeper. Though the Applicant suggested initially to run the surface casing string to 1,200 feet, EPA, without giving any reason for its decision, chose to require a more shallow and therefore less protective surface casing string.

Also, even at 1,200 feet deep, the casing string may not be deep enough to extend to the lowermost USDW. As stated in the Grant Report, the Applicant stated that freshwater was present at a depth of 750 feet based on a local driller's log. Putting aside the fact that a significant protection for USDWs is being based on a single local driller's log, the Grant Report concludes it is unlikely that in such a relatively short vertical distance there could be a transition from fresh water to salt water with more than 10,000 mg/l TDS. Exhibit T at 1-2. This may be due to confusion, evidenced in the Applicant's submissions, about the maximum TDS content of

a USDW. USDWs are defined as aquifers or portions thereof that contains fewer than 10,000 mg/l of TDS. 40 C.F.R. § 144.3; the Applicant in its submissions assumed that a USDW needed to contain less than 3,000 mg/l. It strains credulity that the lowermost aquifer containing up to 10,000 mg/l TDS is 200 feet or even 400 feet deeper than the fresh water found at 750 feet in the single driller's log. *Id.*

The Grant Report provides some possible solutions to the problems described above. To accurately locate the lowermost USDW, rather than relying on a single local driller's log, EPA should ask the Applicant to review adjacent oil and gas well open hole electric logs, which can determine TDS values of relatively shallow formation brines. *Id.* at 2-3. To truly protect USDWs from endangerment, EPA should require that the long string casing be cemented from total depth to the surface, not from total depth to 5,000 feet as currently proposed. *Id.* at 7. Not only would that protect USDWs, but it would also "isolate the long string casing from corrosion due to circulating brines present in shallower formations." *Id.* It should be noted that in response to comments about cementing the long string casing from total depth to surface, instead of just to 5,000 feet, EPA merely repeated its conclusion without addressing the argument at all, Exhibit Y at 3, therefore failing to cure any deficiency in its Statement Of Basis.

The issue of inadequate casing and cementing was raised during the public comment period.

For support, please see:

- Exhibit B at 7-9
- Exhibit G at 2
- Exhibit I at 57 (item 20)
- Exhibit T (Grant Report incorporated into comments submitted by Clinic)
- Exhibit Y at 3, 11

5. With regard to monitoring, the Statement of Basis was inadequate, and Part III.B.4. of the Permit itself is not adequate to ensure protection of USDWs.

With regard to monitoring and testing, the Statement Of Basis was inadequate and the requirements in the Permit are not adequate to prevent endangerment to USDWs. It is not lawful

to issue a permit based on an inadequate statement of basis. It is also not lawful to issue a permit that contains conditions based on clearly erroneous fact findings or legal conclusions. 40 C.F.R. § 124.19(a). At the very least, both constitute an exercise of discretion or an important policy consideration that the Board should review. *Id.* In this regard, the Atkinsons contest Part II.C.2, 6-7 of the Permit, and any other section of the Permit that is not severable from that part. The Board should remand the Permit to EPA and instruct EPA to notice to the public an adequate statement of basis with regard to monitoring and testing, and to eventually alter the monitoring and testing requirements in the Permit so that they sufficiently prevent endangerment to USDWs.

Legal background

EPA cannot authorize underground injection that may endanger USDWs. 42 U.S.C. § 300h(b)(1)(B); 40 C.F.R. § 144.12. Imposing the correct monitoring conditions in a permit is one of the ways to protect USDWs. 40 C.F.R. §§ 144.1(d)(5) and 144.12(b). Each permit must contain monitoring conditions. 40 C.F.R. § 144.51(j). Various monitoring requirements are set forth in the rules. See 40 C.F.R. § 146.23(b).

The Statement Of Basis is not adequate and cannot therefore establish that the proposed monitoring and testing will prevent endangerment to USDWs; its inadequacy allows disallows the public from being able to adequately comment.

The Statement Of Basis is inadequate as to monitoring. On page 3, EPA provides a conclusory statement that the proposed monitoring will provide it with “an evaluation of the integrity of the casing, tubing and packer in the well, documentation as to the absence of fluid movement into or between USDWs and flow conditions that exist in the injection zone during operation, thus helping to assure that USDWs are protected.” Exhibit M. The Statement fails to link the individual monitoring or testing requirement with what it will provide EPA; for example, after listing four different monitoring requirements and two different tests, the Statement does not inform the public which monitoring practice or test will provide information about the “absence of fluid movement into or between USDWs”. *Id.*

More significantly, EPA never explains *how* these monitoring and testing requirements will provide EPA with what it says they will provide. As explained above, EPA is obliged to provide derivations of permit conditions and reasons for those derivations. Neither derivations nor reasons are provided in the Statement with regard to monitoring and testing. For example, as the Grant Report explains, despite continuous monitoring and recording of annular pressure, “the minimum annulus pressure and differential pressure from the tubing values are not demarcated.” Exhibit T at 7. It goes on to say that EPA “does not define what is the minimum acceptance annulus pressure value to be continuously held, or what differential pressure value between the annulus and tubing must be maintained.” *Id.* Without those values, the conditions related to mechanical integrity testing, namely Part II.C.6-7., will not provide for adequate and valid monitoring. *Id.* Without those values, the public was not able to exercise its right to review and comment on the Draft Permit.

The Permit at Part III.A.2. contains conditions for casing and cementing that will not adequately prevent endangerment to USDWs

The monitoring and testing requirements in Part II.C.2, 6-7 are not adequate to protect USDWs. As to the biannual testing of mechanical integrity, as the Grant Report points out, the requirement “does not provide any evaluation of whether fluid movement is occurring into USDWs via upward movement outside the production casing.” *Id.* at 8. The Report goes on to provide recommendations that should be included in the Permit, which include “[a] differential temperature survey or radioactive tracer test (using a low level dose of I-131 with an 8 day half-life)” which should be added to the biannual mechanical integrity test. *Id.*

The issue of inadequate monitoring and testing was raised during the public comment period. For support, please see:

- Exhibit G at 2
- Exhibit I at 30, 37, 39, 47, 57
- Exhibit T (Grant Report incorporated into comments submitted by Clinic)
- Exhibit Y at 11 (discussion of testing and its relationship to protection of USDWs)

6. With regard to financial assurances for plugging and abandonment, the Statement of Basis was inadequate, and Parts III.C.1. and III.D. of the Permit itself is not adequate to ensure protection of USDWs.

With regard to financial assurances for plugging and abandonment, the Statement Of Basis was inadequate and the requirements in the Permit are not adequate to prevent endangerment to USDWs. It is not lawful to issue a permit based on an inadequate statement of basis. It is also not lawful to issue a permit that contains conditions based on clearly erroneous fact findings or legal conclusions. 40 C.F.R. § 124.19(a). At the very least, both constitute an exercise of discretion or an important policy consideration that the Board should review. *Id.* In this regard, the Atkinsons contest Parts III.C.1. and III.D. of the Permit, and any other section of the Permit that is not severable from that part. The Board should remand the Permit to EPA and instruct EPA to notice to the public an adequate statement of basis with regard to financial assurances, and to eventually alter the financial assurances requirements in the Permit so that they sufficiently prevent endangerment to USDWs.

Legal background

Applicants must submit a plugging and abandonment plan. 40 C.F.R. § 144.31(e)(10). Apart from requiring construction specifics, 40 C.F.R. § 144.28(c)(iii), the plan must include a financial assurance for the plugging and abandonment of each injection well. 40 C.F.R. § 144.52(e)(7). EPA has before determined that financial assurances would be insufficient to properly close injection wells, and has required greater assurances than those proposed by the applicant. See e.g., *In re Puna Geothermal Venture*, 9 E.A.D. 243, 253 (EAB 2000) (EPA found that an overall estimate of \$250,000 to plug 3 injection wells and 2 production wells was insufficient where plugging each injection well may cost more than \$140,000). The Board itself has recognized that EPA has the authority to impose financial responsibility requirements that are more stringent than those provided for in rule. *In re: Envotech, L.P.*, 6 E.A.D. 260, 281 n. 8 (EAB 1996)

The Statement Of Basis is not adequate and cannot therefore establish that the proposed financial assurances will prevent endangerment to USDWs; its inadequacy allows disallows the public from being able to adequately comment.

The Statement Of Basis is inadequate as to financial assurances. On pages 3-4, EPA provides a conclusory statement that the “permittee has also made a demonstration of financial responsibility that indicates adequate resources will be maintained for well closure and should preclude the possibility of abandonment without proper closure.” Exhibit M. EPA never explains how or why the demonstration of financial responsibility was adequate. The public is left wondering: What methodology did EPA utilize to arrive at its conclusion? What other examples did EPA look to against which to compare this financial responsibility plan? A statement of basis requires derivations of permit conditions and reasons for those derivations. EPA cannot simply accept what an applicant proposes without performing its own evaluation. EPA did nothing in its Response To Comment to provide any more necessary details. Exhibit Y at 13.

The Permit at Part III.D. contains conditions for casing and cementing that will not adequately prevent endangerment to USDWs.

Strong evidence suggests that EPA’s imposition of a \$30,000 financial responsibility amount is not adequate to prevent endangerment to USDWs. According to the Grant Report, the “plugging costs are understated” and the “cost estimates to plug the well are outdated....” Exhibit T at 8. That the costs are understated and outdated makes sense when compared to publically available data on the cost of well plugging. A comprehensive 2011 economic analysis of plugging wells in Pennsylvania stated that the Pennsylvania Department of Environmental Protection estimated that the total cost to plug and restore a site where the gas well was 3,000 feet deep was approximately \$60,000 – double what EPA is requiring here for financial responsibility. Exhibit AA. While that study was about plugging gas wells, not injection wells, the plugging process for the two are similar. In Texas, the average individual bond amount for a Class II disposal well was \$48,837 in 2009. Exhibit BB. In California, it was \$50,000, with regulators acknowledging that that may not be enough. Exhibit CC. These data alone suffice to demonstrate that EPA required far too little in the way of financial responsibility, which would not prevent endangerment to USDWs.

The issue of inadequate financial responsibility was raised during the public comment period.

For support, please see:

- Exhibit G at 3
- Exhibit I at 51
- Exhibit T (Grant Report incorporated into comments submitted by Clinic)
- Exhibit Y at 13 (item 17)

7. With regard to wastewater characterization, the Statement of Basis was inadequate, and Part II.C.3. of the Permit itself is not adequate to ensure protection of USDWs.

With regard to wastewater characterization, the Statement Of Basis was inadequate and the requirements in the Permit are not adequate to prevent endangerment to USDWs. It is not lawful to issue a permit based on an inadequate statement of basis. It is also not lawful to issue a permit that contains conditions based on clearly erroneous fact findings or legal conclusions. 40 C.F.R. § 124.19(a). At the very least, both constitute an exercise of discretion or an important policy consideration that the Board should review. *Id.* In this regard, the Atkinsons contest Part III.C.3. of the Permit, and any other section of the Permit that is not severable from that part. The Board should remand the Permit to EPA and instruct EPA to notice to the public an adequate statement of basis with regard to financial assurances, and to eventually alter the financial assurances requirements in the Permit so that they sufficiently prevent endangerment to USDWs.

Legal background

Class II wells are wells that inject fluids that result from natural gas development. 40 C.F.R. § 144.6(b). Only those fluids can be injected into a Class II well, such as the Zelman #1 well. EPA in the General Authorization in the Permit made it clear that only “fluids produced in association with oil and gas production” can be injected. To ensure that is so, permit holders must maintain records of injection fluid composition. 40 C.F.R. § 144.51(j)(2)(ii).

The Statement Of Basis is not adequate and cannot therefore establish that the proposed financial assurances will prevent endangerment to USDWs; its inadequacy allows disallows the public from being able to adequately comment.

The Statement Of Basis is inadequate as to wastewater characterization. While the Permit and the Response To Comment, Exhibit Y at 13, address wastewater characterization, there is no discussion at all of characterization in the Statement Of Basis. Parts III.C.3-4. of the Permit provide a specific regime for characterizing wastewater. The requirements speak to the periodicity of sampling and the parameters to be analyzed in any given sample. However, EPA in the Statement Of Basis provided no explanation at all as to why that periodicity of sampling and that set of parameters to be analyzed were adequate to ensure protection of USDWs, and more specifically to ensure compliance with the Permit's prohibition against injecting anything other than those oil and gas wastewaters that would not imperil other Permit conditions, such as conditions about injection pressure. In other words, there was no information in the Statement Of Basis about derivations of the Permit's conditions, or reasons for those derivations. It would not make up for the absence of information in the Statement Of Basis, but it just so happens that the Response To Comment provides only conclusory statements about why the Permit conditions will help to ensure compliance with the injection fluid limitation. Exhibit Y at 13.

Additionally, Applicant in Attachment J of the Application proposed to mix Fe-Oxyclear (an iron control) and Cla-Sta XP (a clay stabilizer) with freshwater and inject it into the well if stimulation is necessary. Exhibit DD. This flatly contradicts the Permit's limitation on injecting only "fluids produced in association with oil and gas production." General Authorization. Neither in the Statement Of Basis nor in the Permit does EPA account for this proposed additional wastewater.

The Permit at Part III.C.3-4. contains conditions for wastewater characterization that will not adequately prevent endangerment to USDWs.

There is reason to believe that the set of parameters to be analyzed in Part III.C.3. is ill-suited to ensure protection of USDWs, and more specifically to ensure that the Permittee will only inject the fluids it is authorized to inject. As the Grant Report points out, the samples of the types

of fluids to be injected were not representative of oilfield brines from the Oriskany Formation. Exhibit T at 5. The Report states that the brine sample data in the Application had levels of TDS and strontium that were far higher than what is typical, and that those numbers may have led to an excessively high specific gravity maximum of 1.26. *Id.* An excessively high specific gravity of 1.26 “may allow for the injection of fluids other than the requested reservoir brines from oil and gas production.” *Id.*

The condition requiring analysis of the parameters in Part III.C.3. is meant to ensure compliance with the restriction to only inject oil and gas wastewaters. However, because the specific gravity maximum may be inflated, that set of parameters likely will not allow EPA to ensure compliance because it is too narrow. The parameters listed are typical of oil and gas wastewater. *See* Exhibit EE. Unless the Permittee is required to analyze a broader set of parameters that would indicate *something other than oil and gas wastewater*, then how would EPA or the public ever know whether the Permittee were accepting something other than oil and gas wastewater that happened to have a specific gravity of less than 1.26? The set of parameters to be analyzed in Part III.C.3. should be broadened to reflect fluids other than oil and gas wastewater that may have a specific gravity less than whatever the appropriate maximum specific gravity ends up being.

The issue of inadequate wastewater characterization was raised during the public comment period. For support, please see:

- Exhibit B at 3
- Exhibit I at 58 (item 26)
- Exhibit T (Grant Report incorporated into comments submitted by Clinic)
- Exhibit Y at 13 (item 18)

8. With regard to injection rate and volume, the Statement of Basis was inadequate and so does not ensure prevention of endangerment to USDWs.

With regard to injection rate and volume, the Statement Of Basis was inadequate to prevent endangerment to USDWs. It is not lawful to issue a permit based on an inadequate statement of

basis. It is also not lawful to issue a permit that contains conditions based on clearly erroneous fact findings or legal conclusions. 40 C.F.R. § 124.19(a). At the very least, both constitute an exercise of discretion or an important policy consideration that the Board should review. *Id.* In this regard, the Atkinsons contest Part III.B.3. of the Permit, and any other section of the Permit that is not severable from that part. The Board should remand the Permit to EPA and instruct EPA to notice to the public an adequate statement of basis with regard to injection rate and volume, and to eventually alter the injection rate and volume requirements in the Permit so that they sufficiently prevent endangerment to USDWs.

Legal background

UIC permits must contain requirements that address injection rates and volume. 40 C.F.R. §§ 144.52(a)(3), 146.23(b)(2), 146.23(a)(4)(i). These requirements are there in large part to prevent endangerment to USDWs. Among other things, injection rates and volumes that are too high can affect the maximum pressure limitations, which can endanger USDWs.

The Statement Of Basis is not adequate and cannot therefore establish that the proposed injection rate and volume will prevent endangerment to USDWs; its inadequacy allows disallows the public from being able to adequately comment.

The Statement Of Basis is inadequate as to injection rate and volume. It has only this to say about the volume and rate of injection: “The permit limits this well to the disposal of produced fluids associated with oil and gas production activities with an expected volume of 30,000 barrels per month.” Exhibit M at 3. There was no information in the Statement Of Basis about derivations of that volume and rate, or reasons for those derivations.

The Response To Comments never directly addresses the issue, despite its having been raised during the comment period. With regard to another topic, though, the Response To Comment referenced two Class II-D wells permitted by Region III. EPA stated that for one well, 623,405 barrels have been injected since 2005; for the other well, 371,481 barrels have been injected since 1989. The rough monthly averages for injection – not provided by EPA – are 8,658 barrels per month and 1407 barrels per month, respectively. For the Zelman #1 well, EPA is allowing up

to 30,000 barrels per month of injection, and yet it does not give a single derivation for that number, or reasons for that derivation, in light of the fact that these other injections well which Region III knows about have much lower rates and volumes of injection.

In Attachment H of the Application, Applicant proposed average and maximum daily injection rates and volumes. Exhibit FF. However, EPA in the Statement Of Basis never explained why it was only imposing a monthly average rate limitation in the Permit. That rate itself is lacking derivation and rationale, but EPA's decision to impose only a monthly limitation is also without any explanation. In addition, in developing its proposed injection rate, Applicant appears to have assumed a linear relationship between injection rate and pressure, but that relationship is suspect and throws even Applicant's proposed rates into doubt. Grant Report at 5.

Finally, EPA did not address a comment about injection volume and available pore space. Exhibit B, page 8 While historic drilling has removed a certain amount of natural gas from the Huntersville Chert/Oriskany, it may have removed a significant percentage of it from brine solution. In other words, the gas that was extracted may have been trapped in solution but then released from solution during extraction. If that is true, then the relationship between volume of gas historically extracted and available pore space at present would not be that close because significant volumes of brine (in which the gas was dissolved prior to historic extraction) would remain. Nothing in the Statement Of Basis or Response To Comment appears to address that concern.

In light of these many issues regarding injection rate, we encourage EPA not only to develop derivations and rationale for injection rates and to develop both monthly and daily rates, but also to include a net horse power limitation related to barrel pumping. The reason is that it is difficult to monitor on a regular basis whether Permittee is actually only injection up to and no more than 30,000 barrels per month. With a limitation in the Permit on net horse power for pumping the wastewater barrels, monitoring and volume limitation assurances are built in.

The issue of injection rate and volume was raised during the public comment period. For support, please see:

- Exhibit A at 1 and 16
- Exhibit B at 8
- Exhibit T (Grant Report incorporated into comments submitted by Clinic)
- Exhibit Y at 8

9. With regard to Application completeness, to Petitioners' knowledge, Applicant never submitted a complete corrective action plan despite EPA's request for one, so EPA should not have issued the Permit because the Application was incomplete.

Corrective action plans are integral to protection of USDWs. 40 C.F.R. § 144.25(a)(3). Applicants must submit a plan for corrective action, and a corrective action condition must be placed in a permit. 40 C.F.R. §§ 144.55; 144.52(a)(2); 146.7. EPA must carefully consider corrective action plans before issuing a permit. 40 C.F.R. § 146.24(a)(8). The corrective action plan is a necessary part of any application for a UIC permit, and EPA has the authority to deny a permit if an application is incomplete. 40 C.F.R. § 124.3(c)-(d). In fact, EPA is required to “not issue a permit before receiving a complete application”. 40 C.F.R. § 144.31(d). An application is not complete until EPA receives the information sought in a notice of deficiency. *Id.*

Here, EPA in its Notice Of Deficiency to Applicant asked for information on security at the facility as part of the correction action plan. Exhibit N. EPA asked reasonable questions about accessibility, staffing hours, security cameras, and a manifest system. *Id.* Applicant in its response to the Notice provided no information at all with regard to security measures. Exhibit O. To Petitioners' knowledge, Applicant never provided such information to EPA, and it certainly was not available to the public during either notice and comment period.

Because the Application remains incomplete due to the lack of Applicant's response to the Notice Of Deficiency, EPA was required to not issue the Permit. The Board should require a new notice and comment period on the issue of security and corrective action (in addition to other issues raised by this Petition that require public comment).

The issue of an incomplete Application was raised during the public comment period. For support, please see:

- Exhibit I at 59 (item #31)
- Exhibit T (Grant Report incorporated into comments submitted by Clinic)

CONCLUSION

There were numerous deficiencies in the application, statements of basis, draft and final permit, and administrative process generally. Based on those, EPA issued the Permit based on clearly erroneous findings of fact or conclusions of law. At the very least, the issues raised above reflect an exercise of discretion or an important policy consideration that the Board should review. The Petitioners at a minimum urge remand; however, Petitioners believe the deficiencies are numerous and serious enough to merit denial of the Permit.

LIST OF EXHIBITS

- A. Richard Atkinson Comments Submitted During Original Comment Period
- B. Marianne Atkinson Comments Submitted During Original Comment Period
- C. Comment by Bud George on Original Statement of Basis
- D. Comment by Powers on the Original Statement of Basis
- E. Comments by Baird on Original Statement of Basis
- F. Comments by Bernado on Original Statement of Basis
- G. Comments by Brady Township on Original Statement of Basis
- H. Comments by City of Dubois on supplemental statement of basis
- I. Comments by Duane and Darlene Marshall on the Original Statement of Basis
- J. Comments by Ethel Marshall on Supplemental Statement of Basis
- K. Comments by Keister for Original Statement of Basis
- L. Comments by Robert Marshall on Supplemental Statement of Basis
- M. Statement Of Basis (original)
- N. EPA Notice of Deficiency
- O. Applicant's Response to EPA's Notice of Deficiency

- P. Draft Permit
- Q. Email correspondence with Stephen Platt re request for administrative record
- R. FOIA correspondence
- S. CV of Phil Grant, P.G.
- T. Expert Report by Phil Grant, P.G.
- U. Supplement to the Statement of Basis
- V. Comments by the Atkinsons on the Supplement to the Statement of Basis
- W. Comment by the Clinic submitted on behalf of the Atkinsons on Supplement to the Statement of Basis
- X. Final Permit
- Y. EPA Response To Comment
- Z. Permit Application, Attachment C
- AA. Mitchell article on plugging costs
- BB. Texas Railroad Commission on plugging costs
- CC. California report on plugging costs
- DD. Permit Application, Attachment J
- EE. Pennsylvania Department of Environmental Protection, Recommended Basic Oil & Gas Pre-Drill Parameters
- FF. Permit Application, Attachment H
- GG. Permit Application, Attachment O

Date: March 14, 2014

Respectfully submitted by,

/s/ Emily A. Collins

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Statement Of Compliance With Word Limitation

We, the undersigned, state that pursuant to 40 C.F.R. § 124.19(d)(1)(iv) and (d)(3), the foregoing *Petition For Review* of UIC Permit No. PAS2D020BCLE contains fewer than 14,000 words.

March 14, 2014

/s/ Emily A. Collins

Emily A. Collins, Esq.

/s/ Oday Salim

Oday Salim, Esq.

Counsel for Richard and Marianne Atkinson

Certificate Of Service

We, the undersigned, certify that pursuant to 40 C.F.R. § 124.19(i), the foregoing *Petition For Review* of UIC Permit No. PAS2D020BCLE was filed with the Environmental Appeals Board via Electronic Filing and Certified First Class U.S. Mail, and served on the following via Certified First Class U.S. Mail, return receipt requested:

Permitting Authority

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

Applicant-Permittee

Windfall Oil and Gas
63 Hill Street
Falls Creek, PA 15840

March 14, 2014

/s/ Emily A. Collins

Emily A. Collins, Esq.

/s/ Oday Salim

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