



(Slip Opinion)

NOTICE: This opinion is subject to formal revision before publication in the Environmental Administrative Decisions (E.A.D.). Readers are requested to notify the Environmental Appeals Board, U.S. Environmental Protection Agency, Washington, D.C. 20460, of any typographical or other formal errors, in order that corrections may be made before publication.

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

	)	
	)	
In re:	)	
	)	
Windfall Oil & Gas, Inc.	)	UIC Appeal Nos. 14-73
	)	through 14-190
UIC Permit No. PAS2D020BCLE	)	
	)	
	)	

[Decided June 12, 2015]

ORDER DENYING PETITIONS FOR REVIEW

***Before Environmental Appeals Judges Leslye M. Fraser and
Kathie A. Stein.***

IN RE WINDFALL OIL & GAS, INC.

UIC Appeal Nos. 14-73 through 14-190

ORDER DENYING PETITIONS FOR REVIEW

Decided June 12, 2015

Syllabus

One hundred and eighteen petitioners ("Petitioners") seek review of an Underground Injection Control ("UIC") permit ("Permit") that Region 3 ("Region") of the U.S. Environmental Protection Agency ("EPA") issued to Windfall Oil & Gas, Inc. ("Windfall") under Part C of the Safe Drinking Water Act, 42 U.S.C. §§ 300h through 300h-8, and EPA's implementing regulations at Title 40 of the Code of Federal Regulations ("C.F.R."), parts 124 and 144 through 148. The Permit authorizes construction of a Class II disposal injection well, referred to as the "Zelman #1," in Brady Township, Clearfield County, Pennsylvania.

Petitioners raise numerous issues in their appeals to the Environmental Appeals Board ("Board"), a number of which do not meet the Board's threshold procedural requirements for appeal or are outside the scope of the Board's authority of review in a UIC appeal. The Board identified and reviewed six primary issues fairly raised by Petitioners collectively: (1) the Region's selection of the area of review around the proposed well; (2) the thickness and integrity of the confining layer intended to limit fluid movement above the injection zone; (3) the potential for natural and induced seismic activity to threaten the mechanical integrity of the proposed well, and the underground sources of drinking water ("USDW") in the area; (4) the monitoring provisions included in the Permit; (5) the sufficiency of the financial assurance provisions the permit requires Windfall to maintain to plug or abandon the proposed injection well; and (6) the public participation opportunities the Region provided concerned residents during the permitting process.

Held: The Board denies the petitions for review of the Permit. Petitioners have not met their burden of demonstrating that review is warranted on any of the grounds presented. For each of the issues Petitioners raise, the Region explained its permitting decisions and the underlying rationale in the Response to Comments document. Petitioners failed to meet their burden to substantively confront the Region's responses or adequately explain why the Region's determinations were clearly erroneous, an abuse of discretion, or otherwise warrant Board review.

Specifically, the Board finds that: (1) the Region acted within its discretion when it selected the area of review, including selecting the option that provided a more expansive area of review; (2) the Region considered and provided reasoned responses to

WINDFALL OIL & GAS, INC.

Petitioners' concerns regarding the confining layer, and the permit sets forth detailed construction and operating requirements, as provided in the applicable regulations, designed to protect USDWs; (3) the Region thoroughly responded to comments concerning natural and induced seismicity in the area surrounding the proposed well; (4) the Region included in the Permit a comprehensive monitoring program for the proposed well that went beyond the regulatory requirements for a Class II injection well, including a provision that requires annual pressure fall-off testing; (5) the Region thoroughly responded to comments concerning the permit's financial requirements for plugging and abandonment of the injection well; and (6) the Region fulfilled its mandatory duty to conduct a public hearing based on a significant degree of public interest in the Windfall permit, and appropriately exercised its discretion not to hold a second public hearing.

*Before Environmental Appeals Judges Leslye M. Fraser and
Kathie A. Stein.*

Opinion of the Board by Judge Fraser:

I. STATEMENT OF THE CASE

On October 31, 2014, the U.S. Environmental Protection Agency ("EPA" or "Agency") Region 3 ("Region") issued an Underground Injection Control ("UIC") permit to Windfall Oil and Gas, Inc. ("Windfall"), for a Class II disposal injection well, referred to as the "Zelman #1." See UIC Permit No. PAS2D020BCLE Authorization to Operate a Class II-D Injection Well (Oct. 31, 2014) ("Permit"). The Environmental Appeals Board ("Board") received 118 petitions for review of the Permit from individuals and local government entities (collectively, "Petitioners").¹ See Attach. A (listing petitioners and

¹ Of the 118 petitions for review the Board received in these appeals, 88 of them appear identical. For administrative efficiency, when the Board refers to the first of the 88 identical petitions it received, UIC Appeal No. 14-74 (Daniel J. & Cindy J. Crytser), the Board incorporates by reference the names and appeal numbers of the other 87 identical petitions for review. See Attach. A (denoting with an asterisk the identical petitions for review).

On December 9, 2014, John A. Sobel, Joan Robinson McMillen, and Mark B. McCracken, County Commissioners for Clearfield County, PA, filed a petition for review with the Board. Under the part 124 permitting regulations, petitions for review must be
(continued...)

corresponding UIC Appeal Numbers). The Region filed a response to these 118 petitions on February 4, 2015. Region III's Response to Petitions for Review ("Region's Response").² The Board consolidated these petitions on December 3, 2014. For the reasons explained below, the Board denies the petitions for review.

II. PROCEDURAL AND FACTUAL HISTORY

A. The UIC Program

Congress established the UIC program pursuant to Safe Drinking Water Act ("SDWA") section 1421, 42 U.S.C. § 300h, and EPA promulgated regulations at 40 C.F.R. parts 144 through 148 to protect underground sources of drinking water ("USDWs"). The program is designed to protect underground water that "supplies or can reasonably be expected to supply any public water system." SDWA § 1421(d)(2), 42 U.S.C. § 300h(d)(2). The regulations specifically prohibit "[a]ny underground injection[]" except into a well authorized by rule or except as authorized by permit issued under the UIC program." 40 C.F.R. § 144.11. The UIC permit application procedures are set forth in section 144.31, which provides that "all injection activities including construction of an injection well are prohibited until the owner or

¹(...continued)

filed "[w]ithin 30 days after" the permit issuer serves notice that a final permit decision has been issued. See 40 C.F.R. § 124.19(a)(3). In the present case, the Region served notice of the final UIC permit decision on October 29, 2014. Thirty days later was November 28, 2014. After taking into account the rules for computation of time provided in 40 C.F.R. § 124.20(d) (adding three days for service by mail), petitions for review of the Region's permit decision were due on December 1, 2014. Because the Clearfield County petition was not filed with the Board on or before December 1, 2014, it was untimely. However, the arguments Clearfield County raised in its petition were raised in other petitions timely filed in this matter, and the Board considered those arguments.

² On February 13, 2015, Marianne Atkinson and Richard L. Atkinson filed replies to the Region's Response. The Region filed a sur-reply on March 3, 2015. The Board has reviewed and considered these filings.

WINDFALL OIL & GAS, INC.

operator is authorized by permit.” 40 C.F.R. § 144.31(a). As stated above, the Windfall Permit is for a Class II injection well.³

B. The Windfall Permitting Process

On November 7, 2012, the Region issued a public notice requesting comment on the proposed permit and announced that it would hold a public hearing on December 10, 2012. Response to Comments for the Issuance of a UIC Permit for Windfall Oil and Gas, Inc. at 1 (Administrative Record (“A.R.”) 46) (“RTC”). Over 250 people attended the public hearing. Approximately 29 people submitted oral comments. After the hearing, the Region extended the public comment period through December 31, 2012. *Id.* Based on timely comments that raised concerns about seismic activity and the proposed well, the Region reopened the public comment period on the draft permit from August 9, 2013, through September 11, 2013. *See* UIC Permit No. PAS2D020BLC, Public Notices for Reopening of Public Comment (Aug. 9, 2013) (including EPA website and Courier Express newspaper notices) (A.R. 9) (“Public Notices of Reopened Comment Period”); *see also* 40 C.F.R. § 124.14(b). The Region limited the comments during the reopened comment period to two issues: the Region’s proposed findings that the permitted well is unlikely to pose a risk of induced seismicity

³ Under 40 C.F.R. § 144.6, injection wells fall into five classes depending on the material being disposed of in the well. Class II wells are used to inject fluids:

(1) Which are brought to the surface in connection with natural gas storage operations, or conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection.

(2) For enhanced recovery of oil or natural gas; and

(3) For storage of hydrocarbons which are liquid at standard temperature and pressure.

40 C.F.R. § 144.6(b).

and the Region's proposed findings that any potential earthquakes would not pose a risk to the construction and operation of the injection well. *Id.*

The Region first issued a final permit for the proposed injection well on February 14, 2014. The Board received 61 petitions for review of the February 2014 permit. At the Region's request, the Board remanded the permit on June 10, 2014, to allow the Region to further review and evaluate oral testimony and written comments. RTC at 1. After reviewing and evaluating the public comments anew, the Region issued the Permit to Windfall, which included only one change from the draft permit that imposes additional requirements for well casing and cementing (see Part III.A.2 of the Permit). Notice of Final Permit for Windfall Oil and Gas (Oct. 31, 2014) (A.R. 45). The notice accompanying the Permit stated that "[b]ecause this evaluation did not reveal substantial new questions which were not already subject to public comment during the two public comment periods, the Region did not announce a third public comment period for the draft permit." *Id.*

III. PRINCIPLES GUIDING BOARD REVIEW

Section 124.19 of title 40 of the Code of Federal Regulations governs Board review of a UIC permit. When considering any petition filed under 40 C.F.R. § 124.19(a), the Board first evaluates whether the petitioner has met threshold procedural requirements such as timeliness, standing, issue preservation, and specificity. See 40 C.F.R. § 124.19(a)(2)-(4); see also *In re Beeland Group, LLC*, 14 E.A.D. 189, 194-95 (EAB 2008). If the Board concludes that a petitioner satisfies all threshold pleading obligations, then the Board evaluates the merits of the petition for review. See *Indeck-Elwood*, 13 E.A.D. at 143. If a petitioner fails to meet a threshold requirement, the Board typically denies or dismisses the petition for review. See, e.g., *In re Russell City Energy Ctr., LLC*, PSD Appeal Nos. 10-12 & 10-13, at 4-7 (EAB June 9, 2010) (Order Dismissing Two Petitions for Review as Untimely).

In any appeal from a permit decision issued under part 124, the petitioner bears the burden of demonstrating that review is warranted. See 40 C.F.R. § 124.19(a)(4). The petitioner bears that burden even when

WINDFALL OIL & GAS, INC.

the petitioner is unrepresented by counsel, as is the case here.⁴ *In re New Eng. Plating Co.*, 9 E.A.D. 726, 730 (EAB 2001); *In re Encogen Cogen. Facility*, 8 E.A.D. 244, 249-50 (EAB 1999). With these principles in mind, the Board next considers the petitions presented in this appeal.

IV. ANALYSIS

A. Challenges to Region's Selection of the Area of Review

Petitioners challenge how the Region determined the area of review for the proposed well. EPA's regulations define the area of review as the area surrounding the proposed injection well that is determined using either a "zone of endangering influence" calculation or the "fixed radius method." See 40 C.F.R. § 146.6; see also *id.* § 144.3. A well operator must identify all known wells within the area of review that penetrate the proposed well's injection zone and submit a corrective action plan to address any improperly sealed, completed, or abandoned wells in the area of review that otherwise might allow fluid to migrate into underground sources of drinking water ("USDWs"). See *id.* § 144.55(a);⁵ see also RTC at 14-15; Region's Response at 17-18, 22.

⁴ The Board generally endeavors to construe liberally the issues presented by an unrepresented petitioner, so as to fairly identify the substance of the arguments being raised. The Board nevertheless "expect[s] such petitions to provide sufficient specificity to apprise the Board of the issues being raised." *In re Seneca Res. Corp.*, UIC Appeal Nos. 14-01 through 14-03, slip op. at 2 n.1 (EAB May 29, 2014), 16 E.A.D. ____ (quoting *In re Sutter Power Plant*, 8 E.A.D. 680, 687-88 (EAB 1999)); see also *In re Envtl. Disposal Sys., Inc.*, 12 E.A.D. 254, 292 n.26 (EAB 2005). "The Board also expects the petitions to articulate some supportable reason or reasons as to why the permitting authority erred or why review is otherwise warranted." *In re Beckman Prod. Servs.*, 5 E.A.D. 10, 19 (EAB 1994); accord *Seneca Res.*, slip op. at 2 n.1, 16 E.A.D. ____; *In re Chevron Michigan LLC*, UIC Appeal No. 12-01, slip op. at 15 n.11 (EAB Mar. 5, 2013), 15 E.A.D. ____; *Sutter*, 8 E.A.D. at 688.

⁵ The regulation states, in relevant part, that applicants for Class II injection wells:

[S]hall identify the location of all known wells within the injection well's area of review which penetrate the injection zone, or in the
 (continued...)

In turn, the regulations require the permit issuer⁶ to ensure that the applicant takes corrective action, as necessary, to prevent fluid migration into USDWs. *See* 40 C.F.R. § 144.55(a).

Before addressing Petitioners' arguments, the Board reviews the regulatory requirements permit issuers must follow when establishing the area of review for a proposed injection well, and then applies these principles in light of the requirements Petitioners must meet when challenging the Region's permitting decision. As explained in more detail below, the Board denies review of this issue because Petitioners have failed to meet their burden of demonstrating the Region committed clear error or an abuse of discretion when establishing the area of review for the Windfall Permit.

1. *Background: Methods to Calculate the Area of Review*

As specified in the regulations, a permit issuer must calculate the area of review around a proposed well using either a zone of endangering influence ("ZEI") calculation or the fixed radius method. *See* 40 C.F.R. § 146.6; *see also id.* § 146.3.⁷ To calculate a ZEI, the permit

⁵(...continued)

case of Class II wells operating over the fracture pressure of the injection formation, all known wells within the area of review penetrating formations affected by the increase in pressure. For such wells which are improperly sealed, completed, or abandoned, the applicant shall also submit a plan consisting of such steps or modifications as are necessary to prevent movement of fluid into underground sources of drinking water ("corrective action").

40 C.F.R. § 144.55(a).

⁶ UIC regulations use the term "Director" to describe the permitting authority. *See* 40 C.F.R. § 146.3. In this case, the permitting authority for the Windfall permit is EPA's Regional Administrator for Region 3. For clarity, the Board will refer to the "permit issuer" or the "Region" in places where the regulation uses the term "Director."

⁷ The specific language of 40 C.F.R. § 146.6 is as follows:

(continued...)

WINDFALL OIL & GAS, INC.

⁷(...continued)

The area of review for each injection well or each field, project or area of the State shall be determined according to either paragraph (a) or (b) of this section. The Director may solicit input from the owners or operators of injection wells within the State as to which method is most appropriate for each geographic area or field.

(a) Zone of endangering influence. (1) The zone of endangering influence shall be:

(i) In the case of application(s) for well permit(s) under § 122.38 that area the radius of which is the lateral distance in which the pressures in the injection zone may cause the migration of the injection and/or formation fluid into an underground source of drinking water; or

* * * * *

(2) Computation of the zone of endangering influence may be based upon the parameters listed below and should be calculated for an injection time period equal to the expected life of the injection well or pattern. The following modified Theis equation illustrates one form which the mathematical model may take.

r=Radius of endangering influence
from injection well (length)

k=Hydraulic conductivity of the
injection zone (length/time)

H=Thickness of the injection zone (length)

t=Time of injection (time)

S=Storage coefficient (dimensionless)

Q=Injection rate (volume/time)

hbo=Observed original hydrostatic head of
(continued...)

⁷(...continued)

injection zone (length) measured from the base of the lowermost underground source of drinking water

hw=Hydrostatic head of underground source of drinking water (length) measured from the base of the lowest underground source of drinking water

SpGb=Specific gravity of fluid in the injection zone (dimensionless)

X p=3.142 (dimensionless)

The above equation is based on the following assumptions:

- (i) The injection zone is homogenous and isotropic;
- (ii) The injection zone has infinite area extent;
- (iii) The injection well penetrates the entire thickness of the injection zone;
- (iv) The well diameter is infinitesimal compared to "r" when injection time is longer than a few minutes; and
- (v) The emplacement of fluid into the injection zone creates instantaneous increase in pressure.

(b) Fixed radius.

- (1) In the case of application(s) for well permit(s) under § 122.38 a fixed radius around the well of not less than one-fourth (1/4) mile may be used.

(continued...)

WINDFALL OIL & GAS, INC.

issuer uses a modified Theis equation, which calculates the lateral distance, or radius, from the proposed injection well in which the pressures in the injection zone may cause the migration of the injection fluid into an USDW. *See* 40 C.F.R. § 146.6(a)(1)(i); *see also* ZEI Model Data Requirements, at C-4 to C-5 (Nov. 2010) (A.R. 14). The modified Theis equation takes into consideration geologic parameters found in the injection zone such as permeability, porosity, and injection zone depth and thickness, as well as operational conditions such as maximum injection volume, injection rate (volume/time), and duration of injection (time). *See* 40 C.F.R. § 146.6(a)(1)-(2); RTC at 15. The modified Theis equation provided in the regulation is based on several assumptions, including that the injection zone is homogenous and isotropic; i.e., it has uniform physical properties in all directions, and that the injection zone has "infinite area extent." 40 C.F.R. § 146.6(a)(2).

In the alternative, a permit issuer may choose the fixed radius method to determine the area of review around the proposed well, in

⁷(...continued)

(2) In the case of an application for an area permit under § 122.39 a fixed width of not less than one-fourth (1/4) mile for the circumscribing area may be used.

In determining the fixed radius, the following factors shall be taken into consideration: Chemistry of injected and formation fluids; hydrogeology; population and ground-water use and dependence; and historical practices in the area.

(c) If the area of review is determined by a mathematical model pursuant to paragraph (a) of this section, the permissible radius is the result of such calculation even if it is less than one-fourth (1/4) mile.

40 C.F.R. § 146.6 (equation omitted).

which case a radius “of not less than one-fourth (1/4) mile may be used.” *See id.* § 146.6(b)(1). When determining an area of review based on the fixed radius method, the permit issuer must consider the chemistry of the injected fluids, as well as fluids naturally occurring in the injection zone, hydrogeology, population and groundwater use and dependence, and historical practices in the area. *Id.* § 146.6(b).

Under EPA’s UIC regulations, the permit issuer retains discretion to choose either a ZEI calculation or the fixed radius method to determine the area of review. *See id.* § 146.6 (noting the permit issuer “may solicit input from the owners or operators of injection wells within the State as to which method is most appropriate” for that geographic area). If the permit issuer chooses to determine the area of review using the ZEI calculation and the ZEI calculation results in a radius of less than one-quarter of a mile, that ZEI calculation result is nonetheless permissible. *See id.* § 146.6(c).

The Board generally defers to a permit issuer’s expertise on matters that are fundamentally technical or scientific in nature, including a permit issuer’s decisions regarding both the method of determining and the ultimate size of the area of review surrounding a proposed injection well. *See, e.g., In re Stonehaven Energy Mgmt., LLC*, UIC Appeal No. 12-02, slip op. at 14 n.8 (EAB Mar. 28, 2013), 16 E.A.D. _____. Nonetheless, the permit issuer must adequately explain and support in the administrative record the rationale for its conclusions. *See, e.g., In re NE Hub Partners, LP*, 7 E.A.D. 561, 568 (EAB 1998), *review denied sub nom. Penn Fuel Gas, Inc. v. EPA*, 185 F.3d 862 (3d Cir. 1999). As a whole, the record must demonstrate that the permit issuer “duly considered the issues raised in the comments” and ultimately adopted an approach that “is rational in light of all information in the record.” *In re Gov’t of D.C. Mun. Separate Storm Sewer Sys.*, 10 E.A.D. 323, 342 (EAB 2002); *accord NE Hub*, 7 E.A.D. at 568. The Board concludes that, in this case, the Region did so.

WINDFALL OIL & GAS, INC.

2. *Zone of Endangering Influence ("ZEI") Calculation Versus Fixed Radius Method to Determine Proposed Well's Area of Review*

Petitioners allege that the Region miscalculated the ZEI, resulting in an area of review that is too small, and that, properly calculated, the ZEI would have produced a radius larger than one-quarter mile. *See, e.g.*, UIC Appeal No. 14-89, at 1 (Ralph E. Hamby).⁸ Several Petitioners reference comments Richard Atkinson submitted during the public hearing that "demonstrated * * * that assumed non-transmissive faults would change the zone of endangering influence making it larger so that the area of review should be extended."⁹ *See, e.g.*, UIC Appeal No. 14-74, at 1 (Daniel J. & Cindy J. Crytser). Similarly, another petitioner argued that EPA miscalculated the ZEI because the presence of two non-transmissive faults near the proposed injection well "join

⁸ The following petitions also raise this issue: Appeal Nos. 14-73, at 2, 7 (Travis P. Smith); 14-74, at 1 (Daniel J. & Cindy J. Crytser); 14-80, at 3 (Brady Township Supervisors); 14-82, at 2 (Valerie J. Powers); 14-86, at 3 (Leslie Swope); 14-87, at 3 (Barb Emmer); 14-91, at 2 (Rev. James & Sherry Green); 14-92, at 1 (Ethel Marshall); 14-93, at 1 (Robert Marshall); 14-94, at 2 (Vivian Marshall); 14-107, at 4 (Terry & Carole Lawson); 14-108, at 4 (Loretta Slattery); 14-174, at 5 (Darlene Marshall); 14-175, at 8 (Duane Marshall); 14-176, at 6 (Nancy Moore); and 14-187, at 24 (Marianne Atkinson).

⁹ At the public hearing Mr. Atkinson stated that when calculating a ZEI to determine the area of review "there's five assumptions you have to make to do that," including that the injection zone is homogenous and isotropic, and that the injection zone has infinite area extent. *See* U.S. EPA, Public Hearing on a Proposed Permit under the Federal Underground Injection Control Program 47-48 (Dec. 10, 2012) (A.R. 7) ("Tr."). Mr. Atkinson challenged the Region's ZEI calculation based on geologic information the permit applicant submitted which "indicate[d] the possible presence of several faults within one-quarter mile [of the injection well site]" that would violate the assumptions used in the modified Theis equation. *Id.* at 48 (quoting Statement of Basis for U.S. EPA's Underground Injection Control (UIC) Program Draft Class IID Permit Number PAS2D020BCLE for Windfall Oil and Gas Inc. (A.R. 10) at 2). Mr. Atkinson stated that based on the information in the Statement of Basis, he "concluded that this circular area of review which is based on the injection fluids radiating from the injection well is invalid." *Id.* (noting that the faults create a "V-shaped confinement zone that opens up to the west and it's going to cause all the fluid flow – and the Chert/Oriskany is already full of fluid").

together to form a 'V' shape," which would cause fluid to flow away from the proposed well through the open end of the "V," requiring "any calculated ZEI [] to be larger than what the EPA calculated using a modified Theis equation." UIC Appeal No. 14-187, at 24 (Marianne Atkinson). In essence, Petitioners argue that the presence of non-transmissive faults within the injection formation violates the assumptions contained in a modified Theis equation and augurs in favor of expanding the area of review to account for possible preferential, or "lopsided," flow conditions. Region's Response at 21; *see also* Tr. at 48; UIC Appeal No. 14-187, at 24 (Marianne Atkinson).

EPA's regulations for Class II injection well permits expressly state that a permit issuer may choose either a ZEI calculation or the fixed radius method to determine the area of review. *See* 40 C.F.R. § 146.6. In this case, the Region determined that the fixed radius method would yield an area of review of one-quarter mile (1,320 feet), which is what Windfall proposed in its permit application. *See* U.S. EPA, Underground Injection Control Permit Application Attach. A (Apr. 2012) (A.R. 1) ("Windfall Application"); RTC at 15 (noting that "[t]o review the proposed fixed radius, EPA considered past practices at the proposed site," which is a depleted formation from which large quantities of gas have been extracted, as well as "the chemistry of the fluids to be injected," which is similar to the brine already extracted from the formation). The Region explained in its Response to Comments that, although it was not required to do so, the Region calculated a ZEI for the proposed Windfall well when preparing the Permit using reservoir information from past drilling records of two Zelman offset production wells, numbers 20327 and 20333,¹⁰ injectivity testing information from

¹⁰ Several Petitioners assert that the Region mistakenly believed that these two wells were located a half-mile to one mile away from the proposed injection well based on a typographical error in the Response to Comments. *See, e.g.*, UIC Appeal Nos. 14-73, at 2, 9, 10 (Travis P. Smith); 14-74, at 2 (Daniel J. and Cindy J. Crytser); 14-87, at 9, 11 (Barb Emmer); 14-88, at 7, 9 (Laurie Wayne); 14-89, at 1 (Ralph E. Hamby); 14-90, at 1 (Robert Green); 14-91, at 2 (Rev. James & Sherry Green); 14-92, at 2 (Ethel Marshall); 14-93, at 2 (Robert Marshall); 14-94, at 2 (Vivian Marshall); 14-107, at 4 (Terry & Carole Lawson); 14-108, at 4 (Loretta Slattery); 14-174, at 4, 7 (Darlene (continued...))

WINDFALL OIL & GAS, INC.

the Green Glen #1 well (also located in Clearfield County), and historical data from two wells located in Somerset County that inject into the same formation. RTC at 13-14, 15 (stating that “the parameters obtained from this information included permeability, reservoir pressure, the depth and thickness of the injection zone, rate of injection and volume”); *see also* Region’s Response at 18 (noting that “[g]enerally, the Region calculates a ZEI to decide whether to determine the area of review” based on a fixed radius or a ZEI calculation). The Region’s ZEI calculation indicated that “after ten years of operation (the permit has been issued for five years), under the operational parameters of the permit such as the maximum monthly volume and the maximum permitted pressure, the ZEI will only extend 400 feet from the injection well’s wellbore.” RTC at 15; *see also* Region’s Response at 19. The Region chose to use the fixed radius method of one-quarter mile, or 1,320 feet, for the area of review “because a quarter mile area of review is more protective” (i.e., provides a larger area of review) than the ZEI calculation. RTC at 15; *see also* 40 C.F.R. § 146.6.

Petitioners’ assertions that the Region erroneously calculated the ZEI fall short in light of the regulations that govern permits for Class II injection wells, which as noted above, give a permit issuer the discretion to choose *either* a ZEI calculation *or* the fixed radius method to determine the area of review. 40 C.F.R. § 146.6. In this instance, the Region ultimately decided on the fixed radius method that Windfall proposed in its permit application because it was at least three times larger than the radius calculated using the ZEI. *See* RTC at 15-16. There is no dispute that in the course of making its decision the Region acquired and considered detailed hydrogeologic data on the well site and

¹⁰(...continued)

Marshall); 14-175, at 2, 10 (Duane Marshall); 14-187, at 20 (Marianne Atkinson); and 14-189, at 1-2 (Rep. Matt Gabler); *see also* RTC at 13 (stating the wells are “located about one-half mile to a mile from the proposed well location”). The Region clarified in its response to the petitions for review that its intention, despite the typographical error, was to indicate that the parameters used to calculate the ZEI for the proposed well came from the records of nearby wells, thus providing data from the wells in closest proximity to the proposed well in an effort to achieve the most accurate characterization of the injection zone as possible. Region’s Response at 19 n.3.

the receiving formation from drilling records, injectivity testing information, public records, and other UIC permits. See RTC at 13-14, 15-16; see also 40 C.F.R. § 146.6. The fact that the modified Theis equation contains assumptions of a homogenous and isotropic injection zone with infinite area extent that may not hold true for Windfall's proposed injection zone is inapposite.¹¹ The Region appropriately exercised its discretion to choose the fixed radius method for the area of review. In addition, the Permit requires Windfall to conduct a pressure fall-off test to, among other things, "determine the reservoir's geologic characteristics" and "the type of flow conditions" the well exhibits prior to operating the well. Permit at 8, pt. II.C.7; see also RTC at 16. If the pressure fall-off test indicates that the geologic values used to calculate the Permit's terms, including the ZEI, are "significantly different," the Region will recalculate those Permit terms "and the conditions in the permit will be changed accordingly." *Id.*; see also RTC at 16. Not only is the Region's exercise of discretion to use the fixed radius method appropriate, but the pressure fall-off test will provide additional confirmation that the area of review is sufficiently large prior to Windfall operating the injection well.

Petitioners do not challenge the Region's decision to use the fixed radius method, nor have Petitioners explained how the Region's decision constitutes clear error or an abuse of discretion given the discretion afforded to the Region in the regulations to choose the method to use when calculating the area of review. The administrative record demonstrates that the Region duly considered the issues raised in the comments, and the Board concludes that the Region's decision to use the

¹¹ In previous UIC permit decisions for Class II wells, the Region similarly has compared the applicant's proposal for an area of review determined using the fixed radius method with its own ZEI calculation. See *In re Pa. Gen. Energy Co. ("PGE")*, UIC Appeal Nos. 14-63 through 14-65, slip op. at 9 (EAB Aug. 21, 2014), 16 E.A.D. _____. In *PGE*, the Region calculated a ZEI using geologic information pertinent to the injection zone and compared it to the proposed fixed radius of one-quarter mile included in the application. *Id.* (noting that the injection zone was the Huntsville (sic) Chert in the Oriskany formation). Based on the Region's ZEI calculation in the *PGE* case, the Region extended the area of review in the final permit, requiring the applicant to furnish information on wells approximately 100 feet beyond the one-quarter mile radius. *Id.*

fixed radius area of review is rational in light of all the information in the record. *See, e.g., NE Hub*, 7 E.A.D. at 568.

3. Extension of Area of Review Beyond One-Quarter Mile Radius

A number of Petitioners contest the Region's decision to establish the area of review at a radius of one-quarter mile, or 1,320 feet, because it excludes six gas wells located within 500 feet of the area of review.¹² *See, e.g., UIC Appeal No. 14-80*, at 2 (Brady Township Supervisors);¹³ *see also* Windfall Appl. Attach. B (containing June 2011 Pennsylvania Department of Environmental Protection well location plat that lists distances between proposed well and six gas wells just outside area of review) (A.R. 1). For this reason, several Petitioners argue that the area of review should be extended to a half-mile radius from the proposed well, *see, e.g., UIC Appeal No. 14-88*, at 9 (Laurie Wayne), while others argue the area of review should extend to a full mile, *see, e.g., UIC Appeal No. 14-107*, at 2 (Terry & Carole Lawson). Petitioners

¹² Several Petitioners assert that the accuracy range of plus or minus 10 feet on the well location plat that depicts the area of review could indicate that at least some of the six wells may be located within the area of review. *See, e.g., UIC Appeal Nos. 14-73*, at 3 (Travis P. Smith); 14-74, at 1, 2 (Daniel J. & Cindy J. Crytser); 14-87, at 9 (Barb Emmer); 14-88, at 2 (Laurie Wayne); 14-89, at 2 (Ralph E. Hamby); 14-91, at 2 (Rev. James & Sherry Green); 14-92, at 2 (Ethel Marshall); 14-93, at 2 (Robert Marshall); 14-94, at 2 (Vivian Marshall); 14-107, at 2, 4 (Terry & Carole Lawson); 14-108, at 2, 4 (Loretta Slattery); 14-174, at 4, 7 (Darlene Marshall); 14-175, at 4 (Duane Marshall). The well location plat included in Windfall's permit application provides a range of plus or minus ten feet under the heading "Elevation Metadata," which indicates that the accuracy range refers to land elevation as opposed to the distances between wells. Windfall Application, Attach. B. The Region confirmed this fact in its Response to the petitions for review. Region's Response at 22.

¹³ The following petitions also raise this issue: Appeal Nos. 14-73, at 2, 3, 6, 7 (Travis P. Smith); 14-74, at 2 (Daniel J. & Cindy J. Crytser); 14-82, at 2 (Valerie J. Powers); 14-87, at 5, 6, 7 (Barb Emmer); 14-88, at 2, 4, 5, 7 (Laurie Wayne); 14-89, at 1 (Ralph E. Hamby); 14-91, at 2 (Rev. James & Sherry Green); 14-92, at 1 (Ethel Marshall); 14-93, at 1 (Robert Marshall); 14-94, at 2 (Vivian Marshall); 14-107, at 2, 4 (Terry & Carole Lawson); 14-108, at 2 (Loretta Slattery); 14-174, at 5-6, 7 (Darlene Marshall); and 14-175, at 4, 7, 12 (Duane Marshall).