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 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 corresponding

[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 filed "[w]ithin 30 days after" the permit issuer serves notice that a final permit decision

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 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]

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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.

[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.

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. PAS2D020BCLE, 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 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.*

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(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).

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 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.

[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.*, 16 E.A.D. 411, 412 n.1 (EAB 2014) (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.*, 16 E.A.D. at 412 n.1; *In re Chevron Michigan LLC*, 15 E.A.D. 799, 809 n.11 (EAB 2013); *Sutter*, 8 E.A.D. at 688.

§ 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. In turn, the regulations require the permit issuer[6] 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*

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[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 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."

id. § 146.3.[7] To calculate a ZEI, the permit issuer uses a modified Theis equation, which calculates the lateral distance, or radius, from the proposed injection well in

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

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

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).

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

In the alternative, a permit issuer may choose the fixed radius method to determine the area of review around the proposed well, in 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*, 15 E.A.D. 817, 827 n.8 (EAB 2013). 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.

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

[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,

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 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

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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").

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 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 cxdecide 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

[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 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.

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 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 n Windfall operating the injection well.

[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*"), 16 E.A.D. 498, 504-06 (EAB 2014). 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.* at 499 (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.*

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 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

[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).

of review should extend to a full mile, *see, e.g.*, UIC Appeal No. 14-107, at 2 (Terry & Carole Lawson). Petitioners also assert that the six gas wells may be insufficiently plugged or have suspect casings that could provide conduits for fluid migration into USDWs. *See, e.g.*, Appeal No. 14-94, at 2 (Vivian Marshall). The Region counters that the one-quarter mile area of review is protective and that "it did not find a technical reason to extend the area of review further at this time." Region's Response at 22.

As noted above in Part IV.A.1, the UIC regulations require that an area of review be established so that the applicant can identify all wells that might allow injected fluid to reach USDWs and take corrective action with respect to any of these wells that is improperly sealed, completed, or abandoned. *See* 40 C.F.R. § 144.55(a). Windfall stated in its application that there are no wells located within the area of review - active, inactive, plugged, or abandoned - that penetrate the injection zone of the proposed well. *See* Windfall Application Attach. C (noting that the lone operating gas well within the area of review, well number 20597, does not penetrate the injection zone and instead has a depth of approximately 3,500 feet); *see also* RTC at 16; Statement of Basis at 2.

Petitioners also raise general concerns that the wells proximate to the area of review may have suspect casings or that they were insufficiently plugged and thus might compromise the USDWs in the area. *See, e.g.*, Appeal No. 14-87, at 2, 5-7, 9 (Barb Emmer). The administrative record contains supporting documentation for all six gas wells located just outside the area of review, including certificates of plugging from the Pennsylvania Department of Environmental Protection (then the Department of Environmental Resources) for wells 20626, 20341, and 20325.[14] Windfall Appl. Attach. D, App. A at 1, 10, 17.

[14] Two of the gas wells located just outside the area of review indicate that neither well reaches the receiving formation for the proposed well, which has an anticipated total depth of 7,500 feet. *See* Windfall Appl. Attach. B (listing anticipated depth of Windfall well); Windfall Appl. Attach. D, App. A at 10-12 (containing plugging certificate for well number 20626 and recorded depth of 3,550 feet), 20-21 (stating total depth for operational well number 20553 as 3,425 feet); *see also* Region's Response at 23. Of the remaining four wells located outside the area of review, two are operational and reach the receiving formation. Windfall Appl. Attach. D, App. A at 6 (records for well number 20333), 22 (records for well number 20327); *see also* Region's Response at 23. Finally, two plugged wells located just outside the area of review reach the injection zone. Windfall Appl. Attach. D, App. A at 1, 3 (containing plugging certificate for well number 20341 and recorded depth of 7,370 feet), 17 (containing plugging certificate for well number 20325 and recorded depth of 7,637 feet); *see also* Region's Response at 23.

Further, the UIC regulations do not mandate the plugging of an operational well within, or just outside, the area of review absent evidence that the well threatens to serve as a conduit for the migration of fluid from an injection zone to a USDW. *See* 40 C.F.R. § 144.55(a). The three operating wells located just outside the area of review would not require corrective action even if they were located within the area of review, as they are not potential conduits for fluid migration to USDWs. *See* RTC at 15, 16; Region's Response at 22-23.

The Region clarified that the plugging certificates served as confirmation that each of the three identified wells (numbers 20626, 20341, and 20325) was plugged properly and in accordance with Pennsylvania state requirements in effect at the time.[15] RTC at 16. Petitioners do not explain why the Region's response to their comments is clearly erroneous, nor do they demonstrate that the Region's decision not to extend the area of review to include the six gas wells just beyond the perimeter is unsupported in the administrative record. Petitioners also do not challenge the Region's reliance on state plugging requirements, nor do they present documentation or other evidence to demonstrate that the plugging methods are insufficient. *See, e.g.*, *In re City of Pittsfield*, NPDES Appeal No. 08-19, at 6 (EAB Mar. 4, 2009) (Order Denying Review) ("Simply stating generalized objections to the permit or making vague and unsubstantiated arguments falls short.") (citing cases), *review denied*, 614 F.3d 7 (1st Cir. 2010). Similarly, Petitioners do not present any evidence to indicate the three wells still operating just outside the area of review (numbers 20553, 20333, and 20327) either reach the receiving formation (number 20553) or, for the two that do, that they are compromised or could otherwise lead to migration of injection fluids from the injection zone. Finally, the Petitioners do not address the Permit requirement that Windfall conduct a pressure fall-off test prior to commencing injection operations and annually thereafter, which the Region included in the Permit "[f]or ongoing confirmation of the adequacy of the area of review." RTC at 16. The Board finds the Region's decision to exclude the six wells located just outside the area of review rational in light of all of the information in the record

[15] Petitioners assert that fumes arising from one of the wells is evidence that it has been improperly plugged and thus may be a conduit for fluid to reach USDWs. *See, e.g.*, UIC Appeal No. 14-108, at 4 (Loretta Slattery). The Region explained in the Response to Comments that plugged wells may include a venting system to relieve gas pressure build-up downhole, particularly for wells drilled through coal seams that can produce methane. RTC at 16; Region's Response at 23-24. Petitioners do not address the Region's response to their comments in their petitions, nor do they provide information to support their claim that the fumes from the venting system indicate improper or insufficient casing or plugging.

and declines to review the Region's decision based on Petitioners' unsupported assertions. *See, e.g.*, *NE Hub*, 7 E.A.D. at 568.

4. *Existence of Fault Blocks*

Several Petitioners challenge the Region's reliance on the existence of fault blocks within the injection zone, stating that "no information" is provided regarding the depth of the faults and that there is "no way to prove if the faults are non-transmissive."[16] *See, e.g.*, UIC Appeal No. 14-74, at 2 (Daniel J. & Cindy J. Crytser).[17] These Petitioners assert that the information on the fault block is "inaccurate" and that, rather than blocking the migration of injection fluid towards the Carlson well (number 20341) or coal mines, the faults actually would direct fluid towards them. *See id.*; *see also* Windfall Appl. Attach. D, App. A at 1 (certificate of plugging indicating Josephine Carlson, et al., owned the farm where the well was located).

The Region explained that because the faults in the Oriskany/Huntersville Chert do not extend to the surface and show displacement caused by the faults extending upward, their existence is inferred from drilling records and geologic cross sections showing displacement of bedrock. RTC at 7-8. Historic gas production results in the vicinity of the injection well "have shown that nearby faults appear to act as a geologic trap for gas production." Statement of Basis at 3; *see also* RTC at 7-8; Pennsylvania Geological Survey, *Geology and Mineral Resources of the Southern Half of the Penfield 15-Minute Quadrangle, Pennsyvlania* 123-24 (1971) (structural confinement of faults contributes to gas

[16] The Region explained that a fault is "a crack or fracture in the rocks that make up the Earth's crust, along which displacement has occurred." RTC at 7. The difference between transmissive and non-tranmissive faults is that "[t]ransmissive faults allow fluids to move along the fault and between formations. Non-transmissive faults, in contrast, act like a barrier, which would prevent movement of fluid along the fault and into another formation across the fault." *Id.* at 7 n.2.

[17] The following petitions also raise this issue: Appeal Nos. 14-73, at 9 (Travis P. Smith); 14-91, at 3 (Rev. James & Sherry Green); 14-92, at 2 (Ethel Marshall); 14-93, at 2 (Robert Marshall); 14-107, at 4 (Terry & Carole Lawson); 14-73, at 9 (Travis P. Smith); 14-80, at 3 (Brady Township Supervisors); 14-82, at 3 (Valerie J. Powers); 14-86, at 3 (Leslie Swope); 14-87, at 6, 9, 10 (Barb Emmer); 14-88, at 8 (Laurie Wayne); 14-89, at 2 (Ralph E. Hamby); 14-90, at 2 (Robert Green); 14-91, at 3 (Rev. James & Sherry Green); 14-92, at 2 (Ethel Marshall); 14-93, at 2 (Robert Marshall); 14-107, at 4 (Terry & Carole Lawson); 14-108, at 4 (Loretta Slattery); 14-174, at 4, 5 (Darlene Marshall); 14-175, at 2, 11 (Duane Marshall); 14-179, at 1 (City of DuBois); 14-180, at 1-2 (Diane Bernardo); and 14-186, at 2, 3 (Wilson Fisher, Jr.).

accumulation) (A.R. 18), *cited in* Region's Response at 28. More specifically, the Region explained that gas production wells drilled outside of the fault block were plugged for lack of production, including number 20325, *see* note 14 above, which was documented as a dry hole and "plugged and abandoned in 1960 shortly after completion." RTC at 10. The Region continued:

> This gas well production history helps to illustrate that the displacement of the Huntersville Chert/Oriskany formation created by the faults established confinement of natural gas and formation fluids within the immediate fault block structure and that fluid flow (natural gas and produced water) along or across fault lines is not evident. Because of the non-transmissive nature of the faults, fluid that is injected into the Huntersville Chert/Oriskany formation at the proposed injection well location should be confined within the fault block.

Id.

Petitioners disagree with the Region's assessment of both the existence and non-transmissive nature of the fault block in the injection zone for the proposed well. Yet Petitioners do not explain why the Region's response to their comments is clearly erroneous as required by the procedural regulations. *See* 40 C.F.R. § 124.19(a)(4)(ii) (petitioner must explain why the permit issuer's response to the comment was clearly erroneous or otherwise warrants review). Petitioners do not provide any evidence or supporting documentation to rebut the information in the administrative record that supports the Region's conclusion that the fault block in the injection zone exists and is non-transmissive. As the Board has previously stated, "mere allegations of error are insufficient to support review." *In re Town of Westborough*, 10 E.A.D. 297, 311 (EAB 2002) (quotations omitted), *cited in City of Pittsfield*, NPDES Appeal No. 08-19, at 6. Moreover, failure to rebut the Region's technical conclusions leaves a record supportive of the Region's permitting decision. *See, e.g.*, *Westborough*, 10 E.A.D. at 311.

5. *One-Mile Topographic Map*

Section 144.31(e)(7) of the UIC regulations requires an applicant for a Class II injection well to include in its permit application a one-mile topographic map depicting certain features. Specifically, the regulation requires:

> A topographic map (or other map if a topographic map is unavailable) extending one mile beyond the property boundaries of the source depicting the facility and each of its intake and discharge structures; each of its hazardous waste treatment,

> storage, or disposal facilities; each well where fluids from the facility are injected underground; and those wells, springs, and other surface water bodies, and drinking water wells listed in public records or otherwise known to the applicant within a quarter mile of the facility property boundary.

40 C.F.R. § 144.31(e)(7). When deciding whether to issue a permit for a Class II injection well, section 146.24(a) of the UIC regulations also requires a permit issuer to consider a map that shows the injection well and the number or name and location of all existing producing wells, injection wells, abandoned wells, dry holes, and water wells within the area of review, which in this case is a one-quarter mile radius from the proposed well. *Id.* § 146.24(a)(2); *see also* Pt. IV.A.2 above. The area of review map "*may* also show surface bodies of waters, mines (surface or subsurface), quarries and other pertinent surface features including residences and roads, and faults if known or suspended. Only information of public record and pertinent information known to the applicant is required to be on this map." 40 C.F.R. § 146.24(a)(2) (emphasis added). Thus, the UIC regulations require a permit issuer to consider a *single* one-mile topographic map under 40 C.F.R. § 144.31(e)(7) and a map of the area of review pursuant to 40 C.F.R. § 146.24(a)(2).

In this case, the Region did not fulfill its obligation to ensure that Windfall submitted with its application a single, one-mile topographic map that depicts all of the features that 40 C.F.R. § 144.31(e)(7) requires. Instead, the Region relied on *several* maps that Windfall submitted with its application that each shows some, but not all, of the information that 40 C.F.R. § 144.31(e)(7) requires, and that, taken together, contain all of the required elements. In both its Response to Comments and its response to the petitions for review, the Region acknowledged this fact, stating that while there is not a single, comprehensive one-mile topographic map that depicts all of the features the UIC regulations require, this information was presented on other maps in the administrative record that were available for public review at the public library and at the Region's office. *See* RTC at 4; Region's Response at 48, 49.

The Region further stated in both documents that Windfall provided a one-mile topographic map in its application as Attachment O, but this map did not include drinking water wells, springs, and other surface water bodies located within a quarter-mile of the facility property boundary as required under 40 C.F.R. § 144.31(e)(7). *See* RTC at 3-4; Region's Response at 48, 49; Windfall Appl. Attach. O, at 5 (containing a one-mile topographic map entitled "Zelman Well #1 Luthersburg Quadrangle" within Windfall's Erosion and Sediment Control Plan). The Region averred that, aside from the proposed Windfall well,

none of the structures or facilities that 40 C.F.R. § 144.31(e)(7) requires be shown on the one-mile topographic map exist in this instance. RTC at 3-4 ("The one-mile map must show all intake and discharge structures; all hazardous waste treatment, storage, or disposal facilities; and all injection wells. Besides the proposed Windfall well, none of these structures or facilities were found in this one-mile area."); *see also* Region's Response at 48-49 (stating the same).

The Board finds, however, that the Region's explanation of where in the administrative record to find the information concerning drinking water wells, springs, and other surface water bodies located within a quarter-mile of the facility property boundary that 40 C.F.R. § 144.31(e)(7) requires varies between the Response to Comments and the response to the petitions for review. In its Response to Comments, the Region stated that, in addition to the one-mile topographic map located in Attachment O of the permit application, Windfall "provided a more detailed map of high resolution" of the area of review developed by Alexander and Associates entitled "Proposed Disposal/Injection Well for Windfall Oil and Gas." RTC at 3; *see also* Region's Response, Docket No. 130, Attach. 12 (B-11)[18] (containing Alexander and Associates high resolution area of review map). Specifically, the Region further stated that "the [one-mile topographic] map must show all drinking water wells, springs, and surface waters within a quarter-mile of the property boundary. These were depicted in the Alexander and Associates map." RTC at 4. While the Alexander and Associates map included most of the regulatory requirements set forth in 40 C.F.R. § 146.24(a)(2), the Board finds that it does not include the drinking water wells required by both 40 C.F.R. §§ 146.24(a)(2) and 144.31(e)(7), nor any springs or surface water bodies required by 40 C.F.R. § 144.31(e)(7), despite the Region's statement to the contrary. *See* RTC at 4. The Board thus agrees with a petitioner who pointed out that the Region stated "in Response to Comments #5 that the water wells/springs were shown on the Alexander and Associates map, but they were not. They were shown on the Resource Management Services map." UIC Appeal No. 14-187, at 42 (Marianne Atkinson). This petitioner correctly states that the Resource Management Services map, and not the

[18] The Board's publicly available electronic docket can be accessed at www.epa.gov/eab (click on "EAB Dockets"). The certified index to the administrative record indicates that Windfall included with its permit application four separate large maps, including the quarter-mile area of review map prepared by Alexander and Associates. The Region submitted the relevant portions of the administrative record with its response to the petitions for review, including the four large maps. The Board refers to the maps on its website, as the maps are stand alone documents that do not appear within the attachments to Windfall's application.

Alexander and Associates map that the Region references in its Response to Comments, depicts the drinking water wells, springs, and surface waters within a quarter-mile of the property boundary. *See* Region's Response, Docket No. 130, Attach. 9 (B-8) (containing Resource Management Services map).

The Region's response to the petitions for review tacitly acknowledges this by focusing on the information depicted in the Resource Management Services map, and citing only once, by exhibit number only, to the Alexander and Associates map it referenced in the Response to Comments. *See* Region's Response at 48 (citing to Ex. B-11). The Region refers to the Resource Management Services map as a "small inset topographic map within a larger map that focuses on the area of review" and states the following regarding the map:

> While the inset map in Exhibit B-8 does not show the information on the wells and water resources within the one-quarter mile radius area, that information is shown in greater detail in the topographic map of a larger scale in that same Exhibit.[19] That topographic map, plotted on April 2012, identifies 17 drinking water wells and one gas well in the area of review, which is the area within a quarter-mile radius of the well. Public commenters did not identify any other drinking water or gas wells within the area of review. The application also includes a well location plat, dated

[19] The Board notes that the larger of the two topographic maps in Exhibit B-8, ostensibly representing the same area as the much smaller inset directly above it, does show the wells and water resources within the quarter-mile area of review. The Region states in its response to the petitions for review that "[t]he regulations do not specify the size of the map required." Region's Response at 48. The Region is correct that the UIC regulations do not specify the size of the map required, nor is there any requirement to provide an oversize map. However, the regulations do require applicants and permit issuers for Class II injection wells to provide information in the administrative record for public comment that makes clear the information the permit issuer relied upon when making a decision whether to issue a UIC permit. This may include adding additional maps or materials that further explain the permit issuer's rationale. In this case, an inset topographic map that measures 1.5 by 1.5 inches square, with a scale of one inch for every 2,000 feet, does not allow the Region to adequately depict the features required under the UIC regulations. Accordingly, while the regulations do not require a specific size map as the Region notes, public participation requirements do require the Region to exercise its discretion appropriately and ensure the information required to be depicted can be viewed on the map. The Region did so here by including the larger inset map that depicts the water sources and wells. That does not, however, excuse the Region from its duty to provide a single topographic map as set forth in 40 C.F.R. § 144.31(e)(7) that can be fairly read by the public.

> June 2011, that identifies 14 of those water wells, as well as several other topographic maps showing the area within half-mile around the well. *See also* Exs. B-9; B-10; B-11.

Region's Response at 48 (footnote omitted); *see also* Region's Response, Docket No. 130, Attach. 9 (B-8). Similar to its reasoning in the Response to Comments, the Region avers that "[s]ince there are no other injection wells or hazardous waste facilities near the proposed well," the detailed information within the one-quarter mile radius, such as locations of drinking water and gas wells, "is very useful, because it is easier to see and to ascertain the information contained in the map." Region's Response at 48-49. Suggesting that the Petitioners' argument is "of form over substance," the Region notes that having one consolidated map with all of this information would not have changed the permit decision. *Id.* at 49.

Petitioners are correct that the Region failed to follow the letter of the law when it did not make available for public review a one-mile radius topographic map that contains all of the specific elements required by the UIC regulations. *See, e.g.*, UIC Appeal No. 14-73, at 4 (Travis P. Smith) (challenging the Region's response to comments that stated a "one mile map was provided yet this is an incorrect statement [because] even after reviewing the maps mentioned it still doesn't provide the information sufficient to fulfill the EPA documentation request").[20] The Region's explanations in its Response to Comments and response to the petitions for review are not only less than thorough, they also are difficult to follow. Whereas the Region relied solely on the one-mile topographic map and the Alexander and Associates map in the Response to Comments, *see* RTC at 3-4, in its response to the petitions for review – which importantly is not part of the administrative record for the permit proceeding – the Region discusses at length the map prepared by Resource Management Services that depicts drinking water wells, springs, and surface waters within the quarter-mile area of review. *See* Region's Response at 48. The Region's response to the petitions for

[20] The following petitions also raise this issue: Appeal Nos. 14-74, at 3 (Daniel J. & Cindy J. Crytser); 14-80, at 1 (Brady Township Supervisors); 14-86, at 1 (Leslie Swope); 14-87, at 3, 5 (Barb Emmer); 14-88, at 2, 4 (Laurie Wayne); 14-89, at 2 (Ralph E. Hamby); 14-90, at 1 (Robert Green); 14-91, at 3 (Rev. James & Sherry Green); 14-92, at 2 (Ethel Marshall); 14-93, at 2 (Robert Marshall); 14-94, at 3 (Vivian Marshall); 14-107, at 5 (Terry & Carole Lawson); 14-108, at 5 (Loretta Slattery); 14-174, at 2, 3-4 (Darlene Marshall); 14-175, at 1, 4, 6 (Duane Marshall); 14-176, at 2 (Nancy Moore); 14-177, Attach. B (Randall R. Baird); 14-179, at 2 (City of DuBois); 14-180, at 1-2 (Diane Bernardo); 14-187, at 42 (Marianne Atkinson); and 14-189, at 1-2 (Rep. Matt Gabler).

review also cites no fewer than three other maps and a well location plat to demonstrate that the administrative record contained the information required by the UIC regulations for the Region to make an informed permit decision. *Id.*

The Region has a duty to verify and, if necessary, request supplemental information from the applicant when the information submitted does not comply with the UIC regulations. *See* 40 C.F.R. § 124.3(a)(2), (c) (stating that the Region has the obligation to confirm that "the applicant has fully complied with the application requirements for that permit," and if the application is incomplete, to notify the applicant of any information "necessary to make the application complete"); 40 C.F.R. § 144.31(d) (stating that for EPA-administered UIC programs, the Region must receive either a complete application or the information listed in a notice of deficiency for the application to be complete). The Agency decided through rulemaking what an applicant for a Class II injection well permit must submit for a permit issuer to make an informed decision regarding a permit application. *See* Environmental Permit Regulations, 48 Fed. Reg. 14,146, 14,189, 14,197 (Apr. 1, 1983) (establishing 40 C.F.R. pt. 144). The Region does not have the discretion under the regulations to accept something different. The Region was aware that the one-mile topographic map did not depict the drinking water wells, springs, and surface water bodies required by the UIC regulations no later than the conclusion of the public comment period. Yet in its response to the petitions for review, the Region only further convoluted its explanation of why the information Windfall submitted was sufficient despite not adhering to the UIC regulations.[21]

Notwithstanding the Region's error in failing to ensure that Windfall's application included a single, one-mile topographic map depicting certain features

[21] Some Petitioners assert that the Region erred by not including any maps of the coal mines that exist below part of the area of review. *See, e.g.*, UIC Appeal No. 14-187, at 42 (Marianne Atkinson). The regulation requires a permit issuer to consider a map of the applicable area of review that depicts various types of wells, along with dry holes, in the area of review. 40 C.F.R. § 146.24(a)(2). The regulation states that the map "*may* also show," among other things, surface and subsurface mines. *Id.* (emphasis added). In this instance, Windfall submitted with its application a map depicting all surface and deep coal mines in the area of the proposed well. *See* Windfall Appl. Attach. D, Ex. 3 (containing a map entitled "Lower Freeport Coal Extent of Mining, Surface and Deep Luthersburg Quad" that is part of the Hydrology Report prepared by Resource Management Services, Inc.). In addition, Petitioners submitted several additional maps depicting coal mines beneath part of the area of review that the Region also considered. *See* Region's Response, Docket No. 130, Attach. 19 (G-3), at 58; *id.* Attach. 30 (G-14), at 18; *id.* Attachs. 31-32 (G-15 through G-16); *see also* Region's Response at 49.

that 40 C.F.R. § 144.31(e)(7) requires be included in the administrative record and available for public comment, the Region argues that because it availed itself of several different maps which, taken together, depict the information required to make an informed permit decision, its failure to abide by the letter of the UIC regulations amounts to harmless error. *See* Region's Response at 49 (characterizing Petitioners' argument as one "of form over substance"). Accordingly, the Board analyzes the Region's actions based on the principles governing harmless error set forth in prior Board precedent and federal case law.

A harmless error occurs "when a mistake of the administrative body is one that clearly had no bearing on the procedure used or the substance of the decision reached." *Chemical Mfrs. Ass'n v. U.S. EPA*, 870 F.2d 177, 202 (5th Cir. 1989), *clarified*, 885 F.2d 253 (5th Cir. 1989); *see also Black's Law Dictionary* 622 (9th ed. 2009) ("A harmless error is an error that does not affect a party's substantive rights or a case's outcome."). To determine whether the Region's failure to provide a single, one-mile topographic map with all of the required information available for public comment amounts to harmless error, and thus is a basis for remanding the permit, the Board looks to the facts of this case. In permit proceedings, the Board has held as harmless errors, mistakes, or oversights made by the permit issuer that did not run afoul of the procedural regulations under 40 C.F.R. part 124 or prejudice a petitioner's ability to meaningfully participate in the permitting process. *See, e.g.*, *In re Envt'l Disposal Sys., Inc.*, 12 E.A.D. 254, 281-82 (EAB 2005) (holding that permit issuer's failure to clearly describe in its response to comments the relationship between UIC permits and Resource Conservation and Recovery Act permits-by-rule was harmless error because the permit issuer had correctly responded to the commenter's main objection as required by 40 C.F.R. § 124.17(a)(2)); *In re J&L Specialty Prods. Corp.*, 5 E.A.D. 31, 79-80 (EAB 1994) (holding permit issuer's alleged technical violations of procedural regulations were harmless error absent demonstration of harm to permittee).

By contrast, if the Board determines that an error affects the public's opportunity to meaningfully participate pursuant to the procedural regulations at 40 C.F.R. part 124, the Board will not deem the error harmless and will remand the permit. *See, e.g.*, *In re Chevron Michigan, LLC*, 15 E.A.D. 799, 803-04, 806-08 (EAB 2013) (remanding UIC permit where the region issued responses to comments at different times both before and after issuing the final permit, making it unclear whether the permit issuer based its final decision on the administrative record as required by 40 C.F.R. §§ 124.17, .18); *In re D.C. Water & Sewer Auth.*, 13 E.A.D. 714, 757-64 (EAB 2008) (remanding permit when removal of a compliance provision between the draft and final permit was not a logical

outgrowth of the notice and comment period, such that interested parties did not have the opportunity to meaningfully comment before the final permit was issued). Therefore, the question the Board must answer in this case is whether the aggregation of the information that 40 C.F.R. § 144.31(e)(7) requires the Region to provide on a single, one-mile topographic map would have allowed Petitioners to participate in a more meaningful and informed manner, such that they might be able to meet their burden to challenge the Region's decision on appeal.

The administrative record shows that the Region provided for public review several maps, including the Resource Management Services map and the Alexander and Associates map, along with its analysis of those maps, to explain the Region's reasoning underlying its ultimate permit decision. Petitioners do not argue that the lack of a single topographic map containing the information the UIC regulations require in any way prevented them from participating meaningfully in the permit proceeding. Other than statements in their respective petitions that the Region did not provide a topographic map that contains all of the information required by the UIC regulations, Petitioners do not state or demonstrate how this prejudiced their efforts to participate in the permitting process through the public comment periods or the public hearing that the Region provided. *See, e.g.*, *J&L Specialty Prods.*, 5 E.A.D. at 80. In fact, the administrative record contains copious amounts of information submitted during the public comment periods and the public hearing that directly relates to the information required by the UIC regulations at 40 C.F.R. § 144.31(e)(7). For example, many Petitioners incorporate by reference a binder submitted by petitioner Darlene Marshall that contains a collection of not only public comments and testimony from several Petitioners, but also maps of gas wells and coal mines in the area and information on water sources and wells in the area. *See, e.g.*, UIC Appeal No. 14-74, at 1 (Daniel J. & Cindy J. Crytser) (stating that "we will mostly cite the binder submitted by Darlene Marshall on behalf of all concerned citizens"); *see generally* Region's Response, Docket No. 130, Attachs. 20-27 (G-4 through G-11), *available at* www.epa.gov/eab (click on EAB Dockets) (containing entire contents of Marshall binder). Among other things, the binder includes a list of water sources for the Highland Street Extension Development, as well as a list of 107 water wells identified within a one-mile radius of the proposed well. *See* Region's Response, Docket No. 130, Attach. 21, (G-5), at 17-31, *available at* www.epa.gov/eab (click on EAB Dockets).

Similar to the petitioners in *J&L Specialty Products*, in this case, Petitioners' comments on the draft permit demonstrate that they were fully aware of the substance of the maps that the Region provided. *See J&L Specialty Prods.*, 5 E.A.D. at 80. Accordingly, under the facts of this case, the Board concludes

that the Region's failure to include all of the information on a single topographic map that extends one mile from the property boundary amounts to harmless error. *See In re Shell Gulf of Mex., Inc.*, 15 E.A.D. 470, 498 n.38 (EAB 2012) (holding that an inadvertent, temporary failure of the permit issuer to post a supplemental environmental justice analysis to its website was, at most, harmless error when the supplemental analysis was in the administrative record).

The Board's analysis is consistent with how federal courts have considered the harmless error doctrine under the Administrative Procedure Act, which requires that "due account shall be taken of the rule of prejudicial error" when a court reviews agency action.[22] 5 U.S.C. § 706; *see also, e.g., United States v. Reynolds*, 710 F.3d 498, 515-17 (3d Cir. 2013) (distinguishing between a "complete procedural failure" (i.e., the failure to provide notice and comment) and a "technical failure," where the agency provided for notice and comment but in that process violated a statutory or regulatory requirement); *accord City of Sausalito v. O'Neill*, 386 F.3d 1186, 1220 (9th Cir. 2004) (same). Circuit courts have stated that the analysis of harmless error should look to the process as well as the result of the administrative action to "avoid gutting the APA's procedural requirements." *Reynolds*, 710 F.3d at 517 (quoting *Riverbend Farms, Inc. v. Madigan*, 958 F.2d 1479, 1487 (9th Cir. 1992)); *accord Sugar Cane Growers Coop. v. Veneman*, 289 F.3d 89, 96 (D.C. Cir. 2002); *Cal. Wilderness Coal. v. U.S. DOE*, 631 F.3d 1072, 1090 (9th Cir. 2011).

Federal case law also requires a party seeking reversal based on a technical failure to identify the prejudice they have suffered. *See Reynolds*, 710 F.3d at 516-17; *see also City of Sausalito*, 386 F.3d at 1220 (stating that "[w]here the agency's error consisted of a failure to comply with the regulations in a timely fashion, we have required plaintiffs to identify the prejudice they have suffered"); *Bar MK Ranches v. Yuetter*, 994 F.2d 735, 740 (10th Cir. 1993) (same). In this instance, the Petitioners would need to explain how the Region's technical error in the administrative process prevented the "'exchange of views, information, and criticism between interested persons and the agency' which is the very essence of notice and comment requirements." *Reynolds*, 710 F.3d at 518 (quoting *Riverbend Farms*, 958 F.2d at 1482-84); *see also New Mexico ex rel. Richardson v. BLM*, 565 F.3d 683, 708 (10th Cir. 2009) ("A public comment period is beneficial only to the extent the public has meaningful information on which to comment * * * .").

[22] Although these principles are often applied in the administrative rulemaking context, the Board finds them equally applicable here, where the Region's permit decision amounts to an informal agency adjudication.

The D.C. Circuit's decision in *Gerber v. Norton*, 294 F.3d 173 (D.C. Cir. 2002), provides a salient example of the harmless error doctrine as applied in the administrative context. There, the appellate court held that the district court erred in ruling as harmless error the U.S. Fish and Wildlife Service's failure to make available for public comment a map of the proposed mitigation site for an endangered squirrel as required by the Endangered Species Act, because the petitioners could not "meaningfully comment on the mitigation value of the off-site parcel without knowing its location." 294 F.3d at 179. In contrast to *Gerber*, in this case, the information on which the Region based its permitting decision was publicly available for the Petitioners to view throughout the public comment period. While the information did not meet the specific requirements of the UIC regulations, Petitioners have not identified any specific comments they would have provided had the information been provided as specified in the regulations.

The Board emphasizes that, while it found the Region's decision in this instance to constitute harmless error, the Board strongly advises the Region to ensure that the administrative records in future UIC permit cases comply with the letter of the applicable UIC regulations. The Board denies review of this issue.

B. *Confining Layer*

Several petitioners express concerns that the proposed injection well does not comply with the requirement that Class II wells be sited so that "they inject into a formation which is separated from any USDW by a confining zone that is free of known open faults or fractures within the area of review." *See* 40 C.F.R. § 146.22(a). The confining zone is defined as "a geological formation, group of formations, or part of a formation that is capable of limiting fluid movement above an injection zone." *Id*. § 146.3. Petitioners raise the following issues: (1) the original Statement of Basis accompanying the draft permit erroneously stated that the confining zone is approximately 50 feet thick; (2) the fracturing of existing wells near the area of review could have compromised the confining zone; and (3) old coal mines within the area of review could serve as conduits for injected fluids.[23] As discussed below, the Region addressed each of these issues

[23] The following petitions raise some or all of these issues: Appeal Nos. 14-73 (Travis P. Smith); 14-74 (Daniel J. & Cindy J. Cryster); 14-80 (Brady Township); 14-81 (Sandy Township Board of Supervisors); 14-82 (Valerie J. Powers); 14-83 (Randall T. Powers); 14-86 (Leslie Swope); 14-87 (Barb Emmer); 14-88 (Laurie Wayne); 14-90 (Robert Green); 14-91 (Rev. James and Sherry Green); 14-92 (Ethel Marshall); 14-93 (Robert Marshall); 14-94 (Vivian Marshall); 14-96 (Dawn Smith); 14-107 (Terry & Carole Lawson); 14-108 (Loretta Slattery); 14-174 (Darlene Marshall); 14-175 (Duane

in responding to comments on the draft permit. Because Petitioners failed to adequately confront the Region's responses to these issues, the Board denies review.

Federal circuit courts of appeal have consistently upheld the Board's threshold requirement that a petitioner must substantively confront the permit issuer's response to the petitioner's previous objections. *See, e.g.*, *Native Vill. of Kivalina IRA Council v. EPA*, 687 F.3d 1216, 1219-20 (9th Cir. 2012), *aff'g In re Teck Alaska, Inc.*, NPDES Appeal No. 10-04 (EAB Nov. 18, 2010) (Order Denying Review); *City of Pittsfield v. EPA*, 614 F.3d 7, 11-13 (1st Cir. 2010), *aff'g In re City of Pittsfield*, NPDES Appeal No. 08-19 (EAB Mar. 4, 2009) (Order Denying Review); *Mich. Dep't of Envtl. Quality v. EPA*, 318 F.3d 705, 708 (6th Cir. 2003) ("[Petitioner] simply repackag[ing] its comments and the EPA's response as unmediated appendices to its Petition to the Board * * * does not satisfy the burden of showing entitlement to review."), *aff'g In re Wastewater Treatment Facility of Union Twp.*, NPDES Appeal Nos. 00-26 & 00-28 (EAB Jan. 23, 2001) (Order Denying Petitions for Review); *LeBlanc v. EPA*, 310 F. App'x 770, 775 (6th Cir. 2009) (concluding that the Board correctly found petitioners to have procedurally defaulted where petitioners merely restated "grievances" without offering reasons why the permit issuer's responses were clearly erroneous or otherwise warranted review), *aff'g In re Core Energy, LLC*, UIC Appeal No. 07-02 (EAB Dec. 19, 2007) (Order Denying Review); *see also* 78 Fed. Reg. at 5,282. The petitions do not satisfy this requirement.

First, while Petitioners correctly point out that the Statement of Basis erroneously stated that the confining layer immediately above the injection zone (the Onondaga Formation) is 50 feet thick, the Region acknowledged this error in its Response to Comments and clarified that, consistent with the geologic information provided in the permit application, the formation is actually 14-18 feet thick. RTC at 12-13. The Region's response stated further that a series of low-permeability shale and limestone formations are located above the receiving formation and separate that formation from the lowermost USDWs. *Id.* at 13; *see also id.* at 16 ("[A]pproximately six thousand feet of rock containing numerous confining zones exist between the injection zone and the formations that supply drinking water to shallow wells."). Finally, the Region stated that no conduits were identified within the area of review that would allow migration of fluids into USDWs. *Id.* at 16. The petitions fail to confront the Region's responses to

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Marshall); 14-176 (Nancy Moore); 14-178 (Randall R. Baird); 14-179 (City of DuBois, PA); 14-187 (Marianne Atkinson); and 14-188 (Richard Atkinson).

comments or adequately explain why the responses are clearly erroneous or warrant Board review.

Second, Petitioners argue that the fracturing of nearby gas wells (outside the one-quarter mile area of review) could have caused fractures extending horizontally into the area of review and compromised the confining zone. In its response to comments, the Region stated that any fractures caused by extraction activities in the existing vertical gas wells near the area of review would not have extended into the area of review and endangered USDWs. *See* RTC at 13. The Region explained that while horizontally drilled wells, such as Marcellus shale wells, could result in horizontal fracturing, these are not the type of wells at issue here. In particular, the Region stated:

> The fracturing of the Huntersville Chert/Oriskany gas production well is not the same as the hydraulic fracturing of unconventional gas production wells in the Marcellus and Utica Shales that occurs today. Unconventional gas wells include horizontal drilling and hydraulic fracturing through numerous stages in the wellbore. The Huntersville Chert/Oriskany gas production wells are vertical wells that had only a few stages within the wellbore hydraulically fractured. These fractures, in the case of vertical wells, do not extend outward for extensive distances like the Marcellus and Utica gas wells.

RTC at 13.[24] The Region stated further that the permit contains a maximum injection pressure to prevent both the development of new fractures and the propagation of any existing fractures in the injection zone itself. *Id.*; *see also* Permit pt. III.A.1 (requiring injection only into formations separated from USDWs by a confining zone free of known open faults of fractures within area of review), pt. III.B.4 (prohibiting injection pressure at levels which initiate new fractures or propagate existing fractures). The petitions fail to explain why the

[24] Several petitions reference two studies by the Department of Energy, one in 1981 and the other in 2014, in support of the assertion that fractures from older vertical wells outside the area of review could compromise the injection zone. Because neither of these studies were raised or presented prior to issuance of the permit, they are not part of the administrative record in this matter. *See In re Dominion Energy Brayton Point, LLC*, 12 E.A.D. 490, 518 (EAB 2006) (documents submitted after permit issuance are not part of the administrative record). Moreover, the 2014 study, excerpted in several of the petitions (*see, e.g.*, Appeal No. 90-188 (Richard Atkinson)), addresses fracturing of Marcellus shale wells. Because the wells near the area of review are not Marcellus shale wells, however, the 2014 study is not applicable in the present case. Thus, the Board did not consider either of these studies.

Region's response on this issue is clearly erroneous or otherwise warrants Board review.

Finally, Petitioners express concern that coal mines located in the area of review could allow injection fluids to reach USDWs. As the Region explained in its response to comments, however, coal mines in the area of review are several thousand feet above the injection zone and "there are no other wells located within the area of review that penetrate the injection zone that could potentially allow fluid to migrate upwards into these mine locations." RTC at 18. As previously stated, the regulations require that well operators identify all known wells that penetrate the proposed well's injection zone, and where appropriate, submit a corrective action plan to address any improperly sealed, completed, or abandoned wells in the area of review that might otherwise allow fluid to migrate into USDWs. *See* 40 C.F.R. §§ 144.55(a), 146.24. In the present case, the Region discovered no wells within the area of review that could serve as conduits for injection fluid into USDWs. *See* RTC at 16. Petitioners fail to explain how the Region's response to comments on this issue was erroneous or otherwise warrants Board review.

The Board finds that the Region considered and provided reasoned responses to Petitioners' concerns on the above issues. Although Petitioners clearly disagree with the Region's responses and reiterate their objections, the petitions fail to substantively confront the Region's responses or adequately explain why the responses were clearly erroneous or otherwise warrant Board review. The Region appropriately recognized Petitioners' concerns with respect to the safety of their drinking water and explained in detail its conclusion that the permit will protect USDWs in accordance with the requirements of the federal UIC regulations. This satisfies the Region's obligations under the law. Simply disagreeing with the Region and repeating concerns in a petition for review before the Board that previously have been presented to and answered by the permit issuer does not satisfy the regulatory requirement that petitioners confront the permit issuer's responses and explain why the responses were clearly erroneous or otherwise warrant Board review. *See* 40 C.F.R. § 124.19(a)(4)(ii); *In re Pa. Gen. Energy Co.*, 16 E.A.D. 498, 503 (EAB 2014).

Moreover, the Board finds that the Permit sets forth detailed construction and operating requirements, as provided in the applicable regulations, designed to achieve the overarching purpose of the SDWA and UIC regulations: to protect underground sources of drinking water from contamination. For example, as required by 40 C.F.R. §146.22, the Permit allows injection "only into formations which are separated from any USDWs by a confining zone that is free of known open faults or fractures within the Area of Review." Permit pt. III.A.1. The well

must be cased and cemented to prevent the movement of fluids into or between USDWs for the life of the well. Permit pt. III.A.2. The Permit prohibits injection until the permittee demonstrates the well's mechanical integrity. *Id*. pt. III.A.4. Further, as noted above, the Permit requires continuous monitoring of injection pressure, annular pressure, flow rate, and cumulative volume, and an automatic shut-off device in the event of mechanical integrity failure. *Id*. pt. II.C.2. Finally, the Permit contains detailed monitoring and reporting requirements for any noncompliance. *Id*. pts. II.C-D.

For all issues Petitioners raise with respect to the confining layer, the Board finds that Petitioners fail to adequately explain why the Region's response to comments was clearly erroneous. Accordingly, the Board denies review on these issues.[25]

C. *Seismicity*

Several Petitioners raise concerns regarding seismicity in the area of the proposed injection well, stating that "[r]esidents in areas with no seismic activity have experienced seismic activity due to injection wells," and asserting that the area around the proposed well is "known for large amounts of brine coming off old deep gas wells." *See, e.g.*, UIC Appeal No. 14-73, at 5-6 (Travis P. Smith).[26] Petitioners also express concern regarding the Region's explanation that in some cases earthquakes occurred at locations with no known faults. *See, e.g.*, *id.* at 6. Several Petitioners also state that the Region is "unable to compare other areas

[25] One petitioner asserted that the injection fluid is highly acidic and could dissolve rock and open fractures in the confining zone. *See* Appeal No. 14-178 (Randall R. Baird). In response, the Region stated that "[t]he produced fluid being injected is very similar to the brine fluid that is already in the Huntersville Chert/Oriskany formation" and that "samples of fluids to be injected had a pH range from 6-8, which is a neutral range, and will not react readily with the limestone." RTC at 13. Although the petition disputes the accuracy of this statement, sampling data provided with the Permit application demonstrates that the injection fluid has a pH in the neutral range. *See* Windfall Appl. App. B (Laboratory and Analytical Data) at 38-46. Because the record supports the Region's determination, review is denied on this issue.

[26] The following petitions raise some or all of these issues: Appeal Nos. 14-73, at 3, 4-5, 6 (Travis P. Smith); 14-74, at 2 (Daniel J. & Cindy J. Crytser); 14-80, at 5 (Brady Township Supervisors); 14-86, at 2 (Leslie Swope); 14-87, at 3, 5-6 (Barb Emmer); 14-88, at 3, 4 (Laurie Wayne); 14-107, at 3, 5 (Terry & Carole Lawson); 14-108, at 3, 5 (Loretta Slattery); 14-174, at 6, 8, 11 (Darlene Marshall); 14-175, at 4, 6, 7, 13 (Duane Marshall); 14-177, at 2 (Randall R. Baird); and 14-186, at 2-3 (Wilson Fisher, Jr.).

with our geology for seismic activities," yet it can "compare our area for the permit to all other injection wells that seem to have never contaminated water wells." *See, e.g.*, UIC Appeal No. 14-74, at 2 (Daniel J. & Cindy J. Crytser).

The Region thoroughly responded to comments submitted during the respective public comment periods and at the public hearing on seismicity, discussing at length the following: background information on induced seismic activity; known faults near the proposed well; factors affecting fluid transmission and pore pressure; comparisons of the geology and factors influencing induced seismic events in other parts of the country due to injection activities; the general suitability of the depleted oil and gas formations for underground injection; and the potential for seismic events to contribute to groundwater contamination. RTC at 6-12. Although the Region recognized that there is strong evidence that underground injection likely triggered the recent seismic events that have occurred in Ohio, Texas, Oklahoma, West Virginia, and Arkansas, *see id.* at 10, it also noted that out of the approximately 30,000 operating Class II wells across the country, only a few of those wells have triggered earthquakes of any significance, and to the Region's knowledge, none of those earthquakes have caused injected fluids to migrate to USDWs. *Id.* at 6.

The Board concludes that the Petitioners have not explained why the Region's responses to their comments constitute clear error. *See* 40 C.F.R. § 124.19(a)(4)(ii). As with Petitioners' arguments regarding the confining layer, Petitioners raise generalized concerns without confronting the Region's thorough explanation of why the proposed well does not pose a risk for seismic activity. *See, e.g.*, *In re Beeland Group, LLC*, 14 E.A.D. 189, 200 (EAB 2008) ("General statements, rather than specific arguments as to why the Region's responses are erroneous or an abuse of discretion, do not meet the prerequisites for [Board] review."). For example, the Region explained that earthquakes are "extremely rare" in the area, and that, although they have been recorded and also experienced by residents, those seismic events originated in other parts of the state or outside the state. RTC at 8 (noting that what has been felt in Clearfield County are seismic waves that were transmitted through bedrock from a seismic event that originated somewhere else).

The Region also clearly addressed Petitioners' concern that in some cases induced seismic activity occurred in areas where there were no known faults. The Region explained that the relevant factors behind these events, such as geologic setting and operational history of the operating well, "differ significantly from the proposed Windfall injection operation." *Id.* at 10. The Region elaborated that scientific evidence indicates that induced seismic activity is known to be associated with (1) a fault being in a near-failure state of stress; (2) fluid having a

path of communication to the fault; and (3) high volume and rate of injection over a long period of time. RTC at 10 (citing Nat'l Research Council, *Induced Seismicity Potential in Energy Technologies* 10-11 (2013)). As before, Petitioners fail to confront the Region's substantive explanation in the record, and instead offer general statements that "this proposed cite has all the potential for all the unknowns mentioned that could cause earthquakes." UIC Appeal No. 14-73, at 6 (Travis P. Smith).

The Region also thoroughly addressed commenters' concerns about induced seismicity due to the proposed well's proximity to geologic faults. The Region explained that neither the U.S. Geological Survey nor Pennsylvania's Bureau of Topographic and Geologic Survey have recorded "any seismic activity that has originated in Clearfield County." RTC at 8. In addition, the Region addressed Petitioners' concerns regarding brine intrusion and explained that, contrary to Petitioners' belief that the receiving formation is full of brine, a significant amount of gas and brine already has been removed from the proposed injection reservoir, making it a receptive formation for the disposal of fluid. *Id.* at 9-10, 15 (noting that the removal of natural gas and brine from the natural pore space lowers the reservoir pressure, creating "excellent disposal zones" that are good candidates for the disposal of brine). The Region also detailed the various Permit terms designed to prevent overpressurization of the receiving formation that could otherwise lead to seismic activity. *See id.* at 9. For example, the Permit sets maximum surface and bottom-hole injection pressures to "ensure that, during operation, the injection will not propagate existing fractures or create new fractures in the formation," thus preventing fractures that could lead to fluid reaching known or unknown faults. *Id.* Finally, the Region meticulously distinguished various seismic events that Petitioners raised in their comments and explained how the conditions present during recent seismic events in Ohio, Texas, West Virginia, Oklahoma, and Arkansas "differ significantly from the proposed Windfall injection operation." *Id.* at 10.

Petitioners cannot demonstrate that review of the Region's technical determinations regarding induced seismic activity is warranted without providing more than general statements of disagreement with the Region's conclusions. *See Beeland Group*, 14 E.A.D. at 200. Thus, the Board denies review of the seismicity issue.

D. *Comprehensive Monitoring*

Several Petitioners argue that the Permit does not provide a robust monitoring program for the proposed well. *See, e.g.*, UIC Appeal No. 14-74, at 3

(Daniel J. & Cindy J. Crytser).[27] In addition, Petitioners assert that the "Windfall injection well should have monitoring wells" to protect "freshwater aquifers." UIC Appeal No. 14-187, at 7 (Marianne Atkinson); *see also* UIC Appeal No. 14-74, at 3 (Daniel J. & Cindy J. Crytser) (requesting "monitoring of other gas wells" and suggesting an existing gas well that is not plugged could be used). For the reasons set forth below, the Board denies review of this issue.

The UIC regulations set forth the monitoring requirements for Class II injection wells. 40 C.F.R. § 146.23(b). The regulations require, at a minimum, monitoring of injected fluid at regular intervals; weekly monitoring of injection pressure, flow rate, and cumulative volume; and mechanical integrity testing once every five years. *Id.*

The Permit sets forth monitoring requirements for the proposed well that demonstrate the Region included more stringent monitoring requirements than the UIC regulations require. *See* Permit at 7-8, pt. II.C. For example, the Permit requires injection pressure, flow rate, and cumulative volume in the well to be monitored continuously, compared to the regulations which only require weekly monitoring. *Compare id.* at 7, pt. II.C.2, *with* 40 C.F.R. § 146.23(b); *cf.* 40 C.F.R. § 146.13(b)(2) (requiring continuous monitoring of injection pressure, flow rate, and volume for Class I wells). Although it is not a regulatory requirement for Class II wells, the Permit also requires continuous monitoring of the annular pressure in the well. Permit at 7, pt. II.C.2; *cf.* 40 C.F.R. § 146.13(b)(2) (requiring continuous monitoring of annular pressure for Class I wells). In addition, the Permit requires mechanical integrity testing every two years, whereas the regulations require such testing every five years. *Compare* Permit at 8, pt. II.C.6, *with* 40 C.F.R. § 146.23(b)(3). Further, the Permit requires the injected fluid to be sampled at the initiation of injection operations and annually thereafter, with sampling required from the initial loads received from each disposal customer and from each site. Permit at 7, pt. II.C.3-.4. In contrast, the regulations require only that "monthly records of injected fluids, and any major

[27] The following petitions also raise this issue: 14-73, at 3-4, 9 (Travis P. Smith); 14-80, at 3, 5 (Brady Township Supervisors); 14-86, at 2 (Leslie Swope); 14-87, at 3, 9 (Barb Emmer); 14-88, at 3, 7 (Laurie Wayne); 14-89, at 2-3 (Ralph E. Hamby); 14-92, at 2 (Ethel Marshall); 14-93, at 2 (Robert Marshall); 14-94, at 3 (Vivian Marshall); 14-107, at 5 (Terry & Carole Lawson); 14-108, at 6 (Loretta Slattery); 14-174, at 3, 4 (Darlene Marshall); 14-175, at 4, 10 (Duane Marshall); 14-176, at 5 (Nancy Moore); 14-178, at 3 (Randall R. Baird); 14-179, at 2 (City of DuBois); 14-180, at 2 (Diane Bernardo); 14-187, at 7-8 (Marianne Atkinson); and 14-189, at 1-2 (Rep. Matt Gabler).

changes in characteristics or sources of injected fluid," be included in an annual report to the Region. *See* 40 C.F.R. § 146.23(c)(1).

In addition to the monitoring requirements set forth in 40 C.F.R. § 146.23, the Region also included in the Permit an annual pressure fall-off test "to better characterize the injection reservoir." Permit at 7, pt. II.C.7. This annual test is not required by the regulations applicable to Class II wells; it only is required in the regulations for Class I injection wells. *See* 40 C.F.R. § 146.13(d)(1). The Region stated that it included the pressure fall-off test to allow it to determine and monitor injection reservoir pressure and flow conditions in the reservoir during operation. RTC at 9 (noting that analyzing flow conditions can help to determine whether a "preferential flow pattern" exists and "whether that flow could be moving toward or coming into contact with the nearby faults").

Several Petitioners also point to a recent permit the Region issued to Seneca Resources Corporation, wherein the area of review contains no drinking water sources, but the permit requires monitoring wells. *See, e.g.*, UIC Appeal No. 14-178, at 3 (Randall R. Baird); *see also In re Seneca Resources Corp.*, 16 E.A.D. 411, 416 (EAB 2014). Using this as a backdrop, these Petitioners challenge the Region's decision not to require monitoring wells for the proposed Windfall well given that there are 17 sources of drinking water located within the area of review.

In its Response to Comments, the Region explained that the UIC regulations do not require monitoring wells for Class II wells and clarified that, contrary to Petitioners' belief, monitoring wells do not monitor groundwater quality. *See* RTC at 17; Region's Response at 41. The Region stated that its decision to utilize monitoring wells in a UIC permit is based on whether the permittee operates other existing wells within or near the area of review that can be used to monitor changes in reservoir pressure. Region's Response at 41; *see also* RTC at 17. Unlike Seneca Resources Corporation, Windfall does not have access to another existing well within or near the area of review that penetrates the injection zone and could be used for monitoring. *See* RTC at 17; Region's Response at 41. A monitoring well only can measure an increase in reservoir pressure once the pressure has extended radially far enough from the wellbore to reach the monitoring well. In contrast, the Windfall Permit's required pressure fall-off test will detect changes in reservoir pressure at the wellbore, ostensibly providing more protection against reservoir pressure increases than a monitoring well can. Region's Response at 41; RTC at 17.

Petitioners have not confronted the Region's response to their comments on this issue, nor explained how the Region clearly erred or abused its discretion.

In light of this, as well as the other protective measures the Region included in the Permit that exceed what is required by the UIC regulations, Petitioners have failed to demonstrate that the Region clearly erred when it established the monitoring terms in the Permit or decided not to require a monitoring well. Petitioners have not stated why the Permit's monitoring requirements are inadequate, and instead simply state that comprehensive monitoring must be required. *See, e.g.*, UIC Appeal No. 14-74, at 3 (Daniel J. & Cindy J. Crytser). Here, the Region went beyond the regulatory monitoring requirements for a Class II injection well. Accordingly, the Board finds that Petitioners' claims that the Permit's monitoring provisions are insufficient fail as a matter of law and of fact.

E. *Financial Assurance for Well Plugging/Abandonment*

The UIC regulations impose financial requirements for plugging and abandonment of Class II wells. Applicants are required to submit a plan and "demonstrate and maintain financial responsibility and resources to close, plug, and abandon the underground injection operation in a manner prescribed by the [Region]." 40 C.F.R. § 144.52(a)(7) (financial responsibility); *See also id.* § 144.31(e)(10) (requiring that applicants for class II wells provide a plugging and abandonment plan); *id.* § 146.10 (containing requirements for plugging and abandoning Class I, II, III, IV, and V wells). The Windfall Permit specifies that the permittee "shall maintain financial responsibility and resources to close, plug, and abandon the underground injection well in accordance with 40 C.F.R. § 144.52(a)(7) in the amount of at least $30,000." Permit pt. III.D. The Permit states further that the Region "may require the permittee to submit a revised demonstration of Financial Responsibility if the [Region] has reason to believe that the original demonstration is no longer adequate to cover the costs of plugging and abandonment." *Id.*

Several Petitioners assert that $30,000 is insufficient to plug and abandon the injection well. Further, these Petitioners argue that the Permit's financial assurance is insufficient because it does not include the cost of potential damages such as replacement of water supplies in the event of contamination.[28] *See, e.g.*, Appeal No. 14-74 (Daniel J. & Cindy J. Cryster) (calling for a "$1 million+

[28] The following petitions raise one or both of these concerns: Appeal Nos. 14-73 (Travis P. Smith); 14-74 (Daniel J. & Cindy J. Cryster); 14-80 (Brady Township); 14-82 (Valerie J. Powers); 14-83 (Randall T. Powers); 14-86 (Leslie Swope);14-87 (Barb Emmer); 14-88 (Laurie Wayne); 14-94 (Vivian Marshall); 14-96 (Dawn Smith); 14-174 (Darlene Marshall); 14-175 (Duane Marshall); 14-176 (Nancy Moore); 14-186 (Wilson Fisher, Jr.).

bond."). The Region responded to these concerns in its response to public comments. In particular, the Region stated, in part:

> Windfall submitted an estimate from an independent plugging contractor on the costs of plugging the well, as well as a $30,000 letter of credit with a standby trust agreement for the plugging and abandonment of the injection well. [The Region] reviewed and approved this submission. The estimated plugging costs for the Windfall injection well falls within the range of estimated costs for plugging other class II-D disposal wells in Pennsylvania. Those plugging estimates range from $10,000 to $75,000, with an average of approximately $32,000. The permit incorporates the requirement that Windfall maintain financial assurance in the amount of the estimate through a letter of credit. (*See* [Permit] Part III.D.). EPA can require the permittee to adjust the cost estimate and the financial assurance instrument as necessary. *See* 40 C.F.R. § 144.52.

RTC at 21. In an effort to demonstrate that the Region had underestimated the costs of plugging the proposed well, several commenters provided documentation relating to the costs of plugging Marcellus shale wells as well as Class I wells and Class II wells in Texas and California. *See* RTC at 21. In response, the Region stated "it is difficult to compare the plugging requirements of different types of wells in different types of geological settings." *Id.* The Region stated further that:

> Marcellus shale wells typically have horizontal well bores that can exceed 5000 feet or more from the vertical section of the wellbore, making plugging of those wells significantly different than singular vertical wells. Hazardous waste Class I wells often require specialized cementing which is not necessary in Class II wells. Similarly, the geology, labor and material costs, the depth of the wells and regulatory requirements for plugging wells in Texas and California may not be comparable to those found in Pennsylvania.

Id. Regarding Petitioners' assertion that the Permit should require the applicant to commit additional funds for replacement of water supplies in the event that contamination results from the injection, the Region pointed out that the regulations do not require that the permit applicant provide a bond or monetary assurance to cover the costs of ground water remediation. *Id.* The Region stated, however, that "EPA does have emergency authority under the [SDWA] if endangerment to USDWs should result from injection activities. Section 1431 under the SDWA [42 U.S.C. § 300i] allows EPA to take action against a responsible party if the potential for endangerment exists. This action can include

a requirement that the responsible party provide alternative drinking water to citizens affected by the endangerment." *Id.*

While several of the petitions express disagreement with the Region's responses, they fail to substantively confront these responses or adequately explain why the Region's determination was clearly erroneous or otherwise warrants Board review, nor have they demonstrated that the Region made a clear error of law or fact or abused its discretion in issuing this Permit. The Board therefore denies review on this issue. *See, e.g.*, *In re Pa. Gen. Energy Co.*, 16 E.A.D. 498, 503 (EAB 2014); *In re Seneca Resources Corp.*, 16 E.A.D. 411, 416 (EAB 2014).

F. *Public Participation*

Several Petitioners argue that the opportunities for public participation, particularly at the public hearing, were not sufficient for interested parties to effectively participate in the Permit proceeding. These Petitioners state that residents attended the public hearing ready to submit "vital testimony" but, when the hearing ran late, "they had to leave before their turn was called." UIC Appeal No. 14-87, at 8 (Barb Emmer) (noting that older individuals "didn't feel they had the skill to write either").[29] Several Petitioners state that the procedures "aren't easy" and that "EAB procedures are discouraging to the general citizens."[30] *Id.* Finally, many Petitioners "request that further consideration be given to residents' concerns, especially since so many residents took the time to attend the public hearing." *Id.*; *see also* UIC Appeal No. 14-73, at 8 (Travis P. Smith).

Under EPA's regulations, the Region *must* hold a public hearing on a draft UIC permit if the Region finds there is a "significant degree of public interest" and, in its discretion, *may* also decide to hold a public hearing "if such a hearing might clarify one or more issues involved in the permit decision." 40 C.F.R. § 124.12(a). Thus, the regulations provide both a mandatory duty to hold a hearing in certain circumstances, and a discretionary option to hold a hearing should the permitting authority deem one appropriate. *In re Sierra Pac. Indus.*, 16 E.A.D. 1, 19 (EAB 2013).

[29] The following petitions also raise this concern: Appeal Nos. 14-73, at 8 (Travis P. Smith); 14-88, at 7 (Laurie Wayne); 14-174, at 9 (Darlene Marshall); and 14-175, at 10 (Duane Marshall).

[30] One Petitioner stated that "[t]he filing deadline for this EAB appeal isn't considerate of the concerned residents." UIC Appeal No. 14-174, at 9 (Darlene Marshall).

The Region held a public hearing on the proposed permit on December 12, 2012, which over 250 people attended, with twenty-nine people delivering oral comments. RTC at 23. The Region stated that, despite a late start, "the hearing did not end until all of those who wanted to speak had an opportunity to present their oral comments." *Id.* At the conclusion of the hearing, the Region extended the public comment period by an additional three weeks, allowing interested parties extra time to submit comments via mail or e-mail. *Id.* Based on substantial questions raised during the first public comment period regarding seismicity, the Region elected to reopen the public comment period pursuant to 40 C.F.R. § 124.14(b). *See* RTC at 1. The Region issued a public notice on August 11, 2013, requesting additional comment through September 11, 2013, on two discrete issues related to seismic activity.[31] *Id.* at 1, 23. The public had the chance to submit comments regarding the potential for seismic activity to affect the proposed well during the first public comment period, as well as during the second, more limited public comment period.

The Board observes that when the Region conducted the December 2012 hearing, it did so in response to a "significant degree of public interest" pursuant to 40 C.F.R. § 124.12(a)(1). The hearing allowed members of the public to express their concerns about the proposed well, including concerns about seismic activity. Although some Petitioners chose to leave before their turn to speak at the public hearing, the Region did afford them the opportunity to speak, thereby meeting its mandatory duty under the regulations. Thus, the Region properly fulfilled its mandatory duty to hold a public hearing. The Region had the discretionary option to hold a second public hearing based, in this case, on the reopened public comment period. *See* 40 C.F.R. § 124.12(a)(2) (stating that a permit issuer "may also hold a public hearing at his or her discretion, whenever, for instance, such a hearing might clarify one or more issues involved in the permit decision"). In reviewing an exercise of discretion by the permitting authority, the Board applies an abuse of discretion standard. *See In re Guam Waterworks Auth.*, 15 E.A.D. 437, 443 n.7 (EAB 2011). The Board will uphold a permitting authority's reasonable exercise of discretion if that decision is cogently explained and supported in the record. *See In re Ash Grove Cement Co.*, 7 E.A.D. 387, 397 (EAB 1997) ("[A]cts of discretion must be adequately explained and justified.").

[31] Specifically, the Region "requested additional public comment on its proposed findings that the well, as permitted, is unlikely to pose a risk of induced seismicity[,] and why any potential earthquakes would not pose a risk to the construction and operation of the injection well." RTC at 1.

Based on the information in the administrative record, the Board concludes that the Region's decision not to hold a second public hearing was a permissible exercise of discretion. The second public comment period allowed members of the public to submit additional comments regarding seismic activity, yet it was not the first opportunity to comment on seismic activity, as the public already had the opportunity during the first public comment period and the public hearing. The Board is aware that the Petitioners expended copious amounts of time and resources reviewing the administrative record, preparing comments and petitions for review, and becoming familiar with the procedural rules under 40 C.F.R. part 124. Nonetheless, the Region made clear in its Response to Comments that it worked diligently to provide the public with opportunities to participate as it developed the Permit, including two public comment periods that together totaled approximately eighty days and a public hearing during the first comment period. *See* RTC at 23. Accordingly, the Board denies Petitioners' request for additional time to allow the Region to further review their concerns.

G. *Other Claims Barred By Procedural Requirements*

Petitioners raise several other concerns before the Board that the Region addressed in its Response to Comments. These include (1) the location and depth of USDWs in the area of review and whether the proposed well presents a danger to drinking water wells; (2) the proposed wells' injection pressure and the possibility that injection will cause or exacerbate fractures; (3) the characterization and monitoring of the injection fluid; (4) the possibility that injection fluids may be hazardous or radioactive; (5) the existence of geothermal wells in the vicinity of the injection wells; (6) the need for an environmental impact statement ("EIS") pursuant to section 102 of the National Environmental Policy Act ("NEPA"); (7) the status of the Permit after its five-year expiration date; and (8) the injection of additives such as corrosion inhibitors in addition to the injection fluids listed in the Permit. As discussed in more detail below, for each issue, the petitions fail to substantively confront the Region's responses or explain why the responses were erroneous or otherwise warrant Board review. Accordingly, the Board denies review.

1. *Location and Depth of USDWs in the Area of Review*

Several Petitioners express concerns regarding the location and depth of USDWs in the area of review and question whether the proposed well might present a danger to drinking water wells.[32] In responding to these same concerns

[32] *See* Appeal Nos. 14-73 (Travis P. Smith); 14-74 (Daniel J. & Cindy J. Cryster); 14-80 (Brady Township); 14-82 (Valerie J. Powers); 14-86 (Leslie Swope); 14-87 (Barb

raised during the public process, the Region stated that no USDWs exist below 800 feet and that no conduits were identified within the area of review that would allow upward fluid migration into USDWs. *See* RTC at 4, 16. The regulations require well operators to identify all known wells that penetrate the proposed well's injection zone and, where appropriate, submit a corrective action plan to address any improperly sealed, completed, or abandoned wells in the area of review that might otherwise allow fluid to migrate into USDWs. *See* 40 C.F.R. § 144.55(a). Because no wells exist in the area of review that could serve as conduits for injection fluid, the Region concluded that the proposed well did not endanger USDWs. *See* RTC at 16. Petitioners have not confronted the Region's response on this issue nor have they demonstrated the Region clearly erred or abused its discretion. The Board thus denies review on this issue.

2. *Injection Pressure*

Several Petitioners express concerns that the injection pressure from the proposed well will cause fracturing in the injection zone or might exacerbate existing fractures.[33] The Region thoroughly addressed this same concern it its response to comments. *See* RTC at 13-14. In particular, the Region stated, in part, as follows:

> [T]he fracture pressure gradient for the Huntersville Chert/Oriskany formation ranges from 0.90 to 0.95 psi/ft. EPA used a gradient of 0.90 psi/ft to calculate the maximum injection pressure proposed in the draft permit. In the final permit, in response to comments requesting an even more conservative calculation of the injection pressure, EPA used a gradient of 0.88 psi/ft to calculate a maximum injection pressure to ensure the prevention of new fractures and the propagation of existing fractures in the injection zone during operation of the injection well.

Id. at 14. Further, as stated in Part IV.B of this decision, the Permit requires continuous monitoring of injection pressure, annular pressure, and flow rate as

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Emmer); 14-88 (Laurie Wayne); 14-91 (Rev. James & Sherry Green); 14-94 (Vivian Marshall); 14-108 (Loretta Slattery); 14-174 (Darlene Marshall); 14-175 (Duane Marshall); 14-176 (Nancy Moore); 14-179 (City of DuBois); 14-187 (Marianne Atkinson).

[33] *See* Appeal Nos. 14-73 (Travis P. Smith); 14-80 (Brady Township); 14-107 (Terry & Carole Lawson); 14-174 (Darlene Marshall); 14-175 (Duane Marshall); 14-176 (Nancy Moore); 14-178 (Randall Baird); 14-187 (Marianne Atknison).

well as an automatic shut-off device in the event of mechanical integrity failure. Permit pt. II.C.2. Because Petitioners have failed to demonstrate that the Region clearly erred or abused its discretion or to confront the Region's responses to their comments, the Board denies review on this issue.

3. *Characterizing and Monitoring Injection Fluid*

A number of Petitioners assert that the Region failed to sufficiently characterize the injection fluid or to require proper monitoring.[34] In responding to similar concerns raised during the comment period, the Region stated that conditions in Parts II.C.3 and II.C.4 of the Permit will ensure that the injection fluid is adequately characterized and monitored. *See* RTC at 19. Part II.C.3 of the Permit requires that the permittee sample, analyze, and record the nature of the injection fluid at initial injection, and yearly thereafter, or whenever the operator observes or anticipates changes in the injection fluids, for the following parameters: pH, specific gravity, barium, specific conductance, iron, magnesium, chloride, dissolved oxygen, manganese, total dissolved solids, hydrogen sulfide, sodium, alkalinity, hardness, and total organic carbon. Part II.C.4. requires that "[s]amples of injected fluid shall be collected and analyzed from initial loads received from each disposal customer and each type of source (e.g., from different geologic formations, geographic regions, etc.). Minimum analyses of the fluid will include specific gravity, total dissolved solids, ph, and [total organic carbon]. Any analysis of specific gravity greater than 1.26 and any analysis of [total organic carbon] greater than 250 mg/l shall be reported to the [Region] within twenty four hours of the results." These requirements are intended to ensure that Windfall injects only those fluids authorized by the Permit. RTC at 19. The Region stated that, if monitoring indicates that Windfall injected fluids not authorized by the Permit, Windfall would be in violation of the Permit and subject to enforcement action. *Id.* at 20. Because the Petitioners have failed both to demonstrate that the Region clearly erred and to confront the Region's response to comments, the Board denies review of this issue.

[34] *See* Appeal Nos. 14-80 (Brady Township); 14-86 (Leslie Swope); 14-87 (Barb Emmer); 14-88 (Laurie Wayne); 14-90 (Robert Green); 14-94 (Vivian Marshall); 14-96 (Dawn Smith); 14-174 (Darlene Marshall); 14-175 (Duane Marshall); 14-176 (Nancy Moore); 14-178 (Randall R. Baird); 14-179 (City of DuBois); 14-187 (Marianne Atknison).

4. *Potentially Hazardous or Radioactive Injection Fluid*

A few Petitioners express concern that the injection fluid may contain hazardous or radioactive material.[35] In response to similar concerns raised during the comment period, the Region stated, in part, as follows:

> [Injection Fluids,] when produced in association with oil and gas production, are exempt from hazardous waste regulation and are not classified as hazardous under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6901 et seq. In December 1978, EPA proposed hazardous waste management standards that included reduced requirements for several types of large volume wastes. Generally, EPA believed these large volume "special wastes" were lower in toxicity than other RCRA regulated hazardous wastes. Subsequently, Congress exempted the wastes from RCRA Subtitle C pending a study and regulatory determination by EPA. In 1988, EPA issued a regulatory determination that the control of oil and gas exploration and production wastes under RCRA Subtitle C was not warranted, in part because other State and Federal programs, such as the UIC program, effectively manage the disposal of such wastes. Therefore, the UIC program regulates fluids produced in association with oil and gas production activities, but not as hazardous waste. Disposal of these fluids is permissible down a Class II brine disposal injection well.

RTC at 18. Petitioners fail to confront the Region's response on this issue. Accordingly, the Board denies review on this issue.

5. *Geothermal Wells*

On appeal, two Petitioners express concern that existing geothermal wells within the area of review could serve as conduits for injection fluid to reach USDWs.[36] This issue was also raised in comments on the draft permit. In response to those comments, the Region stated that geothermal systems "use very shallow wells that inject spent water back into the ground water that has circulated through the system. Because these systems involve very shallow wells, they do not create a pathway for contamination and would not be affected by operation of the injection well." *Id*. at 17. Because Petitioners fail to confront the Region's response, the Board denies review of this issue.

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[35] *See* Appeal Nos. 14-73 (Travis P. Smith); 14-174 (Darlene Marshall); 14-178 (Randall R. Baird); 14-187 (Marianne Atkinson).

[36] *See* Appeal Nos. 14-174 (Darlene Marshall); 14-175 (Duane Marshall).

6. *Environmental Impact Statement*

Several Petitioners argue that the Region should prepare an EIS before issuing the Permit pursuant to NEPA section 102,[37] 42 U.S.C. § 4332.[38] As noted by the Region in its response, "RCRA [and] UIC * * * permits are not subject to the [EIS] provision of section 102(2)(c) of [NEPA]." 40 C.F.R. § 124.9(b)(6); *see also In re Am. Soda, LLP*, 9 E.A.D. 280, 290-92 (EAB 2000); RTC at 24.[39] The Petitioners fail to confront the Region's response on this issue. Thus, the Board denies review of this issue.

7. *Status After Permit Expiration*

Two Petitioners express concern about the status of the Permit after its five-year expiration date.[40] As the Region stated in its response to public comment on this issue, upon expiration of the Permit Windfall may seek renewal by submitting a new permit application. RTC at 24. If Windfall submits a renewal application, "EPA will review the history of Windfall's operation, as well as any information on the well obtained during the drilling or from pressure fall-off tests, and make a determination whether to reissue the Permit. EPA's tentative decision of whether to reissue or deny the permit for an additional term is subject to the same public notification and public comment process as an initial permit." *Id.* Because Petitioners fail to confront the Region's response, the Board denies review on this issue.

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[37] *See* Appeal Nos. 14-73 (Travis P. Smith); 14-87 (Barb Emmer); 14-88 (Laurie Wayne); 14-174 (Darlene Marshall); 14-175 (Duane Marshall).

[38] NEPA requires an EIS for "major Federal actions significantly affecting the quality of the human environment." NEPA § 102(2)(c), 42 U.S.C. § 4332(2)(c).

[39] As this Board stated in *American Soda*, under the doctrine of "functional equivalency":

> [W]here a federal agency is engaged primarily in an examination of environmental questions, and where substantive and procedural standards ensure full and adequate consideration of environmental issues, then formal compliance with NEPA is not necessary, [and] functional compliance [is] * * * sufficient.

Am. Soda, 9 E.A.D. at 290-91 (quoting *Warren County v. North Carolina*, 528 F. Supp 276, 286 (E.D. N.C. 1981)). The UIC program is the functional equivalent of NEPA. *Id.* at 291-92.

[40] *See* Appeal Nos. 14-87 (Barb Emmer); 14-174 (Darlene Marshall).

8. *Corrosion Inhibitors*

Three Petitioners raise concerns about the injection of additives such as corrosion inhibitors in addition to the injection fluids listed in the Permit.[41] As the Region stated in its response to comments on this issue, "the additives are not added to the [injection] fluid for purposes of disposal but rather to prevent corrosion in the injection well, and are often also used in production wells. The proper operation and maintenance of a Class II well can require use of such additives." RTC at 19. These corrosion inhibitors, referred to as "Alpha 2278" and "Alpha 3207" are listed in Attachment "O" to the Permit application. *See* Region's Response Attach. 7. Petitioners do not confront the Region's response to comments on this issue or demonstrate that the Region clearly erred or abused its discretion. The Board therefore denies review.

In sum, Petitioners fail to substantively confront the Region's responses to each of the issues they raised during the public comment period or adequately explain why the Region's responses were clearly erroneous or otherwise warrant Board review. Accordingly, the Board denies review.[42] *See In re Pa. Gen. Energy Co.*, 16 E.A.D. 498, 503 (EAB 2014).

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[41] *See* Appeal Nos. 14-175 (Duane Marshall); 14-178 (Randall R. Baird); 14-187 (Marianne Atkinson).

[42] Two Petitioners raise concerns regarding the "serious consequences" that could result from "over-pressurizing the annulus of the long string casing." Appeal No. 14-175, at 5 (Duane Marshall); 14-188, at 3 (Richard L. Atkinson). Petitioners assert that the high pressure in the open annulus outside the long string casing could result in fluid migrating into USDWs. Because this issue was not raised in the comments on the draft permit, it was not preserved for review with the Board. The Board therefore denies review. *See* 40 C.F.R. § 124.19(a)(4)(ii) ("Petitioners must demonstrate, by providing specific citation to the administrative record, including the document name and page number, that each issue being raised was raised during the public comment period * * *."). Moreover, the Permit contains casing and cementing requirements designed to prevent the movement of fluids into or between underground sources of drinking water. *See* Permit pt. III.A.2 (Casing and Cementing). In addition, the Permit prohibits injection until the permittee demonstrates that the well has mechanical integrity. *See* Permit pt. III.A.4 (Mechanical Integrity). Finally, the Permit includes provisions to prevent over-pressurization and protect USDWs. As the Region stated in the Statement of Basis accompanying the draft permit,

> [t]he permittee will be responsible for monitoring injection pressure, annular pressure, flow rate and cumulative volume on a continuous basis and reporting this data to EPA on an annual basis. The permittee is also

H. *Scope of Board Review*

Petitioners also raise the following issues that are beyond the scope of the Board's authority over this UIC permit appeal: (1) the effect of the proposed well on property values and future zoning decisions; (2) the subsurface mineral rights in the area surrounding the well; (3) the possibility of surface spills; and (4) the potential for Marcellus shale production wells to be permitted in the future.[43] As this Board previously has stated, "the UIC permitting process is narrow in its focus and the Board's review of the UIC permit decisions extends only to the boundaries of the UIC permitting program, which is limited to the protection of underground sources of drinking water." *In re Bear Lake Props.*, 15 E.A.D. 630, 643-44 (EAB 2012) (citing cases). Because these claims are outside the Board's permitting review authority, the Board denies review on all these issues. *See In re Stonehaven Energy Mgmt., LLC*, 15 E.A.D. 817, 825 n.6 (EAB 2013).

Finally, Petitioners question whether the permittee can be trusted to comply with the Permit.[44] Concerns regarding future noncompliance are speculative and do not call into question the terms of an otherwise valid permit. A permit appeal is not a forum to entertain speculations about future permit violations and enforcement. *See, e.g.*, *In re Russell City Energy Ctr., LLC*, 15 E.A.D. 1, 85 (EAB 2010) (holding that "fear of lax enforcement by the permit issuer is not grounds for review of the permit"), *petition denied sub nom. Chabot-Las Positas Cmty. Coll. Dist. v. EPA*, 482 F. App'x 219 (9th Cir. 2012). The Board thus denies review on this issue.

> required to conduct a mechanical integrity test (MIT) once every two years and a pressure fall-off test annually. These tests will provide EPA 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.

Statement of Basis at 3; *see also* Permit at 7-8, pt. II.C (Monitoring Requirements).

[43] The following petitions raise one or more of these issues: Appeal Nos. 14-73 (Travis P. Smith); 14-80 (Brady Township); 14-82 (Valerie J. Powers); 14-87 (Barb Emmer); 14-88 (Laurie Wayne); 14-107 (Terry & Carole Lawson); 14-108 (Loretta Slattery); 14-174 (Darlene Marshall); 14-175 (Duane Marshall); 14-176 (Nancy Moore); 14-178 (Randall R. Baird); 14-187 (Marianne Atkinson); and 14-188 (Richard Atkinson).

[44] *See* Appeal Nos. 14-87 (Barb Emmer); 14-88 (Laurie Wayne); 14-174 (Darlene Marshall); 14-175 (Duane Marshall); 14-176 (Nancy Moore).

V. *CONCLUSION*

For all of the reasons stated above, the Board denies the petitions for review of the Region's Permit decision in their entirety.

So ordered.

Attachment A:
Petitioners and Corresponding Appeal Numbers

* Petitioners who filed identical petitions for review.

Travis P. Smith (14-73)
*Daniel J. & Cindy J. Crytser (14-74)
*Ted & Rona Crytser (14-75)
Norma Gregorio (14-76)
*Bernard Pifer (14-77)
*Ruth A. Reitz (14-78)
*Rodney Pifer, Jr. (14-79)
Brady Township Supervisors (14-80)
Sandy Township Supervisors (14-81)
Valerie J. Powers (14-82)
Randell T. Powers (14-83)
*Kim Norris (14-84)
*Kathy Champion (14-85)
Leslie Swope (14-86)
Barb Emmer (14-87)
Laurie Wayne (14-88)
Ralph E. Hamby (14-89)
Robert Green (14-90)
Rev. James & Sherry Green (14-91)
Ethel Marshall (14-92)
Robert Marshall (14-93)
Vivian Marshall (14-94)
*Beth Gilga (14-95)
*Dawn Smith (14-96)
*Robert & Pauline Wells (14-97)
*Del & Joan Spafford (14-98)
*Timothy H. Turner (14-99)
*Susan G. Turner (14-100)
*James W. Mack (14-101)
*Terrence & Susan Nasoni (14-102)
*Nora Jenney (14-103)
*Helen Jenney (14-104)
*Rob and Edye Stewart (14-105)
*Cecil E. Gelnett (14-106)
Terry & Carole Lawson (14-107)
Loretta Slattery (14-108)
*Darryl Beatty (14-109)
*Judy Chewning (14-110)
*Francis E. Hand (14-111)
*Rosemary Frizzell (14-112)
*John Hook (14-113)
*Albert Marsh (14-114)
*Barbara A. Marsh (14-115)
*Shirley Wells (14-116)
*Harry Peoples (14-117)
*Brenda Peoples (14-118)
*Donna J. Gardner (14-119)
*John Parsons (14-120)
*Kenneth R. Flanders (14-121)
*Sean Zimmerman (14-122)
*Emily Zimmerman (14-123)
*Monica Lockhart (14-124)
*David M. Kovall (14-125)
*Tom Nelen (14-126)
*Sue Nelen (14-127)
*Lorraine Shadduck (14-128)
*Sharlene King (14-129)
*Harriet J. Moyer (14-130)
*Dennis R. & Terry L. Marsh (14-131)
*Donald W. Krach (14-132)
*Delores Krach (14-133)
*Tim Bodt (14-134)
*Grace Bergin (14-135)
*Justin Kaufman (14-136)
*Deborah Stolfer (14-137)
*Tia Carpenter (14-138)
*Kari Armagost (14-139)
*Michael & Lacey Stockdale (14-140)
*Craig Carpin (14-141)
*Rhonda Charles (14-142)
*Kenneth Doverspike (14-143)
*Courtney Thompson (14-144)
*John M. Glabicki (14-145)
*Mechele Foust (14-146)
*Nicole Ludwig (14-147)
*Lynn Love (14-148)
*Joyce Braun (14-149)
*James Sykes (14-150)
*Patty Thomas (14-151)
*Dennis J. Charles (14-152)

*Julie & Matt Craig (14-153)
*Michelene Schwabenbauer (14-154)
*R.G. Ziegler (14-155)
*Wanda Lockwood (14-156)
*Donna Work (14-157)
*William Voris (14-158)
*Steven Cory Clark (14-159)
*Jennifer Hicks (14-160)
*Amanda Torrell (14-161)
*John Genevro (14-162)
*Bonnie Genevro (14-163)
*Donna J. Boring (14-164)
*Gale Wells (14-165)
*Kerri Bojalad (14-166)
*Ronald Greathouse (14-167)
*Joyce Greathouse (14-168)
*Peter L. Erickson (14-169)
*Dawn Erickson (14-170)
*Jonell Reay (14-171)
Margaret Cyphert (14-172)
* Brady & Patricia LaBorde (14-173)
Darlene Marshall (14-174)
Duane Marshall (14-175)
Nancy Moore (14-176)
*Stephen W. Way (14-177)
Randall R. Baird (14-178)
City of DuBois (14-179)
Diane Bernardo (14-180)
*John M. Barr (14-181)
*Tabatha Smith (14-182)
*John E. Phillips (14-183)
*Doug & Debbie Heberling (14-184)
*Lesha Martinez (14-185)
Wilson Fisher, Jr. (14-186)
Marianne Atkinson (14-187)
Richard Atkinson (14-188)
Rep. Matt Gabler (14-189)
Clearfield County (14-190)