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

In the Matter of:	)	
Windfall Oil & Gas Inc.	)	
UIC Permit No. PAS2D020BCLE	)	Permit Appeals UIC 14-73 *et al*

REGION III'S RESPONSE TO PETITIONS FOR REVIEW

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INTRODUCTION

The United States Environmental Protection Agency, Region III (Region) hereby responds to the numerous petitions for review filed with the Environmental Appeals Board (the Board), challenging Permit No. PAS2D020BCLE issued by the Region to Windfall Oil & Gas Inc. (Windfall), under the Underground Injection Control (UIC) Program, Part C of the Safe Drinking Water Act (SDWA), 42 U.S.C. § 300h *et seq*. Attached to this response is a certified index of the administrative record for the challenged permit. *See* Exh. A.

For the reasons set forth below, the petitioners have failed to meet their burden to obtain review by the Board, and therefore their petitions should be denied.

STATUTORY AND REGULATORY FRAMEWORK

Congress enacted the SDWA in 1974 to ensure that the Nation's sources of drinking water are protected against contamination and "to prevent underground injection which endangers drinking water sources." 42 U.S.C. § 300h(b). Part C of the SDWA, 42 U.S.C. §§ 300h to 300h-8, is designed to protect underground sources of drinking water from contamination caused by underground injection of fluids. Among other things, the SDWA directed EPA to promulgate permit regulations containing minimum requirements for State UIC programs. 42 U.S.C. § 300h. In states without an approved UIC program, EPA directly implements the UIC regulations and issues permits. The Commonwealth of Pennsylvania has not received approval to implement the UIC Program of the SDWA. Therefore the Region is the permitting authority for the UIC Program in Pennsylvania. *See* 40 C.F.R. §§ 147.1951 – 147.1955.

EPA's regulations implementing the UIC program are contained in 40 C.F.R. Parts 144-148. Part 144 establishes the regulatory framework, including permitting requirements, for EPA-administered UIC programs. Part 146 sets out technical criteria and standards that must be met in permits. Certain procedural requirements applicable to UIC permits are found in 40 C.F.R. Part 124. In addition, state-specific requirements applicable in Pennsylvania are set forth in 40 C.F.R. Sections 147.1951 – 147.1955.

The UIC regulations classify injection wells as Class I, II, III, IV, V, or VI. *See* 40 C.F.R. §§ 144.6, 146.5. The permit at issue in these appeals is for a Class II well. Class II wells are defined as

> [w]ells which inject fluids: (1) Which are brought to the surface in connection with natural gas storage operations, or conventional oil or natural gas production and may be commingled with waste waters from gas plants which are an integral part of production operations, unless those waters are classified as a hazardous waste at the time of injection; (2) For enhanced recovery of oil or natural gas; and (3) For storage of hydrocarbons which are liquid at standard temperature and pressure.

40 C.F.R. § 144.6(b). The Windfall permit is for the injection for disposal of brine and other fluids brought up in association with gas and oil production.

STANDARD OF REVIEW

The Board must decline review of a UIC permit decision unless it finds that a permit condition is based on a clearly erroneous finding of fact or conclusion of law, or involves an important matter of policy or discretion that warrants review. 40 CF.R. § 124.19; *see In re Beeland Group, LLC*, 14 E.A.D. 189, 195 (EAB Oct. 3, 2008). The discretion of the Board to review permit decisions should be exercised sparingly. *Id.* at 195-96 (quoting the Consolidated Permit Regulations, preamble to 40 C.F.R. § 124.19, 45 Fed. Reg. 33290, 33412).

Petitioners have the burden of demonstrating that the issues raised in their petitions warrant review. *See In re Beeland Group*, 14 E.A.D. at 195; *In re Envtl. Disposal Sys., Inc.*, 12 E.A.D. 254, 264 (EAB 2005). A petitioner does not satisfy this burden merely by relying on previous comments or statements. *See In re Penn. General Energy Co., LLP*, UIC Appeal Nos. 14-63 et al, slip op. at 7 (Aug. 21, 2014). Instead, the petitioner must demonstrate why the regional response to particular comments or objections is clearly erroneous or warrants review. *See In re Beeland Group*, 14 E.A.D. at 196; *In re Envtl. Disposal Sys., Inc.*, 12 E.A.D. at 264; *In re Sunoco Partners Marketing & Terminals, LP*, UIC Appeal No. 05-01 (EAB June 1, 2006)(Order Denying Review in Part and Remanding in Part) at 9. In addition, the Board generally defers to the permit issuer on the review of technical issues. *See, e.g., In re Beeland Group*, 14 E.A.D. at 199; *In re Sunoco Partners,* UIC Appeal No. 05-01 (EAB June 1, 2006) at 9. Finally, the Board's authority to review a UIC permit does not extend beyond the goals of the UIC program to protect underground sources of drinking water (USDWs). *See In re Envtl. Disposal Sys., Inc.*, 12 E.A.D. at 266; *see also In re Sunoco Partners*, UIC Appeal No. 05-01 (EAB June 1, 2006) at 10; *In re Envotech, L.P.*, 6 E.A.D. 260, 286 (EAB 1996)("[T]he SDWA … and the UIC regulations … establish the *only* criteria that EPA may use in deciding whether to grant or deny an application for a UIC permit.")(emphasis in the original).

FACTUAL AND PROCEDURAL BACKGROUND

On April 11, 2012, the Region received an application from Windfall for a UIC permit authorizing the construction and operation of a new Class II disposal well, to be located in Brady Township, Clearfield County, Pennsylvania. Exhs. B; E. The application for this permit, which was submitted in accordance with 40 C.F.R. §144.31, included information on the well's construction; how the well would be operated and monitored; information on drinking water

wells and gas production wells that exist in the area surrounding the injection well; and the geologic conditions surrounding the site, including location of a fault system in the area and shallow ground water depth.

Following receipt of Windfall's application, the Region conducted a review of the application. As part of this review, the Region evaluated the geology of the injection and confining zones, and determined whether the well construction, the proposed operation and monitoring of the well, the plugging and abandonment plan, and financial assurance information that the permittee submitted met the regulatory requirements for Class II wells. *See* Exh. E. In compliance with the mandate of the SDWA, the Windfall application review was done with the purpose of ensuring that if the Region granted the permit, the permit conditions would protect USDWs from endangerment from the injection operations. *See* 42 U.S.C. § 300h(b)(1)(B); 40 C.F.R. § 144.12. In addition to the technical review of the permit, on July 2012, the Region held an informational meeting with local public officials and some selected members of the public at the Brady Township Community Center, to discuss the UIC permitting process. *See* Exh. CC at 23.

Based on the technical review, the Region developed a draft permit and a statement of basis. Exhs. D; E. Consistent with the requirements of 40 C.F.R. § 124.10, the Region provided public notice on November 7, 2012, in The Courier-Express, a DuBois, Pennsylvania newspaper, that the Region was accepting public comment on the draft permit, and that it intended to hold a public hearing on December 10, 2012. Exh. C. Copies of the permit application as well as the statement of basis and the public notice were sent to the DuBois Public Library in DuBois, Pennsylvania, for public review. *Id.* In addition, the notice was posted on November 7, 2012, on the Region's public notices website. *Id.*

The Region received numerous written comments on the draft permit by mail and email. Exh. G. In addition, many people attended the December 10, 2012, hearing, where over 25 people provided oral testimony. Exh. F. Subsequent to the hearing, the Region extended the public comment period until December 31, 2012. Exh. C.

Because many of the initial comments included concerns about earthquakes induced by underground injection, and because the application materials indicated that there are subsurface faults near the proposed well, the Region decided to reopen the comment period, explain further the decision to propose an injection permit in an area with faults, and request comments on the issues of injection-induced seismicity and the risk of earthquakes to the injection well. Exhs. H, I. On August 9, 2013, the Region published a notice about the reopening of a limited comment period in The Courier-Express, and on the Region's public notice website. Exh. H. The Region also mailed or emailed notices to those who had commented during the original comment period. The comment period lasted until September 11, 2013. The Region received a significant number of comments on these issues. *See* Exh. J.

On February 4, 2014, the Region issued a final permit to Windfall for a UIC Class II injection well, which was appealed to the Board. Exh. AA. In response to the petitions for review, the Region moved to voluntarily withdraw the permit in order to reconsider the comments submitted on the draft permit, and to ensure that the permit would meet the regulatory requirement. Exh. AA. The Board granted the Region's motion to withdraw the permit.

After further consideration of the permit conditions, the record and the public comments, the Region decided to issue a final Class II permit to Windfall, effective on October 31, 2014. Exhs. AA; BB. This final permit did not differ from the February 2014 permit that was

withdrawn.[1] Because there were no changes in to the permit or substantial new questions raised, the Region issued the permit without reopening the comment period. *See, e.g., In re Dominion Energy Brayton, LLC*, 13 E.A.D. 407, 415-16 (EAB 2007) (holding that the region did not abuse its discretion in declining to reopen the public comment period on remand, where the permit conditions did not change). Although the final permit conditions remained unchanged, the Region issued concurrently with the permit, a revised Response to Summary document that provided a more detailed explanation of the permit decision and detailed responses to the public comments. Exh. CC. Pursuant to 40 C.F.R. Section 124.15(a), the Region mailed or emailed the Response to Summary Comments and Notice of Final Permit to all who provided written comments. Exh. AA.

In reaching this permit decision, the Region established through its technical evaluation permit conditions to prevent the injection operations from endangering USDWs. The lowermost USDW at the location of the well site is above 800 feet below surface level. Exh. CC at 4. The Region determined that approximately 6,500 feet of shale or other rock separate the lowermost USDW from the injection zone, the Huntersville Chert-Oriskany formations, found at approximately 7,300 to 7,387 feet below the surface. Exh. E at 2. At least one confining zone, the Onondaga formation, consisting of about 14 to 18 feet of shale, and located immediately above the injection zone, will contain the injected fluid within the injection zone, and prevent upward movement of the injectate. Exh. CC 12-13.

The permit requires the proposed well to have surface casing cemented back to the surface from a depth of approximately 1,000 feet. Exh. BB at 11. In addition to the surface casing required by the regulations, the permit requires two additional cemented water casings to

[1] The final permit did differ from the draft permit in that the final permit imposed a stricter maximum injection limit and an additional water protection casing.

protect shallow ground water and existing water wells. One water protective casing will be placed to a depth of 170 ft; the second water protective casing will be placed to a depth of 370 ft. Both of these casings are to be cemented to the surface. *Id.* Injection will occur through tubing which will be placed inside long string casing. The long string casing will run from the bottom of the well to the surface, and will be cemented back from the bottom up to 5,000 feet below surface. *See* Exhs. B-5 at 9; BB at 11.

The permit also includes injection volume and pressure limits, as well as monitoring requirements, to ensure the proper operation of the well. Exh. BB at 7-8, 11-12. The maximum injection pressure was calculated to prevent fracturing of the injection zone during operation. Exh. CC at 13-14. The permit requires that, prior to commencing injection into this well, the permittee conduct a pressure fall-off test and a mechanical integrity test to verify reservoir pressure and expected flow characteristics, and to ensure that the well as constructed does not leak or cause fluid movement outside the injection well. Exh. BB at 8. The permit also requires that prior to commencing operations the permittee submit a completion report which includes drilling and cementing records, gamma ray logs of the formations, which will confirm the formation layers, and a cementing log, to confirm proper cementing of the casings. Exh. BB at 12. Once the injection begins, continuous monitoring of the injection pressure, annular pressure[2] and injection volume is required, to verify continuous compliance with injection pressure limits and the mechanical integrity requirement. Exh. BB at 7. The well will also be equipped with an automatic shut-off device in case a leak is detected and the annular pressure increases. *Id.* Furthermore, to ensure the proper operation of the well, the permit requires the permittee to

[2] The annulus is the space between the tubing and the long string casing. It will be filled with fluid and monitored for pressure changes. *See* Exhs. B-4 at 20, CC at 20.

conduct a pressure fall-off test annually and also to test the well for mechanical integrity every two years. *Id.* at 8.

RESPONSE TO PETITIONS FOR REVIEW

This consolidated appeal involves 118 separate petitions (UIC Appeal No. 14-73 through UIC Appeal 14-190). Some of those petitions raise a only few of issues against the permit; others raise multiple arguments. Some simply state opposition to the permit and restate the comments submitted during the public comment period without addressing the Region's responses to those comments. Rather than addressing each of these petitions individually, this Response addresses the issues raised by all the petitions collectively. Although this Response may identify as an example a petition that raises a particular argument, other petitions may also have raised the same argument. Not all of the petitions raise all the issues discussed below.

Succinctly, the arguments raised by the petitioners include the following: 1) the Region improperly determined the area of review; 2) the injection zone is not separated from the USDWs by a confining zone free of open faults and fractures; 3) the coal mines in the area are conduits for contamination; 4) due to the faults in the area, the injection well can cause earthquakes; 5) the permittee did not provide adequate financial assurance; 6) the permit does not require adequate monitoring; 7) the long string casing should be cemented back to the surface; 8) the permit should specify the corrosion inhibitors that the permittee will add to injection fluid; 9) the information in the permit application contains inaccuracies and is missing a required topographical map; 10) the well will affect property values, property rights and traffic, and the permit does not provide for spill control or emergency response or limit the drilling of Marcellus shale wells; 11) the history of noncompliance in other injection wells argues against issuance of this permit; and 12) other miscellaneous issues raised in the comments. The petitions for review

filed by the petitioners fail because none of the petitions point to a permit condition (or lack thereof) that is based upon a clearly erroneous finding of fact or conclusion of law, or to an abuse of discretion or raise an important policy consideration that the Board should review.

1. The Region appropriately determined the area of review for the Windfall well.

Petitioners argue that the area of review was improperly determined because when the Region calculated the zone of endangering influence, it failed to consider the effect of the nontransmissive faults found in the receiving formation. *See, e.g.,* UIC Appeal Nos. 14-73 at 2; 14-174 at 7; 14-187 at 24. However, as explained in the Response to Comment document, and discussed below, the Region determined the area of review for the proposed injection well based on a fixed radius of one-quarter mile, which adequately protects USDWs.

Several petitioners also asked that the area of review be extended beyond the quarter-mile radius to include some surrounding gas wells. *See, e.g.,* UIC Appeal Nos. 14-73 at 2; 14-174 at 7. Some petitioners suggest that the area of review should be extended to a two-mile radius. *See, e.g.,* UIC Appeal Nos. 14-174 at 18. Because the area of review was established in accordance with the regulatory requirements and it is protective of the USDWs, the petitions for review on these bases should be denied.

a. *The Region appropriately established the area of review for the Windfall well using a fixed radius.*

The UIC permit regulations require that the Region determine an area around a proposed injection well called the area of review. *See* 40 C.F. R. §§ 146.3 (definition of area of review), 146.6 (determination of area of review). The main purpose for establishing an area of review is to determine whether corrective action is necessary prior to operating an injection well. Corrective action addresses improperly abandoned or sealed existing wells that penetrate the

injection formation and could provide conduits for contamination. *See* 40 C.F.R. §144.55. Once the area of review is determined, the permittee must identify all known wells that penetrate the injection zone within that area. 40 C.F.R. §144.55(a). If any of such wells are improperly sealed or abandoned, the permittee must take corrective action prior to beginning injection. *Id.* This ensures that such wells within the area of review do not become potential conduits for the migration of fluids out of the injection zone.

Pursuant to 40 C.F.R. §146.6, the area of review for a Class II well can be determined through either a fixed radius or through the calculation of the zone of endangering influence (ZEI). The ZEI calculates the lateral distance from the well in which the pressure from the injection operation may cause the migration of fluid from the injection zone into an USDW. *See* 40 C.F.R. §146.6(a)(1)(i). The regulations give the modified Theis equation as one form which a mathematical model for calculating the ZEI may take. *See* 40 C.F.R. §146.6(a)(2). No formula or mathematical model apply to an area of review based on a fixed radius; rather, to determine an area of review based on a fixed radius the permit issuer must consider the chemistry of the injectate and the formation fluids, hydrogeology, population and ground-water use dependence and historical practices in the area. *See* 40 C.F.R. §146.6(b). The fixed radius cannot be less than one-quarter mile, but an area of review established through a ZEI calculation can be smaller. *See* 40 C.F.R. §146.6(b)-(c); *see also* 44 Fed. Reg. 23735, 23744 (Apr. 20, 1979) ("If the area of review is calculated by the use of a formula, the permissible radius is the result of the computation even if that is less than ¼ mile."); *see also* 45 Fed. Reg. 42472, 42481 (June 24,1980) (rejecting suggestion by commenters that one-quarter mile be the minimum radius for the area of review regardless of the ZEI).

Generally, the Region calculates a ZEI to decide whether to determine the area of review based on a fixed-radius or through a ZEI calculation. In this case, the Region used a model to

calculate a ZEI, as described in the Response to Comments document. *See* Exhs. E at 2; L; CC at 14-16. Computation of the ZEI is based on the parameters identified in 40 C.F.R. §146.6(a)(2). *See* Exh. L. To be conservative, the ZEI calculated by the Region for the Windfall well assumed that the well would be injecting the maximum permitted volume at the maximum permitted pressure for ten (10) years, although the permit is effective for only five years. *See* Exhs. K; CC at 15. Other parameters used for the calculation include injection formation permeability, depth and thickness of the injection formation and reservoir pressure. *See* Exhs. K; L; CC at 15. As is typical for the proposed construction of a new well, information on these parameters was obtained from an injectivity test conducted in another well in Clearfield County and from other nearby wells, in particular wells # 30327 and #20333, which are the two closest operating gas wells that reach the receiving formation, located within half mile of the proposed injection well.[3] *See* Exh. CC at 15. The Region reviewed the information on these parameters also with the knowledge of the geologic and operating parameters of other wells permitted by the Region into the same formation in Pennsylvania. *See* Exh. Y at 1-2. An area of review for the Windfall permit based on the ZEI calculation would have had a radius of 400 feet (in contrast with the area of review actually used, with quarter-mile radius of 1320 feet). *See* Exhs. K; CC at 15-16.

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[3] Petitioners point a typographical error on page 13 of the Response to Comments that refers to gas wells #30327 and #20333 as being "located about one-half mile to a mile from the proposed well location." Petitioners claim that the Region erroneously perceived those wells as being farther away than they are. Although the Response should have stated that those wells were located *within* one-half mile to a mile of the proposed injection well, contrary to petitioners' allegations that the Region erroneously perceives those gas wells as being far from the injections well, the Response to Comment was asserting that the geologic information used in the ZEI calculation came from the records of *nearby* wells. This statement was in response to comments that the geologic information, on which the permit for the proposed well is based, should not come sites from "many miles removed." *See, e.g.*, UIC Appeal No. 14-186 at. 4. The fact that those wells are closer to the proposed Windfall well than stated in the Response to Comment does not undermine the Region's decision to use geologic information from those gas wells to predict flow in the proposed Windfall well.

As with many models, the model to calculate the ZEI is based on assumptions about the injection zone and the effect of injection fluid on the formation pressure. *See* Exh. CC at 15-16. The modified Theis equation assumes that the injection zone is homogeneous and has infinite area extent. Although that is not the case for the injection zone for the proposed Windfall well because of the presence of a nontransmissive fault, it is still useful to calculate a ZEI for the proposed well to know how a formation with these particular permeability, thickness and reservoir pressure would respond under the injection well's operation parameters.

In addition to calculating a ZEI, the Region considered the applicable factors for the determination of an area based on a fixed radius. The Region considered the hydrogeology of the receiving formation, including the permeability, the reservoir pressure, the depth of the reservoir, the specific gravity and the nature of the injected fluid and the past experience with the flow of fluids injected into the Oriskany in other injection disposal wells in Pennsylvania. Exh. CC at 13, 15, 19. The Region considered the long and ongoing history of gas production in the area, which continues to deplete the reservoir. *Id.* The Region also took into account the use of groundwater by the nearby residents. *Id.* at 16. After reviewing these factors and the results of the ZEI calculation, the Region determined that an area of review with a quarter-mile radius would be protective, although the Region also decided to require verification of flow behavior in the reservoir through an initial and yearly pressure fall-off tests. *See* Exh. CC at 15.

The Windfall well permit requires that prior to commencing injection operations the permittee conduct a pressure fall-off test. *See* Exhs. BB at 8; CC at 16. A pressure fall-off test, which is a regulatory requirement for Class I wells (40 C.F.R. §146.13(d)(1)) but not for Class II wells, provides information about reservoir pressure and flow characteristics, including any preferential flow (fluid flowing in a particular direction, instead of radially) within the injection zone. Exh. CC at 16. In addition, the permittee must submit a construction report which must

include information on the geological formations in the wellbore. *See* Exh. BB at 12. The permit specifies that if the information obtained from the initial pressure fall-off test would result in a significantly different projected ZEI or require the calculation of a different maximum injection pressure, the permit must be modified accordingly. *See* Exh. BB at 8.

Petitioners argue that area of review was improperly calculated based on the ZEI because of the existence of faults within the injection formation. According to their argument, if there are nontransmissive faults in the injection formation, as is the case here, then the injected fluid will not flow uniformly but rather will flow in the direction away from the faults, and because of this the area of review should be expanded to account for this lopsided flow.

However, petitioners' argument regarding errors in calculating the ZEI is not relevant because the area of review was not established based on the ZEI calculation – but rather as discussed above, on the fixed radius approach authorized by the regulations. If EPA had based the area of review on its ZEI calculation, it would have resulted in a much smaller area, with a radius of about 400 feet, with no water or gas wells within it. Instead, the area of review has a radius more than three times longer than it would have if established based on EPA's calculation of a ten-year ZEI. The nontransmissive fault would not necessarily influence flow in the injection zone until flow, and the effects from pressure, actually reached the nontransmissive fault. Through the pressure fall-off test requirement, the area of review will be initially and annually reviewed based on actual data from the well –and modified if necessary.

b. The six nearby gas wells are outside the area of review.

Several petitioners argue that the fixed radius should have been extended beyond the quarter mile radius so that the area of review encompasses several gas wells that are near to but not inside the quarter-mile fixed-radius area of review. *See, e.g.,* UIC Appeal No. 14-174 at 7.

Petitioners list six such gas wells that are near the perimeter of the area of review: wells #20553, #20626, #20325, #20327, #20333 and #20341. *See, e.g.* UIC Appeal No. 14-80 at 2; *see also* Exhs. B-1 at 5; B-11. EPA did not find a technical reason to extend the area of review further at this time, in light of the factors considered in determining the fixed radius and of the opportunity to reassess the area of review in light of the pressure fall-off test after construction.

Some petitioners further argue that these nearby gas wells should be included within the area of review because their location in relation to the proposed well is represented in a survey plat with an accuracy range of +/-10 feet, *see* B-1 at 5, and thus those gas wells should be deemed as actually being within the area of review. However, petitioners are incorrect in their reading of the plat. The accuracy range that petitioners are referring to is for elevation metadata, not for distances between wells. *See id.* In any case, the listed gas well closest to the perimeter of the area of review is about 50 feet away. Even if its location were off by ten feet, it is still outside the area of review.

Similarly petitioners argue that the area of review should be extended due to the large number of water wells that are located outside but close to the area of review. *See, e.g.,* UIC Appeal No. 14-174 at 12. As explained, there are not technical reasons for extending the area of review.

c. *The wells near the area of review would not be subject to corrective action.*

Even if those six gas wells and other nearby water wells were covered by the area of review, the permit obligations would not change. As stated previously, the main purpose for establishing an area of review is to determine whether corrective action is necessary prior to operating an injection well. Corrective action required by the permit within the area of review applies only to improperly sealed or abandoned wells that penetrate the injection zone. *See* 40 C.F.R. § 144.55(a). None of the nearby water wells are deeper than 400 feet. They do not

penetrate the much deeper injection zone and thus are not subject to corrective action. See Exhs. B-1 at 18, CC at 16. Similarly, even if covered by the area of review, the gas wells listed above would not be subject to corrective action.

Gas wells #20553 and #20626 are shallower than the proposed Windfall well (as is well #20597, which is inside the area of review, near the proposed injection well). Since they do not reach the receiving formation, they cannot act as conduits for migration of the injected fluid to a USDW. Exh. B-1 at 9, 18 and 21.

There are two wells that reach the receiving formation, wells #20327 and #20333, that are operating. Exh. B-2 at 12, 29. Corrective action does not require the plugging of operating wells, absent evidence that the wells when operating present a risk to serve as conduits for migration of fluid from the injection zone to the USDWs. Although some petitioners mention that their well water gets affected when there is maintenance work on well #20333, *see, e.g.,* UIC Appeal No. 14-107 at 1, as explained in the Response to Comments document, it is not unusual for the drilling and work on the casings of a well to cause temporary turbidity and affect water pressure. *See* Exh. CC at 5.

There are two plugged wells that reach the injection zone which are located outside the area of review, wells #20341 and # 20325. Exh. B-2 at 8, 25. The application for the Windfall well includes certificates of plugging for both of these wells, which are filed with the State to document proper abandonment. Exh. B-2 at 7, 23. Although some petitioners are concerned about smells arising from well #20341, also called the Carlson well, the smells that the petitioners complain about are consistent with the venting pipe installed as described in the certificate of plugging, which documents that there is gravel material in the top half of the well and a vent pipe. Exhs. BB at 23; CC at 16. Vent pipes are not unusual in plugged gas wells to relieve gas pressure from shallower formations. Indeed, vent pipes are required for wells that

have been drilled through marketable coal, as coal seams can produce methane. *See* 58 Pa. Stat. §§ 4, 513.

Petitioners point to the different kinds and amounts of materials which were used to plug these two wells, alleging that this is evidence of improper plugging. *See, e.g.,* UIC Appeal No. 14-174 at 16. The fact that different materials or amount of materials have been used to plug wells of similar depth does not make the plugging procedure suspect, because there are different methods of plugging wells. *See, e.g.,* 40 C.F.R. §146.10(a)(2). Similarly, different kinds of additives, including salts, are used in the well cements to speed up or slow down the hardening of the cement based on varying temperature and chemical conditions that exist downhole at the time of plugging. *See generally* Exh. X at 90-97. Most important for the purpose of the proposed injection well, the certificate of plugging for the Carlson shows proper isolation of the lower half of well, including the receiving formation.

d. *The Class I requirement of an area of review with a two-mile radius does not apply to the Windfall well.*

Some petitioners propose that the area of review for the proposed Windfall well be based on a two-mile radius, because of the area of review requirement for Class I hazardous waste injection wells. *See* 40 C.F.R. § 146.63. However, there is no basis for applying the regulatory standard for Class I hazardous waste wells to a typical Class II disposal well. EPA examined the waste associated with oil and gas exploration and production and determined that it did not merit classification, and thus disposal, as hazardous waste. *See* 53 Fed. Reg. 25446 (July 6, 1988); *see also* 40 C.F.R. § 261.4(b)(4). The Windfall permit limits injection to fluids associated with oil and gas exploration; it is not authorized to inject hazardous waste.

2. The injection zone is separated by a confining zone free of known open faults or fractures.

Petitioners argue that it is not appropriate to permit an injection well at this site, because a) the confining zone is of variable or unknown thickness, b) there are faults in the confining formation, and c) fracturing of the nearby gas well could have fractured the confining zone. *See, e.g.,* UIC Appeal No. 14-174 at 7. Because the Onondaga formation is free of known open faults and fractures and is only one of several confining zones between the lowermost USDW and the injection zone, the Board should deny review.

a. *The Onondaga formation provides confinement for fluids in the Oriskany.*

The Class II permitting regulations require that all new Class II wells be sited so that they inject into a formation that 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). A confining zone is a geological formation that can limit fluid movement above an injection zone. 40 C.F.R. § 146.3 (definition of confining zone). In its application, Windfall identified as a confining zone the Onondaga sandstone, which overlays the receiving formations. Exh. B-4 at 1.

Petitioners have questioned the adequacy of the Onondaga formation as a confining zone. As pointed out in the public comments, the original statement of basis for the draft permit erroneously indicated that the Onondaga confining zone had a thickness of 50 feet. *See* Exh. E at 2. Although the thickness of the confining zone was misstated in the statement of basis, the permit application had provided accurate geologic information showing that the confining formation actually has a range of 14-18 feet in the area of the proposed well, *see* Exh. B-4 at 1, 3. In response to comments, the Region clarified that the Onondaga confining zone has a thickness ranging from 14 feet to 18 feet. *See* Exh. CC at 11.

The geologic information about the confining zone was provided in several sections of

the permit application including in the drilling logs of gas production wells 003-2033, 033-20325 and 033-20327 located near the site of the proposed injection well. *See* Exh. B-4 at 1, 3, 5, 12, and 15. The thickness of the Onondaga confining zone in these gas wells is 18 feet, 18 feet and 14 feet respectively. In addition, the permit application contains a chart that provides information on the Onondaga confining zone for the wells listed above and for several other gas wells located near the site of the proposed injection well. *See* Exh. B-4 at 3. Geological formations, including the Onondaga, are not uniform; therefore there will be a range in thickness depending on where a well is drilled.

The regulations do not impose a minimum thickness for the confining zone, as long as it can effectively limit fluid movement. In the case of the Onondaga formation, effective confinement has been demonstrated by the gas productivity of the Huntersville Chert/Oriskany formations, which have been productive for decades in the area of the proposed injection well. *See* Exh. CC at 9. This would not have been possible unless adequate confinement existed. If the Onondaga were not confining, the gas would have migrated out of the underlying formation.

Furthermore, the Onondaga is not the only confining zone between the receiving formation and the lowermost USDW. There are over 6,000 feet of rock formations between the receiving formation and the lowermost USDWs, including, for example, the Tully Limestone formation, which is also confining. *See* Exhs. B-4 at 4 -5, 12; G-14 at 24. The permit application provides drilling information that shows the existence of other shale and limestone geological formations above the Onondaga that will also act as confining units. These shale and limestone formations are located from 6,425 feet below land surface to 7,248 feet below land surface, a thickness of 823 feet. *See* Exhs. B-4 at 4 -5, 12, The regulations do not require that confinement be located immediately above the injection zone, just that a confining zone exists that prevents fluid movement out of the injection zone and into USDWs.

b. *The Onondaga formation is free of open faults because the existing fault is nontransmissive.*

Petitioners also argue that the injection site does not meet the regulatory requirement because the confining zone has faults within the area of review. However, the regulations require that the confining zone be free of *open* faults, while the faults identified in the Oriskany and Onondaga formations are nontransmissive faults (sealed faults that do not transmit fluids vertically).

The permit application identifies two faults within the area of review of the proposed injection well, that intersect the receiving and confining formations. *See* Exh. B4 at 1. Geologists have long recognized faulting in the Oriskany formation. Exh, O-1 at 70. The Pennsylvania Geological Survey illustrated the suspected fault system in the southern Penfield Quadrangle, where the proposed well site is located, in accordance with the interpretation of the geologic information available in the late 1950's/early 1960's. Exhs. O-1 at 70-71; O-2. The application refers to this fault pattern as published by the Pennsylvania Geological Survey. *See* Exhs. B-4 at 2; O-2 (the proposed well site is located at the intersection of Ad and Ae in Plate 12, to the west). In accordance with this pattern, there are two suspected fault lines within the area of review.[4] *See* Exh. B-10.

Well logs of gas wells in the area (most which were drilled in late 1960s) confirm the presence of a fault to the south of the proposed injection site. However, the well log data do not show a fault to the north of the injection site. *See* Exh. B-4 at 1, 3. There is no well log evidence that there is such a fault. *Id.*

A confining zone with an open fault would not meet the regulatory requirement.

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[4] Some petitioners refer to nines fault lines but they don't explain what the basis is for referring to nine fault lines. See, e.g., UIC Appeal Nos. 14-87 an 12-174.

However, the faults in the Oriskany in the area of the proposed well have long been recognized as nontransmissive faults, which is demonstrated by the long gas production history of the area. Geologists have recognized that the presence of the faults play a role in creating geological traps which result in successful gas production. *See* Exh. O-1 at 123-124. Traps are created because nontransmissive faults sealed off parts of the formation. *See also* Exh. G-14 at 36. Significant gas production is documented in the record for wells #20333 and #20327. *See* Exhs. W; CC at 9. If the faults were open, they would have provided a conduit for the gas to quickly escape the formation, in which case it would not available for production.

Petitioners argue that the Region has not shown that the faults in the area of review are nontransmissive because the Atkinson well (which petitioners do not identify by number, but which we assume refers to well #20333, which is located in the property belonging to the Atkinsons) is located in the other side of the fault depicted north of the proposed injection well site in the application's maps. Although the application's map does show a fault to the north of the proposed injection site, based on the Plate map of the Pennsylvania Geological survey, actual well data, as the Windfall application explains and documents, discredits the existence of a fault in the Oriskany between the proposed injection well and well #20333.

Because there is no evidence of an open fault in the Onondaga formation within the area of review, the Onondaga formation is a confining zone that meets the regulatory requirement for the proposed Windfall well operations. Furthermore, the faults found in the Oriskany and Onondaga formations do not extend upwards to the Upper Devonian formations and towards the surface (*see* Exh. O-1 at 71), so that they do not intersect other confining zones between the injection zone and the lowermost USDW.

c. *The fracturing of nearby vertical gas wells would not have created open fractures that would allow the movement of fluid into the USDWs within the area of review.*

Petitioners also argue that the confining zone is likely to have open fractures because of the fracturing of the gas wells near to the area of review. Because there is no evidence of fracturing that would affect the confining zone in the area of review, there is no basis to grant the petition on this ground.

The application identifies one gas well within the area of review and six other others within 500 feet of the area of review. Exhs. B-1 at 5; B-11. Three of those wells are much shallower than the proposed well, and thus do not reach the Onondaga confining zone: well # 25097, within the area of review at about 3,565 feet (*see* Exh. B-1 at 9); well # 20626 at 3,550 feet (*see* Exh. B-2 at 18); and well # 20553 at 3,425 feet (*see* Exh. B-2 at 21). At these depths they are at least 3,500 feet shallower than the Onondaga formation, and any fracturing done in these wells would not have extended downward that deep.

There are four deep gas wells that reach the receiving formation that are located within five hundred feet of the perimeter of the area of review and which may have been fractured when drilled: wells #20325, #20327, #20333 and #20341. *See* Exhs. B-1 at 5; B-2 at 8, 12, 25, 29.

Fracturing of the gas producing formation in vertical gas wells to increase output is a common practice that has been in place for decades. *See* Exh. X at 115. The practice of fracturing vertical production wells in 1960s was different from the current hydraulic fracturing of horizontal wells that is used for gas production of Marcellus shale wells. A Marcellus shale well has both a deep vertical wellbore, and a horizontal wellbore that starts at the bottom of the vertical wellbore and can extend hundreds if not thousands of feet away from the vertical portion of the well. In contrast, conventional deep wells drilled in the 1960's, such as the ones near the proposed Windfall well, only have vertical wellbores. In the case of wells drilled in the

Marcellus, the accompanying fracturing of the horizontal wells can extend very far from the vertical wellbore. *See* Exh. CC at 13. Fracturing of deep vertical wells does not propagate as far or have the lateral reach that is associated with the hydraulic fracturing of horizontal wells.

Fractures in deep wells, whether horizontal or vertical wells, propagate vertically (i.e. open horizontally, extending vertically) because of the overburden stress at that depth (i.e. the heavy weight of all the rock above the bottom of a deep well). In contrast, fractures in shallower wells, under 2500 feet below the surface, propagate horizontally (open vertically, extending horizontally) as subsurface stress decreases.

In the case of the nearby gas wells, fracturing done at the time of drilling would have propagated vertically, not laterally towards the area of review. As to those vertical fractures, the production history of the fracked vertical gas wells shows the limited vertical extent of the fracturing because fracturing has been done without impairing the integrity of the confining zone as evidenced by the continuous production of gas in the area. There is no evidence of gas migration around the deep gas wells near the area of review.

To support their argument that the fracturing of these gas wells near the area of review would have gone beyond the target gas production formations of Huntersville Chert/Oriskany, and would have resulted in open fractures extending into the Onondaga formation, petitioners refer to two studies by the Department of Energy. *See* UIC Appeal Nos. 14-175 at 7; 14-187 at 9. Petitioners refer to a 1981 study, but no petition includes a full reference to that study. Two petitions include some excerpts of a 2014 study. See UIC Appeal Nos. 14-187 at 9, 21; 14-188 at exhibits D, E and F. Neither of these documents are part of the record,[5] as they were not introduced during the comment period or prior to the date the permit was issued. The

[5] As required by 40 C.F.R. Section 124.19(b)(1), the index for the administrative record for the Windfall final permit is included in this Response as Exhibit A.

administrative record for a final permit is complete on the date the final permit is issued. See 40 C.F.R §124.18(c), *see, e.g. In re Dominion Energy Brayton, LLC*, 12 E.A.D. 490, 518 (EAB 2006)("[D]ocuments submitted subsequent to permit issuance cannot be considered part of the administrative record."); *In re City of Caldwell*, NPDES Appeal No. 09-11 (EAB Feb. 1, 2011)(Order Denying Review) at 16. Because they are not part of the record, the Board should not consider these studies in deciding whether to grant the petitions on this basis.

As described above, different wells develop different fracturing patterns depending on many factors, including the depth of the well and which intervals are perforated. The Region cannot respond to or evaluate the claims raised by the petitioners based on the 1981 study, without knowing the details of the study. The Region cannot address whether the findings of a study which is not part of the record are relevant to the proposed Windfall injection well, or whether there is a scientific basis for extrapolating the information from the study to the fractured gas wells near the proposed Windfall injection site area.

According to an excerpt of the 2014 study cited in some petitions, that study investigated the heights of the fractures of horizontal Marcellus Shale gas wells. That 2014 study concluded that although they could detect microseismic events 1,000 to 2,000 feet above the hydraulically fractured Marcellus shale well, there was no evidence of gas or brine migration. *See* UIC Appeal No. 14-188 at exhibits D, E, F. There is only passing reference to potential radial fracturing in shallower vertical wells that only reach the Bradford formation, about half as deep as the gas wells to the Oriskany near the area of review in this case. As discussed above, fractures in shallower wells can propagate horizontally farther than in deeper wells, because of the reduced pressure of the overburden. As this pressure increases with the depth of the well, it limits horizontal propagation of fractures. Neither the conclusion, the summary nor the results of the 2014 study excerpted in the petitions address at all the fracturing of deep vertical wells, thus that

study is not relevant to this permit. *See* UIC Appeal No. 14-188 at exhibit D.

d. *Any mining within the area of review would not have impacted the Onondaga confining zone because coal mines in the area are much shallower than the Onondaga.*

Petitioners also argue that fracturing would have been caused by mining, in the coal mines that are within the area of review. As explained in the Response to Comment document, coal mines near the proposed well are much shallower than the injection zone. *See* Exhs. CC at 17-18; *see also* Exhs. B-1 at 14; P-1 at 18-19; *see also* UIC Appeal No. 107 at 2 (referring to mine shafts located less than 300 feet deep). The Lower Freeport Coal is the major commercial seam in the area. *See* Exh. B-1 at 14. Any fracturing or any conduits that would have resulted from mining that seam would have occurred several thousand feet above the Oriskany and the Onondaga formations.

e. *The injected fluid will not corrode the limestone in the Onondaga formation because sampling of the injectate shows that it is pH neutral.*

Finally one petitioner is concerned that the injectate will contain acid and will dissolve the rock layers confining the fluid. *See* UIC Appeal No. 178 at 3. As explained in the Response to Comment document, the application contains sampling of the fluids to be injected in the well. *See* Exh. CC at 13. The sampling has shown that the injectate has a pH in the neutral range. *See* Exhs. B-2 at 38-46; B-3. Therefore it will not react with the limestone in the Onondaga.

3. Coal mines in the area of review are too shallow to serve as conduits of contamination

Petitioners also fear that the mine pools in the coal mines in the area could become contaminated with injected fluid and spread contamination to a larger area. *See, e.g.,* UIC Appeals Nos. 14-73 at 8, 14-86 at 2. As explained in the Response to Comment and in this Response, the coal mines near the well are in much shallower formations, that are isolated from

the proposed well by the 1000' deep surface casing cemented back to the surface. There are no abandoned wells, or any deep wells, within the area of review that could potentially allow fluid to migrate up to these mines.

4. The permit conditions control the risk of induced seismicity.

Petitioners argue that the Region should have denied the permit because of the potential risk of induced seismicity. *See*, e.g., UIC Appeal No. 14-186 at 2-3. Petitioners are particularly concerned because there is a fault near the proposed injection site. However, because the fault in the area is nontransmissive and because the permit conditions impose appropriate controls on injection pressure and rate, the Region reasonably found that the proposed well does not pose a risk of inducing seismicity.

a. *The fault in the injection zone does not pose a risk of induced seismicity because it is a nontransmissive fault.*

The Region recognizes that some injection wells have indeed been linked to earthquakes. As described in the *Region 3 Framework for Evaluating Seismic Potential*, brine disposal wells have the potential to induce seismicity where there is a fault in near-failure state, the injected fluid reaches the fault, and the pressure exerted by the injected fluid is high enough and it lasts long enough to facilitate movement across the fault line. *See* Exh. M; Q at 7-8. However, these circumstances are rare. The vast majority of brine disposal wells operate without inducing seismicity. There are only a few documented events nationwide of induced seismicity among compared to over 30,000 waste water disposal wells. Ex. P at 11. None of the dozens of injection wells permitted by EPA in Pennsylvania since 1985 have caused injection-related earthquakes.

The biggest concern for the petitioners regarding potential seismicity is the fact there is a

fault system near the proposed injection site. As described above, the Pennsylvania Geological Survey identified the suspected fault system in the Oriskany in this part of the state. *See* Exhs. O-1 at 70-71; O-2. The permittee included the suspected faults lines as interpreted by the Survey in a topographic map of the well area. Exh. B-11. This depicts two faults lines within the area of review of the map. However, as explained above, the drilling records for gas wells near the proposed injection site document only the existence of the fault to the south of the proposed injection well. There is no well log evidence that there is a fault to the north of the Windfall site within the area of review. *See* B-4 at 1, 3.

The fact that a fault is present in the receiving formation does not necessarily imply a potential for induced seismicity. *See* Exh. G-8 at 16. "[T]he vast majority of mapped faults in [Pennsylvania] have no seismicity at all associated with them." Exh. S at 12. This is consistent with the fact there is very little seismic activity in central Pennsylvania. There is no record of any earthquakes originating in Clearfield County. *See* Exh. N.

As explained above, the faults in that area of Pennsylvania have long been recognized as being nontransmissive, which is demonstrated by the long gas production history of the area. Geologists have recognized that the presence of the faults play a role in creating geological traps which result in successful gas production. *See* Exh. O-1 at 123-124. Traps are created because nontransmissive faults sealed off the formation. *See also* Exh. G-14 at 36. The abundant gas production of wells # 20327 and #20333 demonstrates the trap created by the nontransmissive fault in the area of review.[6]

Induced seismicity can occur only when high enough pressure is exerted to allow a near-

[6] The Response to Comments document refers to this area as a fault block. This does not imply that a fully bound block is found around the proposed well site, as that would have required nontransmissive faults surrounding the site. A fully bound formation is not an ideal site for injections, because the reservoir pressure would be likely to increase rapidly are result of the injection operations. In this case, the nontransmissive fault merely acts as a blocking mechanism preventing the flow of gas, confining the gas to uptilt side to the fault.

failure fault (a fault that is under pressure to shift, but where internal friction forces prevent it) to shift. With a nontransmissive fault, even if increased pressure associated with the injection operation were to reach the fault, it would be limited to the fault's horizon in the receiving formation (the section of the fault within the Oriskany). Because the fault is sealed, under the permit's limitation on injection pressure and rate, any increased in pore pressure due to the injection would not be sufficient to overcome the frictional pressure throughout the fault. Thus, it would not be able to induce an earthquake in that fault. In contrast, in transmissive fault, any increase in pressure will be felt throughout the fault.

b. Unlike the proposed Windfall well, disposal wells associated with induced seismicity injected at high rate and high pressure into low permeability formations.

Petitioners refer to the earthquakes caused by injection in Oklahoma, Arkansas, Ohio, and Texas, some of which involved unknown faults. As described in the Response to Comments, those instances of induced seismicity by injection have been linked to high rate of injection (high volume over a short period of time) and to high injection pressure into or right above Precambrian Basement rock, or to other low permeability formations. *See* Exh. CC at 10-12. As described in the Response to Comments, higher pore pressure, which could act upon an open fault, results from high rate and high volume injection into low permeability formations. *Id.* at 7. In the case of induced earthquakes in Ohio, deep injection was into the low-permeability Precambrian Basement. *See* Exhs. CC at 10-12; S at 9, 17. The wells in Arkansas were injecting into a receiving formation right above the Precambrian Basement, without being separated by a confining zone. *See* Exh, T at 4. In the case of the Oklahoma induced earthquakes, the wells were also injecting into the formation right above the Basement rock. *See* Exh. V at 2. In contrast with these wells, the Precambrian Basement at the Windfall well site is over 10,000 below the injection zone. Exh. CC at 11.

The Texas wells associated with induced seismicity had a high rate of injection, about 150,000 barrels of fluid per month. *See* Exhs. CC at 11; U at 1. The rate of injection at the Windfall well is limited to 30,000.

The petitions don't address the factors which were discussed in the Response to Comment that distinguish these injection wells associated with induced seismicity from the proposed Windfall injection well, or otherwise explain why the Region's response warrants review. Therefore the Board should deny review of the permit.

c. *The long history of gas production makes the Oriskany a good injection zone for a disposal well due to the decrease in formation pressure associated with gas production. Brine intrusion in a gas well is a sign of a depleted reservoir.*

In the Response to Comment the Region stated that the large amounts of gas historically removed from the Oriskany would have resulted in a lower reservoir pressure, which in turn increases available storage capacity. See Exhs. CC at 9; M at 2; *see* also Exh. P at 108. Petitioners challenge this conclusion by pointing to problems with brine intrusion in a nearby gas well. These petitioners believe that the fact that gas well # 20333 had installed a brine pump to be able to remove excessive brine from the well suggests that there is already too much brine in the injection zone. *See, e.g.*, UIC Appeal Nos. 14-175, 14-187. However, the fact that a pump jack was installed on well # 20333 in order to pump brine so that gas can be produced indicates that current reservoir pressure is not great enough to allow the flow of gas out of the formation and it must be artificially lifted by the use of a pump jack. In other words, the fact that more and more brine needs to be removed from gas wells in order to sustain gas production, *see, e.g.,* UIC Appeal No. 14-186 at 4, is not a sign of the Oriskany being fully saturated, but rather a sign of decreased formation pressure.

Petitioners fear that when fluids (gas and brine) were removed from a reservoir, other fluid (gas and/or brine) moved into the pore space that exists in the reservoir and now there is no

room for injected fluid. However, concerns that pore space is limited and will not accept additional injection fluid or will cause injection fluid to move out of the injection zone because of limited pore space are incorrect. Although fluids will be displaced and move within the injection zone when injection occurs, the Region has limited the ability of the injection fluid to move out of the injection zone by limiting pressure buildup and preventing the fracturing of the injection and confining zone. *See* Exhs. K; BB at 12-13. Since the permit limits injection pressure, should the pressure increase towards the maximum, then the operator would either have to cease operation or reduce the volume and rate of injection to continue to operate.

One petitioner questions whether the receiving formation can accept the amount of brine authorized by the permit when compared to the limited amount of brine extracted from the reservoir, as represented by the amount of brine extracted through well #20333. *See* UIC Appeal 14-178 at 2. The Response to Comments document explained that approximately 67,000 barrels of brine have been extracted in about 30 years of the operating history of well #20333. *See* CC at 9. The petitioner compares this amount to the monthly limit set in the Windfall permit, which is 30,000 barrels per month, and questions whether the reservoir can accept the proposed injection operation. However, with respect to reservoir pressure and capacity to accept fluid, what is important is the total amount of fluid (brine *and* gas) removed from the formation, which is measured in millions of millions of cubic feet (Mmcf) of natural gas. *See id.* The removal of all of the fluid is what results in reduced formation pressure which in turn increases the injection formation's capacity to accept injected fluids.

d. The permit imposes conditions to prevent injection-induced seismicity.

In addition to injecting into a reservoir with a long history of oil and gas production, to prevent induced seismicity, as well as to prevent fractures that could serve as conduits for fluid movement, the Windfall permit limits the maximum injection pressure so as not to create

fractures in the injection zone. *See* Exhs. BB at 12-13; CC at 9, 13-14. Although the UIC Class II regulations only require that the injection pressure be limited so as not to create fractures in the confining zone immediately adjacent to the lowermost USDW, *see* 40 C.F.R. §146.23(a)(1), the Windfall permit sets the maximum injection pressure at a level to prevent the propagation of any existing fractures or the creation of new fractures in the injection zone. *Id.* This is important in preventing induced seismicity because limiting the injection pressure not only limits the pressure exerted by the fluid in the reservoir, but also prevents the opening of existing natural fractures, or the creation of new fractures, that could serve as conduits for the fluid to travel to an unknown open fault. The permit also limits the volume to be injected. *See* Exhs. BB at 12; CC at 11.

5. The financial assurance provided by the permittee satisfies the regulatory requirements

Petitioners argue that the financial assurance provided by the permittee is inadequate. *See, e.g.,* UIC Appeal Nos. 14-73 at 4; 14-86 at 2. Because the permittee's financial assurance complies with the regulations, this is not a basis on which to deny to permit.

a. *The financial assurance provided by the permittee adequately covers the estimated cost of plugging the proposed well.*

The UIC regulations require that a permittee demonstrate and maintain financial resources to close, plug and abandon the injection well as required by the regulations. *See* 40 C.F.R. § 144.52(a)(7). Windfall included in its permit application a plan to plug the injection well for abandonment, as well as estimates from independent plugging companies to complete the work in the plan for a total of $30,000. *See* Exh. B-7 at 4-11. Windfall also submitted an irrevocable letter of credit and a standby trust agreement guaranteeing this amount. *Id.* at 12-20; *see generally* 40 C.F.R. § 144.63 (acceptable financial assurance mechanisms for Class I hazardous waste wells).

Petitioners argue that this amount would be insufficient to adequately plug the well. They cite a newspaper article about a Carnegie Mellon study estimating the cost of plugging Marcellus shale wells. *See* Exh. G-5 at 13. As discussed in the Response to Comment, it is difficult to compare the cost of plugging horizontal wells drilled in the Marcellus formation with a vertical disposal well because Marcellus shale wells have long horizontal wellbores in addition to the vertical wellbore. *See* Exh. CC at 21. The newspaper article cited by the petitioners also refers to an estimate of plugging shallow gas wells of about $60,000, but it provides no other details such as whether the figure refers to old abandoned gas wells, which might be more expensive to plug than wells of recent or new construction. Older wells can be more expensive to plug because many require excessive hours or rig time to remove materials (i.e., caving from the wellbore, uncemented casing, etc.) from the wellbore prior to plugging.

The estimate provided and assured by Windfall is consistent with the plugging estimates provided by other contractors for the plugging of other disposal wells permitted by the Region in Pennsylvania, which range, for wells constructed into the Oriskany, from $10,000 to $75,000. *See* Exh. Y at 3. In the experience of the Region's UIC field inspector in Pennsylvania, who has had experience in supervising plugging operations in that state, the estimate provided by Windfall is consistent with what he has observed in the field with regards to plugging of injection wells. *See* Exh. Z.

b. *The permittee is not required to provide financial assurance to guarantee water replacement in the event of contamination of the drinking water wells.*

Petitioners also argue that the financial assurance is insufficient because it does not cover environmental remediation and water replacement if water well contamination were to occur due to injected fluids migrating into a USDW. In the event of potential endangerment to the USDWs, EPA has authority to take action, regardless of the source of the endangerment. This

includes the authority to order provision of alternate water supply. See 42 U.S.C. § 300i(a). However, when applying for a Class II permit, the permittee is only required to provide financial assurance for the cost of plugging and abandoning the well and Windfall has complied with the permitting requirements.

6. The permit imposes adequate monitoring requirements.

Petitioners argue that the permit does not require an appropriate monitoring program. *See, e.g.,* UIC Appeal No. 14-174 at 3. They also argue that the permit should require monitoring wells. Because the monitoring requirements in the permit meet the standard of Part 146 of the regulations and are adequate to ensure proper functioning of the well, the petitions based on this ground should be denied.

Section 146.23 of Title 40 of the Code of Federal Regulations establishes the monitoring requirements for Class II wells. The permit shall require monitoring of the injected fluid at regular intervals, weekly monitoring of the injection pressure, flow rate and cumulative injected volume, and mechanical integrity testing at least every five years. 40 C.F.R. §146.23(b). The regulations do not require monitoring of ground water quality for Class II wells. *Cf.* 40 C.F.R. § 146.13(d)(2)(iii)-(iv)(monitoring requirements for Class I wells).

The Windfall permit conditions exceed these regulatory standards. The permit requires that injection pressure, annular pressure, flow rate and cumulative volume be recorded continuously. Mechanical testing is required every two years. *See* Exh. BB at 7-8. The permit also requires annual testing of the injectate as well as testing of the first fluid load of each new customer.

In addition to these requirements, the permit requires that an annual pressure fall-off test be conducted. *See id.* Pressure fall-off tests are not typically required of Class II wells; they are

standing requirements for Class I wells. *See* 40 C.F.R. §146.13(d)(1)(requiring annual pressure fall-off tests for Class II wells). The fall-off test, which can determine pressure buildup in the injection zone, is required to determine bottom-hole pressure and the flow conditions exhibited during injection operations in the Windfall permit. Exh. CC at 9.

a. *Class II wells do not require the use of monitoring wells.*

Petitioners argue that the permit is lacking a "comprehensive monitoring plan" as requested in the comments, because it does not require monitoring wells. They point to a different Class II disposal permit issued by the Region in Pennsylvania to Seneca Resources Corporation, where the permit requires monitoring wells. *See, e.g.,* UIC Appeal No. 14-187 at 7. Class II wells are not required to have monitoring wells either for reservoir pressure or for ambient monitoring. While the Region has required the use of monitoring wells where the permittee operates other existing wells within or near the area of review, that is not the case for this permittee.

Contrary to what the petitioners appear to believe, monitoring wells like the ones required in the Seneca permit do not monitor ground water quality. Rather they monitor changes in reservoir pressure that may force fluid up a conduit such as an abandoned well. If the pressure in the receiving formation increases drastically so that injectate would rise up a conduit, the rise in the fluid level would be detected in the monitoring well. That is why the Seneca permit cited in petition UIC Appeal No. 14-187 at 7 refers to monitoring fluid level.

Instead of monitoring wells, the Windfall permit requires the annual pressure fall-off test. The fall-off test also detects changes in reservoir pressure, but unlike monitoring wells, which would only detect such pressure changes if the increase in pressure has extended radially far enough from the wellbore to reach the monitoring well, the fall-off test will detect changes in reservoir pressure right at the wellbore. Therefore, a fall-off test will detect changes in reservoir

pressure before such change is detected at a monitoring well located outside the area of review.

Monitoring at the Windfall well to detect any possible leakage is to be done by the continuous injection and annular pressure monitoring, as changes in the differential pressures between the annulus within the long string casing and the well are indicative of mechanical integrity problems. *See* Exh. CC at 20. To complement this, the permit requires mechanical integrity testing every two years, which is more stringent than the minimum regulatory requirement.

b. *The permit requires monitoring to occur more frequently than what the regulations mandate.*

Petitioners argue that the fall-off test and the mechanical integrity test that are required by the permit should be required more frequently, such as quarterly fall-off tests and annual mechanical integrity tests. There is no technical basis for increasing the frequency of these tests beyond what the permit already requires. In the case of the pressure fall-off test, fluid movement underground and pressure changes occur slowly, as evidenced by EPA's ZEI calculation for a 10 year period. It does not make sense to require this test more frequently in light of the time scale for underground pressure changes. Similarly, the permit already includes continuous monitoring of the annular and injection pressure. The biannual mechanical integrity test compliments that requirement, and is significantly more frequent than what is required by the regulations.

c. *Petitioners did not raise the issue of monitoring of the annulus outside the surface casing, during the public comment period.*

Finally, petitioner Atkinson argues, for the first time, that the permit should be denied unless there is monitoring of the open annulus outside the long string casing and below the surface casing.[7] *See* UIC Appeal No. 14-188 at 4-5. Neither Mr. Atkinson nor any other

[7] This refers to the space between the long string casing and the well hole. Well holes are drilled slightly bigger than the casing, to allow for the installation of the casing in the well hole. *See* Exh. B-5 at 11-13. This annulus is different from the annulus between the tubing and long string casing, which is the one which must be monitored

commenter raised this argument during the public comment period.

The permit appeal regulations require that a petitioner demonstrate that any issue or argument raised on appeal was previously raised during the comment period. *See* 40 C.F.R. §124.19(a)(4)(ii). The Board has explained that the purpose of this requirement is to ensure that the region issuing the permit has an opportunity to address any potential problems. *See In re Chevron Michigan, LLC of Traverse City*, UIC Appeal No. 13-03 (EAB Nov. 7, 2013)(Order Denying Review), slip op. at 13-15; *In re Env. Disposal* Systems, 12 E.A.D. at 293. The Board should deny review on this basis for failure to preserve this argument during the comment period. In any case, before any fluid could reach the wellbore/annulus outside the long string casing, it would have to leak into the annulus inside the long string casing. The monitoring of the inner annulus would allow detection of any such leak or annular pressure changes.

7. Petitioners did not raise the argument, during the public comment period, that the long string casing should be cemented back to the surface to prevent overpressurization of the open annulus outside the long string casing.

Petitioners argue that the long string casing should be cemented all the way to the surface to prevent overpressurization of the annulus outside the long string casing. *See, e.g.*, UIC Appeal Nos. 14-175 at 5-6; 14-188 at 3. They fear that the pressure in the open annulus outside the long string casing might increase due to gas or fluid migrating to that annulus and that could lead to ground water contamination. Petitioners refer to a 1985 study on overpressurization due to fluid migration to the open annulus in gas wells. (Overpressurization here refers to an increase in pressure in the annulus, which is unrelated to overpressurization of the well. The latter refers to exceeding the maximum injection pressure limit.)

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under the permit.

Petitioners did not raise the argument of increased pressure in the annulus outside the long string casing during the public comment period. Nor did they introduce or reference the 1985 study, which is now included as an exhibit in Mr. Richard Atkinson's Petition UIC Appeal No. 14-188. As stated above, a petitioner must demonstrate that any issue or argument raised on appeal was previously raised during the comment period. *See* 40 C.F.R. §124.19(a)(4)(ii). Generalized questions and concerns during the comment period are not sufficient to preserve a more specific challenge during appeal. *In re Carlota Copper Co*, 11 E.A.D. 692, 722 (EAB 2004). The Board has rejected appeals based on issues that were reasonably ascertainable during the comment period, particularly those based on documents that existed at the time of public comments. *In re Chevron Michigan, LLC of Traverse City*, UIC Appeal No. 13-03 (EAB Nov. 7, 2013), slip op. at 14-15. Similarly the Board has declined to consider exhibits included in the filings which were not part of the administrative record. *See, e.g. In re Dominion Energy Brayton, LLC*, 12 E.A.D. at 518 (EAB 2006); *In re City of Caldwell*, NPDES Appeal No. 09-11 (EAB Feb. 1, 2011) at 16. For this reason alone, the Board should deny review based on this argument.

Even if the Board were to consider petitioners' argument about overpressurization, the Board should reject the petition for review because the construction requirements in the permit are protective of the USDWs. Ultimately the concern about overpressurization of the annulus is that gas from exposed shallow rock formations above the Huntersville Chert/Oriskany formations will move into drinking water aquifers not protected by the surface casing, as Mr. Atkinson summarizes in page 3 of his petition. But under the construction requirements for the Windfall permit, all USDWs, including the shallow drinking water aquifers will be protected by three strings of cemented casing. The permit requires that the Windfall well be constructed with three separate layers of casing: two layers of water protection casing, one at 170 feet and another

at 375 feet, and the surface casing down to 1000 feet. *See* Exh. BB at 11. The depth of the surface casing was set to protect the lowermost USDW, at 800 feet below the surface. *See* Exh. CC at 6-5. The permit requires all of these three casing layers to cemented back to the surface. *See* Exh. BB at 11. In addition, the long string casing will be cemented back from the bottom of the well to 5,000 feet below land surface, which significantly exceeds the requirements for injection well permitted in Pennsylvania. *See* 40 C.F.R. §147.1955(b)(5) (requiring cementing up 50 feet about the injection zone). After the well is constructed, the permit requires tests and records to document the cementing of the long string casing and the surface casing. *See* Exh. BB at 12. These cemented casings isolate the USDWs from the injection formation and from the open annulus.

Petitioners would prefer that the long string casing be cemented all the way to the surface. However, in setting the requirements for Class II wells in Pennsylvania, EPA determined that this type of well does not require cementing of the long string casing to the surface. *See* 49 Fed. Reg. 20138, 20171 (May 11, 1984)(final rule)(distinguishing the cementing requirements for Class I wells from those from Class II wells in Pennsylvania); 48 Fed. Reg. 40098, 40120 (Sept. 2, 1983)(proposed rule)(proposing the casing and cementing requirements for Pennsylvania as determined necessary and appropriate to protect USDWs). The Windfall permit complies with, and exceeds, the regulatory requirement.

8. Petitioners did not raise the argument that the permit should specify the biocides or corrosion inhibitors used in the well during the public comment period.

Petitioners ask that the permit be remanded because it does not specify the actual corrosion inhibitors and biocides that will be used in the injection operations. *See, e.g.,* UIC

Appeal Nos. 14-175 at 12, 14-187 at 4-5. Because this issue was not raised during the public comment period, it does not provide a basis for granting review.

During the public comment period, commenters raised concerns about the use of corrosion inhibitors in the injection operation. *See, e.g.,* Exh. G-3 at 52. They questioned whether the permit would allow the use of such additives. The Response to Comment document explained that the proper maintenance and operation of injection wells may require the use of corrosion inhibitors to prevent corrosion in the well. *See* Exh. CC at 19; *see also* Exh. X at 157-161. Petitioners now request that the permit be denied because it does not specify the particular corrosion inhibitors to be used by CAS number and the quantity to be used. Petitioners raised this issue for the first time in their petitions; they did not preserve this argument during the public comment period. For this reason, the Board should deny review based on this ground.

The best corrosion inhibitor for the Windfall operations may change if the composition of the injection fluid and downhole environment should change. The proper maintenance of the well may require changes in the corrosion inhibitors. Because of this, it is not appropriate to dictate the use of a particular corrosion inhibitor in the permit. In any case, the material safety data sheets for the inhibitors are included in Attachment O of the application. The materials safety data sheets contain safety information and list the CAS numbers of the ingredients in the inhibitors that the permittee intends to use. *See* Exh. B-6 at 46.

9. The decision to issue the permit was based on the information that must be considered pursuant to 40 C.F.R. §146.24.

Petitioners argue that the permit should be denied because it was based on incomplete or inaccurate information. They argue that there were discrepancies in the latitude and longitude given for the well and that the application did not include a map required by the regulations,

such as a topographic map showing drinking water wells and mines within the area of review. Because the Region based the decision to issue the permit on full and adequate information, the petitions for review on this basis should be denied.

a. The permit includes the correct coordinates for the well.

Some petitioners raise concerns about the latitude and longitude given for the proposed injection well in the permit application. *See* UIC Appeal Nos. 14-174 at 6; 14-175 at 4. The UIC application asks for the coordinates of the proposed well, which the permittee provided. Although the permittee did not include in the application a negative sign for the longitude given for the well, to indicate the longitude west of the Greenwich meridian, it is clear from the application and the maps included that Windfall was proposing a well in Pennsylvania, and not in Asia, where the same longitude towards the east would have placed the well. The degree of public participation in the public comment period as well as in this appeal shows that the proposed location of the well was clear to all. Ultimately, the coordinates in the permit are the ones that apply.

b. The permit application included all the map information required.

Petitioners argue that the permit should be denied because it did not include a map showing the area within a one-mile radius around the well, and because the map does not show all 17 drinking water wells or existing mines within the area of review. Because the maps submitted by the permittee provided all the information required, the petitions on this basis should be denied.

The regulations at 40 C.F.R. §144.31(e)(7) require that the permit applicant provide a topographic map of the area of one mile around the well depicting the facility, any hazardous waste facility or any injection well in that area, as well as any wells, drinking water wells, springs or surface water bodies within a quarter mile of the well, as listed in public records or

otherwise known to the applicant. The regulations do not specify the size of the map required.

The Windfall application included a number of maps to fulfill this requirement. Although there is no oversize topographic map depicting the area within a one-mile radius around the well, the application does include two smaller maps that depict such area. One of these maps is within the Erosion and Sedimentation Control Plan that is included in the application, which was available to the public at the DuBois Public Library[8]. *See* Exh. B-6 at 8. The other is a small inset topographic map within a larger map that focuses on the area of review. *See* Exh. B-8. While the inset map in Exhibit B-8 does not show the information on the wells and water resources within the quarter mile-radius area, that information is shown in greater detail in the topographic map of a larger scale in that same Exhibit. That topographic map, plotted on April 2012, identifies 17 drinking water wells[9] 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 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* Exhs. B-9; B-10; B-11.

Since there are no other injection wells or hazardous waste facilities near the proposed well, the detailed information that the Region must consider in determining whether to issue the

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[8] The administrative record for the draft permit consisted of the statement of basis and the application, which were available to the public at the DuBois public library throughout the public comment period and at the regional office. For the reopening of the comment period on the issue of induced seismicity, other materials were added to the record kept at the library, including a supplemental statement of basis, the document on the Region 3 framework for assessing seismic risk, the materials cited in that supplemental statement of basis and the framework document, and other materials on induced seismicity.

[9] Petitioners also refer to a typographical error about the number of drinking water wells listed in the Response to Comments document that accompanied the final permit that was issued on February 2014. That final permit was withdrawn, and that Response to Comment document was replaced by the Response to Comment document that accompanied the final permit issued on October 2014

Windfall injection permit is primarily within that quarter-mile radius area. The map showing the location of drinking and gas wells is of greater resolution than the map depicting one-mile radius around the well, and thus is very useful, because it is easier to see and to ascertain the information contained in the map.

In addition to the map required by 40 C.F.R. § 144.31, the regulations require that the Region, in deciding whether to issue a permit, consider a map showing the area of review depicting production, injection, abandoned and water wells, as well as dry holes, within the area of review. 40 C.F.R. § 146.24(a)(2). In addition, the map *may* also show other features such as mines. *Id.* (emphasis added). To facilitate this review the permit application asks that the map submitted by the permittee include mines within the area of review. Windfall submitted a map showing the coal mines in the area. *See* Exh. B-1 at 24. In addition, the Region also considered other maps of mines submitted by the commenters. *See* Exhs G-3 at 58; G-14 at 18; G-15; G-16.

Petitioners argue that the permit should not have been issued because there is no single topographic map that depicts all the information required by regulations. In essence, petitioners' argument is of form over substance. While it is true that there is no single map that depicts all of the information listed in 40 C.F.R. 144.31(e)(7) and 146.24(a)(2), Windfall did submit all the information required by the regulations, and the Region had before it all the information it must consider prior to issuing a permit. Having only one consolidated map with all this information would not have changed the permit decision. Because all of the required information was submitted and considered by the Region, the petitions based on lacking map information should be denied.

10. EPA lacks jurisdiction to address matters within state or local authority that are not directly related to the protection of USDWs

Petitioners raises many other issues in their petitions that are not related to injection wells and the protection of USDWs from the injection, such as the effect of the well on property values, zoning plans, gas and oil property rights, surface spills, increase in traffic, location in a residential neighborhood and potential permitting of future Marcellus shale production gas wells. Some petitioners also raised questions about the Windfall permit application for the state drilling permit or about compliance with the state well drilling requirements. One petitioner also asked about the effect on the proposed well of a Pennsylvania Supreme Court decision about Pennsylvania's Act 13. *See* UIC Appeal No.14-176 at 2. The Region finds no legal basis for considering these concerns in the review of the UIC permit application.

The decision whether to grant or deny a UIC permit application can only be based on the UIC regulations. *In re Envotech, L.P.*, 6 E.A.D. at 268. Neither the SDWA nor the UIC regulations authorize EPA to regulate injection wells beyond their impact on USDWs. *See In re American Soda, L.L.P.*, 9 E.A.D. 280, 289 (EAB 2002). Correspondingly, the Board's authority to review UIC permit decisions extends only to the UIC program requirements and its focus on the protection of USDWs. *See In re Sunoco Partners*, UIC Appeal No. 05-01 at 10; *see also In re Bear Lake Properties*, UIC Appeal No. 11-03, slip op. at 19. When petitioners have raised issues under a state's regulatory authority, the Board typically has denied their requests for UIC permit review on the ground that the Board lacks the authority to adjudicate such issues. *In re Envotech, L.P.*, 6 E.A.D. 260, 275-276 (EAB 1996) ("[T]he Board does not have authority to consider issues raised by petitioners concerning matters that are exclusively within the State's power to regulate").

Spill response and permitting of gas production wells are matters regulated by

Pennsylvania Department of Environmental Protection, not EPA. *See generally* Pennsylvania's Oil and Gas Act, 58 Pa. Cons. Stat. §3201 et seq; 25 Pa. Code §§78.55, 78.66 and 91.34 (on spill controls). EPA does not review or evaluate whether the proposed well complies with the state drilling requirements – the state permit is issued only after the permittee has a federal UIC permit. *See* 25 Pa. Code § 78.18 (requiring a state permit for drilling a disposal well, for which an EPA UIC permit is a requirement). Zoning, local traffic, local emergency preparedness, etc. are traditionally local matters, which are not subject to review by the Board. *See, e.g., In re Envtl. Disposal Systems*, 12 E.A.D. at 295 (questions of geographic siting of wells and transportation issues flow from state and local laws, thus not subject to Board review); *In re Puna Geothermal Venture*, 9 E.A.D. 243, 256, 258, 260, 270 (EAB 2000)(remanding permit that included permit requirements outside the scope of UIC program such as well setback, emergency response plan, notification to emergency responders, as well as an explicit requirement of compliance with state and local laws).

This does not means that Windfall does not have to comply with applicable state or local laws or regulations. *See In re Envotech, L.P.,* 6 E.A.D. at 275. The permit clearly states that it "does not convey property rights or mineral rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local laws or regulations." *See* Exh. BB at 2. However, EPA does not have the authority to decide compliance with local and State laws.

The conditions in the Windfall permit are intended to protect the USDWs. The issues listed by the petitioners are beyond the scope of SDWA and beyond the jurisdiction of the Region and of the Board in issuing and reviewing a UIC permit. The Board should not grant review of the permit based on any of these miscellaneous concerns raised by the petitioners.

11. Noncompliance by other permitted injection wells is not relevant to the Windfall permit determination.

Petitioners contend that the permit should not have been issued because of incidents of noncompliance at other injection wells. The petitioners referred to the Irvin well, a Class II disposal well operated by EXCO Resources, LLC, in Clearfield County and which was subject to a penalty order for violations of permit conditions; and to an enhanced recovery Class II well in McKean County. *See, e.g.,* UIC Appeal No. 14-174 at 6.

The Region addressed in the Response to Comment these and other examples of noncompliance in other UIC wells in Pennsylvania identified in the public comments. *See* Exh. CC at 22-23. The Response to Comment described how the wells in those cases differed from the Windfall well. *Id.* The Region also described how EPA inspections and actions addressed noncompliance in those cases that postdated the implementation of the Pennsylvania UIC program.

The Board has denied petitions for review on the basis of past noncompliance by the same permittee. *See, e.g., In re Puna Geothermal*, 9 E.A.D. at 278 (poor compliance history by the permitted does not provide a jurisdictional basis for the Board to grant review); *see also In re Envotech*, 6 E.A.D. at 273 (the compliance record of the permittee's sister companies is not relevant to the decision to grant a permit). In this case, petitioners are not even referring to noncompliance by the permittee, but rather to noncompliance by other unrelated permittees, which is even less relevant to the decision of whether to issue a permit in this case. Noncompliance by other permittees does not provide a basis for granting the petitions for review.

Petitioners are also concerned about the permit conditions that require the permittee to report noncompliance to EPA, arguing that self-reporting is ineffective. The Board has also denied review of petitions based on fears of future noncompliance. *See, e.g., In re City of*

Caldwell, NPDES Appeal No. 09-11 (Feb 1, 2011), slip op. at 14 (claims based on questions about future compliance are speculative and do "not call into question the permit terms"). Petitioners are in essence arguing that the permit should not be issued because the permittee will not comply with the self-reporting provisions of the permit, which is, as deemed by the Board in *In re City of Caldwell*, speculative. In any case, the Region does not rely solely on self-reporting for its oversight authority over Class II disposal wells in Pennsylvania. The Region inspects every Class II disposal well in Pennsylvania several times annually, in addition to reviewing the annual reports, in order to verify compliance.[11] *See* Exhs. Y at 5-6; CC at 22. As for the permit, it refers to enforcement mechanisms in the case of noncompliance, including enforcement actions and permit termination. *See* Exh. BB at 2.

12. The Region adequately responded to substantial comments submitted during the public comment period, and petitioners have not shown how the response failed to address their concerns.

In addition to the issues discussed above, which the petitions raised in more detail, some of the petitions repeated comments raised during the public participation period comments verbatim. The petitions repeat these comments without explaining how the Response to Comment failed to address the concerns raised. *See, e.g.,* UIC Appeal No. 14-174 at 12-30.

To warrant review by the Board it is not sufficient simply to repeat objections made during the comment period; instead a petitioner must demonstrate why the permit issuer's response to those objections is clearly erroneous or otherwise warrants review. *In re Cherry Berry*, UIC Appeal No.09-02 (EAB Aug. 13, 2010), at 5. Petitioners must explain why the

[11] Some petitions refer to a report by the Government Accountability Office on EPA oversight of UIC programs. *See, e.g.,* UIC Appeal No. 14-87 at 8. Apart from the fact that the report is not part of the administrative record for this permit, other than declaring that the report "demonstrates [their] concerns," petitioners do not explain how that report is relevant to this particular permit and the terms of the permit.

Region's response to comment failed to address the petitioners' concern. *See* 40 C.F.R. 124.19(a)(4); *see also In re Beeland Group*, 14 E.A.D. at 195-96. In *In re Cherry Berry*, UIC Appeal No.09-02, the Board found that the petition, which consisted of the previously submitted comments, reorganized and reprinted, often verbatim, was deficient because it failed to state why the response to comments on the draft permit was erroneous.

During the public comment period for the Windfall permit, the Region received comments from many people that addressed the same, or similar matters. In responding to public comments, the Region is neither expected nor required to respond on an individualized basis to every single discrete comment and subcomment submitted on a permit, in the same length and level of detail as the comment or subcomment itself. *See In re Envtl Disposal Sys., Inc.* 12 E.A.D. 254 at 287 (EAB 2005); *In re NE Hub Partners, L.P.*, 7 E.A.D. 561, 582-83 (EAB 1998). "Instead, succinct responses answering significant comments are adequate ..., 40 C.F.R. § 124.17(a)(2), so long as those responses, though brief, give 'thoughtful and full consideration' to public comments, and are 'clear and thorough enough to adequately encompass the issues raised.'" *In re Envtl Disposal Sys., Inc.* 12 E.A.D. at 287 (quoting *In re RockGen Energy CTR.*, 8 E.A.D. 536, 557 (EAB 1999) and *In re Wash. Aquaduct Water Supply Sys.*, 11 E.A.D. 565, 585(EAB 2004)).

Consistent with the procedure described by the Board in *Envtl Disposal Sys. Inc.*, the Region consolidated the comments on the Windfall permit and provided responses to the significant comments using a categorized approach. In addition to those issues already discussed in this Response, the Region also addressed in the Response to Comments document (Exh. CC) the following issues brought up in the comments repeated in the petitions:

a. The location of the lowermost USDW and of drinking water wells within the area of review. The Response to Comments addressed this on questions 6 and 13, at pages 4 and 16.

b. Concerns about the effect on water wells during the drilling of the proposed well. The Response to Comments addressed this on question 6, at page 5.

c. Injection pressure limit during operations, stimulation, and the prevention of fractures. The Response to Comments addressed this on question 12, at page 13-14.

d. Sampling of the injection fluid. The Response to Comments addressed this on question 17, at pages 19-20.

e. Concerns about an earthquake causing damage to the injection well, resulting in contamination of a USDW. The Response to Comment addressed this on question 9, at page 12.

f. Concerns about the waste being hazardous or radioactive. The Response to Comments addressed this on question 16, at page 18-19.

g. Concerns about geothermal wells. The Response to Comments addressed this on question 14, at page 16.

h. Requests for an environmental impact statement. The Response to Comments addressed this on question 25, at page 24.

i. Permit renewal after the permit expires. The Response to Comments addressed this on question 26, at page 24.

The petitions merely restated the original public comment, without addressing the Region's response. Because of lack of specificity, the Board should refuse to review the permit based on these issues.

13. There is no basis for subjecting this Class II well to Class I well requirements.

The essence of the challenge raised by the petitioners against this permit is not about the specifics of this well, but rather it is a challenge to the Agency's decision not to regulate the injection of produced fluids from oil and gas operations as the injection of hazardous waste.

What petitioners are asking is that the Windfall well, which falls under the definition of a Class II well under the UIC regulations, be regulated like a Class I hazardous waste well. They request that the well be subject to: a two-mile area of review (*cf.* 40 C.F.R. § 146.63); long-string casing cemented to the surface (*cf.* 40 C.F.R. § 146.65(c)(3)); ambient monitoring wells (*cf.* 40 C.F.R. § 146.68(e)); post closure monitoring (*cf.* 40 C.F.R. § 146.72); and mapping of the vertical and lateral limits of the USDWs (*cf.* 40 C.F.R. § 146.70(a)(5)). These are all requirements for Class I hazardous waste wells, not for Class II wells, and the Region has not found that such additional conditions are necessary to prevent migration of fluids to USDWs. Where the Region has found that such additional conditions are necessary, specifically an initial and annual pressure fall-off testing, the Region has exercised its authority under 40 C.F.R. § 144.52(a)(9) to include such additional more stringent requirement in the permit. The fall-off test will verify and annually confirm reservoir pressure and flow characteristic in a reservoir with a nontransmissive fault. There is no basis to impose the other Class I requirements requested by petitioners to this well – it does not differ from other Class II wells in such a way to merit more stringent requirements. *See, e.g.*, *In re City of Caldwell,* NPDES Appeal No. 9-11 at 11 (where "no legal requirement for the requested conditions exists…the Region did not err in excluding it").

CONCLUSION

The petitions have not shown that the Windfall permit conditions are based on clearly erroneous findings of fact, or an exercise of discretion or important policy consideration which the Board should, in its discretion, review. Therefore, the Region respectfully requests that the Board deny the petitions.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that I delivered a copy of the foregoing Region III's Response to Petitions for Review accompanied by a computer disk containing the listed exhibits on the date specified below, by U.S. mail to:

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I also certify that I filed the original electronically with the Environmental Appeals Board. In addition I filed one copy of the exhibits by Next Day UPS with the Clerk of the Environmental Appeals Board at:

Ms. Eurika Durr
Clerk of the Board
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U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Mail Code 1103M
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Date: 2/4/15

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