

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

In the Matter of:)

Seneca Resources Corp.)

UIC Permit No. PAS2D025BELK)

Permit Appeals: UIC 14-01, UIC 14-02
and UIC 14-03

REGION III'S RESPONSE TO PETITIONS FOR REVIEW

TABLE OF CONTENT

| | |
|--|-----------|
| TABLE OF AUTHORITIES | 3 |
| EXHIBIT LIST | 5 |
| INTRODUCTION | 7 |
| STATUTORY AND REGULATORY FRAMEWORK | 7 |
| STANDARD OF REVIEW | 8 |
| FACTUAL AND PROCEDURAL BACKGROUND | 9 |
| RESPONSE TO PETITIONS FOR REVIEW | 12 |
| 1. <i>Petitioner Hudson lacks standing to petition for review</i> | 13 |
| 2. <i>The Authority did not timely file its petition for review.</i> | 14 |
| 3. <i>None of the petitions meet the information specificity requirements of 40 C.F.R. § 124.19.</i> | 15 |
| 4. <i>The permit conditions protect the USDWs.</i> | 17 |
| 5. <i>The permittee has properly identified abandoned wells within the area of review.</i> | 19 |
| 6. <i>There is no evidence to suggest that the Seneca well poses a risk of induced seismicity.</i> | 21 |
| 7. <i>Effect of local ordinance is not relevant to a UIC permit determination.</i> | 23 |
| CONCLUSION | 24 |

STATEMENT OF COMPLIANCE WITH WORD LIMITATION:

This Response does not exceed the word count limitation or the alternate page limitation established at 40 C.F.R. § 124.19(d)(3).

TABLE OF AUTHORITIES

EAB Cases

| | |
|---|--------------|
| <i>In re American Soda, L.L.P.</i> , 9 E.A.D. 280 (EAB 2002). | 24 |
| <i>In re Bear Lake Properties, LLC</i> , UIC Appeal No.11-03 (EAB June 28, 2012), 15 E.A.D. ____ | 23, 24 |
| <i>In re Beeland Group, LLC</i> , UIC Appeal Nos. 08-01, 08-02, & 08-03 (EAB Oct. 3, 2008), 14 E.A.D. ____ | 8, 9, 13, 15 |
| <i>In re Beeland Group, LLC</i> , UIC Appeal Nos. 08-01 & 08-03 (EAB May 23, 2008)..... | 13 |
| <i>In re Cherry Berry</i> , UIC Appeal No.09-02 (EAB Aug. 13, 2010)..... | 16 |
| <i>In re Chevron Michigan, LLC of Traverse City</i> , UIC Appeal No. 13-03 (EAB Nov. 7, 2013)(Order Denying Review)..... | 13, 15 |
| <i>In re Envntl. Disposal Sys., Inc.</i> , 12 E.A.D. 254 (EAB 2005). | 9 |
| <i>In re Envotech, L.P.</i> , 6 E.A.D. 260 (EAB 1996). | 9, 23-24 |
| <i>In re Presidium Energy, LC</i> , UIC Appeal No. 09-01 (EAB Jul. 27, 2009) (Order Denying Review)..... | 15 |
| <i>In re Puna Geothermal Venture</i> , 9 E.A.D. 243 (EAB 2000)..... | 14, 16, 24 |
| <i>In re Stonehaven Energy Management</i> , UIC Appeal No 12-02 (EAB March 28, 2013), 15 E.A.D. ____ | 23 |
| <i>In re Sunoco Partners Marketing & Terminals, LP</i> , UIC Appeal No. 05-01 (EAB June 1, 2006) (Order Denying Review in Part and Remanding in Part). | 9, 15, 24 |

Federal Statutes

| | |
|---------------------------------|-------|
| 42 U.S.C. §§ 300h – 300h-8..... | 7 |
| 42 U.S.C. § 300h..... | 7, 10 |

Federal Regulations

| | |
|-------------------------|--------------|
| 40 C.F.R. § 124.10..... | 10 |
| 40 C.F.R. § 124.15..... | 11 |
| 40 C.F.R. § 124.19..... | 7, 8, 14, 15 |
| 40 C.F.R. § 143.3..... | 10 |

40 C.F.R. Parts 144 – 148.....8
40 C.F.R. § 144.6.....8
40 C.F.R. § 144.12.....10
40 C.F.R. § 144.31.....17
40 C.F.R. § 144.55.....19
40 C.F.R. § 146.5.....8
40 C.F.R. § 146.6.....19
40 C.F.R. § 146.24.....17, 19
40 C.F.R. §§ 147.1951-147.1955.....7, 8
40 C.F.R. § 147.1955.....18

Federal Register Notices

Consolidated Permit Regulations, 45 Fed. Reg. 33,290 (May 19, 1980).8

EXHIBIT LIST

- Tab A Certified Index of the Administrative Record
- Tab B June 25, 2012, Application as supplemented by Seneca during the review process
- Tab C Region's zone of endangering influence calculations
- Tab D Figures of the well in relation to water sources
- Tab E Statement of Basis for the draft permit
- Tab F Draft permit
- Tab G Public notices of draft permit
- Tab H Public hearing transcript
- Tab I Supplemental Statement of Basis
- Tab J Public notice for reopening of comments
- Tab K Region 3 Framework for evaluating seismic potential associated with UIC Class II permits
- Tab L National Academy of Sciences, *Induced Seismicity Potential in Energy Technologies*, National Academy Press (prepublication draft), 2012 , in particular Chapters 2 and 3
- Tab M *Preliminary Report on the Northstar1 Class II Injection Well and the Seismic Events in Youngstown, Ohio Area*, Ohio Department of Natural Resources, March 2012
- Tab N Charlers Scharnberg, *Earthquake Hazard in Pennsylvania*, Pennsylvania Geological Survey, 2003
- Tab O *Earthquakes in Pennsylvania*, website, Pennsylvania Department of Conservation and Natural Resources
- Tab P Seneca's June 13, 2013 letter on reservoir pressure
- Tab Q *Where are the Fault Lines in the United States East of the Rockies*, website, United States Geological Survey, Earthquake Hazard Program

- Tab R K. Keranen et al, *Potentially Induced Earthquakes in Oklahoma, USA: Links between Wastewater Injection and the 2001 Mw 5.7 Earthquake Sequence*, Geology, June 2013, vol. 41, no.6, pp. 699-702.
- Tab S Seismic maps of Pennsylvania
- Tab T Final Permit
- Tab U Notice of Permit Issuance
- Tab V Response to Summary Comments
- Tab W Ronald Wright Indictment
- Tab X Memorandum by David Rectenwald, UIC Inspector, on the abandoned wells plugged by Ronald Wright in relation to the Seneca injection well

INTRODUCTION

The United States Environmental Protection Agency, Region III (Region) hereby responds to the petitions for review filed by the Highland Township Municipal Authority (Authority), Judith Hudson, and Susan Swanson (jointly Petitioners). Pursuant to 40 C.F.R. § 124.19, Petitioners seek review by the Environmental Appeals Board (the Board) of a permit issued by the Region to Seneca Resources Corporation (Seneca), 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.

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 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 also found in 40 C.F.R. Part 124. In addition, certain state-specific requirements applicable in Pennsylvania are set forth in 40 C.F.R. §§ 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 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).

STANDARD OF REVIEW

The Board must decline review of a UIC permit decision unless it finds that a permit condition was based on a clearly erroneous finding of fact or conclusion of law, or involved an important matter of policy or discretion that warrants review. 40 C.F.R. § 124.19; *see In re Beeland Group, LLC*, UIC Appeal Nos. 08-01, 08-02, & 08-03 (EAB Oct. 3, 2008), slip op. at 9-10, 14 E.A.D. _____. The discretion of the Board to review permit decisions should be exercised sparingly. *See In re Beeland Group*, UIC Appeal Nos. 08-01 et al, slip op. at 10 (Oct. 3 2008), quoting the Consolidated Permit Regulations, preamble to 40 C.F.R. § 124.19, 45 Fed. Reg. 33,290, 33,412.

Petitioners have the burden of demonstrating that the issues raised in their petitions warrant review. See *In re Beeland Group*, UIC Appeal No. 08-01 et al, slip op. at 10 (Oct. 3 2008); *In re Env'tl. 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. Instead, the petitioner must demonstrate why the Region's response to particular comments or objections is clearly erroneous or warrants review. See *In re Beeland Group*, UIC Appeal No. 08-01 et al, slip op. at 10 (Oct. 3 2008); *In re Env'tl. 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 permitting agencies on the review of technical issues. See, e.g., *In re Beeland Group*, UIC Appeal No. 08-01 et al, slip op. at 14 (Oct. 3 2008); *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 Env'tl. 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 June 25, 2012, Seneca applied for a Class II brine disposal permit for the construction and operation of a well identified as #38268, located in Highland Township, Elk County, Pennsylvania. Exhs. A; E. The well is an existing gas production well that Seneca wants to convert into an injection well for disposal of brine from gas and oil production. The application for this permit included information on the well's construction, the geologic conditions

surrounding the site, including shallow ground water information, how the well would be operated and monitored, and information on both shallow drinking water wells and gas production wells that exist in the area surrounding the Seneca injection well.

Following receipt of Seneca'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 well construction, the proposed operation and monitoring of the well, the plugging and abandonment plan, and financial responsibility worksheets that were submitted met the regulatory requirements for Class II wells. *See* Exh. E. In compliance with the mandate of the SDWA, the Seneca application review was done with the purpose of ensuring that if the Region granted the permit, USDWs¹ would be protected from endangerment from the injection operations. *See* 42 U.S.C. § 300h(b)(1)(B); 40 C.F.R. § 144.12.

Based on that review, the Region developed a draft permit and a statement of basis. Exhs. E, F. Consistent with the requirements of 40 C.F.R. § 124.10, the Region provided public notice on or about November 7, 2012, in The Kane Republican, a Kane, Pennsylvania newspaper, that the Region was accepting public comment on the draft permit, and that it intended to hold a public hearing on December 11, 2012. Exh. G. Copies of the permit application as well as the statement of basis and the public notice were sent to the Friends Memorial Library in Kane, Pennsylvania, for public review. Exh. G. In addition, the notice was posted on November 7, 2012, on the Region's public notices internet site. Exh. G.

¹ An USDW is defined as an aquifer or its portion which contains less than 10,000 milligrams per liter of total dissolved solids and which is being or can be used as a source of drinking water. 40 C.F.R. § 144.3. This definition is meant to protect potential sources of underground drinking water, even if such water is not currently being consumed and would require desalination before use. Compare with the secondary maximum contaminant level for total dissolved solids recommended for public water systems under the SDWA, which is 500 mg/l. *See* 40 C.F.R. § 143.3.

The Region received over ten written comments on the draft permit by mail, and approximately 2400 comments by email. These included written comments submitted by Petitioners Swanson and the Authority. In addition, many people attended the December 11, 2012, hearing, where about 15 people provided oral testimony. Exh. H. Subsequent to the hearing, the Region extended the public comment period until December 31, 2012. Exh. G. The Region did not receive written comments from Petitioner Hudson, nor did she speak at the public hearing.

Because several of the initial comments included concerns about earthquakes induced by underground injection, the Region decided to reopen the comment period and requested comments limited to the issues of injection-induced seismicity and the risk of earthquakes to the injection well. Exh. J. On August 9, 2013, the Region published a notice about the reopening of the limited comment period in the Kane Republican, and on the Region's public notice website. Exh. J. 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.

On January 28, 2014, the Region issued a final permit to Seneca for a UIC Class II injection well. Exh. T. The Region also issued a Response to Summary Comments. Exh. V. Pursuant to 40 C.F.R. § 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. U.

In reaching this permit decision, the Region's technical evaluation determined that the lowermost USDW at the location of the well site is about 400 feet below surface level. Exh. E at 2. The Region determined that approximately 1,954 feet of shale or other rock separate the injection zone from the lowermost USDW. Exh. E at 2. A confining zone of about 26 feet of shale, located immediately above the injection zone, will help to contain the injected fluid within

the injection zone. *Id.* The permit includes conditions developed to prevent the movement of fluids into USDWs and to ensure prompt notification to EPA in the case of unforeseen potential of fluid migration. Exh. T. The permit requires the well to have surface casing cemented back to the surface from a depth of approximately 553 feet. Exh. T at 11. The permit also includes injection volume and pressure limits, as well as monitoring requirements, to assure the proper operation of the well. Exh. T at 7-8, 12. The permit requires monitoring wells that will allow monitoring of the fluid level in the injection zone. Exh. T at 12. The maximum injection pressure was calculated to prevent fracturing of the injection zone during operation. Exh. E at 2-3; Exh. I at 2-3. The permit requires that, prior to commencing injection into this well, the permittee pressure test the well to ensure that it will have mechanical integrity. Exh. T at 8-9. Once the injection begins, continuous monitoring of the injection pressure, annular pressure and injection volume is required, to verify continuous compliance with injection pressure limits and the mechanical integrity requirement. Exh. T 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. Exh. T at 7.

RESPONSE TO PETITIONS FOR REVIEW

The petitions for review filed by the Petitioners fail on several grounds. First, in the case of Petitioner Hudson, she lacks standing to petition the Board to review this permit because she did not submit comments during the public comment period. In the case of the Authority, its petition was not timely filed. None of the petitions are specific enough to meet the threshold requirements for a petition to the Board. Furthermore, none of the three 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 an important policy consideration that the Board should review.

1. Petitioner Hudson lacks standing to petition for review

When considering a petition for review, the Board first evaluates whether the petitioner has met the threshold requirements such as timeliness, standing, issue preservation and specificity. *In re Chevron Michigan, LLC of Traverse City*, UIC Appeal No. 13-03 (EAB Nov. 7, 2013)(Order Denying Review) at 5; *In re Beeland Group*, UIC Appeal Nos. 08-01 et al, 14 E.A.D. ___, sl. op. at 8 (Oct. 3 2008). The regulations limit standing to those persons who filed comments on the draft UIC permit within the public comment period or participated in the public hearing regarding the permit. 40 C.F.R § 124.19(a)(2). In addition, a person who did not provide comments or participated in the hearing can file a petition for review but only to challenge those conditions of the final permit that reflect changes from the proposed draft permit. *Id.*

Petitioner Hudson did not indicate in her petition that she participated in the public review process. Upon receipt of the petition, the Region searched the written comments, the list of electronic commenters and the list of speakers at the hearing. Because we could not identify any comments by Petitioner Hudson, on March 3, 2014, Roger Reinhart, Compliance and Enforcement Team Leader of the UIC program of the Water Protection Division of the Region called her to verify that she did not submit comments. She confirmed that she had neither submitted written comments during the comment period nor participated in the hearing. Neither does her petition identify any changes from the draft to the final permit to which she is objecting. *See In re Beeland Group, LLC*, UIC Appeal Nos. 08-01 & 08-03 (EAB May 23, 2008), at 3-5. (denying petition for review when petitioner did not participate in public process). Therefore she

lacks standing, as she admits in the March 10, 2014, letter she filed with the Board. EAB Docket #10. Because she lacks standing, the Board should deny her petition.

2. The Authority did not timely file its petition for review.

The permit appeal regulations require that a petition be filed 30 days after the Region serves notice of the issuance of the permit. *See* 40 C.F.R. § 124.19(a)(3). The Board has clearly stated in its *Citizen's Guide to the EPA's Environmental Appeal Board* (January 2013)(found at [http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/8f612ee7fc725edd852570760071cb8e/26e637699cb1cc1685257b50004044f6/\\$FILE/Citizens%20Guide%20January%202013.pdf](http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/8f612ee7fc725edd852570760071cb8e/26e637699cb1cc1685257b50004044f6/$FILE/Citizens%20Guide%20January%202013.pdf)), that to file a petition timely it is not enough to have mailed the petition by the deadline, but that the petition must be received by the Board by the deadline. *Id.* at 20; *see* 40 C.F.R. §124.19(i); *see also In re Puna Geothermal Venture*, 9 E.A.D. 243, 273 (EAB 2000). In its "Order Granting in Part Motion for Extension of Time (Feb. 25, 2014)," EAB Docket #3, the Board stated that March 3, 2014 was the deadline for filing of petitions in this case. Although the Region did receive a copy of the Authority's petition by February 24, 2014, that petition was not filed with the Board until March 18, 2014. The Authority's petition was filed with the Board only after the Region notified the Board that the Region had received it, and the Board asked the Authority to mail the petition. Although Regional counsel notified Kevin Moran, Chairman of the Highland Township Municipal Authority and signer of the petition, on March 12, 2014, that that petition did not appear to have been filed with the Board, it was not until two days later when the Board asked for a copy of the petition, that the Authority acted to try to rectify its filing. Because this petition was not timely filed, the Board should deny its request for review.

At a minimum, the Board should strike from the docket the two articles attached to the copy of the petition that the Authority filed with the Board on March 18, 2014. Those

attachments were not included with the copy of the petition sent to the Region in February.

Neither did the Authority serve the Region with a copy of its March 18, 2014, filing with those attachments. The Region obtained them directly from monitoring the Board's electronic docket.

3. None of the petitions meet the information specificity requirements of 40 C.F.R. § 124.19.

Petitions must meet the standard of specificity for review, which contains, at a minimum two essential components: (1) clear identification of the conditions of the permit that are at issue and (2) the argument as to why the conditions warrant review, including an explanation as to why the 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*, UIC Appeal No.08-01 et al, 14 E.A.D. __, sl. op. at 9 (Oct. 3 2008). The Board will not consider the merits of a permit based on a challenge that is unacceptably vague. *In re Sunoco Partners Marketing & Terminals, LP*, UIC Appeal No. 05-01 (EAB June 1, 2006), at 11-12.

The petition filed in *In re Presidium Energy, LC*, UIC Appeal No. 09-01 (EAB Jul. 27, 2009) (Order Denying Review), similarly to the petitions in this appeal, was a one-page request based on generalized concerns for the nearby drinking wells and the environment. It did not identify specific permit conditions for review; it did not discuss the response to comments; and it did not address why those responses were inadequate. Like the petitions in the case at hand, the *Presidium Energy* petitioner was not represented by legal counsel. Although, for that reason, the Board was willing to construe the petition liberally, the Board still found that the petition did not meet the requisite standards for review. *Id.* at 4; *see also In re Chevron Michigan, LLC of Traverse City*, UIC Appeal No. 12-01 (EAB Mar. 5, 2013), sl. op. at 15 (denying review of substantive claims where the petitioner did not challenge the validity of particular permit

provisions); *In re Puna Geothermal Venture*, 9 E.A.D. at 275-76 (denying review where the petition did not challenge the validity of any particular permit provision).

Similarly, the petitioner in *In re Cherry Berry*, UIC Appeal No.09-02 (EAB Aug. 13, 2010), filed a three-page letter, alleging generally that the permit was not protective of drinking water resources. Although the petitioner described the geological conditions of the site and nearby drinking water sources, the Board still rejected the petition because, among other reasons, it did not reference any specific permit conditions. *Id.* at 3. Furthermore, the Board held that the petition was also deficient because it did not explain why the regional response to comments was allegedly erroneous. *Id.* at 5.

Like the petition in *Presidium Energy*, Ms. Hudson's petition is a one-page letter that generally states concerns for water supply contamination. It neither addresses the permit conditions, nor the response to comments, nor the information supporting the permit determination. Similarly, Ms. Swanson's and the Authority's petitions echo the concerns raised during the comment period, without addressing the response to comments. Their petitions question the general practice of underground injection, but fail to identify any particular permit condition that warrants review. They are concerned with abandoned water wells, but neither explains why they think that Seneca has not complied with the permit program requirements to identify abandoned wells, nor do they provide any evidence of overlooked abandoned wells. As in *Presidium Energy*, *Cherry Berry* and *Chevron Michigan*, the Board should reject these petitions, as they lack sufficient specificity.

Because of lack of specificity in the petition, the Region can only extrapolate potential arguments from the petitions. The Region hereby responds to these potential arguments, without conceding that the petitions actually raise all of them: 1) that the permit does not prevent the

injection well from endangering water sources; 2) that the permittee properly failed to properly identify abandoned wells near the injection well; 3) that the injection well will cause earthquakes; and 4) that the permit would violate a local ordinance.

4. The permit conditions protect the USDWs.

UIC regulations require that the permit application identify water wells located within a quarter mile of the facility boundary. *See* 40 C.F.R. § 144.31(e)(7). The reason the UIC permit application requires the identification of water wells within a quarter, m mile of the facility is to evaluate whether the injection operation could pose a risk to the drinking water wells. The permit application review regulations also requires geologic confinement and area of review evaluations to ensure that there are no avenues for fluid migration, such as abandoned wells, faults or fractures, that would allow injected fluid to migrate into underground sources of drinking water. *See* 40 C.F.R. § 146.24(a)(2), (5).

The application requirements and the permit impose conditions to assure that the permit issued is protective of USDWs. The regulations require identification and plugging of abandoned or improperly sealed wells that reach the injection zone, so that they do not allow fluid migration out of the injection zone into any aquifers where drinking water wells are located. In addition the regulations require that the applicant identify all drinking water wells within the area of review for the well.

The Region identified the lowermost USDW at the site of injection, which is at approximately a depth of 400 feet. Exh. E at 2. The injection zone for this well, the Upper Devonian Elk 3 Sand, begins at a depth of approximately 2354 feet below the surface and is therefore located at a depth of approximately 1900 feet below the lowermost USDW. Exh. E at 2. There is also a confining shale unit above the injection zone with a thickness of about 26 feet.

Exh. E at 2. UIC regulations require surface casing from the surface to 50 feet below the lowermost USDW, and isolation of the injection zone with cement to 50 feet above the injection zone. *See* 40 C.F.R §147.1955(b)(1), (b)(5). The permit requires surface casing to a depth of 553 ft and then cemented from that length back to the surface. Exh. T at 11. This exceeds the regulatory requirement by about 100 feet. The permit also calls for isolation of the injection zone by cementing back to 100 feet above the injection zone which also exceeds the regulatory requirement. Exh. T at 11. In addition, the permit requires Seneca to maintain two monitoring wells to monitor fluid level in the injection formation. Exh. T at 7. One of those monitoring wells is located between the injection well and springs and wells belonging to the Authority. *See* Exh. B(4) at 8. While the UIC program does not focus on-above surface spills, in reviewing the permit application the Region did consider the topography around the well, and that any surface spills at the well would flow in the opposite direction from where the Authority's sources of waters are located. Exh. D.

In its petition, the Authority raises concerns that the fracturing of the rock formations during injection would affect the water flow at the Authority's spring. But as explained in the Response to Summary comments, the permit limits the maximum injection pressure in order to prevent fractures. Exhs. I at 2; V at 8

As described, the Seneca permit imposes construction and operation conditions designed to protect the underground sources of drinking water down to the lowermost USDW. The Petitioners do not argue that these or any other permit conditions are based on erroneous facts or application of law that would warrant Board review.

5. The permittee has properly identified abandoned wells within the area of review.

UIC regulations require that a permit application identify all wells, including abandoned wells, within the area of review of the injection well. *See* 40 C.F.R. §146.24(a)(2). An area of review for Class II injection wells is based on a predetermined radius of a minimum of one-quarter mile or through a zone of endangering influence calculation. *See* 40 C.F.R. §146.6. A permit applicant must also take corrective action to address any improperly abandoned or unplugged wells that are located within the area of review and that penetrate the injection zone and could serve as a conduit for fluid migration. *See* 40 C.F.R. §144.55. The applicant must plug any such abandoned wells. *Id.* Petitioners Swanson and the Authority allege in their petitions that Seneca has not properly identified all abandoned wells around the injection well.

In the case of the Seneca well, the area of review was determined based on a fixed-radius of one-quarter mile. Exhs. E at 2; V at 3. Both the Region and Seneca calculated a zone of endangering influence to evaluate the appropriateness of the fixed radius. Exhs. B(1) at 12-17; C. The zone of endangering influence calculation is based on geological parameters of the injection zone and proposed operating conditions, and determines the potential for injected fluid to migrate out of the injection zone through abandoned wells, faults or fractures into USDWs. The calculation for the Seneca well predicted that that injected fluid would have minimal influence even at the well bore, even after ten years of injection. In light of these calculations, the Region determined that the one-quarter-mile radius area of review is protective.

As required by the regulations, *see* 40 C.F.R. §146.24(a)(2), Seneca reviewed public records to identify wells within the area of review. Exh. B(1) at 19. In addition to the record review, Seneca informed the Region that it had conducted a field survey looking for wells. Exh. V at 3. During the public hearing (in which representatives of the Authority participated), the

Region requested that anyone having information about the location of abandoned wells near the well to submit it to the Region. Exh. H at 27-28.

As result of the review of public records and the survey, Seneca identified only two wells that reached the receiving formation within the area of review. One is an active gas production well, also owned by Seneca; the other was plugged in 1991 and was appropriately plugged as documented in the plugging report included in the permit application. Exh. B(2) at 2, 30.

Seneca will use the active gas well as a monitoring well for the injection, after reworking that well to isolate the injection formation.² Exh. T at 7.

The Petitioners neither identify abandoned wells in the area of review that reach the injection formation of the Seneca injection well nor point out any failures to comply with the regulatory requirements pertaining to abandoned wells. The Authority refers to abandoned water wells³ allegedly found by local residents, but does not actually identify any particular well. Seneca has complied with the application requirements for providing information about abandoned wells, and the Region correctly relied on that information. Because the Petitioners have identified neither an erroneous factual finding nor a permit condition based on such finding, the Board should deny review based on this issue.

Because of a recent federal indictment for false certification of well plugging in connection with a UIC permit, see Exh. W, the Authority raises a concern of whether the plugged wells near the vicinity of the Seneca were allegedly plugged by the indicted contractor. Since the indictment did not occur until after the Seneca permit was issued, the record for the

² In addition to this monitoring well, the permit requires a second monitoring well to verify that that the injected fluid will not endanger USDWs.

³ Even if there are unidentified water wells in the area of review (neither found in the public records, nor known to the applicant), water wells are shallow wells that do not reach the receiving formation, and thus do not create a possible pathway for contamination. Compare the depth of the lowermost USDW with the depth of the injection well.

permit did not include any details concerning the criminal case. The indictment does identify the three wells mentioned in the indictment covered by false plugging certificates. These wells are located several miles from the Seneca well. Exh. X. As stated above, Seneca identified only one abandoned and plugged well in the area of review that reaches the injection formation. The Region verified that the accused contractor in that case was not involved in the plugging of the abandoned well in the area of review of the Seneca well. Exh. X.

6. There is no evidence to suggest that the Seneca well poses a risk of induced seismicity.

Ms. Swanson states in her petition that injection wells have been known to cause earthquakes in Oklahoma and Ohio. The Region recognizes that some injection wells have indeed been linked to earthquakes. However, there are about 10 documented events nationwide of induced seismicity among over 30,000 waste water disposal wells. Ex. L at 6. The vast majority of brine disposal wells operate without inducing seismicity. Most significantly, none of the dozens of injection wells permitted by EPA in Pennsylvania since 1985 have caused injection-related seismic activity.

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 cause movement across the fault line. See Exh. K. The Region has looked at the conditions at the wells associated with induced seismicity and compared them with the Seneca well. As explained in the Response to Summary Comments, because of the geological conditions at the site and the operating conditions in the permit, the Seneca well is not at risk to cause injection-induced seismicity. See Exh. V at 5-9.

The Region looked at seismic maps of the region where the well is located, and imposed permit conditions to minimize fluid movement. The seismic maps of Pennsylvania reflect the lack of seismic activity or history of faults in the area. See Exh. S; *see also* Exhs. N, O, and Q. The permit sets a maximum injection pressure and maximum volume to insure that there is no over pressurization of the injection formation, as some induced earthquakes have been associated with increasing high volume of fluid in a short time. *See* Exhs. K; V at 7-8.

The receiving formation for the Seneca well is a depleted gas reservoir of sandstone. As the Region explained in the Response to Summary Comments, the receiving formation is currently under-pressurized due to the history of gas production activities in the area. Exh. V at 8. The initial reservoir pressures when gas was first produced from the Elk Sand 3 around 1898 were about 425 – 440 pounds per square inch (psi). Currently there is data that the reservoir pressure is between 20 and 55 psi. Exh. P. This reduced formation pressure increases the injection formation's capacity to accept injected fluids, without causing induced seismic activity. Even a small increase in reservoir pressure due to injection will not return the reservoir to the original pre-gas production pressure of over 100 years ago. In contrast, the Ohio and Oklahoma wells mentioned by Petitioner Swanson occurred into or nearby Precambrian basement rock. See Exhs. V at 7-8; *see generally* Exhs. M and R. Such formations have very low permeability, which increases the pressure exerted by the injected fluid and which causes fluid to travel further into possible faults.⁴

⁴ Where the injection formation has low permeability, it takes a lot more pressure to inject the fluid into that formation, and correspondingly, the fluid injected within the formation is exerting greater pressure (a simplified illustration would be to compare the pressure needed to inject water into a cube made of wood versus a cube made of sponge). If there is a fault or a fracture in that less permeable material, the fluid will flow through the fracture since it provides less resistance than the low permeability rock. And because the fluid is at greater pressure, it will also travel further within a fracture found in a low permeability rock

The review of geological data to ascertain the risk of seismic activity from injection, and the calculations of formation fracture and injection pressure, are technical issues that rely on the scientific evaluation of the impact of the wells. With regards to technical issues of this nature, the Board traditionally defers to the permitting agency. See *In re Bear Lake Properties, LLC*, UIC Appeal No. 11-03, (EAB June 28, 2012), slip op. at 22 (finding that the determination regarding the risk of injection-related seismicity is a technical issue on which the permit issuer is entitled to deference). The Region documented in the record and in the Response to Summary Comments the seismicity history relevant to the site, the conditions in the injection formation, and the contrast with the wells associated with induced seismicity in Ohio and Oklahoma. Cf. *In re Stonehaven Energy Management*, UIC Appeal No 12-02 (EAB March 28, 2013), 15 E.A.D. ____, sl. op. at 19-20 (remanding permit to the Region because did not articulate the basis in the record for its finding on earthquake risk). Petitioners do not explain in their petitions if, or why, the discussion on seismic risk in the Response to Summary Comments document does not address their concerns about seismic potential. The Board should defer to the technical judgment of the Region.

7. Effect of local ordinance is not relevant to a UIC permit determination.

The Authority argues in its petition that issuance of the permit by the Region violated a local ordinance that prohibits wastewater injection wells in the township. However, as explained in the Response to Summary Comments, the UIC regulations do not expressly supersede local, county or state law. The permit itself specifies that issuance of the permit does not authorize infringement of state or local law. Exh. T at 2.

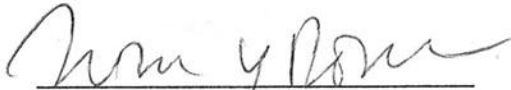
Furthermore, the decision of whether to issue a UIC permit is not based on local ordinances, but rather, it can only be based on the UIC regulations. *In re Envotech, L.P.*, 6

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); *see, e.g., In re Puna Geothermal Venture*, 9 E.A. D at 256-62 (remanding permit to the Region where permit conditions included, among others, setback requirements, emergency response plans, incorporation of state law requirements and of federal CERCLA requirements, without a stated nexus between the remanded conditions and the potential for USDW contamination). 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. For these reasons, the Board should deny the petition to review of the permit based on the effect of a local ordinance.

CONCLUSION

The petitions do not meet the threshold requirements of standing, timeliness and specificity, as discussed above, to warrant review of the petition by the Board. Further, the petitions do not identify any permit conditions 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 and the attached exhibits on the date specified below, by certified mail, return receipt requested to:

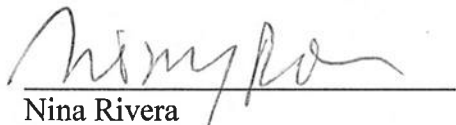
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I also certify that I filed the original electronically with the Environmental Appeals Board. In addition I filed one copy of the exhibits by Next Day UPS with the Clerk of the Environmental Appeals Board at:

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