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September 12, 2020

Kevin Rowsey
Source Water & UIC Section Drinking Water & Source Water Protection Branch
U.S. Environmental Protection Agency
Underground Injection Control Program
Office of Water, Office of Ground Water and Drinking Water
1200 Pennsylvania Avenue, NW (Mailcode 4606M)
Washington, DC 20460

Dear Mr. Rowsey,

First, I believe you have been placed in this position by God and you know that the public helps you do your job to protect the people. You have shown your heart for the people by contacting them individually to notify them of the public hearing. You realize if anything happens to contaminate groundwater you will be the one working with the people to solve the problem.

As a librarian, I have tried to follow the governmental rules and procedures to help compile the story of the concerns. Imagine now how much more important during a pandemic it is for individuals to feel safe in their home and how the fear of not knowing the future quality of their own water supply causes fear and distrust. Answering and responding to the questions is based on understanding all of the concerns. When people lack trust in the system they fear. Putting faith in God more than any other is the only thing that has gotten me through this tedious process of listening to so many fears, worries, and sorting through the facts. The stories of the people matter. I'm asking you to incorporate and review all the public hearing record given at the first EPA hearing that was recorded as it was a demonstration of what God can do to provide all the facts from so many sources of all the concerns that still are causing fear. Everyone brought their individual concern and rationally presented their concerns. Also, please incorporate the Environmental Hearing Board Docket, Exhibits, and the Decision by Judge Bernard A. Labuskes, Jr. for Case Number: 2018034, Appellant #1: DARLENE MARSHALL found at https://ehb.courtapps.com/public/document_shower_pub.php?docketNumber=2018034
The Environmental Hearing Board may be able to provide the transcript from the three days of the hearing that would prove very valuable. This letter is a summary of the post hearing findings that we still felt were outstanding with the permit issued by EPA and DEP.

A ten year permit instead of a five year permit with no ½ mile evacuation plan in place or even after all these years a plan to restore water supplies is illogical. Especially with recent issues again happening in Ohio as noted by The Columbus Dispatch on September 5, 2020 by Beth Burger that injection well fluid migrated five miles away and this story repeats the history of Pennsylvania's first injection well.

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https://www.msn.com/en-us/news/us/state-investigating-whether-injection-well-waste-affecting-drinking-water/ar-BB18JPdm?ocid=sf&fbclid=IwAR1Oa2sKGX8b7hZtb8ffHlTYWyx_i6AINmKrlgBnfKv1I0dV2fvFWd_CVpw

The issues that still need addressed for the public and myself are the following and if you need references or more details please contact me. The exhibits are on the docket for viewing and will be beneficial to understand the concerns still needing addressed.

1. Proposed Site Depth in Oriskany Sandstone Formation
2. Hydrology
3. Elevation of Proposed Site
4. Proposed Site Recharging Zone for Private Water Supply
5. Quality Private Water Supply
6. Protect Water Supplies
7. Water Supply
8. Historical Private Water Well Issues
9. Alternative Public Water Supply Options Cost Prohibitive
10. Source Water Protection Plan Zones and City of DuBois
11. Improved Monitoring of Private Water Sources
12. Depth of Casings to Protect Water Supplies
13. Understanding Automatic Shut-off Switch & Pressures
14. Drill Cuttings Disposed on Proposed Site
15. Cost of Future Water Well Testing
16. Homeowners should receive instructions and testing devices to monitor private water supplies

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17. Burden of Proof Falls on Homeowner

18. Faults

19. Fluid Communication

20. Continuous and Ongoing Seismic Monitoring After Five Years

21. Non-Transmissive Faults

22. Fault Block

23. Transmissive Faults

24. Faults Changing Due to Pressure

25. Basement Rock

26. Future Need of Earthquake Insurance

27. Gas Wells

28. Old Deep Gas Wells in Oriskany Sandstone Formation

29. Plugging of Old Deep Gas Wells in Oriskany Formation

30. Active Old Deep Gas Wells in Oriskany Formation

31. Well Integrity Review in Regards to Old Gas Wells

32. Old Shallow Gas Well Fractured Various Depths

33. Well Plugging of Abandoned or Orphaned Wells

34. Monitoring Gas Wells

35. Emergency Plan

36. Local Emergency Contacts

37. Hazardous Response

38. Chemicals

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39. PA Right-to-Know

40. ½ Mile Evacuation Plan

41. Radiation Plan

42. Immediate Notification to Residents of Violations

43. Bonding and Plugging Plan Inadequate

44. Financial Assurances

45. Prevailing Wage

46. Special Protections - 25 PA Code 93 for Cold Water Fisheries

47. Geology

48. Fluids Already Exist in Oriskany Sandstone Formation

49. Permeability

50. Porosity

51. Pressures

52. Confining Zone

53. Department's Well Score Card

54. Testing and Updating Public Access to Information

55. Fractures

56. Propagated Fractures

57. Existing Fractures

58. Stimulation

59. Area of Review

60. ¼ Mile Minimum Area of Review

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61. Zone of Endangering Influence Calculations

62. Simplifying Assumptions Used for Modeling Data

63. Fluid Samples

64. Fracture Gradient

65. Specific Gravity

66. Modifications of UIC Permit Progress Without Public Knowledge

67. Mechanical Integrity

68. Single Point of Failure - Similarities Gas Storage and Mechanical Integrity

69. Characterization of Waste

70. Abandoned Coal Mines and Monitoring

For further details on these remaining issues see the next 78 pages that are attached with the following details taken directly from the Environmental Hearing Board documentation presented in Darlene Marshall's Post Hearing Brief on December 4, 2019.

Sincerely,

Duane Marshall

Darlene Marshall

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The Environmental Hearing Board Docket, Exhibits, and the Decision by Judge Bernard A. Labuskes, Jr. for Case Number: 2018034, Appellant #1: DARLENE MARSHALL found at https://ehb.courtapps.com/public/document_shower_pub.php?docketNumber=2018034

Post Hearing Brief by Darlene Marshall for Environmental Hearing Board

Case Number: 2018034

1. The Appellant, Darlene Marshall, participated in the EPA and DEP public hearings and filed a notice of appeal to the Environmental Hearing Board on April 20, 2018.
2. Mr. Marshall testified that his wife the Appellant had an illness issue in 2015 at the time the Environmental Appeals Board ruling was decided and explained her inability to appeal the ruling due to traumatic brain issue causing her to experience sensitivity to light, sound, movement, various things. (Tr. 354).

Proposed Site Depth in Oriskany Sandstone Formation

3. The depth of the injection well is proposed to be at 7,306 based on Mr. Hoover's testimony. (Tr. 109).

Hydrology Report

4. Mr. Hoover discussed the analysis on all the water supplies required by the EPA to do a predrill analysis to determine what the quality of water is pre-injection operations. Then

he explained the post-injection monitoring program was found on page 246 and what the company was required by the EPA to test. The Department and EPA had different requirements for the radius of homes to be tested. He explained the hydrologist study of the water wells in the area of review; how the monitoring program needed setup; the northwest flow for the location of water supply based on mapping; and the injection well location on a higher elevation. (Tr. 100-105, Exhibit 29, pages 63-125, 246-247).

5. Mr. Hoover discussed the plan to monitor the private water well supplies and they have experienced resistance to the monitoring plan and the whole thing. (Tr. 227-228).
6. The hydrology report indicates the water well depths and monitoring. The Appellant pointed out that she believed a misrepresentation existed on the water monitoring proposed sites by checking with all the individuals listed. She explained that she would receive calls from neighbors about the injection well paperwork asking her to figure it out and people got paperwork with the wrong names for the wrong homes that they showed her. (Tr. 382-383).

Elevation of Proposed Site

7. The Appellant cited the permit application hydrology report conclusions, "that the proposed injection well is located on a near hilltop ledge upslope and up from several water supplies primarily to the west of the site near surface flow from the site radiates to the east, west, and south, but prevailing groundwater flow direction to the west, northwest." Her home is located to the northwest. The map shows information on the flow, depth, and different things. (Tr. 381-382 and Exhibit 28, page 2).

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Proposed Site Recharging Zone for Private Water Supply

8. The Appellant discussed the importance of the hydrology report and cited page 17, "the location of the proposed injection well site is located within the recharge area of several domestic water supplies and proper construction and cementing techniques used when installing the injection well casings will be imperative so there are no impacts to these supplies. The background sampling event indicated that the water quality of these supplies is generally very good. As a result, a sampling plan has been proposed in this report to test selected water supplies and surface water points to monitor for potential influences during the initial drilling and operational periods of the proposed injection well." (Tr. 380-381).

Quality Private Water Supply

9. Mr. Duane Marshall testified as a fact witness that he had lived at his current address for about 23 years and he was self-employed working as an automotive technician for 30 years at an adjacent property to his home where his parents resided and he assists them. The injection permit issue began about eight years ago and he summarized who he had contacted from the Oil and Gas Industry, consulting a lawyer, presentations he attended on injection wells, meetings, and providing public testimony to the EPA and Department. He testified his wife had talked to experts. He explained the public water supply options in his area. He visited the DuBois Public Library to review the EPA UIC permit. He explained the recent public meeting on the renewal of the UIC permit and the one-mile map. (Tr. 330-343).

10. Mr. Marshall testified about the quality of his water supply at home and work being very good and that he had lived in the area for about 46 years. He explained that the original well was a slow producing well at the same depth as the new well at 360 feet close to the same location. He explained the loss of their water supply do to the well caving in and needing to be redrilled and identified the new well completion report from October 2017 along with the depth of the private water well at 360 feet and that a special casing had to be installed to keep the new well from having a potential cave in. He identified the elevation of the proposed injection well at a higher elevation than his home. He stated what the permit explained about the area where the disposal well is the recharging zone for their water well. He identified the elevation for his water supply to be at a lower elevation than the water string casings at 375 feet due to elevation and he stated it would not protect his water well. (Tr. 343-346).
11. Mr. Marshall testified that he only had sediment in his water supply before they had problems with the first well. They had their water well tested for more extensive tests recommended for contaminants with a chain of custody done for the water supply because of the injection well along with his business water supply. (Tr. 348-349).
12. Mr. Marshall provided testimony that they have good quality water and he drinks it along with his work water supply being good and he drinks it. (Tr. 350).

Protect Water Supplies Stressed

13. The Appellant testified that the hydrology report done for the permit application was important and stressed the protection of the water supplies. She explained that Mr.

Hoover testified people were reluctant to participate in water monitoring and that is vital to protect the water. If people that have been asked to participate in testing do not participate we need other ways to do that. (Tr. 380-381).

Water Supply

14. Mr. Marshall testified that he had never been contacted by the EPA or Department about water well issues or gas well issues. (Tr. 351).
15. The Appellant testified that if the water supply for her property is ruined it ruins the effect of her property unless a public water supply is brought to her home as currently her home has a very good water supply. (Tr. 418).

Historical Private Water Well Issues

16. Mr. Lawson testified as a fact witness that he lost his water in 1975 and he put a string down and found no water. Gas and oil activities were taking place at the time Lawsons lost their water supply. Once the water came back it was rusty with sand particles in it and would clear up when they stopped working on a well. Mr. Lawson observed rigging and constant tank trucks and when they stop messing with it water is good and when they mess with the well water would be muddy. The well is still active. Maps were identified Exhibit 27 and 28 and Mr. Lawson identified the Ginter well as believed to be the gas well affecting his water supply and it was about 600 feet from his house. (Tr. 17, 28-36, 61 and Exhibit 28).
17. Mr. Lawson and Mrs. Lawson provided comments on their water supply concerns to the Department along with his concerns on the Oriskany deep gas wells during the

Department public testimony for public comment period. They testified that they never were contacted by the EPA or DEP about those comments. (Tr. 66-67, 91).

18. Mrs. Lawson testified as a fact witness and explained in 1975 how they lost their water one time when work was being done on a well and how they had grit in their water. She kept the records on the water well testing done probably about ten times after they moved into their house (Tr. 86-88).
19. Mr. Marshall testified that other neighbors had experienced water supply issues and never reported it to the Department to his knowledge other than during the injection well permitting process. He identified three reports: Lawsons, Mrs. Slattery, and Michael Mennitti. (Tr. 355-356).
20. Mr. Marshall believed that in the 1970's they were just starting to develop the Safe Drinking Water Act. (Tr. 357).
21. Mr. Marshall explained in mechanical terms what a short circuit is where a connection in the circuit is shorted it changes direction of the flow and he explained that he had heard the term short circuit as related to an injection well during the process of this permit. (Tr. 358).
22. Mr. Platt explained that the EPA took public comment on water well issues and that they would not have followed-up on prior issues from the past. (Tr. 490-491).
23. It was established that fluid will communicate with the faults around 1,200 to 1,400 feet away and that would mean it will reach the old deep gas wells between one to two years based on Mr. Wise's expert testimony. (Tr. 624-625).

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Alternative Public Water Supply Options Cost Prohibitive

24. Mr. Lawson testified to attending public meetings dealing with bringing a public water supply to his home, he was open to having a public water supply brought to his home, the public water supply options being costly, Lawsons responded to a survey about bringing a public water supply, his opposition to the injection well based on his concerns, and the injection well impact on his community being the reason for researching public water supply options. Mr. Lawson's testimony was found to be sincere. Mrs. Lawson stated her testimony would be the same as her husband. (Tr. 67-75, 82, 91).
25. Mr. Hoover testified that he has never done any research on if he would ever have to bring a water supply for any reason. (Tr. 229).
26. Mr. Marshall testified that he attended three public meetings on bringing a public water supply and what he learned at those meetings. The township water authority did not have the capacity and was unable to add on their neighborhood. The Commissioners meeting discussed grants that would take time. He explained the options available and the cost would be around a million dollars to run a mainline to the area near their home from a neighboring township. He explained how the injection well has affected the community and how he places his faith in God to protect while he believes we still must do our part in life. (Tr. 352-353).

Source Water Protection Plan Zones and City of DuBois

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27. Mark Stephens evaluated Zone III the Watershed Boundary right on the edge of the Western Zone III based on a comment about the source water protection plan of the DuBois public water supply and noted that this being a disposal well and that it may be along the strike of the DuBois Laborde well field located to the northeast that might be a little concerning. Mr. Donahue was not sure what the definition of Zone 3 was and his response was that they looked at potential wells penetrating the quarter mile area of review. (Tr. 581 and Exhibit AG).

Improved Monitoring of Private Water Sources

28. Mr. Hoover is aware of private water supply concerns and he did send people to take water tests at homes. (Tr. 139).
29. Mr. Platt testified that the monitoring of the water supplies was provide by the operator with the homeowner information in the area and the EPA did not check with the homeowners as that was up to the operator. (Tr. 489).

Depth of Casings to Protect Water Supplies

30. Mr. Hoover identified casings and the one change from the EPA UIC permit application well schematic being well documented with the original plan to drill to 1,200 feet on one of the water protected streams and the EPA had issue with some potential problem existed with a potential gas zone at 1,100, 1,150 feet in Murrusville with the potential of a migration issue, so the string of pipe was shortened to 1,000. Later he stated the only major change from the EPA application to the DEP application was the casing set depth

from 1,200 feet back to 1,000 feet even when asked about the coal determination. (Tr. 110-116, 124-125).

31. Mr. Platt testified about the gas zones below 1,000 feet and not wanting potential gas to migrate to underground sources of drinking water. He confirmed that no actual cementing would be in place from 1,000 to 5,000 feet. (Tr. 479, 481).
32. EPA surface casing at 1,000 feet, coal string at 425 feet, and the water string at 170 feet were presented in Mr. Jankura's expert testimony although he did not review all the water well records to verify depths. Mr. Donahue verified the final wellbore schematic and casing depths that shows no cementing from 1,000 to 5,000 feet. (Tr. 661-662, 567-569 Exhibit AX, page 3).

Understanding Automatic Shut-off Switch & Pressures

33. Mr. Hoover explained what happened with another appeal to this case where Mr. Atkinson wanted to put a control valve on the back side of the production casing as an added safety feature and Mr. Hoover felt this was not necessary in the outer string. He explained the way fluid would circulate if a failure happened. (Tr. 142, 147).
34. The Appellant requested the Department's Yanity UIC well permit to be admitted into evidence to compare stipulations that have not been listed in the Department's Zelman UIC well permit like automatic shut-off devices. (Tr. 430).
35. Windfall plans to add a pressure monitoring and pump shutdown device to the 4 ½ by 8 5/8 annular space to provide an additional level of protection from Mr. Jankura's expert testimony. (Tr. 673).

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Drill Cuttings Disposed on Proposed Site

36. The Appellant pointed out that drill cuttings were proposed to be buried on the site when it is a recharging zone for her water supply. (Tr. 412).

Cost of Future Water Well Testing

37. The Appellant explained that the cost of the future water well testing and the burden of proof along with a need to daily test water for connectivity (conductivity) and TDS to know it was safe to drink. (Tr. 420).

Burden of Proof Falls on Homeowner

38. Mr. Lawson testified to having a more comprehensive water testing because of the injection well possibly going in and when he first moved in he did a lot of water well testing. Lawsons now have excellent water. (Tr. 59, 63)

Faults

39. Mr. Hoover reviewed the locations of the faults on the maps with one estimated 1,300 feet away from the injection site and he believed it would be a non-transmissive fault although he didn't know of any testing to tell us if it was transmissive or non-transmissive. (Tr. 176-180).
40. Exhibit 27 map 2 shows the faulting information and Mr. Wise provided expert testimony that the one fault is inferred and he testified that the area definitely has a fault and the company had to include any faults on published reports. (Tr. 617-620).

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Fluid Communication

41. Mr. Wise as a fact witness explained injection fluid would make it to the fault as it is in the Oriskany, so it transects the Oriskany, so it will come in contact with it and it will act as a boundary that will stop fluids from moving across it. Mr. Wise was asked if he understood that boundaries tend to increase the pressure for injection wells and he explained that they would have to increase injection pressure to get more fluid into the well. He was aware that using the modeling assumptions the fault will start to affect the pressure rise before two years and potentially in one year. The permit has seismic monitoring on-site and Mr. Wise explained the special permitting conditions and that Windfall will need to file a report after five years. In certain areas of the country certain factors have shown that wastewater injection increased seismic activity and it can even happen on tectonic plates. Seismic monitoring is how the Department plans to protect the Appellant's home from increased risk of earthquakes in the area. Checking the infrastructure in the area was not part of the Department's review and that depends on permitting codes and evaluations to provide planning for damage to private water supplies in the area were not part of Mr. Wise's review. Technically they will be able to monitor changing conditions that cause induced seismicity. (Tr. 264-274 and Exhibit AS).
42. In maybe as little as a year fluid will communicate with the faults as the formation allows fluids to move outward from the injection at the bottom of the well and the faults are

located somewhere around 1,200 to 1,400 feet away and it would reach the inferred fault if it is there based on Mr. Wise's expert testimony. (Tr. 624-625).

Continuous and Ongoing Seismic Monitoring After Five Years

43. Mr. Hoover testified that the Department was requiring the seismic monitoring for five years and not longer. The infrastructure has not been checked to see if it is constructed to withstand any seismic activity. (Tr. 220, 222-223).
44. The Appellant requested that the seismic monitoring be continued as long as the injection well is in operation and felt for twenty years after injection stops as nothing guarantees the Department will maintain this requirement. (Tr. 406).
45. Mr. Platt testified that seismic events throughout the country have become a big issue. (Tr. 485).
46. Monthly reports should be provided by Windfall to the Department on daily injection rate, injection volumes, and pressure monitoring data due to the potential for induced seismicity. (Tr. 657).

Non-Transmissive Faults

47. Mr. Donahue looked at structural barriers and that it was non-transmissive and based on the production records of wells on either side of the fault he agreed with the assessment that the fault should act as a structural barrier to injected fluid. (Tr. 537-538).
48. Mr. Platt testified that the fault is non-transmissive. He later explained that faults if overpressured could change from being non-transmissive to transmissive. (Tr. 458, 469).

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49. Mr. Donahue testified that a fault can potentially change from being non-transmissive to transmissive and injecting fluid in the formation increases the pressure. It the fault were to become transmissive it could potentially convey fluid. (Tr. 556-557).
50. Mr. Wise cited Mr. Platt's expert testimony that brought up the idea in Mr. Platt's mind that there is potential for a fault to become transmissive if frac gradient pressures are exceeded and to Mr. Wise's knowledge he didn't know when gas production was going on and it reduced pressures that a fault would go from being non-transmissive to transmissive. (Tr. 622).

Fault Block

51. There is fault blocks in the area based on Mr. Wise's expert testimony and the fault is in the Oriskany around 7,300 feet. He felt that the faults being non-transmissive does not allow fluid to flow, so eventually he thought you would have to increase pressures to get the fluid to flow even further out. (Tr. 626-628).

Transmissive Faults

52. A transmissive fault would allow gas or fluid to cross it based on Mr. Wise's expert testimony. (Tr. 629).
53. Pressure is key and especially relevant for determining induced seismicity and evaluating the transmissiveness or non-transmissiveness of faults; the geological term for the pressure at which a rock will fracture is fracture gradient; fracturing the rock would force the fault to move; the significance of exceeding the fracture gradient is that the fractures in the rock open up and can convey fluids and/or potentially move faults based on Mr.

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Wise's expert testimony and he didn't review anything about the stimulation plan. (Tr. 606-608).

Faults Changing Due to Pressure

54. Pore pressure is a result of putting fluids back into a depleted reservoir and Mr. Wise provided expert testimony that removing the gas from a formation will reduce pressures. (Tr. 615, 621).
55. Pressure increases with laterally fault defined reservoirs could change over time and Windfall talked initially the injection potentially could be as a vacuum based on Mr. Wise's expert testimony. (Tr. 635).
56. Estimates are not available for fault failure and only a rough approximation of critical shear stress can be made without site-specific hydrophysical core lab analysis to determine tensile strengths based on Mr. Wise's expert testimony. (Tr. 636).

Basement Rock

57. Mr. Donahue explained how they looked for potential pathways to convey fluid to the basement rock. (Tr. 526).
58. Mr. Wise provided expert testimony that basement rock can not convey fluid as there is not a lot of interconnected void spaces there and if fluid conveys to Precambrian basement rock that is where most of all the faulting is set and Pennsylvania has basement rock at this site. (Tr. 609-610, 612).

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Future Need of Earthquake Insurance

59. Special permit conditions are in effect if Mr. Wise's expert report conclusions are incorrect and a seismic event occurs. (Tr. 613-614).

Gas Wells

60. Almost 100% of typical conventional wells are hydraulically fractured in order to get production out of them and the fracture extension is something like 250 feet based on expert testimony by Mr. Jankura. (Tr. 678).
61. Mr. Platt testified that the operating gas wells will see changes in production activity and they should continually be monitoring their production. (Tr. 488).

Old Deep Gas Wells in Oriskany Sandstone Formation

62. Mr. Lawson identified the locations of six deep gas wells based on a clock face at 10:00; 12:00; 1:00: 5:00: 7:00; and 8:00 essentially every red circle on the map of Exhibit 28 and matched the permit numbers to the permit numbers on the Oriskany wells. He identified and matched them on the map 20333 is at a depth of 7,314 and referred to as Ginter. Carlson well 20341 at 7,351 depth. Six wells went into the Oriskany 20336 at 7,269 feet; 20327 at 7,288 feet; and 20325 depth unknown. (Tr. 46, 52-53; Exhibit 28 and Exhibit 29, page 139).
63. Mr. Hoover as a fact witness verified the identification of the gas wells Mr. Lawson identified and agreed that the six wells were drilled to the Oriskany Sandstone. He later reviewed the fracturing on the six deep gas wells and identified the dry hole located on

the map at 6:30 o'clock and every well is done differently depending on the site. (Tr. 106, 157-175).

64. Established with fact witnesses by Appellant and expert testimony by Mr. Donahue that the gas has been depleted from the Area of Review by the six deep gas wells penetrating outside the area of review and other gas wells in the area could have contributed to depleting that quarter mile.

65. Mr. Platt agreed that over the course of time the wells in the Oriskany formation identified would have depleted the formation. (Tr. 474).

66. Mr. Donahue testified that those are the closest penetrations to the quarter mile that penetrate the Oriskany. The Department review looked at the old gas wells for the drillers' logs to determine the confining zones thickness and the Department did not look at the casings on the old gas wells or fluid migration up a well around an old casing that penetrated the Oriskany or confining layers or fractures. (Tr. 554-555, 559, 561, 593 and Exhibit 28 map).

67. Mr. Wise as a fact witness testified that the wells in the Oriskany removed the fluid or gas. He identified that they have to penetrate the Oriskany and they would have been outside the ¼ mile area of review and the formation will be filled that was depleted by the six deep gas wells outside the ¼ mile as nothing inside the ¼ mile was identified that depleted the reservoir. Mr. Wise was aware that the Appellant filed in her appeal her concerns about those six deep gas wells. Mr. Wise reviewed the gas depletion and identified number 20333 (Ginter) had the most withdrawal from the formation. (Tr. 276-279).

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68. Mr. Pelepko as a fact witness agreed with prior testimony and the nature of the wells that were identified previously intersect the Oriskany. He believed it was a fair assessment that oil and gas production at the wells outside the area of review depleted the area interior to the area of review with the exception of the dry well. The history of production and the distribution of the wells was part of the context of his Department review. He explained the drowning of the stratum and the conservation law. He considered the six deep gas wells probably during his review of offset wells to consider as conduits; knowing the history of the area is a consideration for induced seismicity; considered what produced the reservoir; and explained the difference in the properties of gas versus fluids or liquids from gas production that are part of the waste stream. He explained gas is compressible and water has an extremely low compressibility, virtually incompressible. (Tr. 305-308, 319-322).
69. Mr. Platt testified that the EPA does not have jurisdiction over production wells. The EPA only has jurisdiction over permitting of injection. So if it would have been a production well issue concern, that would be on the State. (Tr. 491).

Plugging of Old Deep Gas Wells in Oriskany Sandstone Formation

70. Mr. Hoover agreed that the Environmental Appeals Board decision that additional information on the plugging of the wells would be valuable information. Mr. Hoover discussed the plugging of the Carlson well and his understanding of the plugging certificate; deterioration of casings due to a surface electrical problem; and the

difference in casings is on a well-by-well basis with the Carlson well being drilled in 1960 . (Tr. 130-135).

71. The Carlson well is left open to surface from 1,160 feet is just air and below that is gravel and the casing was stuck and unable to be pulled so it was cut and left below 2,500 feet from expert testimony provided by Mr. Jankura. (Tr. 687, 694).
72. The expert testimony of Mr. Jankura explained regulations have changed to require operators to be more protective of the environment when they construct wells then was done in the 60's or 70's when the Carlson well was constructed. (Tr. 686, 688).
73. Mr. Marshall as a fact witness testified that he had never been contacted by the EPA or Department about gas well issues reported during public comment periods for the injection well as he reported the Carlson well emits gas odors and that he had smelled the odors. Like Mr. Lawson he had reviewed the Carlson and Ginter gas well logs. (Tr. 351).
74. The Appellant testified that she compared the Yanity well and found that the plugging would be around $60,000 and she looked at other similar UIC wells in documents Platt had entered into the EPA record for the Environmental Appeals Board. (Tr. 430).
75. During Mr. Jankura's expert testimony it was learned that a plugging inspector did complete an inspection report and noted gas coming out of the 2-inch vent from the Carlson well. (Tr. 720).
76. The Carlson well had a gas sample collected to be assessed to allow the Department to troubleshoot and be responsible through the legacy well program based on testimony from Mr. Pelepko. (Tr. 777-779).

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Active Old Deep Gas Wells in Oriskany Sandstone Formation

77. Mr. Hoover was unsure of the gas wells status of active or plugged although he believed four were active and two plugged of the old deep gas wells penetrating the Oriskany. The industry has discussed monitoring outside wells as a precaution. (Tr. 182-183).
78. Mr. Wise as a fact witness reviewed the Department's PreHearing Memorandum Number 30 on page 7 after it was stipulated as part of the record and he reviewed the depletion of the zone by the old deep gas wells as it related to faulting and noted that it potentially reduces pore pressure. (Tr. 257-260).
79. Mr. Platt testified that the operator needs to be aware of fluid movement if it is going to occur in any direction. (Tr. 488).

Well Integrity Review in Regards to Old Conventional Gas Wells

80. An impairment in the reservoir allows critical pressure to become an issue as testified by Mr. Pelepko and an example would be an old well. (Tr. 775).
81. The Carlson well had a gas sample collected to be assessed to allow the Department to troubleshoot and be responsible through the legacy well program. (Tr. 777-779).

Old Shallow Gas Well Fractured Various Depths

82. Mr. Hoover identified that there was a shallow gas well 650 feet away at approximately 3,000 feet and it was fractured. Later he identified that it was fractured at 2,682 feet to 3,400 feet. (Tr. 149, 159).
83. Mr. Jankura reviewed details during his expert testimony on the shallow gas well located about 650 feet away from the proposed injection well site and found four different

treatments treating zones from 3,400 to 2,500 feet with vertical fractures on both sides of this well. (Tr. 711 and Exhibit 29, page 7-9).

Well Plugging of Abandoned or Orphaned Wells

84. Mr. Wise as a fact witness identified a published fact sheet and read the first couple sentences explaining the significant number of wells drilled prior to modern permitting and plugging requirements and it is estimated between 100,000 to 560,000 oil and gas wells remain unaccounted for in the state records. (Tr. 254-255 and Exhibit 10).
85. The Appellant mentioned her concerns with the abandoned and orphaned well program. (Tr. 414).
86. Mr. Donahue defined an abandoned well and according to the definition has to produce at least once a year or it becomes an abandoned well and if the Department has to take responsibility for abandoned or orphaned wells that there is a plugging list for no viable operator to plug the well it goes on the state plugging list, and they get plugged with state funds in the order of priority they are causing a problem. The potential exists for an abandoned or orphaned well to be in the quarter mile or outside the quarter mile. (Tr. 588-590).
87. Windfall committed to mitigate unforeseen issues and will assume the responsibility to plug any abandon wells in the area of review based on Mr. Jankura's expert report and this was felt to be important in terms of unknowns in the area of review. (Exhibit AX, page 4).

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88. An old well that is an opening from the surface to the injection zone is a typical impairment in literature reviews found by Mr. Pelepko. (Tr. 776).

Monitoring Gas Wells

89. The Appellant presented that it is in our best interest to be monitoring the gas wells even though the company may not have the rights to monitor the surrounding gas wells in the Oriskany the Department should be monitoring gas wells and in storage of gas they would monitor to see if gas migrates to other gas wells. (Tr. 415).

Emergency Plan

90. Mr. Hoover as the emergency coordinator was not aware that Brady Township should have been listed as a local emergency contact for the fire company and ambulance. He identified the final revised emergency plan; stated he had knowledge of the area; no evacuation plan was done for the neighborhood; he was not aware if any chemicals were listed on the PA Right-to-Know lists; and he was unaware if any might need to be evacuated for a half a mile. as Exhibit AI (Tr. 219-226 and Exhibit AI, pages 7-8).
91. The Appellant testified that the emergency plan doesn't include an evacuation plan for ½ mile radius even though she understands it is a living document it should have the correct fire company in Brady Township. The Adrian Fire Company listed would require crossing numerous other fire departments. (Tr. 412-413).
92. The emergency coordinator is to know emergency spill procedures and make arrangements with local emergency response agencies based on Mr. VanFleet's expert testimony. (Tr. 735-736 and Exhibit AW, pages 6-7).

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93. The Department notice of deficiency to Windfall requested more accurate local emergency response numbers on January 15, 2016 and the second notice of deficiency on June 3, 2016 again provided more specific details on local emergency response numbers and the need to identify a Spill Response Contractor. The original application came in around September 14, 2015 from Windfall to the Department. (T. 521 and Exhibit Z and AF).

Coordinator

94. The primary on-site coordinator listed by Windfall was Mr. Hoover based on expert testimony by Mr. VanFleet. (Tr. 735; Exhibit AI; and Exhibit 29, page 196).

Local Emergency Contacts

95. Plan apparently needed more attention and the Department figures the person doing the plan knows local contacts for emergencies based on Mr. VanFleet's expert testimony. (Tr. 736).

Hazardous Response

96. Hazardous chemicals will be stored on the site and an improved plan for emergencies needs addressed. (Tr. 410 and Exhibit 29, page 224-245).
97. One chemical to be on site is Alpha 2278W that is hazardous under 29 CFR 1910.1200 with a note that prolonged inhalation may be harmful and may cause long-term adverse effects in environment. (Exhibit 29, pages 224-230).

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Chemicals

98. Mr. Hoover testified that they applied for four different potential waste streams: shallow production fluids, Oriskany fluids, Marcellus production fluids, and Marcellus frack. He explained the analysis and criteria done as presented in the permit application. They will monitor the level of radioactivity of the fluids. (Tr. 100, 109).

99. Mr. Hoover explained brine is produced flow out of existing well from production operations and it has a higher salinity that seawater. (Tr. 106-107).

100. Pennsylvania brines are well known to have naturally occurring radioactive constituents as Mr. Pelepko testified. (Tr. 756).

101. One of the chemicals to be on-site is Alpha 3207 and it shows an immediate health hazard for the fire rating due to flammability. It is heavier than air with the proposed site at a higher elevation and a valley area below the site. (Exhibit 29, pages 231-235).

PA Right-to-Know

102. The operator has responsibilities under the PA Right-to-Know laws and two chemicals to be stored on site are listed as PA Right-to-Know. (Tr. 410-411, Exhibit 29, pages 224-245).

103. Alpha 2278W shows the vapor density is heavier than air and this is a valley below the elevation of the proposed site. Chronic effects and neurological effects show it is hazardous by OSHA criteria. The potential environmental concerns the state does not

allow in sewers or water supplies. It is a chemical on the PA Right-to-know list for an environmental hazard. (Tr. 410-411 and Exhibit 29, pages 224-230).

104. FE Oxclear lists avoid release to environment and due to Ammonium bisulfate as it is on the PA Right-to-Know Hazardous Substance List. It is hazardous under 29 CFR 1910.1200 and is listed as harmful to aquatic organisms. (Tr. 410-411 and Exhibit 29, pages 236-239).

105. CLA-STA XP Additive notes to prevent from entering sewers, waterways or low areas. This is a lower area than the proposed site and it mentions to avoid breathing vapors. (Exhibit 29, pages 240-245).

½ Mile Evacuation Plan

106. Alpha 2278W has listed firefighting precautions with consideration to isolate for ½ mile and evacuate. People are to be kept upwind and stay upwind when this is a valley below the elevation of the proposed site. Precautions listed include preventing entry into waterways, sewers, basements or confined areas. It should not be released into environment. Some hazards listed: may cause central nervous system disorder. (Tr. 410-411 and Exhibit 29, pages 224-230).

107. No evacuation plan has been made for the community based on expert testimony by Mr. VanFleet. (Tr. 736).

Radiation Plan

108. Mr. Pelepko recommended a radiation monitoring action plan in is expert report. (Tr. 780).

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Immediate Notification to Residents of Violations or Mechanical Integrity

109. A notification list of residents should be developed as this is the recharging zone for their private water supplies and any violations or mechanical integrity issues should be reported to residents immediately.

Bonding and Plugging Plan Inadequate

110. The EPA in notice of deficiency requested Windfall provide additional information on plugging and abandonment with a schematic diagram. (Exhibit 31).

111. Drill cuttings are collected to categorize the geology with regard to end-of-life plugging of the well based on expert testimony by Mr. Jankura. (Tr. 667).

112. If the state becomes responsible for the plugging of this well it needs adequate bonding as documentation I reviewed explained the prevailing wage details. (Tr. 414).

Financial Assurances

113. Mr. Hoover testified that the bank has been acquired by Farmers Bank and he still has not updated the information to the EPA and DEP. (Tr. 217).

114. The Appellant testified that the UIC process uses a lot of self-reporting, and the company will be reporting to the EPA and Department on their own because there is limited resources to monitor. The self-reporting as one example is concerning that the financial assurances have still not been updated as testimony was provided previously that the bank has changed in December or January. Another example was the Department's hard work was never filed with the EPA during the renewal process and the administrative record was with that application and it was only a handful of documents

and none of the Department's changes were made. If we are going to be self-reporting, the EPA needs to have everything that the Department had done. (Tr. 407-409).

Prevailing Wage

115. Mr. Hoover testified that his company was able to do the plugging for $30,000 the cost of the bond. It is not figured at prevailing wage. (Tr. 218).

Special Protections under 25 PA Code chapter 93 for Cold Water Fisheries

116. Mr. Hoover presented that they had to comply with higher standards due to the special protections under 25 PA Code Chapter 93 dealing with cold water fisheries. (Tr. 228-229).

Geology

117. The EPA notice of deficiency to Windfall requested more geologic data information, more reservoir characteristics to calculate the ZEI to confirm the Area of Review (AOR), and additional information for construction procedures for USDW concerns relating to the geology. (Exhibit 31).

118. The Department notice of deficiency to Windfall requested more geologic data along with additional details needed for the Erosion and Sediment Plan and the Control and Disposal Plan and the second Department notice of deficiency still need details for the Erosion and Sediment Plan and the Control and Disposal Plan. (Exhibit Z and AF).

119. Mr. Platt explained that the formation will drive the conditions. The EPA does try to get the data available by asking the operator for site specific information to make calculations useful as can be seen through notice of deficiency letters. (Tr.497-498).

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Fluids Already Exist in Oriskany Sandstone Formation

120. Mr. Hoover testified that the Oriskany is absolutely economically depleted. Later we reviewed the details on the economics of the wells outside the ¼ mile. (Tr. 154, 184-196).

121. Mr. Platt testified that fluid is in the formation now that are natural formation fluids. (Tr. 455, 466).

122. The expert report by Mr. Pelepko mentions the Oriskany is filled with in-situ fluids and the need for a well treatment process. (Exhibit BA, page 8).

Permeability

123. The EPA notice of deficiency to Windfall showed that the application indicated an extremely low permeability of .0061 millidarcies where the Oriskany typically ranges between 10 to 100 millidarcies. (Exhibit 31).

124. Mr. Hoover recalled the mathematical error on the millidarcies when asked specifically. (Tr. 125).

125. During expert testimony Mr. Jankura explained that he would expect this to have low permeability and higher permeability allows easier flow of fluids. (Tr. 700)

126. Local permeability can be extremely low and virtually impermeable prior to fracture treatment with the most permeable section of the Oriskany usually about 30 feet thick based on assumptions listed in Mr. Pelepko's expert report. (Exhibit BA, page 3)

127. Low permeability is not a good site for an injection well from Mr. Pelepko's expert testimony. (Tr. 771-772).

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128. The permeability input value used of 6.1 millidarcies is higher than literature reported found by Mr. Pelepko's expert report. (Tr. 774 and Exhibit BA, page 12).

Porosity

129. The expert report by Mr. Pelepko addresses the issue of porosity and fluid flow in the Oriskany filled with in-situ fluids and the need for a well treatment process. (Exhibit BA, page 8).

Pressures

130. Mr. Hoover explained the pressure in a gas well the difference in an injection well. He explained how at first it will probably vacuum. He later explained his understanding of the pressure in the formation and the pressures as he understood them. (Tr. 118-119, 121, 124, 148).

131. When asked if the nature of a fault can change depending on the ambient pressure conditions Mr. Hoover responded if you exceeded frack grading (gradient). (Tr. 179).

132. Mr. Platt explained that pressures are what will affect fluid migration into underground sources of drinking water and a disposal well is strictly a disposal methodology and pressure is going in with no relief. (Tr. 466-467).

133. The maximum bottom hole pressure is to be 6,425 and maximum surface injection pressure is to be 2,443 as it is a critical parameter that will be a controlling factor as pressure increases toward maximum, the injection rate will have to be reduced to stay below the maximum allowable shut-in surface pressure, based on expert testimony by Mr. Jankura. (Tr. 656, 699 and Exhibit K, page 12).

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134. The 2,443 surface pressure for the proposed site is higher than the test pressure on the Green Glen Number 1 as explained in Mr. Jankura's expert testimony. (Tr. 655).

135. Fluid flow is driven by pressure gradients and open pathways based on the expert report by Mr. Pelepko. (Exhibit BA, page 8).

136. The boundary conditions of a fault could influence pressure distributions and how fluid moves along gradients from Mr. Pelepko's expert testimony. (Tr. 766).

137. Pressure escaping from the injection stream is the reason the casings are important lines of defense. (Tr. 662).

Confining Zone

138. Mr. Hoover stated that the injection well will inject into the Huntersville Chert and the Oriskany Sandstone with the Onondaga limestone the cap rock for the Chert/Oriskany formation. He explained the cap rock and the depth being about 14 feet. (Tr. 120-121).

Department's Well Score Card

139. Mr. Donahue testified that he believed it would change the Department well score card if it's at the fracture gradient it would change the answer and explained that if you inject above there is a potential to induce fractures and you would not want to do that. (Tr. 574).

140. Mr. Wise as a fact witness rated the well score card with a risk factor for a fault even though he initially located the fault just outside the quarter mile distance as he initially located roughly at 1,400 to 1,500 feet away from the well and he agreed with the

EPA that the fault was non-transmissive and he felt a fault block was there and no testing was done that he was aware of on the faults being transmissive or non-transmissive. It was stated that the EPA identified the fault in the ¼ mile area of review. Mr. Wise had done six reviews of other UIC wells in Pennsylvania. (Tr. 249-252, 280-285).

Testing and Updating Public Access to Information

141. The fall-off test is done to pressure up the formation then you watch the pressure fall off to analyze the curve to determine the reservoir quality from expert testimony by Mr. Jankura to determine actual data parameters for calculation. (Tr. 665).

142. Based on expert testimony by Mr. Jankura the injectivity test can identify the rate and pressures to calculate formation properties like permeability. (Tr. 664).

143. Technical matters and information available to the public have been a concern by the Appellant and the parameters being used need to be available for public review for practicing geologists to have available. (Tr. 750).

Fractures

144. Fracture gradient (frac gradient) was fairly high at .9 psi per foot and it is more common to be around .8 and the higher frac gradients give higher maximum injection pressure based on Mr. Jankura's expert testimony. (Tr. 696-697).

145. Windfall requested a fracture gradient of 0.90 psi/ft. (Exhibit 29, page 178).

Propagated Fractures

146. Pressure is key to stay below fracture gradient so injection fluid will go into the natural permeability and not create or extend fractures, although the proposed site is

where permeability seems to be lower and 6.1 millidarcies would be a tight rock based on Mr. Jankura's expert testimony. (Tr. 700-701).

Existing Fractures

147. Mr. Jankura explained the fracturing process and reviewed well logs during his expert testimony. (Tr. 707-712).

Stimulation

148. Mr. Hoover did not recall the stimulation plan and explained the purposes you stimulate. (Tr. 119-120).

149. Mr. Pelepko's expert report makes a reasonable assumption that injection will only be possible if stimulation happens prior to use of the injection well due to the permeability factor. (Tr. 774 and Exhibit BA, page 12).

Area of Review

150. Mr. Hoover presented that the company based calculations on the radius of 1,320 in compliance with the EPA regulation. (Tr. 108).

151. Mr. Pelepko as a fact witness for the Department had not done any calculations during his review for the context of the initial permit review and he testified that the Department completed no work regarding the zone of endangering influence calculation. He explained the important consideration of understanding the influence that injection activities have on the surrounding reservoir and the ability of that influence to affect underground sources of drinking water; the definition of the zone of endangering influence (ZEI); the Code of Regulations stating the four assumptions the Modified

Theis model uses; paraphrased and provided definitions of the assumptions and parameters of homogenous and isotropic; agreed it was a fair assumption that the Modified Theis uses assumptions that everything is similar in characteristics; characterized the local influence of the wellbore in respect to the surrounding area; discussed the Ei model and the EPA Environmental Appeals Order. He explained his understanding of terms and their importance in relation to an injection well: pressure differential, permeability, pore pressure, fluid movement, viscosity (how fluid moves in the subsurface), area of influence (distance fluid might travel), thickness, porosity, reservoir pressure (ambient pressure in a reservoir), USDW (underground source of drinking water), critical pressure (pressure necessaru to allow a fluid to come into contact with the USDW), area of review, and penetrations. (Tr. 291-305).

152. Mr. Donahue considered the Area of Review for potential pathways and a coal mine did encroach on the area of review. (Tr. 541, 552).

153. Mr. Jankura provided expert testimony that his understanding and perception of the Area of Review was the ¼ mile was a minimum area of protection and he had experience filing a UIC application in 1982, which he relied on the ZEI provided by the EPA. (Tr. 650, 654).

154. Windfall proposed a ¼ mile fixed radius for the Area of Review (AOR) and never provided ZEI calculations. (Exhibit 29, page 2).

155. Mr. Hoover had no company perform calculations: to predict pressure increases over time; pressures to understand when underground sources of drinking water would

be contaminated; how long it would take wastewater to reach the old deep gas wells; faults. (Tr. 20-203, 206).

156. It is important for Windfall to know the correct calculations and understand those calculations as they relate to: conversions for permeability and validity of reservoir input values and surface reservoir pressures as it relates to faults; pressures, the frac gradient, permeability, zone of endangering influence (ZEI) modeling; the ZEI calculations; and pressures not to exceed based on expert testimony. (Tr. 623, 633, 696, 781).

157. Mr. Marshall testified that his wife had Mr. Fisher run the ZEI calculations voluntarily for her; he provided her the information on the ZEI calculations; he contacted the EPA and compared them to the EPA calculations; and he compared them to the Department calculations. Mr. Marshall attended a settlement meeting in Harrisburg with his wife and he is opposed to the injection well due to the proposed area being residential and the impact it would have on their drinking water supply. (Tr. 359-365).

¼ Mile Minimum Area of Review

158. Mr. Hoover explained that the ¼ mile is a default required position set by the EPA as to what area you have to investigate and it is the minimum. (Tr. 137-138).

159. Mr. Platt testified that the EPA's policy is to take in a greater area and look at a broader opportunity for fluid that could potentially migrate up into underground sources of drinking water. (Tr. 453).

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160. Mr. Jankura in his expert testimony had looked outside the ¼ mile area of review based on his own decision as he felt it was important particularly to look at those wells that penetrated the injection zone although he had no latitude to increase the area of review. (Tr. 684).

161. Pennsylvania had an injection well where the ZEI extended beyond a ¼ of a mile based on the expert report by Mr. Pelepko citing work in 2005 by Platt and Rectenwald. (Exhibit BA, page 9).

Zone of Endangering Influence (ZEI) Calculations

162. Mr. Wise testified as an expert that Mr. Pelepko did the independent review of the EPA's calculations of the ZEI for the Department. (Tr. 634).

163. The Federal Regulations spelled out using the Modified Theis equation and the EPA used the Exponential Integral Equation based on Mr. Pelepko's expert testimony. (Tr. 749, 753).

164. Mr. Pelepko testified that the Appellant during settlement had a practicing geologist, Mr. Daniel Fisher, provide a correction on the ZEI calculations run for the expert report by the Department. (Tr. 750 and Exhibit BA).

165. Mr. Pelepko testified that all the ZEI calculations he reviewed by EPA and Department had not taken into account the faults. (Tr. 761)

166. The Department expert reports for this appeal were prepared before the settlement meeting was held in March 2019 making them all utilize the ZEI calculations that do not take into account the faults: Tom Donahue's report completed on January 23, 2019;

Harry Wise was not dated; Bruce Jankura's report was completed on February 4, 2019; Sean VanFleet's report was completed on January 20, 2019; and Seth Pelepko's report was completed on February 5, 2019. (Exhibit AW, AX, AY, AZ, and BA).

167. The ZEI is a model that has a lot of input parameters that are based on simplifying assumptions based on Mr. Pelepko's expert testimony. (Tr. 750).

Simplifying Assumptions Used for Modeling Data

168. Models based on assumptions of the injection zone: homogenous and isotropic; infinite areal extent; penetrates the entire thickness of the injection zone; emplacement of fluid into the injection zone creates an instantaneous increase in pressure; and additional assumptions are cited in the expert report by Mr. Pelepko. (Exhibit BA, page 9).

169. The skin factor being used makes additional assumptions in the model based on Mr. Pelepko's expert testimony. (Tr. 759-760 and Exhibit BA, page 19).

170. Mr. Pelepko modeled a radial distribution that had no faults considered in his ZEI calculations for the Department. (Tr. 766-767).

171. Mr. Pelepko explained during expert testimony that a sensitivity analysis is a way to vary model input parameters and see how the output responds to varying input parameters. The sensitivity analysis demonstrated the ZEI model is sensitive to the parameters that are simplifying assumptions. (Tr. 774 and Exhibit BA, page 12).

Department Jurisdiction

172. Mr. Donahue explained to the best of his ability the Department's jurisdiction over plugging issues or fluid migration issues above ground outside the quarter mile. The

jurisdiction of the Department and EPA over any issues needing addressed. He explained that water wells are unregulated in Pennsylvania, except for public water supplies. (Tr. 590-592).

173. Mr. Jankura provided expert testimony that one of the primary goals is to protect groundwater resources. (Tr. 660).

174. The Department's role is primarily limited to surface activities because EPA has jurisdiction in their UIC program based on Mr. Pelepko's expert testimony. (Tr. 741).

175. Expert testimony and reports show that 25 PA Code § 91.51 is to prohibit disposal of wastes into underground horizons unless the disposal is for the abatement of pollution and the applicant can show by the log of the strata penetrated and by the stratigraphic structure of the region that it is improbable that the disposal would be prejudicial to the public interest and acceptable to the Department. (Tr. 742 and Exhibit AX, page 2).

176. Mr. Donahue explained how the Department's review process changes around 2014 due to 25 PA Code § 91.51 and the disposal of waste not being detrimental to the public interest. (Tr. 508).

177. Mr. Donahue explained flooding a stratum is prohibited. (Tr. 529).

178. Mr. Jankura's expert testimony included why he reviewed 25 PA Code § 91.51 to see impacts to the public and how the injection process would affect things away from the wellbore that fluid would contact. (Tr. 649).

179. Expert testimony provided by Mr. Jankura explained why he thought Windfall would not be able to run logging tools to confirm the actual thickness of the formation, which is critical information. (Tr. 667).

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EPA Required Documentation that Department Requires

180. The Department required to be submitted with the application everything that was with the EPA application based on expert report by Mr. Jankura. (Tr. 648-649).

One Mile Map

181. Mr. Hoover agreed that the EPA requires a one-mile map and that he was just recently asked for one. It was discussed that the EPA Environmental Appeals Board ruled that the one-mile map was never provided. He explained the EPA requesting an updated map due to changes and not feeling a small topographical map was legible. (Tr. 125-128).

182. The Appellant testified about the one-mile map never being provided and until the EPA Environmental Appeals Board Order it was never known if a one-mile map even existed. During the public hearing for modification to renew the EPA permit filed in April 2018, it was learned that the EPA was going to require a one-mile map due to a public comment asking for the maps with the new applications. The April 2018 EPA permit renewal seemed to be page for page the same as the previous EPA application with the maps missing and the only additional sheet being the chemicals sheets that had never been supplied during the EPA public comment period. (Tr. 392-393).

183. Mr. Platt testified that the EPA Environmental Appeals Board ruled to disagree that the map was not sufficient and needed to be bigger. (Tr. 492).

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Fluid Samples

184. Mr. Hoover explained that the hydrologist reviewed all the parameters and all the analysis provided for the report. Later he explained they were representative samples taken from other operator's locations. He testified that no consideration was given to reduce the amount of fluid injected. (Tr. 124, 136-137).

185. Mr. Pelepko's expert report addresses fluid viscosity. (Exhibit BA, page 12).

Fracture Gradient

186. The six deep gas wells would have their own individual fracture gradients based on depth and pressures involved with that depth based on expert testimony by Mr. Wise. (Tr. 639 and Exhibit 29, pages 167-182).

187. The EPA may need to get close to frac gradient during the fall-off test although Mr. Jankura was unfamiliar with parameters during his expert testimony. (Tr. 718).

Specific Gravity

188. Mr. Pelepko states in his expert report that he did not do a sensitivity analysis for the brine injection rate or the specific gravity of the injection fluid. (Exhibit BA, page 12).

Modifications as UIC permit Progresses Without Public Knowledge

189. The EPA permit modification for renewal was submitted in April 2018 and then withdrawn. (Tr. 128-129).

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190. A lot of factors seem to depend on the future information submitted by Windfall based on expert testimony by Mr. Jankura. (Tr. 421).

191. The public will not be provided future details even on safety issues or follow-up on old deep gas well integrity reviews by Department as the public was not even contacted originally about their concerns. The Department granted a public hearing based on requests although it seems to not be a normal procedure.

Mechanical Integrity

192. The EPA in notice of deficiency explained to Windfall that the mechanical integrity tests had to be done every two years for commercial injection wells and not every five years. (Exhibit 31).

193. Mechanical integrity terms for an injection well looking at construction where pressure is being applied to pressurize the well and whether it has potential to fail anywhere along that pressure profile was the explanation during Mr. Jankura's expert report. (Tr. 649).

194. The mechanical integrity test is not real specific as to the detailed procedures as explained by Mr. Jankura during his expert testimony. (Tr. 666).

195. The Department will be receiving monthly reports to monitor to know everything is operating appropriately based on Mr. Jankura's expert testimony. (Tr. 705).

196. Daily reports with technology should be considered. (Tr. 706).

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197. A UIC EXCO well over-pressurized for a few months and fluid came up around the annulus based on expert testimony and that would be concerning to seismic activity. (Tr. 624, 714-715).

198. Over-pressurize exceeds maximum pressures and if that happens it would depend if the well maintained mechanical integrity where fluid would travel. (Tr. 715).

199. Mr. Platt testified that there was an enforcement case where an operator failed to operate his well properly and might have exceeded maximum injection pressure; discussed how the public was notified; picked up through annual monitoring reports; and it was a few months before it was realized. (Tr. 482-484).

Single Point of Failure - Similarities to Gas Storage and Mechanical Integrity

200. Mr. Hoover explained that storage of gas (storing of natural gas) and injection wells (disposing of fluids) have similarities and differences. So what they will be doing is taking a depleted gas reservoir and injecting produced fluids back into the ground and leaving it for storage instead of injecting and withdrawing like storage of gas. Later he testified storage reservoirs have different boundaries with an active boundary and a protective boundary with monitoring wells in storage fields. (Tr. 180-181, 197-198).

201. The Appellant explained concerning well integrity review issues the best depiction shows a single point of failure in the Department documents explaining the catastrophic well integrity failure in Aliso Canyon that demonstrates an example of a wellbore failure depiction that has changed how the Department is handling well integrity

review issues due to federal guidance for storage of gas. (Tr. 414 and Exhibit 14, pages 66-67).

202. During expert testimony by Mr. Jankura it was learned how gas flows through fractures and he explained the four different treatments for the nearest shallow gas well. (Tr. 711-712).

Characterization of Waste

203. Mr. VanFleet's expert report explains that the company must have a PPC plan for toxic, hazardous, or other polluting materials to address spills or releases. (Exhibit AW, page 2).

Abandoned Coal Mines and Monitoring

204. Mr. Hoover testified that coal mines are in the area and he thought the old deep gas wells had vent strings in them from the mines. (Tr. 200).

205. Mr. Marshall testified that he had concerns having his well drilled to a depth of 360 feet due to the coal mines in the area going through about that depth and if they drilled to far down the potential lose of their water supply. (Tr. 347).

206. Mrs. Marshall testified that she was glad that the coal mine designations were corrected on the paperwork at the end of the process as that seemed to take awhile. Concern was expressed if the penetrations of the deep gas wells allow for migration of fluid into the coal mines and contaminated them or methane migration happened. (Tr. 383).

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207. Mr. Platt remembered a coal map being provided to the EPA during the public comment period and that is a responsibility of the State. (Tr. 493).

208. The abandoned coal mines have potential to convey fluid to underground sources of drinking water and they matter. The abandoned coal mines are approximately 870 ft. W from the proposed injection well based on Mr. Donahue's expert report and from his Figure 4 at least one of the old deep gas wells has potential to go through these abandoned coal mines. Windfall submitted the Department application saying there were no workable coal seams in the area and eventually that had to be fixed. In exhibit AL, it was noted in May 2017 that Windfall had to revise the permit application and well schematic to account for a workable coal seam. (Tr. 514-515, 525; Exhibit AL and AY, page 5, 9).

209. Mr. Donahue testified that he believed if waste migrated into the coal mines he would work with the mining program to deal with it after someone had presented evidence that that had happened. Then he would work with them to investigate it after notification. (Tr. 564).

210. The coal strings usually get degraded due to exposure to acid mine water that is very corrosive and if you are lucky to pull it out it may look like Swiss cheese based on Mr. Jankura's expert testimony. (Tr. 688).

211. The abandoned coal mines in the area were not reviewed by Mr. Jankura based on his expert testimony. (Tr. 692).

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I. ARGUMENT

The Appellant has a constitutional right to clean water and clean air granted by Article I, Section 27 of the Pennsylvania Constitution. The Department must protect that right in its capacity as a trustee of this natural resource and rescind a permit for numerous reasons.

The Department found an additional casing and cementing requirement was needed to address the coal mines that the Environmental Protection Agency had not imposed. The Appellant was very glad to see that the Department realized this needed corrected after the Environmental Appeals Board filed their order. This coal string casing at 425 feet based on the elevations listed in the permit application still demonstrates elevations that do not appear to be protective of the Appellant's water supply.

Other items the parties disputed during the hearing included material facts regarding at least the following items in relation to the UIC permit issued for a Class II disposal well permitted to Windfall Oil & Gas, Inc.:

(1) the faults, seismic concerns, and operations should be ceased if any seismic events occur until well integrity is assessed;

(2) private water wells already are affected by old deep gas wells in the same formation as the UIC permit for the injection zone and the old deep gas well logs are cited for their storage capacity with no research shown to be done on the private water supply concerns and no planning demonstrated for an alternative water supply;

(3) review of plugging records of deep gas wells in the same formation;

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(4) permitted location isn't comparable to other UIC Class II disposal wells in Clearfield County;

(5) emergency plan;

(6) well integrity review in regards to another old gas well at depth 3,576 next to the permitted location with fractures;

(7) well plugging of abandoned or orphaned wells;

(8) bonding and plugging plan is inadequate;

(9) improved protection of water supplies as the permitted site is a recharging zone for private water wells and has special protections under 25 PA Code chapter 93 for Cold Water Fisheries;

(10) monitoring gas wells;

(11) improved monitoring of private water sources;

(12) permeability and porosity;

(13) pressures and the Department stated it would allow "fractures to be propagated;"

(14) stimulation;

(15) continuous and ongoing seismic monitoring after five years;

(16) planning for alternative water supplies;

(17) area of review;

(18) calculations for the Zone of Endangering Influence;

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(19) financial assurances (the bank providing the bonding is no longer operating);

(20) geology;

(21) devaluation of property and other Brady Township residents have already notified the Township Supervisors at a Township meeting that they will file for a reduction in property values once drilling commences;

(22) existing fractures;

(23) the final summary of the Department's Well Score Card for the Windfall Oil & Gas, Inc. UIC permit;

(24) research;

(25) inaccurate information originally provided to the EPA that was corrected by residents and the lack of attention to detail in providing required documentation (for example, required one mile map for EPA Permit Application was never provided to the public and the Environmental Appeals Board finally ruled it was never provided);

(26) accuracy of fluid samples provided for the permit application and consideration to reduce the amount of fluid injected at the UIC permit site;

(27) fracture gradient;

(28) specific gravity;

(29) hazardous response;

(30) similarities to storage of gas and mechanical integrity issues;

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(31) characterization of waste;

(32) penalty violations insufficient;

(33) confining zone and layers;

(34) simplifying assumptions used for model data;

(35) more oversight of the UIC operation activity;

(36) drill cuttings disposed on UIC permitted site;

(37) depth of UIC permit well construction and casing in regards to depth of private water supply;

(38) seismic concerns and earth disturbance concerns as private water supplies have already required special casing to protect against collapsing of the private water wells in the local area;

(39) cost of future water well testing, the burden of proof falls on the homeowner along with the costs, the future safety between water well tests, and daily safety after drilling commences then injection is initiated;

(40) future need of earthquake insurance and the UIC permit seismic plan has not been provided only the Department's requirement for five years of seismic monitoring that ends as the storage capacity becomes filled and will really need to be continually monitored over time based on studies to protect our area with the known faults, coal mines, and natural gas lines;

(41) any spill on the site affects the recharging zone of the areas water supplies (the injection site is located on a ledge of a local round top);

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(42) the Department based details for this permit on a UIC permit that has never been implemented in Huston Township;

(43) community safety and recreation would be affected by the UIC permit site as two main streams (Pentz and Reasinger) receive water from this UIC permit site and flow through the local community and City of DuBois along with Sandy Township;

(44) bridge over railroad tracks (no longer on the list for repairs or replacement although it had been previously discussed), truck traffic, issues with the current road washing out, and lack of details on the operator's road bond;

(45) coal mines are not operational in this area and need to be monitored for contamination as they flow to DuBois Mall in Sandy Township and discharge there;

(46) the new Brady Township sewage system needs a plan if contaminated water goes into the system as it is not allowed by law to accept this type of waste fluid into it;

(47) responsible land development and this area being planned for housing development to meet the growing needs of the City of DuBois and the planned expansion of the Penn Highlands Hospital;

(48) nuisances like noise nuisance and other nuisances that this activity will bring to the UIC permit site;

(49) considering a similar plan to the Yanity Well in Grant Township that the Department had advised to use venting and an automatic shut-down device with an improved plugging plan (that the Appellant noted will cost $60,000 for the Yanity UIC well plugging plan in comparison to

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the $30,000 plugging plan for the Windfall Oil & Gas, Inc. UIC permitted well, which is a considerable difference in costs to plug similar UIC permitted wells that are proposed to inject into the same formation);

(50) immediate notification to residents of violations or mechanical integrity concerns to provide awareness of situations affecting property, lives, and water;

(51) allowing modifications as UIC permit progresses without public knowledge or input of changes or revisions to the UIC permit conditions;

(52) more than 24 hours notice to residents of UIC permit injection well drilling;

(53) environment free of pollutants;

(54) hydrology report stresses to protect water supplies;

(55) methane migration or the potential of waste fluid to migrate and interact with methane to explode;

(56) two watersheds (the Susquehanna and Ohio river basins), multiple public water supplies, and the City of DuBois has public water sources with known abandoned gas wells within 2 1/2 miles away while past history demonstrates waste traveling five miles away and coming up an unplugged gas well;

(57) past history of UIC permitted wells in Pennsylvania demonstrates problems;

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(58) future and current Marcellus activity, fracturing, and over pressurization may open a natural fracture joint into the UIC permit injection zone and plans should be in place to avoid this occurrence;

(59) geothermal energy use in close proximity to the area of review is a concern with pressures;

(60) close proximity of the Caledonia Syncline (a syncline brings fluids up to the surface);

(61) "this area is already saturated in the Oriskany,"

(62) a requested impact study be done for the National Environmental Policy Act;

(63) even if everything is done correctly at the UIC well site it has been demonstrated that the waste will migrate over time and when it follows the path of least resistance it will impact residents that have known issues with the old deep gas wells;

(64) a study done for the DuBois watershed shows a fault running from Brady Township to the DuBois reservoir and this would jeopardize the public water sources for the entire area;

(65) faults being non-transmissive or transmissive (characteristics of faults changing due to man-made conditions); and

(66) existing conduits.

The parties dispute the geological integrity of the rock formation in the area of the Windfall Oil & Gas, Inc. UIC permit. The Appellant's position is that the six old deep gas wells, faults, and the underground fractures in the area of the well present the potential for "Underground Sources of Drinking Water" (USDWs) and coal mines to be contaminated.

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Additionally, the potential for seismic activity from the issuance of the UIC permit in the area leading to further fracturing of the rock and increased risk of migration of the waste fluid into USDWs and coal mines along with the loss of water wells due to collapsing and the potential of homes sinking into the coal mines.

The parties dispute the effect of the Windfall Oil & Gas, Inc. UIC permit on the surrounding property land values. The Appellant's position is that this UIC permit operation at this location will result in the devaluation of residential lands in the area, especially due to the potential known conduits for waste fluid migration. The parties dispute that this will have a detrimental effect on the ability to enjoy the supply of clean well water, the enjoyment of personal property, the recreational use of homes, the constitutional right to clean water, and a protected environment.

The parties dispute the prior oil and gas activities already in the area along with plugging practices that endanger the private water supplies. Public hearings had reports of water supplies being affected by gas wells in the same formation that are planned to be used for the storage of the waste fluids by the issued permit to Windfall Oil & Gas, Inc. (Windfall) for a Class II underground injection disposal well. The Commonwealth of Pennsylvania, Department of Environmental Protection (Department), should have reviewed concerns and addressed them before issuing the permit as this is the recharging zone for the areas private water supplies.

The parties dispute the Well Score Card and that it should be reflective of the actual parameters involved to fully represent to anyone reviewing the permit the known facts of the UIC permit location. The final Well Score Card to "not" reflect the faults in the Area of Review

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and the score for injection pressures being incorrect based on the statement in question 4, "Are you injecting at a bottom-hole pressure that is **below** the fracture gradient?" that is not reflected in the Well Score answer statement in column two, "the well is proposed to inject **AT or below the Fracture Gradient."** Please note that the bold text, underlining, and AT capitalized is to show the discrepancies. The parties dispute that the Department still has the faults inaccurately listed on the summary of the Well Score Card that is a vital document to summarize the evaluation of the Windfall UIC Permit Application. It inaccurately lists the faults outside the 1/4 mile radius as they are within the 1/4 mile radius and penetrate the zone of interest. The Well Score Card states,

> "There are structural geologic features including faulting near the well but outside the 1/4 radius."

The parties dispute the "area of review" (AOR). The Commonwealth of Pennsylvania, Department of Environmental Protection (Department), issued a permit for the site location after the United States Environmental Protection Agency (EPA) issued their permit as EPA is the agency with primacy. The UIC permit shows it became effective on October 31, 2014. The Appellant would emphasize these are "minimum requirements" that the Underground Injection Control Program uses to permit under the United States Environmental Protection Agency. Part 144 establishes the minimum requirements (40 C.F.R. § 144). Windfall Oil & Gas, Inc. never provided calculations to substantiate the request for a one-quarter (1/4) mile "area of review" (AOR), so the public hearings never had calculations that were able to be verified. Upon further review during the appeal processes the EPA and Department (DEP) inputs for the calculations

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for the "area of review" were unable to be completely replicated as they fail to consider the faults in the zone of endangering influence (ZEI) formulas and the non-transmissive faults creating a fault block. During the EPA and Department (DEP) public comment periods the actual input values for the ZEI calculations should have been available for an engineer or expert to replicate and verify the figures to provide public comment. Even during discovery the Department's review of the calculations were not provided, so that they were able to be compared and figures used varied (40 C.F.R. § 146). The items with bold text and underlined added to highlight show that the permit applicant decided to use a reviewed area that was the minimum required, "40 C.F.R. **§ 146.6 Area of review.** (b) *Fixed radius.* (1) In the case of application(s) for well permit(s) under § 122.38 a fixed radius around the well of **not less than one-fourth (1/4) mile may be used.** Additionally, § 122.39, the project area plus a circumscribing area the width of which is the lateral distance from the perimeter of the project area, in which the pressures in the injection zone may cause the migration of the injection and/or formation fluid into an underground source of drinking water. (2) Computation of the zone of endangering influence may be based upon the parameters listed below and should be calculated for an injection **time period equal to the expected life of the injection well** or pattern." That means the **calculations should be shown for the expected life of the entire operation** not just five or ten years, so this is one major genuine fact in dispute as it is to be calculated for the expected life of the injection well. The faults not taken into account in the area of review will affect the pressures and that means the boundary as defined is a fact in dispute. The circumscribing area needs to define or mark carefully the boundaries and this is especially the case with six other deep gas wells that were fractured in the same formation on the edge of the 1/4 mile and that have been proposed to

be used as space for the disposal of the waste fluid yet these six deep gas wells are located just outside the 1/4 mile "area of review" and were not fully considered as conduits to "Underground Sources of Drinking Water" (USDWs) with full reviews of the plugging records, plugging concerns, and comments from citizens about the problems with the old deep gas well casings during public hearings. This is another fact in dispute with using the minimum area of review for the underground injection well site proposed by Windfall when fracturing affected the confining zone. (40 C.F.R. § 146.6)

The parties dispute the accuracy of the Zone of Endangering Influence calculations that are vital for the evaluation of this permit and these computations need to be accurate. The parties dispute the figures provided for the fracture gradient and the specific gravity as discrepancies need to be addressed. The Appellant, Mrs. Marshall spent time asking questions of those in the industry, EPA, and experts to learn and understand. The EPA used a different method to calculate the ZEI than the Modified Theis equation and the Ei equation was used by the EPA. The Appellant learned this from Mr. Daniel Fisher (PG) who attended a settlement meeting with the Appellant and voluntarily assisted the Appellant to review the ZEI formula while he was reviewing for the Appellant the validity of the expert report provided to the Environmental Appeals Board. Mr. Daniel Fisher (PG) contacted the EPA directly in 2018 for the actual input values to run the Modified Theis equation.

The parties dispute the geology and the community concerns. The Appellant learned about the UIC process from the EPA at an educational meeting along with key local officials and residents. The Appellant actively participated in the public comment process and public hearing.

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The Appellant filed documents including a binder with information compiled by the Appellant to show the details on the local area that the Appellant and area residents researched, so this might appear to indicate that the Appellant represented a group when everyone in this area worked on their own towards a common goal. The facts provided were to show the details of the area, the concerns, and the private water sources to give a full picture of the local area and to provide everyone actual facts to make appropriate decisions. The testimony at the Environmental Protection Agency public hearing was an excellent demonstration of many facts on the local area and geology being presented by various individuals in concise detail without coordination of efforts by individuals on their specific public testimony. This was an exceptional hearing on the actual facts that were researched and presented by the public to the EPA making a case that the community concerns needed to be addressed.

The parties dispute the research. The Appellant experienced medical issues during 2015 and is only aware that the University of Pitt Law Clinic compiled an appeal for Atkinson and to the Appellant's knowledge no appearance was required for the Environmental Appeals Board. The Appellant found the Terra Dynamics Report in the Environmental Appeals Board record. The Terra Dynamics Report was provided by the University of Pitt Law Clinic on behalf of Atkinson to the Environmental Appeals Board. That report backed up research done by the residents.

Mr. Daniel Fisher, PG found during his voluntary review for the Appellant that the EPA calculations had no input values for the faults and he was only able to confirm for the Appellant validity of the Terra Dynamics Report. That is why the Appellant understands that the DEP

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expert witnesses are vital in this particular case as the Environmental Hearing Board (Department) will also defer to Department's experts in the same way the Environmental Appeals Board (EAB) deferred to the EPA experts. Appellant still wanted to confirm technical data was accurate even though the Appellant was unable to afford an expert witness, so thankfully Mr. Daniel Fisher (PG) volunteered his services for the Appellant to complete this review. The findings learned by the Appellant confirmed the Appellant's knowledge and belief that the comments at the public hearing provided to the EPA by Richard Atkinson on calculations, faults, and gas wells considering the non-transmissive faults and the fault block was still valid and the faults would affect the Zone of Endangering Influence, which is often referred to as ZEI.

The parties dispute other Class II UIC permits in Clearfield County leave questions on the permitting conditions. One permit shows that the EXCO SPENCER well UIC permit from the EPA is not yet showing a renewal for their permit that ended on October 23, 2018. The other Class II UIC permit for the EXCO IRVIN well permit had violations. A violation in 2012 showed it over-pressurized for three months and it was again in 2015 permitted for ten additional years. Violations were announced to the public in early 2012.

The parties dispute the application never provided a one-mile map as required by the EPA as just one example of deficiencies in the Windfall UIC EPA Permit application.

The parties dispute the plugging practices of the old gas wells in the vicinity of the Windfall Oil & Gas, Inc. UIC permit. "The Huntersville Chert/Oriskany formation, the intended injection zone, has been a prolific producer of natural gas in this area since the late 1950s/early

1960s. There are still a number of active gas production wells in this area drilled into this formation." The plugging and casing of these wells are exceeding fifty to seventy years now and are the main cause for this appeal as they need to be fully reviewed to ensure they will not be pathways for fluid migration to private water supplies and area coal mines. A review of the plugging record showed various inconsistencies and a study of plugging and abandonment demonstrates additional concerns besides deterioration of casings. Also, these gas wells were fractured at various depths. The EPA record showed private water concerns of three landowners and two of those are Appellant's immediate neighbors. The closest old gas well to the Appellant's property, the Carlson well noted it was only partially plugged on the bottom left hand corner of the map. Upon review of the plugging record of the Carlson well it was found noted that the casing was unable to be removed below 2500 feet so it shows gelled water from 2500 feet to 7120 feet. Further review needs done as it shows air from the surface to 1160 feet and a significant amount shows gelled water instead of cementing when it was plugged in 1979, which is forty years ago before plugging practices improved. The Appellant requested consideration of the plugging records on this gas well due to the fumes reported from it, the proximity to Appellant's private water supply, it penetrates through the coal mines, and at the hearing the Appellant learned a gas sample was taken of this Carlson well at some point by the Department. Additionally, one of the other deep gas wells most concerning and impacting local private water wells of the Appellant's neighbors noted in the EPA statements and cited by the Department shows in 31 years, 67,175 barrels of brine was removed from the #20333 well known as Ginter along with 612,992,000 million cubic feet (Mmcf) of natural gas. In comparison, the Windfall UIC permit allows 30,000 barrels per month of fluid to be injected and

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the brine taken off #20333 Ginter in 31 years would be less than three months fluid while it is common knowledge gas is compressible versus water is incompressible and this is simple physics. Gases can be compressed while liquids cannot be. When comparing the #20333 Ginter well to the EPA statements on the Potter #2 well known as #20327 well it shows that only 71,613 Mmcf of natural gas was produced.

The parties dispute the fluid samples. The question of the validity of the types of fluid samples to be injected and the Appellant found nothing in the EPA or DEP record that addressed requiring new samples.

The parties dispute the stimulation as it is allowing fracturing that the public has been told repeatedly will not be allowed. It was noted that the quantities of fluid planned to be injected will require stimulation that is over-pressurizing and allowing fracturing to be performed, especially if the low permeability value of 6.1 mD is used that was revised from 0.0061 mD and data was never provided to explain the value. Stimulation will be necessary based on the UIC permit thus affecting pressures.

The parties dispute the "Emergency Plans." The Appellant understands that the Department required revisions to these plans and as of the Appellant's last review of the revised plans the "Preparedness, Prevention and Contingency Plan" was still lacking information to address emergency procedures to ensure local safety measures are in place. The local contacts for emergency are not the local Brady Township Fire or Ambulance as it lists another jurisdiction crossing at least two other boundaries for emergency services.

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The parties dispute the plugging costs based on considering the depth of this well and if the Department had to pay prevailing wage, administration, contingencies, thirty years of monitoring, and inflation over the lifetime of the UIC Permitted well to plug it. The Department's "Abandoned and Orphan Oil and Gas Wells and the Well Plugging Program" documentation states on page one,

> "Since the first commercial oil well was drilled in Pennsylvania in 1859, it is estimated that as many as 300,000 to 760,000 oil and gas wells have been drilled in the state. A significant number of these wells were drilled prior to modern well permitting and plugging requirements, and it is estimated that somewhere between 100,000 and 560,000 oil and gas wells remain unaccounted for in state records. Historical plugging practices and materials used have not always been adequate to ensure protection of the commonwealth's water resources. As a result, a significant number of wells still pose a potential threat to human health and the environment."

Additionally, the EPA documentation showed various plugging costs submitted to the Environmental Appeals Board that demonstrated costs vary drastically. The Appellant provided other information on the cost to provide water to the area to understand remediation concerns in regards to financial assurances with an estimate to bring a public water supply would cost almost $1 million.

The parties dispute that the Department and the EPA needed to be more protective and the Environmental Appeals Board states the EPA figured the ZEI using a modified Thesis when they actually used an Ei equation. Please note EPA "chose" the minimum 1/4 mile radius instead of "not less than 1/4 mile" based on Windfall's choice to use the

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1/4 mile radius instead of the ZEI . Protection would have taken into account the faults changing the ZEI, the injection fluid pressures on the faults would have been figured in the calculations, and the other six gas wells that fractured the injection zone along with the confining layer that are located on the edge of the 1/4 mile area of review. Protective would have looked at the plugging history and talked with individuals reporting water issues with gas wells in the same formation as the injection zone during the review and extending the area of review to include these issues and eliminate any concerns with water contamination issues. To show compliance with permits is not a defense if water contamination occurs,

> "Issuance of this permit 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 law or regulations. Compliance with terms of this permit does not constitute a defense to any action brought under Part C and the imminent and substantial endangerment provisions in Part D of the Safe Drinking Water Act (SDWA) or any other common or statutory law for any breach of any other applicable legal duty."

The parties dispute that this is very similar to storage of gas. It should be noted that this UIC permit application is similar to the storage of gas that demonstrates a valid concern and the Department has provided a depiction of this problem in their Underground Gas Storage Protocol on page 71 that should be addressed, especially with a shallower gas well in close proximity to this Windfall UIC Permitted application that has been fractured at various depths. The Protocol states on Exhibit page five,

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> "A catastrophic well integrity failure at the Aliso Canyon storage field near Los Angeles, California during October of 2015 prompted state and federal regulators across the country to more closely scrutinize underground gas storage operations. The Department of Environmental Protection (DEP) Office of Oil and Gas Management (OOGM) executive management requested that a project be initiated to perform an internal review and update current regulatory oversight practices in Pennsylvania (PA). This involved assembling DEP technical experts on statewide basis as part of an internal Gas Storage Integrity Workgroup charged with exploring current practices at all underground gas storage fields in Pennsylvania. The discussion focused on improving the statewide standard for assessing and verifying storage well mechanical integrity."

This standard should be applied to UIC permits as the mechanical integrity concerns are the same. The Appellant understands that the Environmental Protection Agency changed the cementing on the Windfall UIC permit due to a known issue with sand gas and that the well schematic has no plan to cement the injection string to the surface seemingly similar to the Aliso Canyon wells as mentioned in the Underground Gas Storage Protocol for the Department (Exhibit 14, page 71). Storage of gas is a similar concept to the underground injection control program, although it was noted that more monitoring is done with storage of gas.

The parties dispute the characterization of the waste. The Appellant made the following statements during Discovery in response to the Department, "the Appellant understands that the laws have exempted the waste for disposal yet it is being disposed of in deep injection wells to dispose of dangerous contaminants. When it impacts drinking water supplies it becomes dangerous and the Appellant has demonstrated why that is a concern with the oil and gas activities already in the area that has already caused problems with the Appellant's neighbor's water supplies. The EPA responded and stated concerning the fluid being toxic, hazardous, and radioactive:

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'Individual constituents contained within fluid produced from an oil or gas production reservoir could be determined to be toxic, hazardous, or radioactive.'

'Generally, the EPA believed these large volume 'special wastes' were lower in toxicity than other RCRA regulated hazardous wastes.'

'EPA also believes that the reuse or recycling of produced fluid is a sound environmental management practice. Although produced brine can be treated, recycled, and reused in the hydraulic fracturing process or for the enhanced recovery of oil, the byproduct of this continued reuse of the produced fluid eventually becomes concentrated and must still be disposed of in some manner. Public and privately owned wastewater treatment facilities are unable to adequately remove many constituents found in brine, for example, chlorides and bromides. When these constituents are discharged to streams or rivers they can pose serious risk to fish and other aquatic organisms living in the stream as well as contribute to serious health effects for people who obtain their drinking water from these streams and rivers.'

'Commentors also questioned whether the addition of corrosion inhibitors and biocides meant that injection would not be limited to fluids produced in connection with oil and gas operations. The additives are not added to the fluid for the purpose of disposal but rather to prevent corrosion in the injection well, and are often also used in production wells. The proper operation and maintenance of a Class II well can require use of such additives.'

'For example, chloride, one of the parameters for which the permit requires monitoring, can be found in drinking water and it can be found in the fluid proposed for injection. In shallow ground water used for drinking water, chloride values are fairly low, and can typically be found at less than 500 mg/l. Injection fluid typically contains chlorides in excess of 10,000 mg/l TDS and sometimes as high as 300,000 mg/l.'

The EPA in their 'National Primary Drinking Water Regulations demonstrates on page 7 that chloride is a secondary contaminant with a maximum contaminant level of 250 mg/l.'

PA Code 25 subsection number 91.34 states,

'The Department will encourage the use of pollution prevention measures that minimize or eliminate the generation of the pollutant over measures which involve pollutant handling or treatment. The Department will encourage consideration of the

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following pollution prevention measures, in descending order of preference, for environmental management of wastes: reuse, recycling, treatment and disposal.'

Even low-radioactive waste disposal in Pennsylvania is required to follow special guidelines for disposal and the site of the location is a key factor. See PA Code 25 chapter 236 on Low-level Radioactive Waste Management and Disposal.

The parties dispute that a penalty for violating the permit is not sufficient to protect in this location with all the potential conduits for migration into water supplies. Avoiding any hazard must be considered with the number of private water wells and the coal mines going under the entire community.

The parties dispute that emergency notification in twenty-four hours is insufficient when an immediate response or evacuation may be required and a known notification system for local residents based on the known chemicals being utilized and their characteristics is necessary. The Appellant is aware of the chemicals that will be stored on site to treat the fluids and the statements shown on the fact sheets list some of them as hazardous and one is listed on the Pennsylvania Right-to-Know. One chemical requires a minimum 1/2 mile evacuation. These chemical fact sheets were only made available during the Department review and not during the EPA public hearing.

The parties dispute that an independent third party engineer is needed to provide oversight of cementing, mixing the ratio of cement with water, installation of the centralization shoe, and construction. The public needs to know cement life based on what is mixed with the cement.

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The parties dispute the confining zone. The confining zone has genuine facts in dispute with fractures in the “area of review.” The Appellant believes fractures exist from the other deep gas wells on the edge of the 1/4 mile that would have fractured into the Area of Review as this is the actual space the waste fluid is planned to be disposed into and fill.

The parties dispute the “model data” that has been used to issue the permit. The model uses simplifying assumptions that are ideal and based on the following assumptions: (i) The injection zone is homogenous and isotropic; (ii) The injection zone has infinite area extent; (iii) The injection well penetrates the entire thickness of the injection zone; (iv) The well diameter is infinitesimal compared to “r” when injection time is longer than a few minutes; and (v) The emplacement of fluid into the injection zone creates instantaneous increase in pressure. The parties dispute the Department expert opinions and report statements based on this model data and simplifying assumptions, so note the reports use the word "improbable" not "impossible.” Also, other statements use the opinion cited states, "should be adequate" and "not that it will be adequate." These statements rely on the burden resting with the permit applicant and not the Department to prove probabilities when it states, "the applicant has shown that it is improbable" and again the Appellant notes "improbable" is not "impossible." One Department expert opinion cites this is for "abatement of pollution" and the Department has laws that state it will first recycle. One expert conclusion stated it, “excluded the seismic review” and the faults are a key element of the Zone of Endangering Influence and the Radius of Fluid Displacement to decide what is stated about the, "adequate reservoir." The expert opinion states, "that it is unlikely" or "not likely" and the statement is not saying, "it will not." Vital details needing further review are

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faults as structural barriers should have been included in the calculations, current concerns about private water well issues, and plugging records of gas well logs. One Department expert conclusion and opinion cited state, "in the event that this conclusion is not correct, special permit conditions are in effect to prevent the continued operation of the UIC well" and by the time the special permit conditions prevent operation of the well it will be too late to just fix a problem that is right now preventable. Only one Department expert report seems to provide an opinion stating, "without risk of impacting." The parties dispute the figures used for input values as they seem to differ from the Department and the Environmental Protection Agency figures and neither seemed to take into consideration the location of the faults and that is a standard practice able to be incorporated into the calculations. Most importantly, the final Department Well Score Card should have been accurately portrayed as an overall summary.

The parties dispute the seismic monitoring be on-going after five years and not be limited to the five years of this specific permit

The parties dispute hazardous conditions and Windfall's Preparedness, Prevention, and Contingency Plan. The Appellant understands this is a "living document" and the Appellant appreciates that the Department improved this document over the version approved under the Environmental Appeals Board order. Still actual knowledge exists to improve this plan right now and simple things should be done in the plan to include local emergency response from Brady Township and not just contacting the Township Supervisors and a fire company from the Adrian area. Additionally, an immediate evacuation plan that is provided to the public to know what to do for a 1/2 mile radius evacuation based on the chemicals being used on site and the

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fact sheet statements of the hazardous properties of at least one of the chemicals. Local fire companies will not be able to address a "hazardous response" and contacts need to be provided with a plan of action.

The parties dispute monitoring of gas wells and monitoring of water supplies. It is the Appellant's opinion that the protection of private water supplies and the basis of proof after contamination becomes a long drawn out battle that is costly for the home owners. The Appellant believes working to protect the private water supply before contamination happens is vital to planning and being proactive. The Appellant is fully aware that the permitting process and laws are very limiting to protect the home owner and the private water supplies. The Appellant has chosen to follow the process of this permit through the entire permitting process to ensure the Appellant's private water supply is protected to the fullest extent of the Appellant's ability utilizing the governmental permitting process setup. The Appellant sees a need that the Department revise the permit conditions to protect the private water. At any time during this process the Department had opportunity to at least show proactive planning by contacting residents that reported water contamination issues from reported oil and gas drilling activities, further review gas well logs, plugging practices (especially the partially plugged Carlson gas well), improve the emergency plan to include the local fire company, create an emergency water remediation response, provide an evacuation plan, and show the proper calculations with input values for the Zone of Endangering Influence (ZEI). Additionally addressing these concerns would have been valuable, the lack of actual information from the field to use as reliable input in the design models of the injection well (for example insufficient testing); the selective use of

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actual information regarding fractures in the calculations (they chose to use none); the known effect of fractures on injection wells could have been easily computed and incorporated into the calculations; and the discrepancies in the application and the final Well Score Card.

The Environmental Hearing Board has a responsibility to oversee these laws:

1.) 5th Amendment to the U.S. Constitution and Article 1, Section 10 of the Constitution as it is unconstitutional to take private property without the payment of just compensation. A taking occurs when the entity clothed with the power substantially deprives the owner of the use and enjoyment of his property. The causing of a diminution in its value constitutes a taking under the 5th Amendment as it renders property undesirable and unbearable for residential use or when regulations go too far it is considered a taking of property if the impact on the property owner is more than they ought to bear under generally accepted standards. The considerations are: economic impact on the property owner; extent to which the regulation interferes with reasonable, investment backed expectations; and the character of the government action on economic impact of regulation if the regulation would be permitted under the common law nuisance doctrine. Source *Environmental Law Handbook, 23rd edition* pages 51-56. The Supreme Court of the United States decided in 2019 *Knick v. Township of Scott, Pennsylvania*, 588 U.S. (Case No. 17-647) and the Court held that a government violates the Takings Clause the moment it takes private property without compensation.

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2.) 25 PA Code 86.37 (a) (3) "no presumptive evidence of potential pollution to the waters of the Commonwealth. The Federal Safe Drinking Water Act, 42 USCA 300F Department of Pennsylvania Safe Drinking Water Act (35 PS 721.1 - 721.18). No safe toxic level for cancer causing toxins.

3.) Bonding of the Injection Company should include all costs if the Department had to complete reclamation, restoration, and abatement work required by 25 PA Code 86:149. Due to the potential for water pollution or hydrologic disturbances, and the proposed land use.

4.) This injection well should be under the same laws of Act 54 as Mine Subsidence Laws used to force active mine companies to repair damages to structures and to protect, replace, or restore a water supply.

5.) The Department of Environmental Protection has not balanced the impact of environmental, social, and economic harm with public benefits. 25 PA Code 105:16

6.) The Clean Streams Law Article 5 Section 501 is for the protection of Domestic water supplies. Protection of streams and their uses is regulated under 25 PA Code Chapter 89 as well as the Clean Streams Law, and informed by 25 PA Code Chapters 93, 94, 96, and 105.

7.) PENNSYLVANIA CONSTITUTION

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Article 1, Section 27

Natural Resources and Public Estate

"On May 18, 1971, Pennsylvania voters ratified Article I, Section 27 – the environmental amendment to the state Constitution. Article 1, Section 27 has had a significant impact on Pennsylvania's government and environment, signaling a change in the government's attitude toward the environmental values and natural resources. It has provided the courts and administrative agencies with a solid legal basis for protecting the environment. The text of the amendment is as follows: "The people have a right to clean air, pure water, and to the preservation of the natural scenic, historic, and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustees of these resources, the Commonwealth shall conserve and maintain them for the benefit of all people." The Appellant's neighbors reported experiencing water supply issues due to oil and gas operations. The public water supply options will be cost prohibitive. The water supply monitoring is questionable after the injection well operates due to the data supplied was not verified and proves questionable for the water monitoring program that the EPA never double checked and the company admitted experiencing issues with water sampling.

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8.) The Department is the independent steward and a "Trustee" obligated with the duty of care for the Commonwealth's resources to act in ordinary prudence in the common good under the reasonable man rule and as required by the common laws of our land.

9.) Common Laws including:

A. Nuisance – The use of the land as sees fit "limitation" is limited by annoyance to a reasonable neighbor. The discomfort amounts to material injury or annoyance to affect physical or mental health of ordinary people under normal circumstances. The balancing of the equities if you weigh the equities and it is an imminent hazard to health and welfare considering: odors, dust, smoke, other airborne pollutants, water pollutants, and hazardous substances. The good faith efforts are a factor considered in determining whether to grant relief. In general the majority rule, strict liability for environmental nuisances has a standard not to create nuisances and to abate nuisances. This was not an existing nuisance and the Appellant has not come (moved) to it. Source *Environmental Law Handbook, 23rd edition* pages 12-17 citing case *McElwain v. Georgia Pacific,* 245 OR. 247, 421 P.2d 957 (1986).

B. Trespass – The interference with the "exclusive" possession of property. Intentional interferences with property and the possession of personal property. Taking from the possession of another. Trespass to land is an unlawful, forcible entry on another's realty and injury to the realty of another or an interference with the possession above or below ground is a trespass, regardless of the condition of

the land. Contamination that migrates interferes with the neighbor's exclusive possession. The property rights are protected at the expense of innocent mistakes. Trespass is able to be made by causing or permitting a thing to cross the boundary of the premises by allowing waste fluid to flow underground into someone's land where contamination migrates causing damage and interfering with the neighbor's exclusive possession. For Pennsylvania law, the contamination that effects a permanent change in the condition of the property constitutes a permanent trespass. Source *Environmental Law Handbook, 23rd edition* pages 18-19.

C. Negligence – The "omission to do something which a reasonable man, guided by those ordinary considerations which ordinarily regulate human affairs, would do, or the doing of something reasonable and a prudent man would not do." It is not a defense that the negligent action was in full compliance with all government regulations and permit conditions as "duty of care" is breached in "proximate cause" being that which in the natural and continuous sequence produces injury and without which the result would not have happened. Ordinary prudence in same circumstances under the reasonable man rule. Source *Environmental Law Handbook, 23rd edition* pages 19-21 citing *Black's Law Dictionary* 1032 (6th ed. 1990).

D. Strict Liability in tort and Dangerous Substances – The costs of damages resulting from a dangerous and "unnatural" use of land, regardless of whether the party exercised due care in attempting to control the risks associated with such use. When persons suffer loss, no good reason can be found to charge the loss

against anyone who did not contribute to it. However, if someone is engaged in an ultrahazardous or dangerous activity for profit, that party should bear the burden of compensating others who are harmed by its activities. Factors to be considered are: the degree of risk associated with the activity, the defendant's ability to eliminate the risk, and the degree to which the value of the activity is outweighed by its risk. A landowner keeping a potentially dangerous substance on his land, which if permitted to escape, is certain to injure others. Courts have applied "strict liability theories" to disposal of hazardous waste and hazardous materials management affecting emotional distress and diminished property values. Source *Environmental Law Handbook, 23rd edition* pages 21-24 for example *Crawford v. National Lead Co.* 784 F. Supp. 439 (S.D. Ohio 1989).

10.) Comprehensive Environmental Response, Compensation, and Liability Act (Superfund), CERCLA – The selection of a location that minimizes environmental and economic impacts and adopts environmentally protective measures is vital to protect our environment. History has already shown that in Erie, PA the Hammermill Paper Company had waste fluid coming up almost five miles away from a UIC permitted injection site and ended up on the Superfund list for cleanup.

11.) Clean Water Act – It is vital to protect the environmental interests of many individuals rather than just a few. The objective for society is environmental well-being and economic well-being and this is important to public policy. The Appellant believes immediate and concrete danger exists that will cause harm to

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individuals as a result of the Department's actions and the EPA's actions of issuing this UIC permit.

12.) Congress has accorded a procedural right to protect concrete interests. Source *Environmental Law Handbook, 23rd edition* pages 42-43 citing case *Massachusetts v. EPA.*

13.) The 25 PA Code as the laws are interconnected and cross referenced; specifically including but not limited to, 25 Pa. Code § § 3, 9, 16, 78, 78.18, 79.1, 86.149, 89, 91.34, 91.51, 92.1, 93, 93.3, 93.4, 94, 96, 102, 102.4, 102.6, 102.8, 105, 105.16, 109, 110, 123, 124, 236, 243.13, and 243.14.

§ 78.18 - Requires the company to submit to the DEP required documentation filed to the EPA under Federal Regulations 40 CFR Part 146 and that should have included a one-mile map that has still never been provided to the public and the Environmental Appeals Board ruled this was never completed.
The PPC plan should have a ½ mile summary of risks and hazards with correct emergency contact information.

§ 78.63 – Drill cuttings should be disposed in an alternate manner to provide superior protection to the requirements of this section due to the site being a recharging zone for private water supplies and springs at lower elevations.

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§ 91.34 – Pollution prevention measures are to minimize or eliminate pollutant handling in this order 1) reuse, 2) recycle, 3) treatment, 4) disposal.

§ 91.51 – The strata identified for waste fluid disposal is sufficient by reviewing a log of the strata and making sure public interests are being protected. (Tr. 742). The disposal would be prejudicial to the public interest. The ¼ mile minimum didn't include full review of the six gas well penetrations in Oriskany Sandstone with fluid communicating with these penetrations and faults in one or two years. The zone of endangering influence (ZEI) calculations are based on simplifying models that never included the faults into the formula. The plugging and casing of the six old deep gas wells in the Oriskany is questionable after more than fifty years with abandoned coal mines in the area. The Hydrology Report shows the proposed site is a recharging zone for the Appellant's private water supply.
The Department (DEP) did not adequately protect health, safety, and the environment in issuing the permit as they failed to give proper consideration to the many risks and failed to adequately investigate or verify the known risks that the UIC permit presented before issuing the permit with the potential to pollute the fresh drinking water and groundwater. The old gas wells in the same formation that are open to the same formation with old casings that have aged and casings not up the entire way is a short circuit (conduit) to drinking water with the UIC permit operating under pressure it will short circuit (provide a conduit) to the

surface and no monitoring wells have been established. These risks imperil public health, safety, and the environment as they present grave risks to groundwater and private property and will perpetuate a hazardous condition on neighboring properties that will endanger public health, safety, and welfare. The Appellant notes that the Administrative Agency Actions of the EPA not requiring the one-mile map and the Zone of Endangering Influence (ZEI) calculations not being provided to the public for review is a glaring procedural defect and makes the application incomplete, so the EPA with primacy erred in issuing the original permit. The environmental impacts endanger the public health, safety, and welfare of the local residents along with the entire community and the adverse impacts on the environment need to be minimized as no degradation is allowed that interferes with existing uses (Potable Water Supplies) due to the hydrological relationship to a drinking water supply and, also, water quality needs maintained for Cold Water Fisheries. The record was clearly inadequate on the details and the Department corrected some of these defects during their review and still the record is inadequate as the Well Score Card is not accurate and the Zone of Endangering Influence (ZEI) calculations were still lacking specific details. Not reviewing public hearing concerns about water well issues, gas wells in the same formation, and plugging of gas wells in the same formation is a procedural defect. Additionally, not providing an Emergency Plan in the event of a hazardous chemical release when one chemical is known to be on the Pennsylvania Right-to-

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Know list and another chemical would cause at minimum a ½ mile evacuation is a procedural defect.

II. CONCLUSION

Appellant respectfully requests the Environmental Hearing Board sustain this appeal and rescind the Permit for the reasons set forth herein.

III. PROPOSED CONCLUSIONS OF LAW

1) The Environmental Hearing Board has jurisdiction over this matter. 35 P.S. § 7514.
2) The Environmental Hearing Board has a responsibility to make a *de novo* determination. As stated in the history of the Environmental Hearing Board it acts *de novo*. "This means that it decides cases on the basis of the evidence before it, which may differ from that considered by the Department. If the Environmental Hearing Board concludes that the Department abused its discretion, it has the authority to substitute its own discretion. More often, however, the Environmental Hearing Board remands the case to the Department for corrected action." This is a case that the Environmental Hearing Board needs to provide a forum to provide the Appellant judicial relief for the citizens of Pennsylvania and that role is appreciated in this appeal. The unique circumstances of this case will require a complete

understanding of the facts to make an assessment. The Environmental Hearing Board needs to assess whether the issuance of the permit is consistent with the law and it is reasonable and appropriate. This UIC permit endangers our residential area due to the environmental impacts on water supplies, property values, health, and the well-being of Pennsylvania residents.

3) Under the Environmental Hearing Board rules the Appellant has the burden of proof in presenting objections to the Department's determination (25 Pa. Code § 1021.122(a)).
4) Appellant must show by a preponderance of the evidence that the Department acted unreasonably or in violation of the Commonwealth's laws or the Pennsylvania Constitution. *United Refining Company v. DEP*, 2016 EHB 442
5) The preponderance of the evidence standard requires that Appellant meet the burden by showing that the evidence in favor of her position is greater than that opposed to it. It must be sufficient to satisfy an unprejudiced mind as to the existence of the factual scenario sought to be established. Appellant's evidence must be greater than the evidence that the issuance of the permit was appropriate or in accordance with the applicable law. *United Refining Company v. DEP,* 2016 EHB 442, 449.
6) Appellant has standing based on participation in the public commenting process. "Standing, already quite broad in Board proceedings, *see Friends of Lackawanna v. DEP*, EHB Docket No. 2015-063-L.

7) When the Department fails to properly apply its own regulations to its review of a permit application and issuing the permit, the Department acts contrary to law. *Zlomsowitch v. DEP,* 2004 EHB 756, 789.

8) For Appellant to prevail in her appeal, the Board must find that the Department abused its discretion by acting unreasonably or contrary to law by issuing the Permit. *Pennsylvania Trout,* 863 A.2d at 103; *Browning-Ferris Industries v. Department of Environmental Protection,* 819 A.2d 148, 153 (Pa. Cmwlth 2003); *Warren Sand and Gravel v. Department of Environmental Protection,* 341A. 2d 556, 565 (Pa. Cmwlth 1975).

9) The Board is not bound by the Department's guidance document. See *DEP v. Simmons*, 2009 EHB 188 *citing United Refining Co. v. DEP*, 2006 EHB 846 and *Dauphin Meadows v. DEP*, 2001 EHB 521. Prior decisions have made clear, the Board does not defer to the Department when the Department has failed to adopt a consistent position or has changed its interpretation over time or offered a variety of interpretations. *See Tri-State Transfer Co., Inc. v. DEP et al*., 722 A.2d 1129 (Pa. Cmwlth. 1999); *Waste Management Disposal Services of Pennsylvania, Inc. v. DEP*, 2005 EHB 433; *Brunner, Inc. v. DEP and Beaver Valley Alloy Foundry Company*, 2004 EHB 684; *Environmental & Recycling Services, Inc. v. DEP*, 2002 EHB 461.

10) The Department's action must also be consistent with its obligations under the Pennsylvania Constitution. *Center for Coalfield Justice v. DEP,* EHB Docket No. 2014-072-B, 09/07/2017 32 slip op. at 24-25 (Adjudication, Aug. 15,

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2017); *Brockway Borough Mun. Auth. v. DEP,* 2015 EHB 221, 236, aff'd, 131 A.3d 578 (Pa. Cmwlth. 2016). See also *Pa. Envtl. Def. Found. v. Cmwlth.,* 161 A.3d 911 (Pa. 2017).

11) The Department abused its discretion where its determination that the benefits of the proposed facility significantly outweighed the environmental and social costs failed to consider the impact.

12) The Department's decision to issue Permit violates Article I, Section 27 of the Pennsylvania Constitution because it is contrary to law and therefore does not comply with the Department's trustee responsibilities and is contrary to the rights of citizens. Article I, Section 27 of the Pennsylvania Constitution; *Pa. Envtl. Def. Found. v. Commonwealth*, 161 A.3d 911, 2017 Pa. LEXIS 1393 (Pa. 2017); Robinson Township v. Commonwealth, 83 A.3d 901 (Pa. 2013).

13) The Board's rules permit a site view "when the Board is of the opinion that a viewing would have probative value in a matter in a hearing pending before the Board." 25 Pa. Code § 1021.115. The Board has recognized that a site view, though not evidence, can be used as an aid in furthering the Board's understanding. *Giordano v. DEP and Browning-Ferris Industries* et al., 2000 EHB 1163, 1164.