

EPA Region III  
Penneco Environmental Solutions, LLC UIC Permit #PAS2D701BALL "Sedat #3A"  
(Renton Gas Field, Plum Borough, Allegheny County, Pennsylvania)  
Administrative Record Index

1. Application (Mar. 9, 2016), including all attachments.
2. Notice of Deficiency (July 8, 2016).
3. Notices of Deficiency via email (March 16, 2017).
4. Supplemental Application/Notice of Deficiency Response, including all attachments (September 10, 2016)
5. Supplemental Application/Notice of Deficiency Response, including all attachments (March 22, 2017).
6. EPA Region III Zone of Endangering Influence Calculation (ZEI).
7. Draft Permit
8. "Attachment 1" - EPA-Approved Plugging and Abandonment Plan (February 26, 2016)
9. Statement of Basis
10. Public Notice for Injection Well Sedat #3A.
11. List of State Officials to Whom Draft Permit was Sent.
12. Region 3 Framework for Evaluating Seismic Potential Associated with UIC Class II Permit.
13. Seismic Maps of Pennsylvania (US Geological Survey)  
<https://earthquake.usgs.gov/earthquakes/byregion/pennsylvania-haz.php>
14. National Academy of Sciences, *Induced Seismicity Potential in Energy Technologies*, National Academy Press (final), 2013, in particular Chapters 2 and 3. <http://www.nap.edu/read/13355/chapter/1>
15. *A White Paper Summarizing a Special Session on Induced Seismicity*, Ground Water Research & Education Foundation, February 2013. [http://www.gwpc.org/sites/default/files/events/white%20paper%20-%20final\\_0.pdf](http://www.gwpc.org/sites/default/files/events/white%20paper%20-%20final_0.pdf)
16. *Preliminary Report on the Northstar1 Class II Injection Well and the Seismic Events in Youngstown, Ohio Area*, Ohio Department of Natural Resources, March 2012.  
<https://oilandgas.ohiodnr.gov/portals/oilgas/pdf/UICReport.pdf>
17. U.S. EPA UIC Technical Workgroup, *Minimizing and Maximizing Potential Impacts of Induced-Seismicity from Class II Disposal Wells: A Practical Approach*, Feb. 5, 2015. <http://www.epa.gov/sites/production/files/2015-08/documents/induced-seismicity-201502.pdf> US EPA Office of Drinking Water, *Final Injection Well Construction Practices and Technology*, October 1982.  
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18. *New Case of Earthquakes Related to an Injection Well in WV?*, Marcellus Drilling News, August 2, 2013.  
<http://marcellusdrilling.com/2013/08/new-case-of-earthquakes-related-to-an-injection-well-in-wv/>

19. *Managing the seismic risk posed by wastewater disposal*, Earth, April 17, 2012.  
<http://www.earthmagazine.org/article/managing-seismic-risk-posed-wastewater-disposal>
20. *Charlers Scharnberg, Earthquake Hazard in Pennsylvania, Pennsylvania Geological Survey, 2003.*<http://www.dcnr.state.pa.us/topogeo/hazards/earthquakes/index.htm>
21. *Where are the Fault Lines in the United States East of the Rockies*, website, United States Geological Survey, Earthquake Hazard Program. <http://www.usgs.gov/faq/categories/9838/3399>
22. General Geology Open File Report 05-01.0: Basement Depth and Related Geospatial Data for Pennsylvania, Pennsylvania Geologic Survey,  
<http://docs.dcnr.pa.gov/topogeo/publications/pgspub/openfile/basementmap/basementinfo/index.htm>
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24. Melissa L. Sager, *Petrologic Study of the Murrys ville sandstone in Southwestern Pennsylvania*, 2007.
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<https://www.netl.doe.gov/File%20Library/Research/Oil-Gas/11122-73-final-report.pdf>
26. Endangered species determination.
27. The Pennsylvania Code, *CHAPTER 78. OIL AND GAS WELLS*,  
<https://www.pacode.com/secure/data/025/chapter78/chap78toc.html> PA Code
28. Environmental Justice Screen determination
29. Standard Operating Procedure for Calculating ZEI
30. Public Hearing Transcript
31. Final Permit
32. Response to Comments
33. Maximum Injection Pressure Calculation
34. Comments and Articles Submitted During Public Hearing
35. Comments Submitted in Writing
36. Comments Submitted via Email
37. Ryan Kerrigan, *Structural Geology of the Southwestern Section of the Appalachian Plateau*, (Blairsville-Mahoning River Fault).
38. Anthony R. Ingraffea, Martin T. Wells, Renee L. Santoro, and Seth B. C. Shonkoff,, National Academy of Sciences, *Assessment and risk analysis of casing and cement impairment in oil and gas wells in Pennsylvania*, 2000–2012, May 2014.

39. Penneco Oil Violations with Fines 2008-2017

40. Abrahm Lustgarten. Pro Publica, *Injection Wells Poison Beneath Us*, June 2012.

41. National UIC Technical Workgroup, Final Work Product #6, *Cementing Records Requirements in Direct Implementation Programs to Achieve Part II of Mechanical Integrity in Class II Injection Wells*.  
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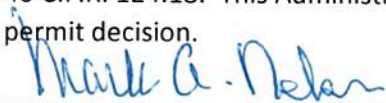
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43. Horton, *Disposal of Hydrofracking Fluid by Injection into Subsurface Aquifers Triggers Earthquake Swarm in Central Arkansas with Potential for Damaging Earthquake*, *Seismological Research Letters*, Vol 83 March/April 2012, 250-260 pp.

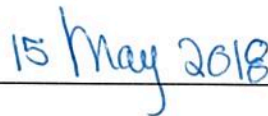
44. K. Keranen *et al*, *Potentially Induced Earthquakes in Oklahoma, USA: Links between Wastewater Injection and the 2011 Mw 5.7 Earthquake Sequence*, *Geology*, June 2013, vol. 41, no.6, pp. 699-702.

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I, Mark Nelson, a technical UIC permit writer in the Ground Water and Enforcement Branch of the Water Protection Division of Region III, USEPA, certify that the administrative record for the final decision on this permit was final on March 7, 2018. The administrative record includes, to the best of my knowledge, all of the documents required under 40 C.F.R. 124.18. This Administrative Record Index references all of the documents in the administrative record for this permit decision.



Mark Nelson



Date

