

EPA Region III

Windfall Oil & Gas UIC Permit

Administrative Record Index

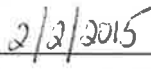
1. April 2012, application as supplemented by Windfall during the review process, including 4 separate large maps
2. June 11, 2012, notice of deficiency
3. November 7, 2012, public notice of draft permit
4. Pennsylvania federal and state public officials notification list
5. Statement of basis for the draft permit
6. Draft Permit
7. December 10, 2012, public hearing transcript
8. 2012 Public comments
9. August 9, 2013, public notice of reopening of comment period
10. Supplemental statement of basis for the draft permit
11. Public notice for reopening of comments
12. 2013 Public comments
13. EPA's zone of endangering influence calculations
14. ZEI model data requirements
15. Region 3 Framework for evaluating seismic potential associated with UIC Class II permit
16. Seismic maps of Pennsylvania
17. General Geology Open File Report 05-01.0: Basement Depth and Related Geospatial Data for Pennsylvania, Pennsylvania Geologic Survey, <http://www.dcnr.state.pa.us/topogeo/publications/pgspub/openfile/basementmap/index.htm>, Report Text and Map
18. *Geology and Mineral Resources of the Southern Half of the Penfield 15-Minute Quadrangle, Pennsylvania*, Pennsylvania Geological Survey, 1971/1973 (with Plate 12).

19. National Academy of Sciences, *Induced Seismicity Potential in Energy Technologies*, National Academy Press (prepublication draft), 2012 , in particular Chapters 2 and 3
20. National Academy of Sciences, Induced Seismicity Potential in Energy Technologies, National Academy Press (final), 2014 , in particular Chapters 2 and 3
21. National Academy of Science powerpoint on induced seismicity and energy technologies
22. *A White Paper Summarizing a Special Session on Induced Seismicity*, Ground Water Research & Education Foundation, February 2013
23. *Preliminary Report on the Northstar1 Class II Injection Well and the Seismic Events in Youngstown, Ohio Area*, Ohio Department of Natural Resources, March 2012
24. *Final Report and Recommendations*, Workshop on Induced Seismicity Due to Fluid Injection/Production From Energy-Related Applications, Lawrence Berkeley National Laboratory, February 4, 2012
25. *Managing the seismic risk posed by wastewater disposal*, Earth, April 17, 2012.
26. Charlers Scharnberg, *Earthquake Hazard in Pennsylvania*, Pennsylvania Geological Survey, 2003.
27. *Earthquakes in Pennsylvania*, website, Pennsylvania Department of Conservation and Natural Resources
28. 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.
29. Frohlich, *Two-Year Survey Comparing Earthquake Activity and Injection-Well Locations in the Barnett Shale, Texas*, Proceedings of the National Academy of Science Early Edition, 2012
30. *Where are the Fault Lines in the United States East of the Rockies*, website, United States Geological Survey, Earthquake Hazard Program
31. R. Kerr, *Learning How to NOT Make Your own Earthquake*, Science, Vol. 335, Mar. 23, 2012, pp. 1436-37.
32. K. Keranen *et al*, *Potentially Induced Earthquakes in Oklahoma, USA: Links between Wastewater Injection and the 2001 Mw 5.7 Earthquake Sequence*, Geology, June 2013, vol. 41, no.6, pp. 699-702.

33. Kostelnik & Carter, *Unraveling the Stratigraphy of the Oriskany Sandstone: A Necessity in Assessing its Site-Specific Carbon Sequestration Potential*, Environmental Geosciences, vol. 16, no. 4, Dec. 2009, pp. 187-200.
34. Finn, *Geology and Occurrence of Natural Gas in the Oriskany Sandstone in Pennsylvania and New York* (abstract), AAPG Bulletin, vol. 33, March 1949.
35. US EPA, Underground Injection Control National Technical Group, Minimizing and Managing Potential Impacts of Induced-Seismicity From Class II Disposal Wells: A Practical Approach, Nov. 2012 draft.
36. Background on well casing failure due to shear
37. Halliburton Cementing Tables, 1981.
38. Gas production reports for gas wells #033-20327 and 033-20333, located in Brady Township, Clearfield County, Pennsylvania
39. US EPA Office of Drinking Water, Final Injection Well Construction Practices and Technology, October 1982.
40. Environmental justice analysis
41. US EPA, *Class V Study Fact Sheets (Geothermal Direct Return Flow Wells, Geothermal Electric Power Wells, and Heat Pump/Air Conditioning Return Flow Wells)*
42. Memos to the file from Stephen Platt, U.S. EPA Region III permit writer on 1) list of Region 3 UIC permits for injection into the Huntersville Chert/Oriskany formations, and the fracture gradient for other previous permits into the same formation; 2) plugging cost estimates and plugged wells in Pennsylvania; and 3) inspections summary report for Pennsylvania Class II disposal wells
43. Memo to the file from Dave Rectenwald, U.S. EPA Region III UIC inspector, on plugging costs
44. Final Permit effective October 31, 2014
45. October 31, 2014, Notice of Permit Issuance
46. Response to Summary Comments, October 31, 2014

I, Stephen Platt, a technical UIC expert and permit writer in 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 October 31, 2014. 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 the documents in the administrative record for this permit decision.

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Date