Comments on DRBC Draft Frack Regulations - Proposed New 18 CFR Part 440

- There is significant evidence that natural gas development, and its related operations, which include all the phases of the hydraulic fracturing ("fracking") process, from the first stage of industrial land preparation; to the storage, handling, and use of chemicals and additives for extraction and stimulation; to drilling and fracking; to the withdrawal of and degradation of large volumes of water and its discharge and disposal as waste, has substantial adverse effects on public health, property interests, agriculture, and on our air, water, and land.[1]

- The most recent statistical analysis of the body of scientific literature by the Concerned Health Professionals of New York and Physicians for Social Responsibility, 685 peer-reviewed papers examining gas drilling and/or hydraulic fracturing ("fracking") were reviewed and the overwhelming majority of studies found evidence of or potential adverse impacts on water, air, and human health.[2]

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- WASTES -Substantial damage is caused by the toxic wastewater produced by fracking which contains many dangerous pollutants, including naturally occurring radioactive materials, that cannot be fully removed by treatment and those damages can substantially harm the water quality of our streams and the life in them. Pollutants will

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[1] PSE Healthy Energy Library, https://www.zotero.org/groups/pse_study_citation_database/items; See Compendium, http://concernedhealthny.org/compendium/, p. 4; Environmental Protection Agency (EPA). 2015. U.S. EPA. Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States (Final Report). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-16/236F, 2016. Available at: www.epa.gov/hfstudy and https://cfpub.epa.gov/ncea/hfstudy/recordisplay.cfm?deid=332990; PADEP, accessed 10.25.2017 at: http://files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/OilGasReports/Determination_Letters/Regional_Determination_Letters.pdf Accessed 12.20.17

[2] PSE Healthy Energy Library, https://www.zotero.org/groups/pse_study_citation_database/items; See Compendium, http://concernedhealthny.org/compendium/, p. 4

[3] PSE Healthy Energy Library, https://www.zotero.org/groups/pse_study_citation_database/items; See Compendium, http://concernedhealthny.org/compendium/, p. 4; Environmental Protection Agency (EPA). 2015. U.S. EPA. Hydraulic Fracturing for Oil and Gas: Impacts from the Hydraulic Fracturing Water Cycle on Drinking Water Resources in the United States (Final Report). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-16/236F, 2016. Available at: www.epa.gov/hfstudy and https://cfpub.epa.gov/ncea/hfstudy/recordisplay.cfm?deid=332990; PADEP, accessed 10.25.2017 at: http://files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/OilGasReports/Determination_Letters/Regional_Determination_Letters.pdf Accessed 12.20.17

inevitably spread downstream to negatively impact all of the watershed states, the habitats, fish, wildlife, and recreational values of the river and our vulnerable drinking water supplies.

There is a moratorium on all gas drilling, hydraulic fracturing (fracking), water withdrawals for and wastewater treatment and discharges from fracking throughout the entire Delaware River Basin today, since 2010.

- The moratorium was put in place by the Delaware River Basin Commission (DRBC), the federal-interstate agency that manages the water resources of the Delaware River Watershed. The DRBC members – the Governors of Pennsylvania, New York, New Jersey, and Delaware, and the federal government – have the responsibility of protecting the shared waters that provide 15-17 million people in all four of the Watershed states with drinking water, including New York City and Philadelphia.

- A complete and permanent ban on natural gas drilling and fracking and all related activities (including wastewater processing and discharges from and water withdrawals for drilling and fracking operations) throughout the Delaware River Watershed is needed because the only sure way to prevent pollution from fracking and its activities is to totally ban it. It makes no sense to ban fracking but allow its toxic waste to be dumped in the Watershed and our precious fresh water to be depleted for fracking.

- Fracking uses enormous volumes of water, approximately 5 to 10 million gallons per well per frack (there can be several fracks to release the gas), and increases beyond 10 million gallons are becoming more frequent, and all of that water is lost – either through pollution or by being consumed since most of the water injected for fracking is not recovered and returned to the source, depleting the streams and/or groundwater from where it is taken.

- Air emissions and water pollution have greater adverse health impacts on those who reside work, go to school, or frequent the zone within approximately 2 miles from the gas operation. Studies show that those closest have greater exposure and are more likely to develop disease and other health problems.

- Pennsylvania Department of Environmental Protection has determined that oil and gas operations have contaminated 301 private water well cases.[4] Over 4,400 water complaints related to oil and gas have been filed by the public with PADEP. Between 2004 and 11.2016, PADEP lists 9,443 public complaints about environmental problems in shale gas drilling areas.[5]

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[4] http://files.dep.state.pa.us/OilGas/BOGM/BOGMPortalFiles/OilGasReports/Determination_Letters/Regional_Determination_Letters.pdf

[5] https://stateimpact.npr.org/pennsylvania/2017/01/31/data-trove-offers-new-details-on-complaints-to-dep-during-shale-boom/ and https://docs.google.com/spreadsheets/d/1_tg1zTCA-

- EPA's most recently released fracking study provides scientific evidence that fracking activities can impact drinking water resources and includes water impacts from shale gas in the Pennsylvania community of Dimock.[6]

- Fracking pollutes groundwater, destroying the quality of aquifers for generations to come. The chemicals in fracking fluids will migrate to drinking water aquifers and to the surface – it is not a question of "if", but "when".[7] Considering groundwater flow, time, and the corrosive downhole environment created by gas extraction processes, including the lack of durability of the cement sealant and steel well casings, aquifers and surface waters are not sufficiently isolated from the toxic fluids and deep geology pollutants that are distributed by drilling and fracking.[8] Aquifers could be impacted quickly, such as when there is a faulty cement seal or casing during construction, or over time. But it is certain that the life of the cement and/or steel (usually 80 to 100 years or less) is less than the life of the aquifer - so even if there is no evidence in the near term, the eventual pollution likely occur in less than a century[9] - ruining water sources for the generations that will follow. The potential for fracking fluids to move from the production zone of a gas well to water resources "cannot be engineered out of the process (Gassiat et al. 2013). In other words, the process of injecting fluids into and fracturing the shale causes the potential pollution problem."[10] Contaminated fluids from the fracking process can move from the deep shale to water resources through various pathways including fractures and natural vertical flow, in thousands of years or in less than ten years, polluting groundwater.[11]

- Changes to stream water quality occur where gas drilling and related activities are located. For instance, a publication of the Proceedings of the National Academy of Sciences found streams adjacent to gas wells are negatively impacted by runoff and sedimentation (Total Suspended Solids), harming benthic life, fish and wildlife and causing streams to be eroded and destabilized.[12]

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xTmFk4erdcYJt4zqmQZ9x89qliQg55zekg/edit#gid=1060152199 and https://maps.fractracker.org/latest/?appid=f973714e27c14e1ebee222d2560f8cb0

[6] Environmental Protection Agency (EPA). 2015. Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources – External Review Draft. June 2015. Available at: www.epa.gov/hfstudy; Hein 2012, p. 2. https://cfpub.epa.gov/ncea/hfstudy/recordisplay.cfm?deid=332990

[7] Rubin, Paul, 2014. "Unsafe and Unsustainable", Delaware Riverkeeper Network, p. 36, 38 and 39.

[8] Rubin, Paul, 2014. "Unsafe and Unsustainable", Delaware Riverkeeper Network, p. 27.

[9] Rubin, Paul, 2014. "Unsafe and Unsustainable", Delaware Riverkeeper Network, p. 36, 38 and 39.

[10] Myers, T., 2014. "Unsafe and Unsustainable", Delaware Riverkeeper Network, p. 56.

[11] Myers, T., 2012. Potential contaminant pathways from hydraulically fractured shale to aquifers. *Ground Water* 50(6): 872-882 doi: 10.1111/j.1745-6584.2012.00933.x

[12] Olmstead, et.al., "Shale gas development impacts on surface water quality in Pennsylvania", Proc Natl Acad Sci U S A. 2013 Mar 26; 110(13): 4962–4967. Published online 2013 Mar 11. Doi: 10.1073/pnas.1213871110, PMCID: PMC3612605 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3612605/

- The natural gas industry has received unprecedented exemptions from our nation's most important environmental and public health laws, including the Safe Drinking Water Act, Clean Air Act, and the Clean Water Act.[13]

- After exhaustive study, the State of New York prohibited fracking based on environmental and public health analysis. The NY Department of Health concluded that the overall weight of the evidence demonstrated the likelihood that adverse health outcomes and environmental impacts from fracking could not be prevented, leading to the Governor's decision to ban high volume hydraulic fracturing in the state.[14] The State of Maryland permanently banned fracking after 2 years of study, based on the potential for adverse public health and environmental impacts.[15]

- The Delaware River was designated as a national Wild and Scenic River by Congress because of its outstanding features, irreplaceable resources, exceptional water quality and scenic and recreational value. These prized assets provide important economic benefit to all four states whose tributaries flow to the Delaware River. These values are gravely jeopardized by fracking and its polluting operations and must be protected for the public and future generations.

- The entire nontidal Delaware River is protected by DRBC's Special Protection Waters anti-degradation regulations that do not allow water quality to be degraded in any way. We are dependent on that protection to keep our water safe.

The draft regulations:

- Ban high-volume hydraulic fracturing (HVHF) in all "hydrocarbon bearing rock formations" (Part 440.3). This includes geographically the entire Delaware River Basin but it only bans "high-volume" fracking, which means fracking in deep formations that require large amounts of water. The definition of HVHF is using more than 300,000 gallons during all stages of well drilling (Part 440.2). Practically speaking, this may be all fracking in the Watershed due to the type of geology here and unlikely economic viability of shallow gas formations but there is a loophole for shallower rock formations that could be exploited.

- Do not apply to pipelines or compressor stations, only to fracking of gas wells (Part 440)

- Allow the discharge of frack wastewater to the waterways of the Watershed if approved by the DRBC. There is no safe or thoroughly effective way to treat and discharge the highly toxic materials in frack wastewater. This opens the door to highly toxic pollutants entering the waters of the Basin, many of which have never been present. This

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[13] NRDC Policy Basics, 2013. Available at: http://bit.ly/2yPF7Re

[14] http://www.dec.ny.gov/docs/materials_minerals_pdf/findingstatehvhf62015.pdf

http://www.health.ny.gov/press/reports/docs/high_volume_hydraulic_fracturing.pdf

[15] http://thinkprogress.org/climate/2015/05/29/3664098/larry-hogan-maryland-fracking-ban/

http://mgaleg.maryland.gov/webmga/frmMain.aspx?pid=narrowsubjpage&tab=subject3&id=hydrfrac&stab=01&ys=2017rs

represents a degradation of the Basin's water quality. By current regulation, the DRBC cannot allow the high existing water quality of the Basin to be degraded.

It's also very difficult to remove all the pollutants from frack wastewater because the constituents in frack wastewater vary tremendously due to the various formulas of frack fluids used. So, the waste varies from company to company and the materials used in fracking fluids number into the high hundreds – at least 750 different constituents. Many are not regulated at all and many are kept secret due to the shield allowed drillers to not disclose fully the "recipes" they use for the fracking process. Also, the wastewater that is produced from the deep rock formations is contaminated with naturally occurring pollutants such as radioactive materials, heavy metals, potent salts, and hydrocarbons and that is in the mix that becomes the wastewater. The NORM (Naturally Occurring Radioactive Materials) can reach concentrations magnitudes greater than health limits.

- Allow the withdrawal and transfer of water out of the Basin to other locations where fracking is permitted. This depletes the Delaware River Watershed's water because it will never return to the source and the water is either lost to the hydrologic cycle or transformed into a polluted material, never to be restored to its original quality. It is also unjust to use the Delaware to fuel fracking out of the Watershed.

- Although not directly addressed in the draft regulations, the rules may allow the injection of wastewater within the Basin. Injection of wastewater does not "treat" waste or remove contaminants, it simply moves the potential for environmental and water resource pollution and water quality degradation from one place and time to another. The draft regulations do allow the storage of wastewater. Injection wells are causing earthquakes in Ohio and Oklahoma as well as other locations and are not leak-proof, exposing groundwater and aquifers to contamination from the toxic mix that constitutes frack wastewater.

- Also not directly addressed in the draft regulations is the storage of natural gas liquids in the Watershed. These hazardous liquids cannot be stored safely in underground caverns, which as prone to leakage and are unstable.

The DRBC's public participation process into the draft regulations:

- Public Hearings at only 2 locations (with 2 sessions on the same day at each) is inadequate. Should be at least one public hearing in each Basin state - Delaware, New Jersey, New York, and Pennsylvania - and and one in New York City, where up to 9 million people rely on the Delaware's water. Each state should have one in each major geographic region since distances are too great for a person to travel in one day - Pennsylvania and New Jersey: Upper, central and lower region; New York State: Catskills and Port Jervis area, in addition to the one in New York City. Delaware, upstate and downstate.

- The Public Hearings are being held in difficult to reach locations, especially considering the winter travel conditions and the lack of accessibility to public transportation. The Wayne County location is hours from most of the population. The Philadelphia location is an Airport Hotel, not even close to downtown and City neighborhoods.

- To be assured you will be contacted by DRBC with the offer of a speaking slot speak at a Public Hearing requires registering on line by December 31, then waiting to be contacted. To attend the Hearings you must register; recently the DRBC changed the requirements to allow registration on line after Dec. 31 or at the door of the Hearing, although registrants after Dec. 31 will only be allowed to attend if there is room. Also, it is possible to obtain a speaking slot after Dec. 31 or at the Hearing if there are slots open. Nonetheless, the "first served" cut-off of December 31 for Hearings to be held January 23 and 25 makes no sense and severely limits the number of testifiers since many people may not learn of the Hearings until after the holidays and closer to the Hearing dates. The on-line registration form and the cut-off date are impediments for the public, putting up roadblocks rather than encouraging participation. The application process to the DRBC Secretary for an exception to the public hearing registration is a deterrent in itself, can be expected to have a chilling effect and places another hurdle in the path of the public.

- The electronic comment process is extremely limited, requiring computer access and use of a restrictive on-line platform. Should be supplemented with written comments by email, fax, postal mail service and hand delivery to allow for accessible and ready public submission of written comment that is just and equitable for all who may want to take part. The application process to allow the use of other written submittal forms for an exception to the on-line submittal in itself is another hurdle in the gauntlet members of the public must navigate and does not fairly alleviate the burden.