Regulatory Deficiencies in Wastewater Infrastructure in Rural Appalachia

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Many communities in rural Appalachia have insufficient access to basic wastewater disposal facilities. When alternative forms of wastewater disposal are financially or physically inaccessible, homeowners are forced to live with failing septic systems where raw sewage is discharged and sometimes resort to straight piping raw sewage directly into receiving waterways without any treatment. This practice is highly problematic in mountainous, rural communities because groundwater flows near the surface of the earth and homeowners frequently rely on private, on-site groundwater wells as their primary source of drinking water. Therefore, failing septic systems and straight pipes can create chronic water contamination and serious risk of disease. Despite the well-documented water quality threats that stem from industrial and mining pollution in Appalachia states, the director of the West Virginia Water Research Institute maintains that “the biggest threat in water supplies in southern West Virginia... is raw sewage.”

Current state and federal regulatory regimes make the practice of emitting sewage directly into surface waters illegal, but these regimes frequently fail to effectively regulate raw sewage contamination in rural areas. The Clean Water Act created the National Pollution Discharge Elimination System (NPDES) permitting program to regulate “point source pollutants” such as straight pipes. Under NPDES, “[a]ny person who discharges or proposes to discharge pollutants... and who does not have an effective permit... must submit a complete application to the Director” or face fines and perhaps criminal charges. The NPDES permitting process requires “operators” to submit an application for coverage under an individual permit to the relevant state issuing authority, typically a state’s designated regulatory agency.

This permitting process is better suited to regulate large dischargers such as “industrial, commercial, and municipal point sources” rather than individual septic systems in remote communities. First, there is no incentive for people living in economically depressed areas to go through the onerous practice of applying for permits, paying an application fee, and volunteering to be monitored by government authorities. Second, the state and local agencies that bear the burden of managing septic tank and NPDES permitting systems often lack the capacity to effectively address private sewage systems in sparsely populated areas. Third, the legislative authority to develop waste-water management rules and regulations is often split between state and local governments and the implementation and enforcement authority is almost always split between two or more state or local agencies. This decentralized regulatory system creates confusion between competing authorities, decreasing overall accountability. Finally, even where state and local management efforts successfully regulate individual wastewater septic systems, there is little monitoring after the initial construction periods.

High levels of poverty in these communities further complicate the problem. Even when state agencies are successful in locating non-permitted sources and notify owners that they are not in compliance with state and federal environmental law, the homeowner might not be in a financial position to take on the costly task of repairing, replacing, or installing a new septic system. It is politically unpalatable to impose fines and burdens on indigent individuals who are both the perpetrators of water quality violations and the victims of the sewage contamination that results from those violations. Therefore, when command and control regulation is used as the sole method of addressing the wastewater infrastructure deficiencies in rural areas, it has not been proven to be effective.

Policy makers must use regulation in tandem with other policy solutions if they are to ameliorate this rural public health crisis. It is critical that state and local leaders secure funding for investment in wastewater projects, make wastewater infrastructure grants available to homeowners, and work with community members on the ground to develop and implement solution strategies. According to the EPA’s 2000 Community Water System Survey, private capital markets serve as “the largest source of infrastructure capital funds.” However, few Appalachian communities or rural homeowners have sufficient credit to access this private market. Therefore, it is important that policymakers designate more capital to public entities through wastewater infrastructure grant programs such as the Clean Water State Revolving Fund (SFR), Water Pollution Control Grants, and ARC Community Infrastructure Grants. Additionally, policy makers should strive to make funding available to private entities, such as non-profits. After giving homeowners the opportunity to come into compliance with the NPDES permits, policy makers should enact legislation that provides state regulators with the resources and funding they need to effectively monitor wastewater pollution. Bolstering state agency resources will play a crucial role in the long-term success of a sewage-pollution mitigation regimes because state environmental regulatory agencies will need additional funding to monitor newly installed septic systems as they age so that these systems do not once again fall into disrepair.

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In summary, raw sewage contamination in Appalachia is an environmental injustice that creates unacceptable public health risks and barriers to community and economic development.²⁶ Policymakers must invest in basic wastewater infrastructure projects and delegate more funding and resources to the agencies charged with monitoring water quality if they are to revitalize the most marginalized and impoverished Appalachian communities.

ENDNOTES

¹ Examples of Community Infrastructure Projects, Appalachian Regional Commission, https://www.arc.gov/program_areas/ExamplesOfCommunityInfrastructureProjects.asp (last visited Mar. 30, 2018); Nicholas Cook et al., Putting Corporate Social Responsibility to Work in Mining Communities: Exploring Community Needs for Central Appalachian Wastewater Treatment Resources 190-91 (2015), http://www.mdpi.com/2079-9276/4/2/185/htm (explaining that homes located in remote, mountainous areas are unable to connect to municipal wastewater systems and that thin soils make it especially difficult to install adequate septic tank systems); see also U.S. Env't Protection Agency, Response to Congress on Use of Decentralized Wastewater Treatment Systems, i (1997) [hereinafter Response to Congress] (noting that when wastewater systems in rural areas where first built people utilized “the least costly solution”, not the “most appropriate solution for the conditions”).

² Jessica Lilly et al., Inside Appalachia: Water in the Coalfields, W. Va. Pub. Broad. (Jan. 16, 2015), http://wvpublic.org/post/inside-appalacchia-water-coalfields/stream0 (defining straight pipes as “small diameter pipes that intentionally bypass the sanitary connection or septic drain fields, producing a direct discharge into open channels or streams”); Cook et al., supra note 1, at 191.

³ Cook et al., supra note 1, at 191; Jeff Hughes et al., Drinking Water and Wastewater Infrastructure in Appalachia: An Analysis of Capital Funding and Funding Gaps, UNC Env’t. Fin. Ctr. 4 (2005), https://www.arc.gov/assets/research_reports/DrinkingWaterandWastewaterInfrastructure.pdf (finding that wells serve as the primary source of drinking water in “more than 75% of households in portions of the Highlands.”); see also Arcipowski, Clean Water, Clean Life: Promoting Healthier Accessible Water in Rural Appalachia 161 J. of Contemp. Water Res. & Educ. 1, 2 (2017) (noting that the EPA does not regulate residential groundwater wells).

⁴ Cook et al., supra note 1, at 191; see also Arcipowski, supra note 3, at 2 (explaining that the fecal coliforms and Escherichia coli (E. Coli) found in raw sewage can cause “abdominal cramping, diarrhea, dehydration, and even death, if not treated”).

⁵ Lilly et al., supra note 2; see Hughes et al., supra note 3, at 51 (noting that a 2004 EPA report found that there were 878 impaired streams in West Virginia “that are too polluted to attain their designated use” and that the most common sources of pollution were “mine drainage, bacterial contamination, and acid rain”).


⁷ 40 C.F.R. §122.2 (2017) (“Point source means any discernable, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged”).

⁸ Id. §122.21-41.


¹⁰ Cook et al., supra note 1, at 191.

¹¹ West Virginia Department of Environmental Protection, National Pollution Discharge Elimination System (Mar. 2 2018, 4:08 PM) http://dep.wv.gov/wwew/permit/individual/pages/default.aspx (noting that in West Virginia, the NPDES permitting process can take up to six months and require application fees ranging from $50 to $15,000 depending on the scope of the discharge operation).

¹² Herald, supra note 6, at 2 (explaining that it is difficult for states to address straight pipes on private property because regulators don’t know where they are located).

¹³ Response to Congress, supra note 1, at iii.

¹⁴ Id.

¹⁵ U.S. Environmental Protection Agency, Septic System Overview (Mar. 7, 2018), https://www.epa.gov/septic/septic-systems-overview (noting that “very few permitting agencies conduct regular inspections of septic systems after they are installed”).

¹⁶ Herald, supra note 6, at 2. (explaining that the average septic system can cost between $4,000 and $12,000 dollars).

¹⁷ See id. (noting fairness concerns about holding low income homeowners accountable for straight pipes); see also Fahe, Appalachian Poverty. (Mar. 7, 2018), https://fahe.org/appalachian-poverty/ (noting that the poverty rate in the combined Appalachia regions of Alabama, Kentucky, Tennessee, Virginia, and West Virginia was 19.7% between 2010-2014).

¹⁸ Herald, supra note 6, at 2 (explaining that part of the reason Minnesota failed to address their estimated 60,000 straight pipes discharging an estimated 6.75 million gallons of raw sewage into Minnesota waters every day was because officials were reluctant to take action against homeowners who lacked the financial resources to install new septic systems).

¹⁹ See Gary O’Dell, Community Self-Help Activism in Water/Sewer Development: Case Studies from McDowell County, West Virginia, and Letcher County, Kentucky, 33.1 Appalachian J. 54, 72 (2005), http://www.jstor.org/stable/pdf/40934772.pdf?refreqid=excelsior%3A715819092788f63958e7f303e395411 (finding that “the greatest obstacle to providing water and sewer services is financial” and emphasizing the need for citizen involvement in wastewater management); see also EPA, Initial Results of a Review of the National Pollutant Discharge Elimination System Program in the State of Minnesota, 19 (2013), https://www.epa.gov/sites/production/files/2017-04/documents/nn petition_report_may-03-2013updated.pdf (conceding that “[w] ithout upgrades to achieve proper treatment, it is highly doubtful that a straight pipe system that is a TPHS [Imminent Threat to Public Health or Safety] could comply with the terms and conditions of an NPDES permit”).

²⁰ Hughes et al., supra note 3, at 95.

²¹ Id.

²² Id. at 97-98; Examples of Community Infrastructure Projects, supra note 1.

²³ Response to Congress, supra note 1, at 8 (explaining that the EPA’s construction grants program and the Clean Water SRF are “generally available only to public entities”, and that it is difficult for “privately-owned systems” to obtain public funds).

²⁴ See id. (calling for states to “coordinate[e] legal authority for centralized and decentralized wastewater systems under a single state agency”).

²⁵ Septic System Overview, supra note 15.

²⁶ Arcipowski, supra note 3, at 2 (noting a positive correlation “between lack of access clean water and low socio-economic status”); see also Cook et al., supra note 1, at 191 (noting that the medical costs associated with waterborne illnesses in the United States exceed $800,000,000 each year, “not including lost work time and productivity”).