
Citizen Scientists, Data Transparency, and the Mining Industry

Madison Condon

What happens when a community feels that the standards imposed by state and federal laws are insufficient to protect its health and environment? Or when the responsible government agencies lack the funding, competency, or political will for full enforcement of the law? One of the greatest hurdles facing citizen environmental advocates in these situations is a lack of access to environmental monitoring data. All routes available for policing industry—whether it be rallying community support for protest, petitioning a government agency for enforcement action, or bringing a citizen suit—require, as a first step, an understanding of whether and what pollution has been released. This article looks at a few examples of how citizen organizing, combined with changes in technology, have successfully empowered communities to take environmental monitoring and enforcement of the mining industry into their own hands.

President Trump's budget, released in March 2017, proposes a 31 percent funding cut to the U.S. Environmental Protection Agency (EPA). This cut includes a 24 percent decrease in the budget of the EPA's Office of Enforcement and Compliance Assurance (Enforcement Office), the justification being that it "avoids duplication" with programs that are delegated to states. Funding intended to be passed on from EPA to state agencies, however, also is cut by nearly half—from \$1.1 billion to \$597 million. The Environmental Council of the States estimates that about one-third of state environmental agency funding comes directly from EPA. It is unlikely that states will be able to make up this deficit, thus a decrease of enforcement at the state level also can be expected.

While the most recent proposed cuts are drastic, they are in keeping with a trend that began before President Trump took office. In its 2014–2018 Strategic Plan, EPA predicted that it would be forced to make 25 percent fewer compliance inspections and bring one-third fewer enforcement actions than it had in the years 2005–2009 because of declining budgets. Between 1994 and 2010, EPA's Enforcement Office lost 20 percent of its workforce. Last fall, the Center for Public Integrity reported that 40 states had decreased staff levels at their environmental agencies over the past 10 years. Ten states had reduced staff numbers by more than 20 percent.

Access to Data

Although organized citizen groups will attempt to rise to meet this regulatory deficit, one of the greatest impediments for

Ms. Condon is a legal fellow at New York University Law's Institute for Policy Integrity and an adjunct associate research scientist at Columbia University's Earth Institute in New York, New York. She may be reached at madison.condon@columbia.edu.

community policing of industry is lack of access to data. While the Freedom of Information Act (FOIA) and similar state public records laws are meant to provide citizens with access to government collected pollution data (if the data is collected at all), compliance with these disclosure requirements often is incomplete or untimely. In 2015, a district court judge found that EPA manifested a "continued disregard for its FOIA obligations." *Landmark Legal Found. v. EPA*, 82 F. Supp. 3d 211, 213 (D.D.C. 2015).

This author's own attempts at collecting Superfund cost-recovery data was met with the explanation that the EPA employee capable of querying the relevant database had passed away several months before and had not yet been replaced. The Center for Investigative Reporting has found evidence suggesting that "state and local government secrecy has increased in the past 10 years," due, in part, to increasing disclosure fees and a government failure to keep up with technical advances. Miranda Spivack, *Local Governments Hide Public Records, Face Few Consequences, Reveal*, Nov. 16, 2016.

This lack of data access extends to a variety of government records, not merely pollution reporting. The nonprofit Earthworks has long highlighted the disconnect between the predictions made in Environmental Impact Statements (EISs) during a mine's permitting process and the actual measured impacts that exist once the mine has begun operations. A 2006 report undertook a case study of 25 mines and found that while 100 percent of the mines' EISs predicted compliance with all applicable water quality standards, 76 percent of the mines exceeded these standards during operation. Jim Kuipers and Ann Maest, *Comparison of Predicted and Actual Water Quality at Hardrock Mines*, Dec. 7, 2006, available at www.earthworkSACTION.org/library/detail/comparison_of_predicted_and_actual_water_quality_at_hardrock_mines/#.WRCZsrzyvdQ. One of the authors of the report, Dr. Ann Maest, found that tracking down each of the EISs was a challenge in itself: there is no central database, at the state or federal level, that compiles approved EISs. In addition, the operational compliance monitoring data rarely are readily available in an organized electronic format. When a concerned member of the public can obtain an EIS or the water quality data, for example, from a state agency, often the format of the information, such as a PDF rather than a spreadsheet, hinders data analysis.

Citizens who wish to have a more complete understanding of the impact of industrial activities in their communities do have other legal pathways available. In recent years the phenomenon of citizen science has grown exponentially, supported by an increase in low-cost technology such as sensors and drones, as well as advances in information sharing. Many small, low-cost, monitoring devices interface directly with

personal smartphones, making them readily available and easy to use. Data collected by individual volunteers can be sent to a central, publicly accessible, database where any interested party can analyze this crowdsourced information. Under some environmental statutes, citizens are granted the right to take samples on industrial property that is otherwise private, or they have the right to observe environmental sampling undertaken by the regulated entity. Some advocacy groups have found ways to force companies to directly disclose monitoring data to impacted communities.

Good Neighbor Agreements

When a community is concerned about a polluting activity—a mine, or a chemical plant, for example—one tool at its disposal is a private contract with the company operating the activity. These contracts are sometimes called Good Neighbor Agreements (GNAs). A GNA is a legally binding agreement between a company and the surrounding community in which the company agrees to various concessions that go above and beyond those required under the law. These private contracts are sometimes made in lieu of litigation or as part of a settlement, and they can save time and money for all involved parties. In a climate where enforcement and monitoring on the part of the government is slated to decline, a GNA can be a useful tool for getting a company to disclose what exactly it is releasing into the surrounding air and water. Some GNAs support community-monitoring initiatives wherein volunteers are permitted to take, and sometimes analyze, their own samples; others facilitate access to data that is generated by the company but not otherwise readily available to the public. These agreements can serve the dual purpose of reducing harmful industry behavior and empowering community members through a better understanding of whether the industry is releasing contaminants above levels known to affect human or ecosystem health.

Montana GNA: Stillwater Mine and NPRC

One well-known GNA is an agreement reached in Montana (Montana GNA) between the Stillwater Mine and several environmental groups, including the Northern Plains Research Council (NPRC). In 1999, the Stillwater Mining Company (SMC) was granted a permit to expand its platinum and palladium mining operation in south-central Montana. The citizen groups sued the Montana Department of Environmental Quality, challenging the permit and arguing that the expanded mining project would have an unacceptable environmental impact. Knowing that the lawsuit and the negative press coverage it generated could hinder expansion plans, the mine owners agreed to negotiate with the community groups. On their side, the community groups felt that the state's environmental laws had been under-enforced and eroded over time, such that a private agreement might be their best opportunity to obtain the desired environmental protections.

What resulted was a legally binding agreement whereby the NPRC and its community partners agreed to drop their permit challenge in exchange for various concessions made by the mine. These concessions included SMC-funded third-party environmental audits and expanded water quality and

fisheries monitoring. SMC agreed to maintain a publicly accessible electronic database of all historic baseline data and all SMC monitoring undertaken in compliance with federal or state environmental laws or the GNA itself. The negotiated agreement also gave community representatives the right to observe all sampling and monitoring activities undertaken by SMC. The most remarkable provision gave community groups the right to “conduct Citizen Sampling of the Environment for any physical, chemical, or biological parameter.” Good Neighbor Agreement between Stillwater Mining Company and Northern Plains Resource Council, et al., signed May 8, 2000, available at www.northernplains.org/issues/good-neighbor-agreement. With 24-hours' notice, the citizen groups have the right to enter SMC premises to collect samples. SMC agreed to reimburse the citizen groups for their expenses in carrying out the implementation of the GNA, up to \$135,000 annually. This funding was to “offset the costs of conducting citizen sampling” and to ensure that the community has “the technical and scientific expertise necessary” to carry out the sampling activities, including fees for environmental consultants.

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The concessions gained by the environmental advocacy groups were hard fought. Although the mine readily agreed to undertake other requested actions, such as implementing a traffic management plan and placing company land under a conservation easement, the negotiations nearly failed over the transparency requirements. The mining company initially sought to insert a “secrecy clause” whereby any monitoring and auditing data would be kept confidential, even if it had been collected by a third-party auditor on behalf of the citizen groups. Community group representatives walked out of the negotiations and explained to a local paper that confidentiality provisions were a deal breaker: the “testing, sampling, [and] inspections” were necessary if they were going to successfully “shine a light on what the company was doing.” The Associated Press, *Stillwater Mine “Good Neighbor” Pact Breaks Down*, *Montana Standard*, M (Jan. 26, 2000).

Water quality monitoring data in OHA's online interactive graphing database enabled the Alliance to understand local pollution trends and was instrumental in its advocacy to get Ecology to take enforcement action.

Okanogan Highlands Alliance and Buckhorn Mine

The success of the GNA at the Stillwater Mine has been noted by other communities fighting the negative impacts of large-scale mining operations. The Okanogan Highlands Alliance (OHA) relied on the Montana GNA as a model in its own effort to monitor and mitigate the effects of a mine in Washington State. OHA was originally formed in 1992 to fight a proposed open pit cyanide-leach gold mine on Buckhorn Mountain in north-central Washington. After eight years of participation in public process, administrative appeals, and litigation, the project was eventually abandoned after the Washington State Pollution Control Hearings Board ruled that the mine posed a significant risk to water quality without a sufficient mitigation plan. In 2004, the mining company announced an amended plan to construct an underground mine on the same site. OHA once again became actively involved in permitting proceedings, appealing the notice of construction, waste discharge permit, water quality certification, and tailings expansion approval issued by the Washington State Department of Ecology (Ecology). Because of a new law meant to expedite projects in economically challenged communities, OHA was prohibited from litigating the challenge until after all permits had been issued; the mine was constructed before the case could go to trial.

With less than a month before trial was set to commence on OHA's challenges to the permits, the community group and the owner of the mine, Crown Resources, announced they had reached a settlement agreement. Under the terms of the 2008 settlement, Crown agreed to hire an OHA-approved independent third party to do monitoring and environmental reporting and to increase the number of monitoring locations overall. In addition, Crown provided the financial resources that enabled OHA to hire its own consultant to perform annual audits and undertake data analysis to evaluate Crown's third-party findings. Crown agreed to collect baseline water quality data from nearby drinking wells within a certain proximity to the mine. Finally, under the terms of the agreement, Crown was obligated to share all monitoring data directly with OHA and to include OHA in annual meetings when the company discusses monitoring results with the regulatory agencies. David Kliegman, executive director of OHA, reports that "[a]s a general statement the success of the settlement is dependent on the

manager at the mine site. Early on we had a better working relationship with the company, but under the current management we are kept at arm's length. The company adheres to the exact terms of the settlement but nothing more." Telephone interview with David Kliegman, Executive Director, Okanogan Highlands Alliance (Dec. 14, 2016).

Under the 2008 settlement, once OHA obtains water quality monitoring data, its staff puts the data in an online interactive graphing database that the Alliance shares with all interested parties. There, the data can be filtered by sampling location and specific contaminant. Pollutant levels over time can be analyzed, comparing background to current values. Almost immediately after the Buckhorn Mine began operation, it was in violation of its pollutant discharge (NPDES) permits. The database enabled OHA to understand local pollution trends and was instrumental in its advocacy to get Ecology to take enforcement action. Washington State has a limited history of hardrock mining, and, as a result, Ecology has limited technical capacity for understanding the environmental impacts of the mine and enforcing the permit limits. OHA uses its own analysis of the pollution data to communicate to its membership and works to translate this knowledge into advocacy action. In 2012, OHA sent its seasonal newsletter, the *Buckhorn Bulletin*, to all its members, highlighting that the mine had discharged pollutants in excess of its permits, and that Ecology "has known of these violations for 9 months . . . [yet] has failed to issue any citations." *Action Alert: There Should Be Consequences*, *Buckhorn Bulletin* (Winter 2012). The newsletter provided the contact information of the director of Ecology and the governor of Washington under the headline, "If you say nothing, no one will know you care." *Id.* Six months after this call to action, the following issue of the *Buckhorn Bulletin* reported that Ecology had issued a \$395,000 penalty against the mine. OHA's director points out that OHA alone did not bring about this penalty but was a key advocate in the effort to get Ecology to perform its environmental enforcement obligations.

As a part of its initial fight against the proposed open-pit mine in the 1990s, OHA lobbied the Washington State legislature for a comprehensive mining act. Due in part to OHA's efforts, the legislature passed the Metals Mining and Milling Operations Act in 1997. One of the provisions that OHA successfully petitioned for mandates: "If an interested citizen or citizen group so requests of the department of ecology, the metals mining and milling operator or applicant shall work with the department of ecology and the interested party to make arrangements for citizen observation and verification in the taking of required water samples." RCW 78.56.100(1)(c)(1997). As a result, interested citizens can observe the Buckhorn Mine's sampling procedures at designated times throughout the year.

Mitigation of Harmful Environmental Impacts

The Federal Surface Mining Control and Reclamation Act similarly gives citizens the right to participate in inspection of coal mines that are allegedly violating environmental law. In practice, however, this right is not always honored. Last fall the Sierra Club filed a lawsuit appealing a Department of Interior decision to deny a citizen group request to inspect a Virginia coal mine. The community organization, Southern Appalachian Mountain Stewards, runs the Appalachian

Citizens Enforcement (ACE) Project, which has as its mission to equip “everyday people with the knowledge, instruments, and professional support to monitor local waterways.” Appalachian Citizens Enforcement Project, www.ace-project.org. ACE’s website further explains that “[i]n some cases, state agencies in the Appalachian coal-bearing regions have failed to hold the coal industry accountable for inaccurate and sometimes unlawful record keeping of surface water impacts. This lack of enforcement highlights the need for independent water monitoring.” *Id.* The data collected by the ACE volunteers is compiled in a publicly accessible database and has been used by citizen groups to fight coal mining permits, advocate for increased water quality standards, and request official enforcement.

Mitigation of harmful environmental impacts is the primary goal of these citizen monitoring initiatives, but there are additional benefits. Because of the Montana GNA, community members living near the mine can volunteer to undertake a visual inspection of the site and participate in taking wastewater, stream, air, and soil samples. They are trained and supervised by a full-time consultant paid for by the mining company. Once a year, many volunteers participate in a bio-monitoring event. At the Buckhorn Mine in Washington, citizens observe the third-party auditors four times a year and submit citizen water quality monitoring reports. These reports are mostly informal and narrative in style and often include comments such as, “[I] would encourage anyone to participate in the citizen’s monitoring process. It is eye opening and extremely informative.” www.buckhorncaa.org/December-2008-cwqm-report. These programs compensate for a deficit in government oversight while benefitting the communities in substantial ways. Citizens learn the fundamentals of environmental science, gaining real skills in sampling and data analysis. This in turn helps them become empowered in the face of large industry and facilitates more effective advocacy. In communities with a long history of underregulated industry, a deep distrust can develop, not only of the industry and its owners, but also of the regulators themselves. Citizen oversight can help rebuild this trust. For companies that strive to operate within the limits of the law and have an interest in building their public reputation, support of community participation is in their interest.

GNAs are not limited to the mining industry. A survey of 10 successful GNAs identified private agreements with 4 refineries, 3 chemical plants, a pharmaceutical company, a coal mine, and a dairy. Douglas S. Kenney, et al., *Evaluating the Use of Good Neighbor Agreements for Environmental and Community Protection*, Nat. Res. Law Ctr., Univ. of Colo. Sch. of Law (2004). In some of these agreements, the company agreed to comply with a community demand, such as implementation of a traffic plan or relocation compensation, and community involvement was thereafter kept to a minimum once the conflict had been resolved. But in other cases, the company agreed to stricter monitoring and reporting requirements, sometimes verified by a third-party auditor paid for the company. Some GNAs actively involved community volunteers in monitoring and inspection of the facilities.

Increased Citizen Involvement

Data collected by amateurs has been used to bring citizen suits under federal environmental statutes. The Sierra Club, for

example, has successfully pursued several lawsuits under the Clean Water Act against coal mines for releasing pollutants whose presence was first discovered by amateur sampling. Citizen-collected data, however, serves a much broader range of environmental advocacy purposes beyond supporting enforcement actions. In an administrative proceeding, for example, the evidentiary standards are less strict. If a community group believes that there are excessive contaminant releases related to a regulated activity and have some data to back up this belief, they can encourage the agency to take samples on its own. As Dr. Ann Maest points out, because the agency is then the one taking samples, this information can be obtained through FOIA requests.

Government agencies have realized that increased transparency and citizen involvement are tools that can be used support their mission to regulate environmental harms effectively. In 2012, EPA rolled out what it calls “Next Generation Compliance,” a strategy that relies more heavily on technological advances and transparency initiatives. Two of the pillars of this “Next Gen” compliance are (1) a shift toward electronic reporting, and (2) an increase in public access to monitoring data. See www.epa.gov/compliance/next-generation-compliance. In a justification for these priorities, the former assistant administrator for EPA’s Enforcement Office, Cynthia Giles, pointed to a 2008 study that found requiring drinking water systems to mail water quality reports directly to customers reduced severe health violations by 40 to 57 percent. Reputation matters, and transparency can be an enforcement tool in itself. According to Giles, “[e]ven in an era of very tight budgets, thoughtful transparency strategies can improve results, and open the door for private sector development of apps that will make a difference.” Cynthia Giles, *Next Generation Compliance*, The Env’tl. Forum, Sept–Oct. 2013. Several of EPA’s recent enforcement settlements require the corporate defendant to upload continuous monitoring data to a publicly available website.

The National Advisory Council for Environmental Policy and Technology (NACEPT) recently issued a report calling for EPA to “proactively and fully integrate citizen science into the work of EPA.” NACEPT, *Environmental Protection Belongs to the Public, A Vision for Citizen Science at EPA*, Dec. 2016, available at www.epa.gov/sites/production/files/2016-12/documents/nacept_cs_report_final_508_0.pdf. The report encourages EPA to work with communities to ensure that citizen-collected data meets quality standards and to use that data in its monitoring and enforcement agenda. In a 2015 publication from the Energy and Mineral Law Institute, two private firm lawyers representing industry warn about the coming rise of citizen suits: “While citizen lawsuits have long existed, environmental non-governmental organizations (ENGOS) are beginning to utilize them with increasing frequency, often taking innovative approaches to expand their reach.” Miranda Yost and Patrick Fanning, *Citizen “Suit Yourself”: New (and Very Real) Water Compliance Challenges for Coal Power Utilities*, 36 Energy & Min. L. Inst. 4, at 102 (2015). The article further cautions that environmental nonprofits are becoming “increasingly sophisticated at harnessing [industry reported] raw data to support their own enforcement efforts.” *Id.* at 109.

In spring 2015, the Wyoming legislature passed a law that many advocates characterized as “criminaliz[ing] citizen science.” Justin Pidot, *Forbidden Data*, Slate.com, May 11, 2015. The law, Wyo. Stat. Ann. §§ 6-3-414, prohibits the collection of “resource data” with the intention of submitting the data to

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a state or federal government agency. The original text of the bill criminalized data collection, including taking photographs, on all “open land.” After a federal judge found it “difficult to conceive a permissible rationale for preventing the collection of resource data on lands which the public has the right to be upon” the law was limited to apply only to data collection requiring trespass on private lands. *W. Watersheds Project v. Michael*, No. 15-CV-0169-SWS, 2015 WL 12852338, at *17 (D. Wyo. Dec. 28, 2015).

Resources Required to Police Industry

GNA and other private citizen actions are not a cure-all for absence of government power. In nearly all the GNA cases surveyed in the Colorado Law School study, the community groups could force the company to the negotiating table

because they had significant leverage given to them by some gatekeeping process established by state or federal law, such as a permit requirement. Without this “stick,” the “carrot” of positive publicity may be insufficient to gain binding commitments from the company. In both the Stillwater and the Buckhorn cases, the members of the community groups were well organized and had significant time and other resources to devote to their cause. NPRC estimates that their volunteers spend between 20 and 60 hours a month on participatory monitoring and other activities under the GNA. Not all citizen groups have such resources to devote to policing industry, a fact especially problematic given that polluting facilities are often disproportionately sited near disadvantaged communities. See, e.g., Jane Kay and Cheryl Katz, *Pollution, Poverty, People of Color: The Factory on the Hill*, *Envtl. Health News*, June 4, 2012.

With EPA’s resources set to be slashed and its enforcement priorities diminished, an ever-growing need exists for civil society to monitor the actions of polluting industries. Private agreements between a community and a company that require third-party audits and data sharing are one mechanism for facilitating transparency and enforcement. Community education and participation by volunteer monitors are one ancillary benefit to such agreements. These agreements cannot be expected to replace fully the need for local and federal regulators but can be a useful tool in supporting regulators’ efforts and holding them to their duties. The OHA website explains: “it is important for Ecology to know that the public is watching, and we expect our laws to be executed.” See www.okanoganhighlands.org/mine-monitoring/mine-see-page. Citizen advocacy initiatives are about more than volunteer research; they represent a larger trend toward the democratization of environmental regulation and community empowerment. 🌳

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