

# DEMOCRATIZING DATA

Environmental Enforcement Watch's  
Report Cards for Congressional  
Oversight of the EPA



# Democratizing Data: Environmental Enforcement Watch's Report Cards for Congressional Oversight of the EPA

A Project of the Environmental Data & Governance Initiative

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The [Environmental Data & Governance Initiative](https://envirodatagov.org/) (EDGI) is a nonpartisan organization of academics and non-profit employees that promotes open and accessible government data and information, along with evidence-based policy making. EDGI thanks participants in its public EEW events for their valuable feedback and collaboration. EEW is supported by grants from the Doris Duke Charitable Foundation, the David and Lucile Packard Foundation, and the Northeastern University Lab for Texts, Maps, and Networks.

“ I believe that data has the power to catalyze change, and I believe data should be more accessible to community members. I want them to have the tools they need for their work. ”

Monica E. Unseld PhD, MPH, Data For Justice founder. Monica became an EDGI member through Environmental Enforcement Watch events and joins as a co-author on this report.

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*Nationally in 2019, there were on average 111 violations of the Clean Water Act per 100 operating facilities. In other words, there were more violations than there were operating facilities. In 2019, there were over 350,000 such facilities in operation.*

## INTRODUCTION

On October 22, 2020, EDGI released the Environmental Enforcement Watch (EEW) Congressional Report Cards project. This project provides, for the first time, an analysis of Environmental Protection Agency (EPA) data on compliance with, and enforcement of, environmental laws in select congressional districts and states. The project focuses on three of the most important environmental laws in the United States: the Clean Air Act (CAA), the Clean Water Act (CWA), and the Resource Conservation and Recovery Act (RCRA).<sup>1</sup> In this first release, we made report cards for each of the 76 congress people who currently serve on the two key congressional committees that oversee the EPA: The House Energy and Commerce Committee and the Senate Environment and Public Works committee (See page 12 for committee members' names and the state or congressional district they represent). All the data used in the report cards and this report are drawn from publicly available data from the EPA's Enforcement and Compliance History Online (ECHO) database. Each report card is freely available online [here](#) and was produced using open source data analysis written in Jupyter Notebooks found [here](#) and in an R Markdown template found [here](#).

### Our goals with this project are to:

1. Increase public awareness of the large and growing gaps in the EPA's enforcement of environmental laws.

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<sup>1</sup> For the CAA, we only focus on stationary sources. For the CWA, we only focus on the National Pollutant Discharge Elimination System (NPDES). There are important programs that we do not focus on here, including mobile source emissions under the CAA and wetlands protections under the CWA. Hereafter, when we discuss the CAA and CWA, we are referring just to those parts of the law specified here.



2. Provide elected representatives and constituents with data to assess whether the EPA is meeting its mandate to enforce environmental laws in their districts.
3. Work with partner organizations, especially marginalized communities, to build data efficacy through mutually beneficial relationships.
4. Inform the EPA of alternative forms of public engagement with environmental data and enforcement through prototyping community-oriented structures for environmental data.
5. Bring attention to the relationship between environmental enforcement, environmental racism, and other interlocking forms of oppression.

## Key findings

Note: These findings pertain only to the select districts and states examined in this report (those with representatives on the House Energy and Commerce Committee or the Senate Environment and Public Works Committee).

Clean Water Act violations have generally increased under the Trump administration:

- In 46 of 55 congressional districts, and 14 of 20 states, violations of the CWA have increased since Trump took office compared to the previous 16 years.
- The median increase in the number of CWA violations during the Trump administration in comparison to the previous 16 years was 98% in congressional districts and 60% in states examined.
- In 2019, 32 of 55 congressional districts, and 13 of 20 states, registered more than one violation for each operating facility.
- In 2019, among the congressional districts, there were 143 Clean Water Act violations per 100 operating facilities on average.
- Among the states in 2019, there were 154 Clean Water Act violations per 100 operating facilities on average.
- There were 23 districts, and 11 states, where more than 20% of operating facilities had been in violation of the CWA for at least 9 months of the last 3.25 years.
- Violations generally increased in both Republican and Democratic districts and states.

Inspections have generally decreased under the Trump administration:

- In 36 of 55 congressional districts, and 13 of 20 states, inspections under the CAA, CWA, and RCRA have decreased since Trump took office.

- The median decline in inspections was 17% in congressional districts and 14% in states during the Trump administration compared to the previous 16 years.
- Inspections generally decreased in both Republican and Democratic districts and states.

Enforcement actions and penalties have generally decreased under the Trump administration:

- In 41 of 55 congressional districts, and 18 of 20 states, there was a decline in the number of enforcement actions taken under the CAA, CWA, and RCRA since Trump took office.
- The median decline in enforcement actions was 28% in congressional districts and 23% in states during the Trump administration compared to the previous 16 years.
- In 44 of 55 congressional districts, and 19 of 20 states, there was a decline in penalties levied under the CAA, CWA, and RCRA since Trump took office.
- The median decline in penalties was 69% in congressional districts and 53% in states during the Trump administration compared to the previous 16 years.
- Enforcement actions and penalties generally decreased in both Republican and Democratic districts and states.

These report cards reveal widespread violations of environmental laws and failures in enforcement. They further support research showing pervasive violations of environmental health protections. One Harvard Law School study reports that over 25% of all registered facilities regularly violate their environmental permits. And, for programs with the severe health impacts, “significant violation rates of 50-70% are not unusual.”<sup>2</sup> Significant non-compliance happens when industries emit hazardous pollutants at certain levels beyond what they are permitted to, or when industries fail to report emissions over their permit limits for more than six months consecutively. Non-compliance has long been a problem but has ramped up even further due to the erosion of EPA enforcement under the Trump administration, as EDGI has previously shown.<sup>3</sup> Between 2006 and 2018, enforcement funding and

<sup>2</sup> Cynthia Giles, “Part 2: Noncompliance with Environmental Rules is Worse than You Think,” *Next Generation Compliance: Environmental Regulation for the Modern Era* (Harvard Law School, April 14, 2020), <http://eelp.law.harvard.edu/wp-content/uploads/Cynthia-Giles-Part-2-FINAL.pdf>

<sup>3</sup> Leif Fredrickson, Marianne Sullivan, Christopher Sellers, Jennifer Ohayon, Ellen Kohl, Sarah Lamdan, Alissa Cordner, Alice Hu, Katarzyna Kaczowka, Natalia Navas, Linda Wicks, EDGI, “A Sheep in the Closet: The Erosion of Enforcement at the EPA,” (May 31, 2019), <https://envirodatagov.org/wp-content/uploads/2018/11/Sheep-in-the-Closet.pdf>.

staff dropped 18% and 21% respectively. Between 2007 and 2018, both initiated and concluded enforcement actions dropped more than 50%.<sup>4</sup>

In addition to enforcement itself, our report cards highlight the serious reporting issues that obscure what is happening with environmental enforcement. Now more than ever, we need greater transparency, public knowledge, and congressional oversight of the U.S. system of environmental health protection.

*If this system doesn't work, hasn't been working, and it's the only one we have, there needs to be a national effort around changing this.*

EEW Report Card Event Participant



**Figure 1:** In August and September 2020, EEW hosted a series of free, public workshops like this one where we reviewed and revised drafts of the EEW Congressional Report Cards and developed the metrics and graphics in the report cards. We discussed data reliability issues, examined trends evident in the prototyped report cards, and discussed why environmental enforcement is important in our lives and work. As described in this report's conclusion, beyond making the report cards, EEW envisions and prototypes processes for collective, public data analysis that also build community. We describe the events further in our blog and are happy to support other organizations in hosting similar events. Please see our website below for contact details.<sup>5</sup>

<sup>4</sup> EPA Office of Inspector General, "EPA's Compliance Monitoring Activities, Enforcement Actions, and Enforcement Results Generally Declined from Fiscal Years 2006 Through 2018," (March 31, 2020), [https://www.epa.gov/sites/production/files/2020-04/documents/epaoig\\_20200331\\_20-p-0131\\_0.pdf](https://www.epa.gov/sites/production/files/2020-04/documents/epaoig_20200331_20-p-0131_0.pdf).

<sup>5</sup> Cole Alder, Leslie Alanis, Megan Raisle, Eric Nost, Kelsey Breseman, and Sara Wylie, "Practicing Our Right to Know, Together — Review of EEW Congressional Report Card Workshops to Date,"

## ENFORCEMENT AT THE EPA

Without enforcement, laws that protect us from pollution and hazardous materials are meaningless. The more that the regulations designed to protect us exist only on paper, the more we will be exposed to particulate matter that damages our lungs, mercury that harms our children's brains, and sewage that makes us sick—among many other threats.

When Congress passed laws like the CAA, CWA, and RCRA, it charged the EPA with implementing those laws. To implement them, the EPA must do, at a minimum, two things: establish new regulations and make sure facilities comply with them.

First, the EPA must create regulations that flesh out the general provisions of laws. These regulations specify limits on pollutants emissions, prescribe pollution prevention technology, and enumerate certain monitoring and reporting requirements (among other things). Well-crafted regulations are critical to both effective levels of protection, and effective enforcement.

Second, the EPA must ensure regulated entities (factories, power plants, waste treatment plants and so on) comply with these regulations. The EPA ensures compliance through compliance assistance and enforcement. Compliance assistance entails providing education and guidance to regulated entities.

The most important way the EPA ensures compliance, however, is through enforcement. This includes forcing violators to stop polluting, making polluters pay penalties, and, in some cases, putting violators in prison. The drive for profits, the constraints of market competition, and the politics of public financing (in the case of public entities) mean that there will always be strong incentives to shirk regulations. Under these conditions, a robust enforcement program is essential to gain compliance. Numerous studies show that a credible, strong enforcement

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Environmental Data & Governance Initiative, September 2, 2020,  
<https://envirodatagov.org/practicing-our-right-to-know-together-review-of-eew-congressional-report-card-workshops-to-date/>,

program is critical to, and effective at, reducing pollution and mitigating hazards. Enforcement works.<sup>6</sup>

In this report, we examine environmental enforcement by looking at the EPA's own data on enforcement, which is available through the Enforcement and Compliance History Online (ECHO) database. We examine trends and patterns in the ECHO data for what they reveal about enforcement actions and compliance in the districts and states we are analyzing.

To make sense of this data, it is necessary to get an overview of how the environmental enforcement system works.

Federal laws like the CAA (1970), CWA (1972), and RCRA (1976) were designed by Congress to provide strong, uniform protections across all states. Congress charged the EPA with implementing and enforcing these laws. Recognizing the federal nature of the U.S. political system, however, the laws also allowed the EPA to delegate its authority to states to carry out enforcement. The EPA should, according to law, only do so when states have the capacity and willingness to adequately enforce environmental laws.<sup>7</sup> Most states currently have enforcement authority under these laws, meaning states oversee the majority of environmental enforcement.

The EPA does all the enforcement for states that do not have authority delegated to them. It also takes on large or complicated cases that states cannot handle. Its potential to step in as needed underpins state enforcement. As William Ruckelshaus, the EPA's first administrator, put it: "Unless they [the states] have a gorilla in the closet, they can't do the job. And the gorilla is EPA."<sup>8</sup>

To get a full picture of enforcement, it is ideal to look at both data on EPA enforcement and data on state-level enforcement. For that reason, this report and the report cards contain data from both state environmental agencies and the EPA. **Ultimately, it is the EPA's responsibility to ensure that states are properly enforcing the CAA, CWA, and RCRA. It is Congress's responsibility to ensure that the EPA is doing its job.**

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<sup>6</sup> Jay Shimshack, "The Economics of Environmental Monitoring and Enforcement," *Annual Reviews in Resource Economics*, 2014, 6:339-60; John Stranlund, "The Economics of Enforcing Emissions Markets," *Review of Environmental Economics and Policy*, 2017, 11.2: 227-246.

<sup>7</sup> Daniel Risel, *Environmental Enforcement: Civil and Criminal* (Law Journal Press, 2020). 1-11.

<sup>8</sup> Annual Meeting of the National Newspaper Association, September 27, 1984, National Service Center for Environmental Publications.



In addition to the role of the EPA and states in enforcement, it is important to understand the enforcement process. The basics of this are straightforward: The enforcing authority—the EPA or the states—must first discover **violations**.

This discovery process varies considerably across environmental laws. For the CWA NPDES program, the EPA requires regulated facilities to electronically report discharge monitoring reports and other information relevant to determining compliance with the law. This mandatory, electronic reporting system produces information that is readily available to states, the EPA, and the public to determine if violations are happening.

The CAA and RCRA, on the other hand, depend extensively on **inspections**. While there is some required reporting, agencies mostly have to send staff to collect samples and check facilities to find violations. This makes discovery of non-compliance more difficult.

Once it knows about violations, the EPA can take **enforcement** actions such as ordering facilities to change their practices or ordering them to pay **penalties**. Most of the time, this happens through administrative cases, which entail the agency itself issuing formal orders. For the most serious violations, the EPA may initiate judicial cases that are pursued in courts outside the EPA's administrative apparatus.

Most of these cases, both administrative and judicial, are for violations of civil law. However, the CAA, CWA, and RCRA also have criminal provisions. If those are violated, the EPA may also pursue criminal charges. **The data contained in this report and the report cards is drawn exclusively from civil enforcement data, however.** Unfortunately, detailed data on criminal cases is not available through ECHO.<sup>9</sup>

In addition to using ECHO data to help understand trends in civil violations, inspections, and enforcement, this report highlights data problems with ECHO. ECHO was created in 2002 to give the public information about compliance with environmental laws. But serious problems with the discovery of violations and the reporting of state data to ECHO mean that much of the data in ECHO is unreliable.

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<sup>9</sup> A recent report shows that prosecution of criminal cases has declined during the Trump administration. David Uhlmann, "New Environmental Crimes Project Data Shows That Pollution Prosecutions Plummeted During the First Two Years of the Trump Administration," *University of Michigan Public Law Research Paper No. 684*, October 14, 2020.

ECHO does not give an accurate picture of compliance and enforcement. For some programs, the data is so unreliable that it is deeply misleading.

In the following section, we give an overview of enforcement data in the congressional districts and states we are focusing on. We use the EPA's own data from ECHO and present this data "as is." After this overview section, we discuss some of the major reliability issues that impinge on the data we draw on for this report. Then we turn to a broader analysis that examines equity issues associated with current regulations, limits on pollutants, and economic trends creating a crisis in terms of both violations and enforcement. In our conclusion, we turn to ways in which the EPA's enforcement and data systems could be improved to protect communities, especially communities that are marginalized and are exposed to disproportionate levels of pollution and environmental hazards.

## OVERVIEW OF CONGRESSIONAL DISTRICTS AND STATES

In this section, we present visual and textual analyses of compliance and enforcement of the CAA, CWA, and RCRA. We focus exclusively on the congressional districts of current members of the House Energy and Commerce Committee and states of current members of the Senate Environment and Public Works Committee. These committees have primary oversight of the EPA. The EPA, in turn, decides if states should be delegated authority to enforce the CAA, CWA, and RCRA. If states are not adequately enforcing these laws, the EPA should not delegate them the authority to do so. In order to try to understand how well this federalist system of environmental enforcement is working, we include data on violations, inspections, and enforcement actions from both the states and the EPA.

Congress passes laws like the CAA, CWA, and RCRA and gives authority to the EPA to implement these laws. But the EPA is part of the executive branch. Therefore, the implementation of these laws is substantially controlled by the presidential administration in power. For that reason, we compare the Trump administration to the previous Barack Obama (Democrat) and George W. Bush (Republican) administrations. These administrations extend back to 2001. Before that date, the EPA does not recommend using ECHO data due to data reliability issues.

It is important to reiterate that the data presented here is from ECHO “as is.” We have excluded some exceptionally unreliable data, such as CAA and RCRA violations. But, the quality of the data presented is undermined by lack of reporting from states to the EPA or changes in how the states report to the EPA over time.

The primary purpose of presenting this data is to show patterns rather than to explain them. Like the report cards, this report should be viewed as a starting point for further questions about both the effectiveness of environmental enforcement and the lack of reliable enforcement data.

### Senate Environment and Public Works Committee

<b>WY</b> John Barrasso	<b>OK</b> James M. Inhofe	<b>WV</b> Shelley Moore Capito	<b>ND</b> Kevin Kramer	<b>IN</b> Mike Braun	<b>SD</b> Mike Rounds	<b>AK</b> Dan Sullivan	<b>AR</b> John Boozman
<b>MS</b> Roger F. Wicker	<b>AL</b> Richard Shelby	<b>IA</b> Joni Ernst					
<b>DE</b> Thomas R. Carper	<b>MD</b> Benjamin L. Cardin	<b>VT</b> Bernard Sanders	<b>RI</b> Sheldon Whitehouse	<b>OR</b> Jeff Merkley	<b>NY</b> Kirsten Gillibrand	<b>NJ</b> Cory A. Booker	<b>MA</b> Edward Markey
<b>IL</b> Tammy Duckworth	<b>MD</b> Chris Van Hollen						

### House Energy and Commerce Committee

<b>NJ</b> Frank Pallone	<b>NY</b> Yvette D. Clarke	<b>IL</b> Bobby L. Rush	<b>CA</b> Anna G. Eshoo	<b>NY</b> Eliot L. Engel	<b>CO</b> Diana DeGette	<b>PA</b> Michael F. Doyle	<b>IL</b> Janice Schakowsky
<b>NC</b> G. K. Butterfield	<b>CA</b> Doris O. Matsui	<b>FL</b> Kathy Castor	<b>MD</b> John P. Sarbanes	<b>CA</b> Jerry McNerney	<b>VT</b> Peter Welch	<b>NM</b> Ben Ray Lujan	<b>NY</b> Paul Tonko
<b>IA</b> David Loebbeck	<b>OR</b> Kurt Schrader	<b>MA</b> Joseph P. Kennedy	<b>CA</b> Tony Cárdenas	<b>CA</b> Scott H. Peters	<b>CA</b> Raul Ruiz	<b>MI</b> Debbie Dingell	<b>TX</b> Marc A. Veasey
<b>NH</b> Ann M. Kuster	<b>IL</b> Robin L. Kelly	<b>CA</b> Nanette Díaz Barragán	<b>VA</b> A. Donald McEachin	<b>FL</b> Darren Soto	<b>DE</b> Lisa Blunt Rochester	<b>AZ</b> Tom O'Halleran	
<b>OR</b> Greg Walden	<b>MI</b> Fred Upton	<b>IL</b> John Shimkus	<b>TX</b> Michael C. Burgess	<b>LA</b> Steve Scalise	<b>OH</b> Robert E. Latta	<b>KY</b> Brett Guthrie	<b>MO</b> Billy Long
<b>TX</b> Pete Olson	<b>WV</b> David B. McKinley	<b>VA</b> H. Morgan Griffith	<b>FL</b> Gus M. Bilirakis	<b>OH</b> Bill Johnson	<b>IN</b> Larry Bucshon	<b>WA</b> Cathy Rodgers	<b>TX</b> Bill Flores
<b>IN</b> Susan W. Brooks	<b>OK</b> Markwayne Mullin	<b>NC</b> Richard Hudson	<b>MI</b> Tim Walberg	<b>GA</b> Earl L. Carter	<b>SC</b> Jeff Duncan	<b>MT</b> Greg Gianforte	<b>IL</b> Adam Kinzinger

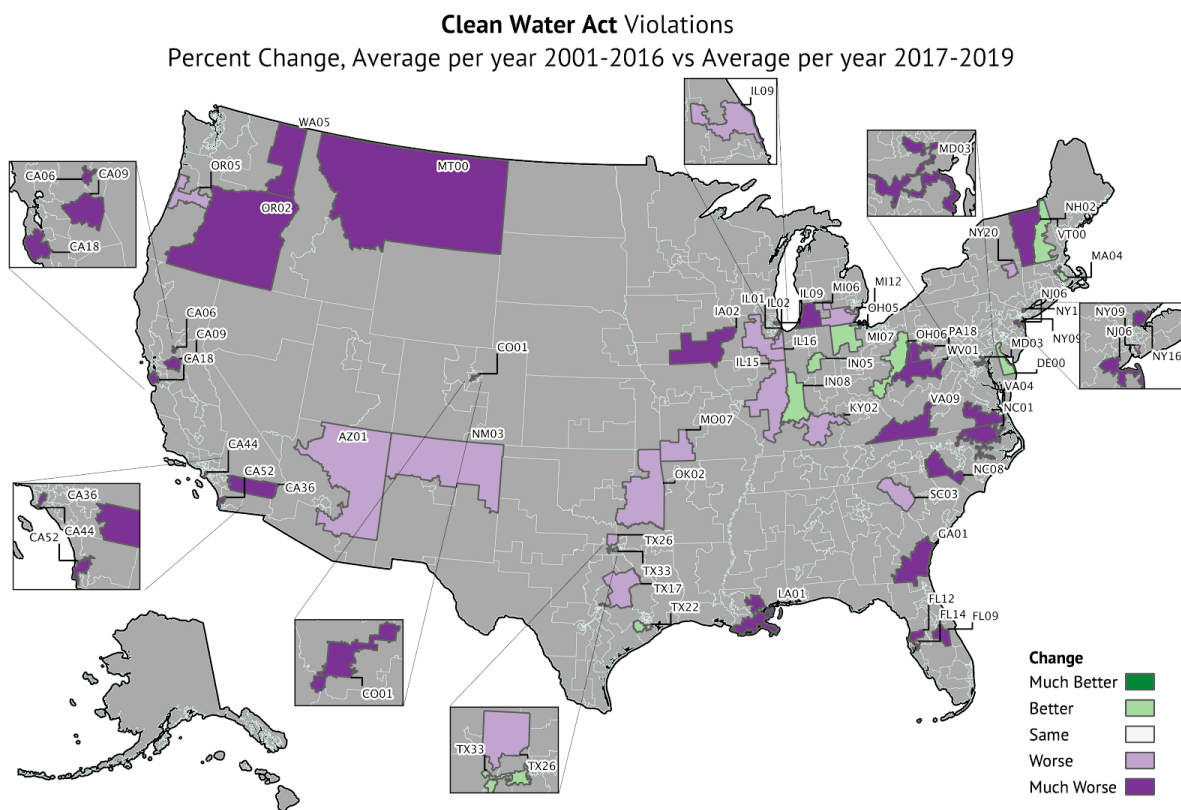
#### Key

Chair	Vice Chair	Ranking Member
Republican	Democrat	Independent

**Figure 2:** Current members of the Senate Environment and Public Works Committee and the House Energy and Commerce Committee.

## Clean Water Act Violations

Of the three programs discussed in this report, only the CWA has violations data that are reliable enough to present. Reporting of CAA and RCRA violations from states to the EPA (among other issues) could suggest deeply misleading trends in those programs. For that reason, we have only used CWA data for maps of violations and non-compliance. However, the EPA also changed reporting requirements for the CWA in 2016 that may have affected reporting from some states.<sup>10</sup> (See page 31 for more details on this issue.)



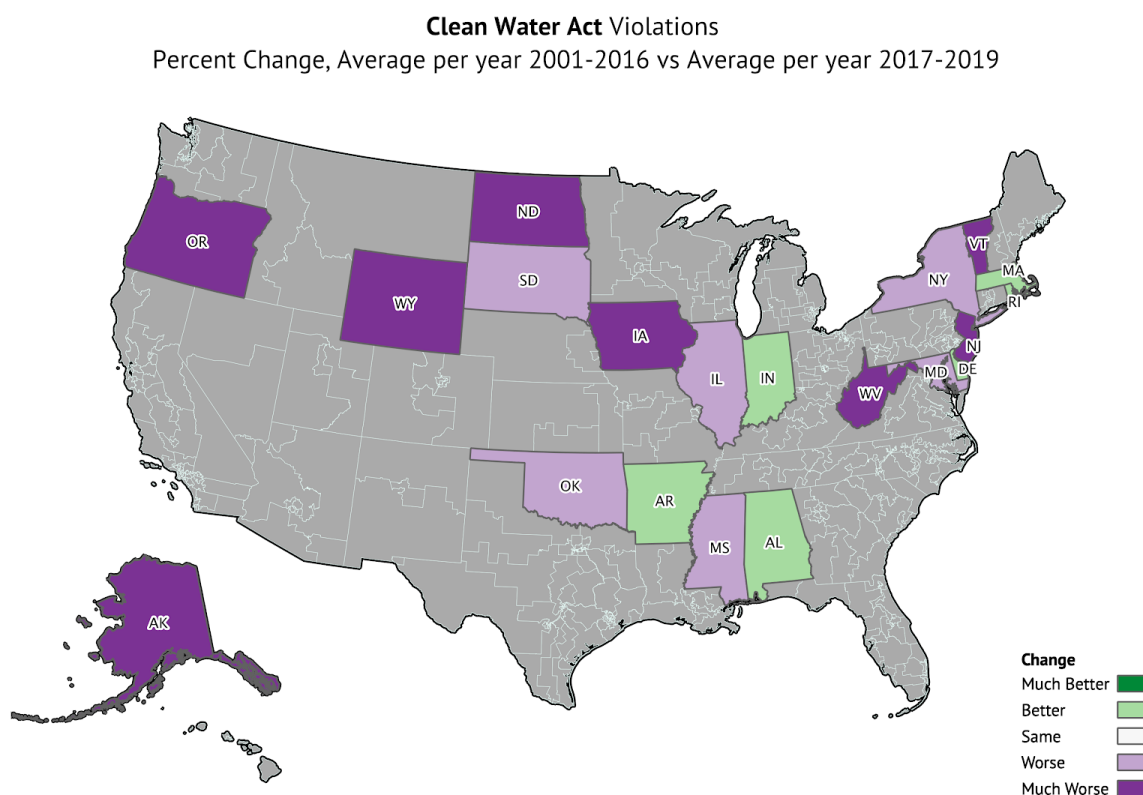
**Figure 3:** Percent change in the average number of CWA NPDES violations under the Donald Trump administration (2017-2019) compared to the George W. Bush and Barack Obama administrations (2001-2016). “Same” = 0% change. “Better” = decrease of up to 100%. “Much better” = decrease of more than 100%. “Worse” = increase of up to 100%. “Much worse” = increase of more than 100%. Source: EPA, Enforcement and Compliance History Online, <https://echo.epa.gov>.

<sup>10</sup> “National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule,” Federal Register, October 22, 2015, <https://www.federalregister.gov/documents/2015/10/22/2015-24954/national-pollutant-discharge-elimination-system-npdes-electronic-reporting-rule>



As Figure 3 shows, CWA violations have gotten worse (increased) under the Trump administration in most of the congressional districts we mapped. In 46 of 55 congressional districts, violations of the CWA increased. The median increase was 98%. The average increase was 711%. This large average increase is influenced by some very large increases in California and New Jersey that may be related to improved reporting of CWA violations beginning in 2016.

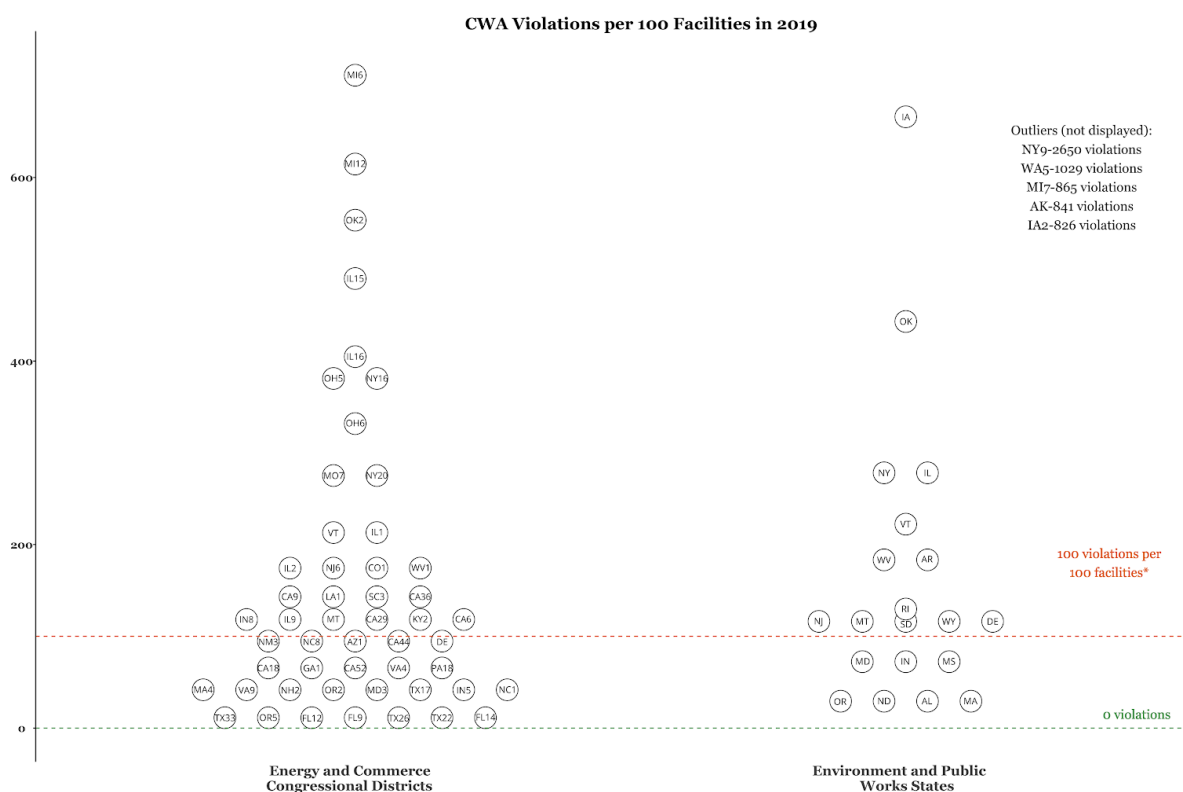
Increases in CWA violations have occurred across the country. The increases have happened in both currently Democratic districts where 87% of districts saw an increase, and in Republican districts, where 79% of districts saw an increase.



**Figure 4:** Percent change in the average number of CWA NPDES violations under the Donald Trump administration (2017-2019) compared to the George W. Bush and Barack Obama administrations (2001-2016). "Same" = 0% change. "Better" = decrease of up to 100%. "Much better" = decrease of more than 100%. "Worse" = increase of up to 100%. "Much worse" = increase of more than 100%. Source: EPA, *Enforcement and Compliance History Online*, <https://echo.epa.gov>.

Similarly, as Figure 4 shows, CWA violations have gotten worse (increased) under the Trump administration in most of the states we mapped. In 14 of 20 states, violations of the CWA have increased. The median increase was 60%. The average increase was 199%. This large average increase is influenced by a very large increase in New Jersey that may be related to improved reporting of CWA violations beginning in 2016.

This increase in CWA violations has occurred across the country. The increases have happened in states represented by both Democratic senators, where 63% of states saw an increase, and Republican senators, where 73% of states saw an increase in CWA violations.



**Figure 5:** CWA NPDES violations per 100 Facilities in 2019. Source: EPA, *Enforcement and Compliance History Online*, <https://echo.epa.gov>.

Due to stronger reporting requirements for the CWA that began in 2016, reports of CWA violations may have been more thorough during the Trump administration.<sup>11</sup> This, however, is not particularly reassuring as the violations rates recorded in 2019

<sup>11</sup> "National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule."

demonstrate. If violation rates have been artificially lowered due to poor reporting prior to 2016, then violations rates have been just dire for a longer period of time. In 2019, the national rate of violations per 100 facilities was 111. In other words, there were more violations than there were facilities. Among these were effluent violations that are especially concerning because they result from facilities discharging an excessive amount of pollutants. There were 41 effluent violations per 100 facilities.

Across congressional districts and states, the overall rate of violations per 100 facilities varies widely from 2,650 to 2 for congressional districts and 841 to 18 for states. Of the 20 states we examined, 13, or 65%, exceeded an average of one violation per facility. Six of these states had an average of more than two violations per facility, with some many times that, including **Alaska where there were 841 violations per 100 facilities**. The same pattern is apparent in the congressional districts analyzed: 32 of the 55 districts (58%) analyzed had violation rates over a rate of one per facility. Nine districts had an average of two to four violations per facility, and seven had an average of more than five violations per facility, with some many times that. **In New York congressional district 9, there were 2,650 violations on average per 100 facilities. In Washington district 5, there were 1,029 per 100 facilities.**

States and districts represented by both parties had high proportions of facilities that violated the CWA. Fifty five percent of Democratic districts and 63% of Republican districts exceeded an average of one violation per facility. Sixty three percent of states represented by Democrats, and 64% of those represented by Republicans, exceeded an average of one violation per facility.

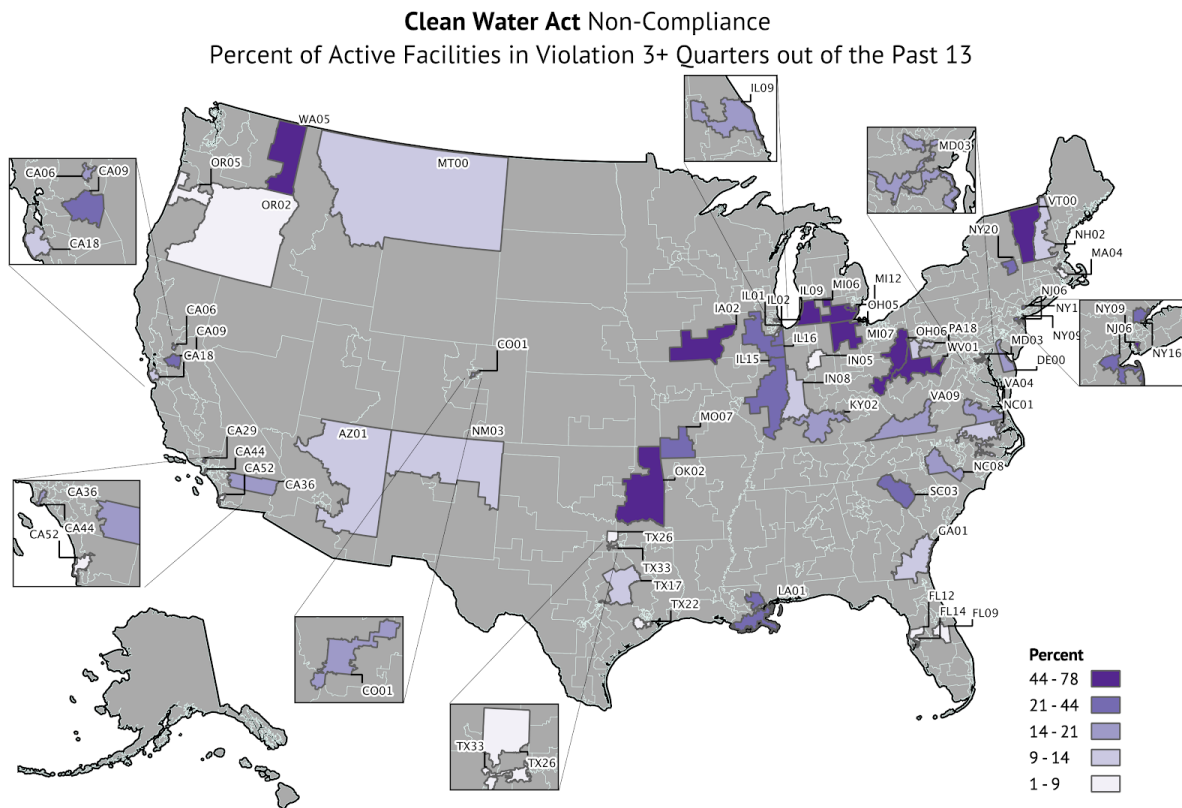
Particularly given the falling enforcement rates discussed below, this data reflects a crisis in compliance with regulations passed to ensure that the U.S. waterways remain fishable and swimmable. The chemicals regulated under this act are regulated because of their proven harm to human and environmental health. Allowing such violation rates to continue presents profound risks to human and environmental health. Given that all life depends on access to clean water it is vital that such violation rates are not dismissed and minimized by industrial interests who benefit from shifting the cost of these these harms onto the public or obscured or rendered inactionable by partisan politics that are failing to protect one of our most fundamental and universal needs, clean water.

[ “One of the reasons we get bogged down and people resist even starting this discussion is the morality frame that many adopt in discussing compliance.... [O]ften, there is no one actively deciding to violate, just a series of ill-advised choices, or failures to choose, that result in a serious violation.”

Cynthia Giles, former Assistant Administrator for the EPA’s Office of Enforcement and Compliance Assurance, from [\*Next Generation Enforcement\*](#) ]

## Clean Water Act Non-Compliance

According to EPA data, non-compliance with the Clean Water Act is routine for many operating facilities. In each report card we provide information on the 10 facilities who have been routinely out of compliance for the past three years. These facilities often exhibit chronic non-compliance. In New York, all 10 of these facilities have been entirely out of compliance for the last three years (2017-2019). The same is true for 13 other states of the 20 states we checked: Maryland, Illinois, Massachusetts, New Jersey, Vermont, Iowa, Mississippi, Arkansas, Alaska, Indiana, West Virginia, Oklahoma and Wyoming. Across the country, facilities with permits to discharge pollution are chronically out of compliance with their permits.

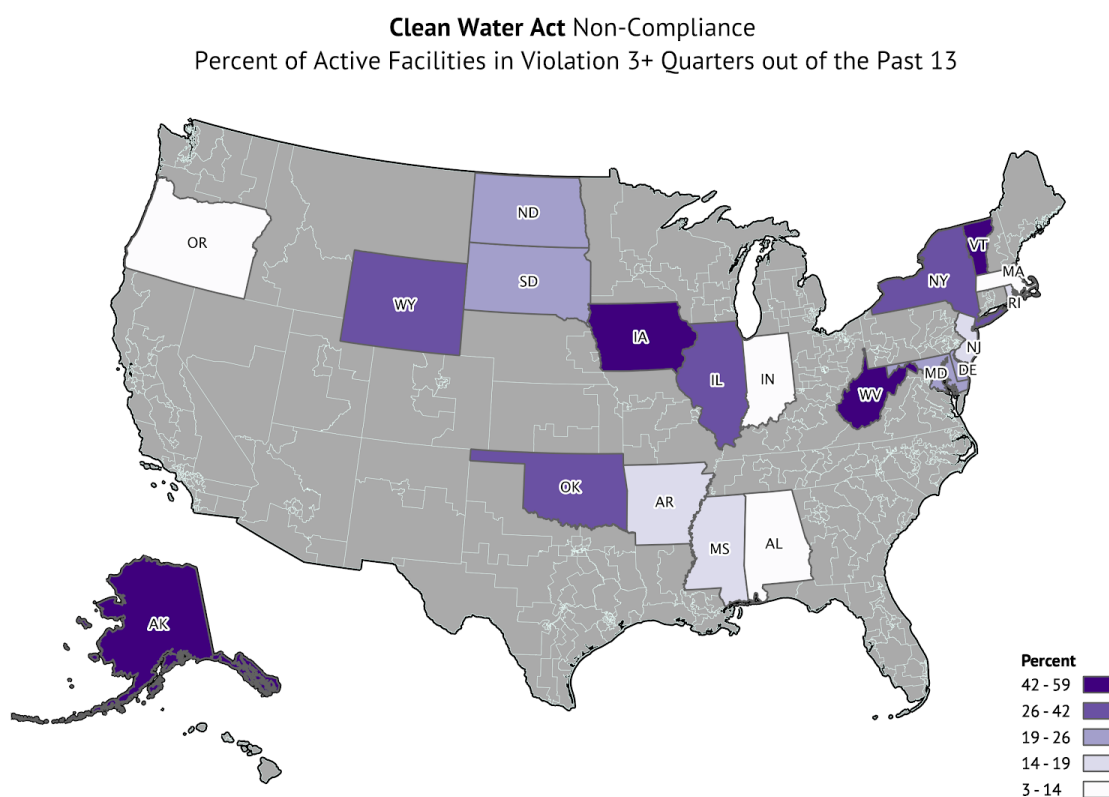


**Figure 6:** Percentage of active facilities regulated by the CWA that were out of compliance for nine months (three quarters) or more out of the past three years and three months (thirteen quarters). Source: EPA, *Enforcement and Compliance History Online*, <https://echo.epa.gov>.

Figure 6 shows the percentage of active facilities regulated by the CWA that were out of compliance for nine months (three quarters) or more out of the past three years and three months (thirteen quarters). As the map indicates, long-term non-compliance is common. In 42% of districts, more than one in five facilities was out of compliance for three out of thirteen quarters. This level of non-compliance was found across the nation and across political boundaries. Thirty five percent of Democratic districts had this level of non-compliance and 50% of Republican districts had it. Twelve districts had between 44% and 78% of facilities who were out of compliance for 9 months or more in the last three years.



*In Iowa, Alaska, Vermont, and West Virginia, between 47% and 59% of operating facilities were in non-compliance for nine months or more in the last 3.25 years.*



**Figure 7:** Percentage of active facilities regulated by the CWA that were out of compliance for nine months (three quarters) or more out of the past three years and three months (thirteen quarters). Source: EPA, *Enforcement and Compliance History Online*, <https://echo.epa.gov>.

Figure 7 shows the percentage of active facilities regulated by the CWA that were out of compliance for nine months (three quarters) or more out of the past three years and three months (thirteen quarters). As the map indicates, long-term non-compliance is also common across states. In 55% of states analyzed, at least

one in five facilities was out of compliance for three out of thirteen quarters. This level of non-compliance was found across the nation and across political boundaries. Fifty percent of states with Democratic senators had this level of non-compliance as did 55% of Republican districts.

Four states – Iowa, Alaska, Vermont, and West Virginia – had between 47% and 59% of their facilities out of compliance nine months or more in the past three and a quarter years.

## Inspections

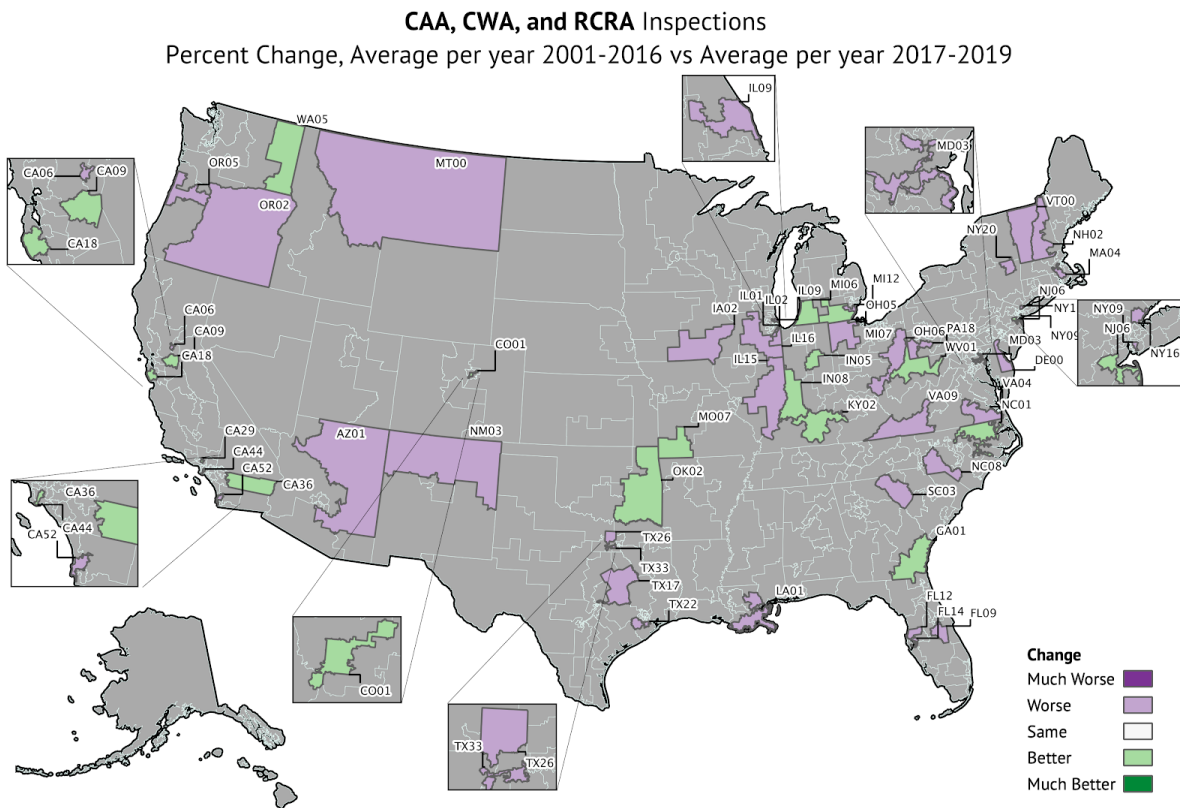
Inspections are crucial to the discovery of violations, especially for programs that have fewer monitoring or electronic reporting requirements like the CAA and RCRA. When there are few inspections, or inspections are done improperly, violations go unrecorded. As a result, records showing few or declining violations may reflect a lack of inspections rather than a true lack of violations.<sup>12</sup>

Inspections reveal the production of pollution and other environmental health risks. They also give authorities the ability to initiate enforcement actions that can reduce pollution. In addition, inspections themselves serve as deterrents to violations.<sup>13</sup>

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<sup>12</sup> For the CWA, inspections matter less for detecting violations due to mandatory electronic reporting requirements. Thus inspections could decline for that program while recorded violations still increase substantially.

<sup>13</sup> Shimshack, “The Economics of Environmental Monitoring and Enforcement.”



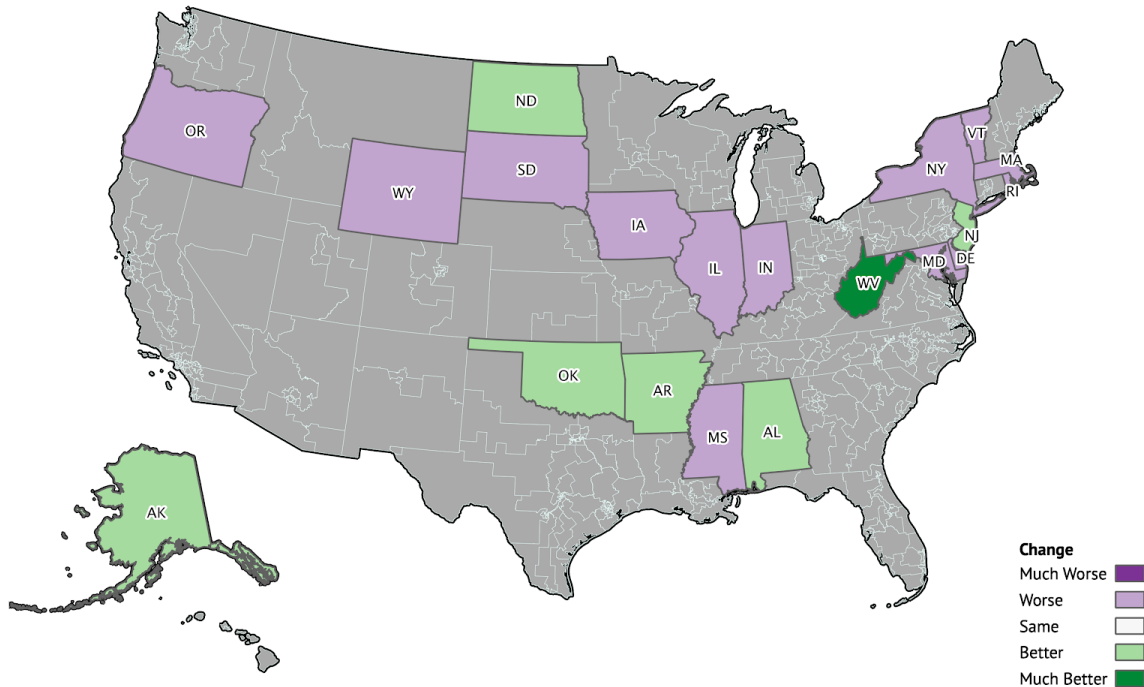
**Figure 8:** Percent change in the average number inspections for the CAA, CWA, and RCRA under the Donald Trump administration (2017-2019) compared to the George W. Bush and Barack Obama administrations (2001-2016). “Same” = 0% change. “Better” = increase of up to 100%. “Much better” = increase of more than 100%. “Worse” = decrease of up to 100%. “Much worse” = decrease of more than 100%. Source: EPA, *Enforcement and Compliance History Online*, <https://echo.epa.gov>.

As Figure 8 shows, inspections have decreased (gotten worse) under the Trump administration in most of the congressional districts we mapped. **In 36 of 55 congressional districts, inspections have decreased since Trump took office.** The median decrease was 17%. The average decrease was 15%.

Decreases in inspections have occurred across the country. The decreases have happened in both currently Democratic districts, where 71% of districts saw an decrease, and in Republican districts, where 58% of districts saw an decrease.

### CAA, CWA, and RCRA Inspections

Percent Change, Average per year 2001-2016 vs Average per year 2017-2019



**Figure 9:** Percent change in the average number inspections for the CAA, CWA, and RCRA under the Donald Trump administration (2017-2019) compared to the George W. Bush and Barack Obama administrations (2001-2016). "Same" = 0% change. "Better" = increase of up to 100%. "Much better" = increase of more than 100%. "Worse" = decrease of up to 100%. "Much worse" = decrease of more than 100%. Source: EPA, *Enforcement and Compliance History Online*, <https://echo.epa.gov>.

Decreases in inspections under the Trump administration were less pronounced in the states we mapped than in the districts, as Figure 9 shows. In 13 of 20 states, inspections have decreased. The median decrease was 14%. The average decrease was 5%.

Decreases in inspections have occurred across the country. The decreases have happened in both states with Democratic senators, where 88% of states saw a decrease and with Republican senators, where 45% of states saw a decrease.

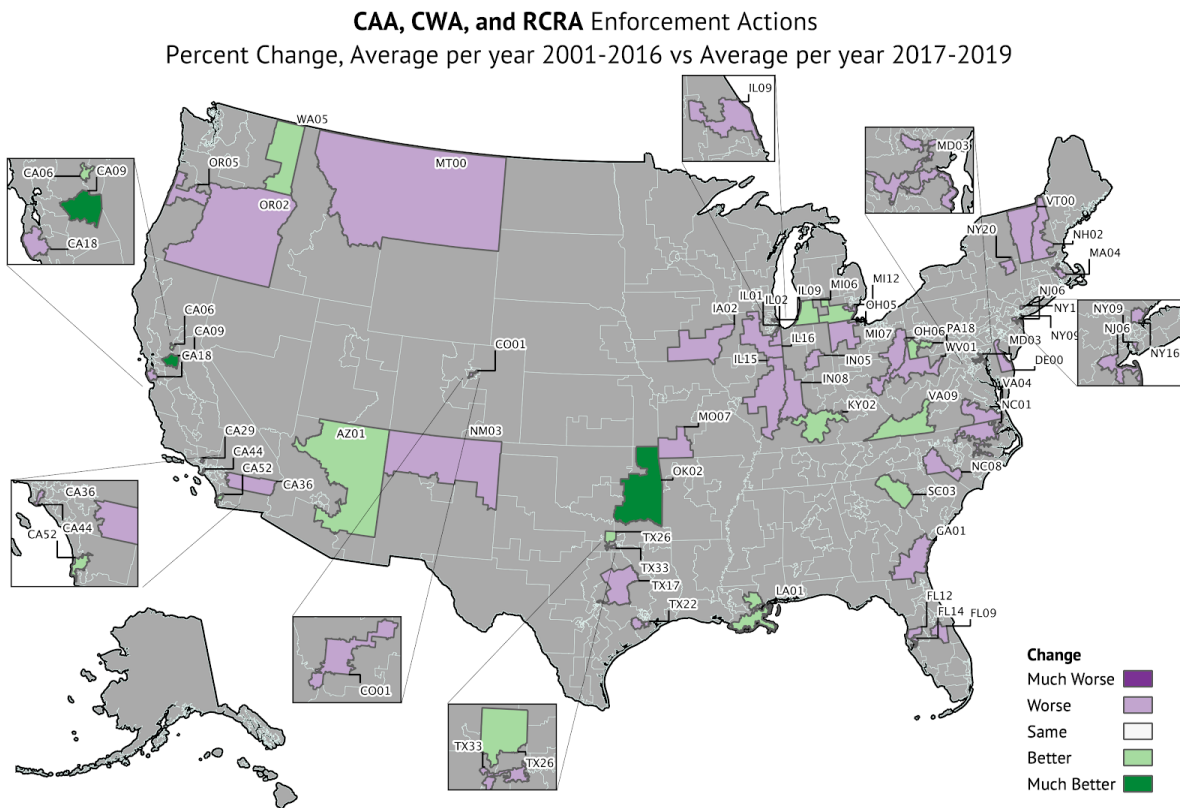
*In 36 of 55 congressional districts, inspections have decreased since Trump took office. Decreases have happened in both currently Democratic districts, where 71% of districts saw an decrease and in Republican districts, where 58% of districts saw an decrease.*

## **Enforcement actions and penalties**

Inspections and monitoring do deter facilities from violating the law. But, they would do little without the threat of an authority willing to enforce the law. We therefore track enforcement actions – civil administrative and civil judicial cases – to see if agencies are following up on violations by forcing facilities to comply.

In addition to orders to comply with the law, an important outcome of some enforcement actions is penalties. It is possible for agencies to have a weak enforcement program if they undertake many enforcement actions but do not push for substantial penalties that would deter facilities from violating the law. Therefore, it is important to look at both the number of enforcement actions and the total monetary amount of penalties.

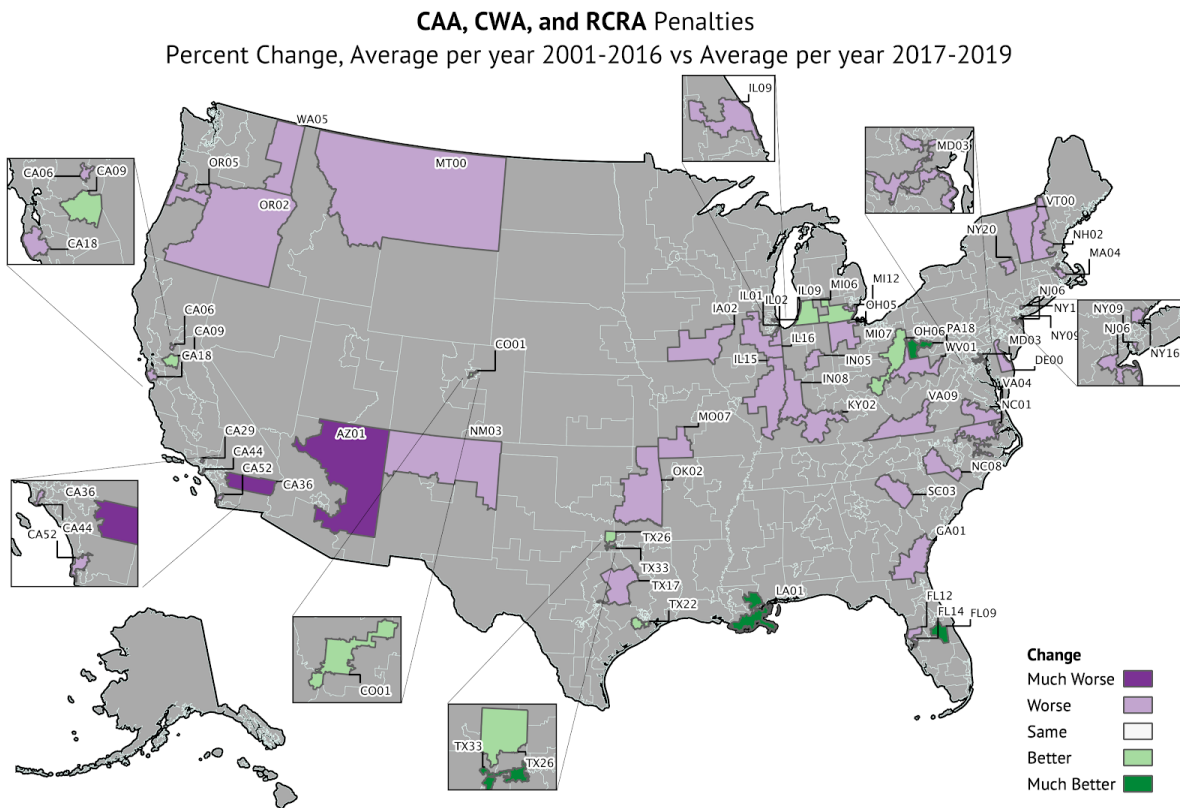




**Figure 10:** Percent change in the average number of enforcement actions for the CAA, CWA, and RCRA under the Donald Trump administration (2017-2019) compared to the George W. Bush and Barack Obama administrations (2001-2016). “Same” = 0% change. “Better” = increase of up to 100%. “Much better” = increase of more than 100%. “Worse” = decrease of up to 100%. “Much worse” = decrease of more than 100%. Source: EPA, *Enforcement and Compliance History Online*, <https://echo.epa.gov>.

As Figure 10 shows, enforcement actions have decreased under the Trump administration in most of the congressional districts we mapped. **In 41 of 55 congressional districts, enforcement actions have decreased since Trump took office. The median decrease was 28%. The average decrease was 17%.**

The decrease in enforcement actions under the Trump administration has occurred across the country. It occurred in both currently Democratic districts, where 84% of districts saw a decrease, and in Republican districts, where 63% of districts saw a decrease.

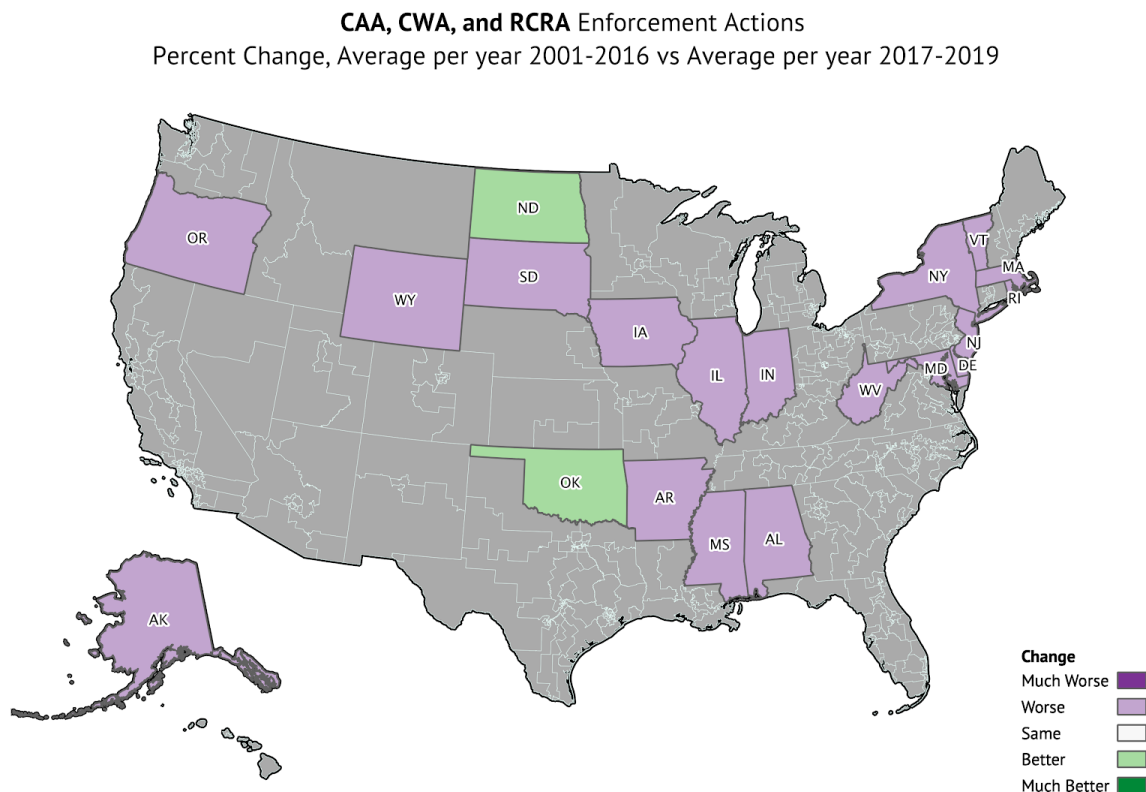


**Figure 11:** Percent change in the average penalties for the CAA, CWA, and RCRA under the Donald Trump administration (2017-2019) compared to the George W. Bush and Barack Obama administrations (2001-2016). Penalties have been adjusted for inflation. “Same” = 0% change. “Better” = increase of up to 100%. “Much better” = increase of more than 100%. “Worse” = decrease of up to 100%. “Much worse” = decrease of more than 100%. Source: EPA, *Enforcement and Compliance History Online*, <https://echo.epa.gov>.

Penalties have fallen even more than enforcement actions under the Trump administration, as Figure 11 shows, declining in 44 of 55 of the congressional districts we mapped. The median decrease was 69%. The average decrease was 32%.

This decrease in penalties under the Trump administration has occurred across the country. It has happened in both currently Democratic districts, where 84% of districts saw a decrease, and in Republican districts, where 75% of districts saw a decrease.

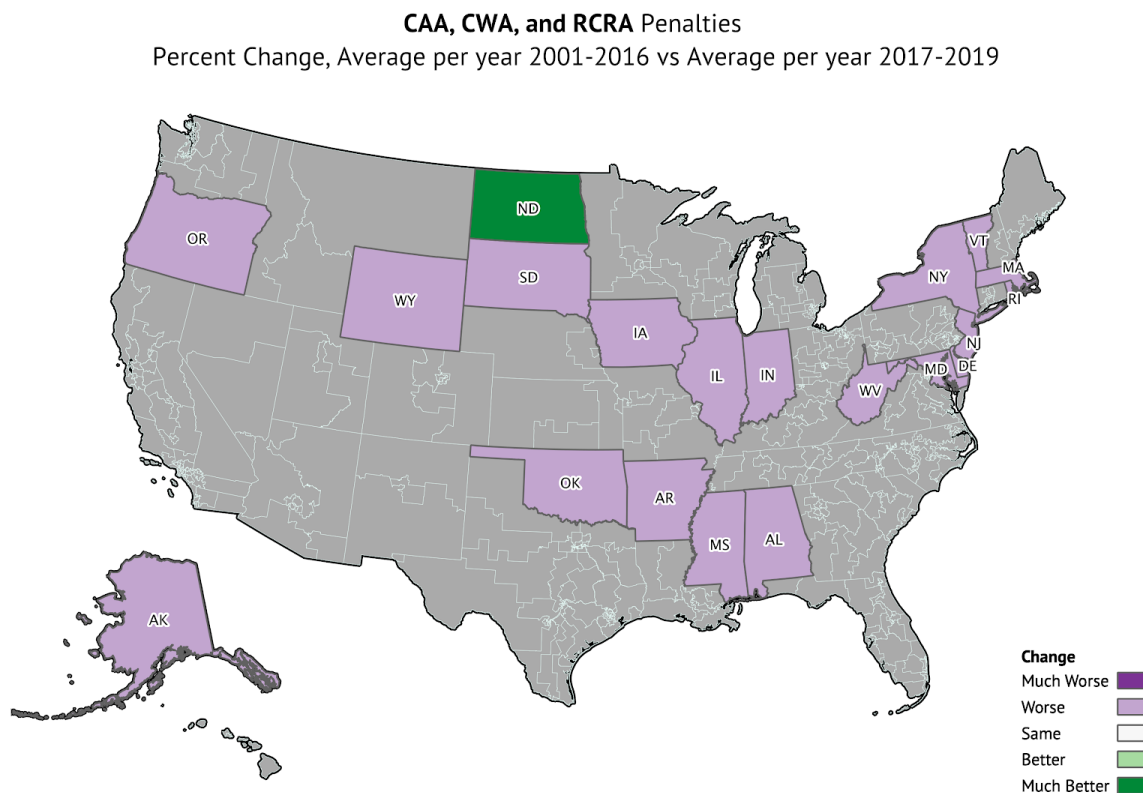
*In 41 of 55 congressional districts, enforcement actions have decreased since Trump took office. In 44 of 55 congressional districts, penalties have decreased since Trump took office. The median decrease in penalties was 69%.*



**Figure 12:** Percent change in the average number of enforcement actions for the CAA, CWA, and RCRA under the Donald Trump administration (2017-2019) compared to the George W. Bush and Barack Obama administrations (2001-2016). "Same" = 0% change. "Better" = increase of up to 100%. "Much better" = increase of more than 100%. "Worse" = decrease of up to 100%. "Much worse" = decrease of more than 100%. Source: EPA, *Enforcement and Compliance History Online*, <https://echo.epa.gov>.

As Figure 12 shows, **enforcement actions have decreased under the Trump administration in 18 out of the 20 states we mapped. The median decrease was 23%. The average decrease was 22%.**

Decreases in enforcement actions have occurred across the country. The decreases have happened in both states with Democratic senators, where 100% of districts saw a decrease and in Republican districts, where 82% of districts saw a decrease.



**Figure 13:** Percent change in the average penalties for the CAA, CWA, and RCRA under the Donald Trump administration (2017-2019) compared to the George W. Bush and Barack Obama administrations (2001-2016). Penalties have been adjusted for inflation. “Same” = 0% change. “Better” = increase of up to 100%. “Much better” = increase of more than 100%. “Worse” = decrease of up to 100%. “Much worse” = decrease of more than 100%. Source: EPA, *Enforcement and Compliance History Online*, <https://echo.epa.gov>.

As Figure 13 shows, penalties have generally decreased under the Trump administration. In 19 of 20 states, penalties decreased. The median decrease was 53%. The average change in penalties was an increase of 137% due to one very large outlier, North Dakota, which saw a 3,717% increase in penalties.<sup>14</sup>

Decreases in enforcement actions have occurred across the country. The decreases have occurred in both states with Democratic senators, where 100% of districts saw

<sup>14</sup> This increase is largely due to near absence of any penalties in this district between 2004 and 2016 [https://edgi-govdata-archiving.github.io/CD-report/ND\\_2020](https://edgi-govdata-archiving.github.io/CD-report/ND_2020).

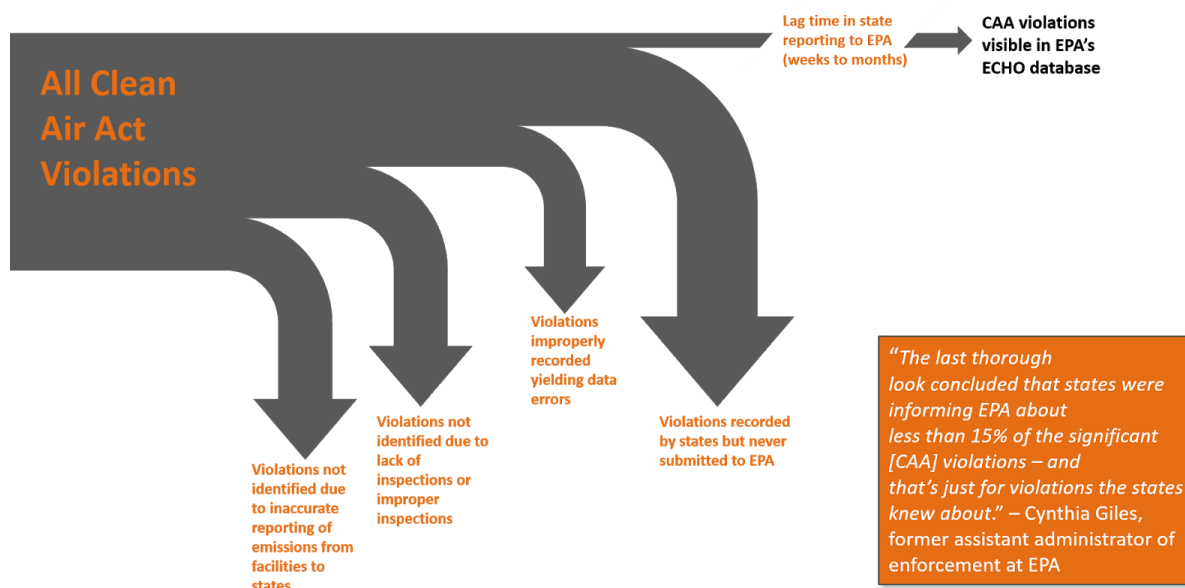
a decrease and states with Republican senators, where 91% of districts saw a decrease.

*Decreases in enforcement actions have occurred across the country. The decreases have happened in both states with Democratic senators, where 100% of districts saw a decrease and states with Republican senators, where 91% of districts saw a decrease.*

## DATA RELIABILITY ISSUES

Before delving into the serious data reliability issues of ECHO, it is important to reiterate the scope of our investigation in this report and in the report cards. We have focused on enforcement and compliance related to the CAA, CWA, and RCRA. And we have focused within the CAA on stationary sources and within the CWA on the NPDES program. Finally, our enforcement data only relates to civil cases, not criminal cases.

ECHO provides useful information on enforcement and compliance for our investigation. However, like others researching with ECHO data, our analysis is seriously constrained by limitations of the database and gaps and inaccuracies in reported data. We have done what we can to account for these shortcomings in our analyses, but we also aim to shine a light on these issues so they can be remedied.



**Figure 14:** Illustration of the ways that CAA violations go unreported to the EPA. CAA violations recorded in the EPA's ECHO database represent only a very small fraction of the even the identified violations, let alone the universe of violations that exist in the real world. Source: Data reliability issues and quote from Cynthia Giles, "Part 2: Noncompliance with Environmental Rules is Worse than You Think," *Next Generation Compliance: Environmental Regulation for the Modern Era* (Harvard Law School, April 14, 2020), <http://eelp.law.harvard.edu/wp-content/uploads/Cynthia-Giles-Part-2-FINAL.pdf>.

There is probably no law that is more vital to environmental health than the CAA. Yet, ECHO tells us little about CAA violations because there is serious



under-recording and under-reporting of CAA violations at the state level (Figure 14). The vast majority of CAA violations are never reported in ECHO. Many violations are never discovered in the first place due to lack of inspections, poorly done inspections, or inaccurate reporting from facilities. Among those violations that are discovered, only a very small percentage – perhaps 15%, according to one EPA study – make it into ECHO.<sup>15</sup> Violation data is therefore inaccurate and misleading: the states that report the fewest violations could be the states whose recording and reporting of violations is actually the poorest.

Although there is no specific information about the quality of data on RCRA violations, it is likely that this program, like the CAA, has serious reporting problems. So RCRA violations data should also be considered inaccurate and potentially misleading. The key difference between RCRA, the CAA and the CWA is that regulation under the CWA NPDES system entails mandatory electronic self-reporting.

To illustrate these gaps in our report cards, we categorized data quality as high, medium or low. We indicate these categories visually by varying the transparency on the bar charts in our report cards (Figure 15). We categorize data quality as **high quality** if digital reporting is mandatory and effluent is frequently directly measured, as **medium quality** if data may be missing due to gaps in states reporting to the EPA, and as **low quality** if it is not directly measured, electronic reporting is not required, and there may be very large gaps in state reporting to the EPA.

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<sup>15</sup> Cynthia Giles, “Part 2: Noncompliance with Environmental Rules is Worse than You Think,” Next Generation Compliance: Environmental Regulation for the Modern Era (Harvard Law School, April 14, 2020), <http://eelp.law.harvard.edu/wp-content/uploads/Cynthia-Giles-Part-2-FINAL.pdf>.

Data Quality	Example	Opacity	Explanation
High	CWA NPDES violations	100% (full color)	These data are relatively reliable because effluent levels are frequently directly measured. The data are mostly complete due to mandatory electronic reporting.
Medium	CWA, CAA, RCRA inspections; CAA, CWA, RCRA enforcement actions and penalties	60%	These data can be incomplete due to incomplete state reporting to ECHO.
Low	CAA and RCRA violations data	30%	These data are unreliable and potentially misleading because emissions may not be directly measured, there are few mandatory federal electronic reporting requirements, and there are large gaps in state reporting to ECHO.

**Figure 15:** Key showing variation of color transparency used in report cards to illustrate ECHO data reliability.

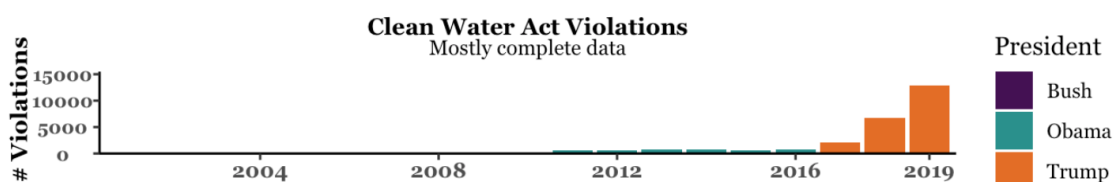
Due to these problems with reporting of violations, we relied on CWA data for comparative violations metrics. This violation data is the most reliable due to mandatory, electronic reporting and direct measurement of effluent. Even this data has gaps and limitations, however. For instance a new rule which went into effect in 2016 increased reporting requirements for the Clean Water Act, forcing all states to begin inputting data into ECHO. Before this, there was substantial variation, with some states reporting relatively complete records of CWA violations to the EPA, and others, like New Jersey, that were not.<sup>16</sup>

As an example: Because New Jersey only recently began entering more complete data, the average percent change in CWA violations since the Trump administration

<sup>16</sup> "National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule."

took office for that state and its congressional districts is probably artificially inflated. Similar issues occur to a lesser degree with California and its congressional districts. Our measures include averages, but we have also included the median and other metrics to give a more accurate and complete picture of the change in CWA violations.

Despite this issue, we should not dismiss the problem of violations of the Clean Water Act in these states. It is staggering, as Figure 16 illustrates. [New Jersey had](#) nearly 15,000 violations for its 10,759 operating facilities in 2019. Similarly California Congressional District 9 had over 600 violations for its 383 operating facilities.



**Figure 16:** Clean Water Act Violations in New Jersey 2001 to 2019, notice the sharp increase from 2017 to 2019 which while real is due to New Jersey beginning to enter state data more fully into ECHO. Data from ECHO, image from New Jersey's EEW Congressional Report Card.

Another issue in ECHO that limits our analysis is the absence of data on facilities regulated by the CAA, CWA, and RCRA (among other laws) for years prior to the current year. Technically, we only have a snapshot of which facilities are active in any given week. Hence, we can only report the current number of active facilities and can only calculate violations per facilities for the year 2019. Resolving this issue in ECHO would be relatively straightforward. It would allow researchers to make comparisons across years of ECHO data.

Additionally, for this entire report, we only analyze data from 2001 onward because the EPA considers data in ECHO prior to that year to be very unreliable. Clearly, this lack of reliable data presents a profound hindrance to public research. It makes it impossible to assess facility performance over time or to analyze the costs and risks of emissions from facilities that have operated for more than 20 years. Given that agencies and scientists have worked to overcome and maintain consistent, long-term archives for many other forms of data, such as bird counts and meteorological data, much more reliable and coherent record keeping is feasible and should be a focus of EPA and researcher collaboration now and in the future.

For this report and our report cards, we only analyzed data through the 2019 calendar year since the 2020 calendar year is not complete. Data from 2020 will also be strongly influenced by the EPA's decision to suspend pollution monitoring requirements for industries that claim to have been impacted by COVID-19 from March through August 2020. EDGI's report on this policy, "More Permission to Pollute," found that despite relatively few facilities claiming the COVID exemption, a much larger proportion of facilities were still failing to report environmental data while the COVID rule was in effect.<sup>17</sup>

These are only some of the data reliability issues with ECHO. There are also, for example, data entry errors that could warp enforcement and compliance analysis especially when looking at smaller geographic areas. The EPA also lists many specific issues on their data limitations page.<sup>18</sup>

Rather than attempt to remove or resolve these errors or omissions – which is often impossible for researchers, let alone the public – we have analyzed the data “as is” to generate interest in, and discussion of, how to address these fundamental issues. We have also, as noted above, used a variety of measures that allow for a more cautious interpretation of the data. **In the end, however, it is the EPA's and industry's responsibility to provide accurate data to the public as mandated in the Emergency Planning and Community Right-to-Know Act (EPCRA) .**

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<sup>17</sup> Eric Nost, Kelsey Breseman, Steve Hansen, Leslie Alanis, Megan Raisle, Lourdes Vera, Maalvika Bhat, Sara Wylie, Sung-Gheel (Gil) Jang, and EDGI, “More Permission to Pollute: The Decline of EPA Enforcement and Industry Compliance during COVID,” August 13, 2020 <https://envirodatagov.org/more-permission-to-pollute-the-decline-of-epa-enforcement-and-industry-compliance-during-covid>.

<sup>18</sup> EPA, “Known Data Problems,” *Enforcement and Compliance History Online*, <https://echo.epa.gov/resources/echo-data/known-data-problems>.

# THE NECESSITY AND LIMITS OF THE EPA'S ECHO DATABASE

## The Bhopal Disaster, Corporate Accountability, and the Public Right to Know

The Emergency Planning and Community Right-to-Know Act (EPCRA) created the first public database for disclosing pollution data, the Toxic Release Inventory (TRI), in the wake of the 1984 Bhopal Disaster, in which a pesticide production facility exploded in Bhopal, India, devastating neighboring residents. The exact death toll will never be known, but an estimated 10,000 died immediately in the aftermath and over 500,000 people are believed to still be living with its health effects.<sup>19</sup>

Naming this disaster after the Indian city where it occurred continues a pattern of historical erasure that fails to name industrial actors responsible for systemic harms. This disaster would better be named for the responsible company: the Union Carbide (now DOW) Pesticide Disaster. Union Carbide, the primary shareholder in the company and designer of the plant, never remediated the site or adequately compensated its victims. When DOW acquired Union Carbide in 2001, it settled Carbide's outstanding claims in the U.S. but refused to settle its claims in India, thereby further erasing corporate responsibility for this continuing crisis. To this day, the site remains unremediated and is contaminating the area's drinking water.<sup>20</sup>

In the U.S., Congress was shocked to find the chemical primarily responsible for deaths in Bhopal, methyl isocyanate, was not regulated by the EPA despite the fact that exactly the same plant design, the model for the Bhopal plant, was in operation in West Virginia. As Representative Henry Waxman called out on the House floor, "Aren't 2,500 deaths enough to convince the EPA that methyl isocyanate is hazardous?"<sup>21</sup> The Emergency Planning and Community Right to Know Act that established the TRI subsequently passed in 1986.

Without monitoring data, inspections, and enforcement, the Union Carbide plant in Bhopal was a ticking time bomb. Manifold cost-cutting efforts led to apparent maintenance issues, limited training of managers and employees, union busting,

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<sup>19</sup> Kim Fortun, *Advocacy after Bhopal: Environmentalism, disaster, new global orders*. (University of Chicago Press, 2001); "The Bhopal Medical Appeal," <https://www.bhopal.org/>.

<sup>20</sup> "The Bhopal Medical Appeal," <https://www.bhopal.org/>.

<sup>21</sup> Fortun, *Advocacy after Bhopal*, 288.

and abject failures to protect worker health and safety. Importantly, the plant's dire economic straits were due to Union Carbide believing its own public relations material. The company built a plant whose capacity far exceeded demand in order to prevent competitors from entering the market.<sup>22</sup>

We detail this ongoing and pivotal moment in the development of public right to know laws as a reminder of what is at stake in regulation of industrial facilities. There have been at least 34 major industrial fires or explosions since the Trump Administration took office, 32 of them involving oil, gas or chemical production, and an alarming increase in workplace deaths alongside a boom in the building of major industrial facilities. Workplace investigations due to fatalities and catastrophes are the highest they have been in a decade (since the agency started reporting this data).<sup>23</sup> Communities in Houston, Crosby (twice), Deer Park, Baytown, Port Neches and Walberg in Texas alone have been ordered to shelter in place or evacuate due to chemical production and refinery fires or explosions.<sup>24</sup> Communities in Lawrence and Andover Massachusetts, Philadelphia (twice), Superior Wisconsin, Kingsport Tennessee and Westlake Louisiana have similarly been forced to evacuate or shelter in place.<sup>25</sup>

The competitive structure of these industries frequently leads to overbuilding capacity for promised future profits. Texas alone added five new oil and gas pipelines in 2019 with another three slated to come online in 2020 to feed new

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<sup>22</sup> Fortun, *Advocacy after Bhopal*.

<sup>23</sup> Deborah Berkowitz, "Workplace Safety Enforcement Continues to Decline in Trump Administration," *National Employment Law Project*, March 14, 2019, <https://www.nelp.org/publication/workplace-safety-enforcement-continues-decline-trump-administration/>.

<sup>24</sup> U.S. Chemical Safety and Hazard Investigation Board, "Performance and Accountability Report," 2017 and 2019; "Fire at Texas Exxon Mobil refinery slightly injures 37," *AP News*, July 31, 2019 <https://apnews.com/article/a85f64657d6c46289d8b665779f3bd43>; "Evacuation order lifted as huge Texas plant fire 'contained'," *Statesman*, November 29, 2019 <https://www.statesman.com/news/20191129/evacuation-order-lifted-as-huge-texas-plant-fire-contains>; "Chemical Plant Declared a Loss Following Fire," *Powder Bulk Solids*, September 14, 2019, <https://www.powderbulksolids.com/chemical/chemical-plant-declared-loss-following-fire>

<sup>25</sup> "Multiple Explosions And Fires Reported Across 3 Mass. Towns, At Least 10 Injured," *NPR*, <https://www.npr.org/2018/09/13/647621382/multiple-explosions-and-fires-reported-across-3-massachusetts-towns-at-least-3-i>; "A fire at a Philadelphia oil refinery sparked an explosion felt for miles," *CNN*, June 29, 2019, <https://www.cnn.com/2019/06/21/us/philadelphia-refinery-fire/index.html>; "Thousands Evacuated in Texas After Explosion at Port Neches Chemical Plant," *New York Times*, November 27, 2019, <https://www.nytimes.com/2019/11/27/us/texas-explosion-port-neches-tpc.html>; "Explosion puts Trump administration's feet to the fire on safety, energy," *Business Insurance*, May 2, 2018, <https://www.businessinsurance.com/article/20180502/NEWS08/912320997/Explosion-puts-Trump-administration-feet-to-the-fire-on-safety-energy-OSHA-EPA>; "CSB Offers Details on BioLab Fire in Louisiana," *Powder Bulk Solids*, September 2, 2020, <https://www.powderbulksolids.com/industrial-fires-explosions/csb-offers-details-biolab-fire-louisiana>

refinery and cracking facilities (where gas and oil are broken into smaller molecules to use as feedstocks for petrochemicals like plastics).<sup>26</sup> From Ohio, to Louisiana, Texas and Pennsylvania, more than ten multi-billion dollar refinery, plastics and chemical production facilities have opened in 2019 or are planned to go online by 2022.<sup>27</sup> This build up is financed through massive public and private investments.<sup>28</sup> However, the COVID-19 recession is showing this system's fragility, producing wide-spread losses and bankruptcy across the oil and gas sector.<sup>29</sup>

When promised riches fail to materialize, the public is generally left to clean up or (more frequently) suffer the legacies of industrial pollution. The Superfund tax on polluters established by Congress fund clean up the most contaminated industrial locations has expired and the public now pays for clean ups where no responsible party is identified. Cleanups are delayed for up to 14 years and take, on average, eight years.<sup>30</sup> With the twin crises of climate change and toxic contamination as well as COVID-19 changing the demand for oil, gas, and petrochemicals, we are poised to see profound market changes in the next 10 to 20 years where bankruptcy and plant closures could exacerbate negligence and force the public to bear the burden of contamination and remediation.

Failures of inspection and enforcement are creating the conditions for events that could match or exceed the scale of the Bhopal disaster.<sup>31</sup> The deep history of racism and class disparities that shape U.S. industrial infrastructure mean that these harms will similarly be borne by those least able to effectively press their claims against corporations and the governments that have failed them. While corporations will be able to declare bankruptcy and redistribute their wealth to other companies, and representatives will leave office with pensions intact, the

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<sup>26</sup> "Texas Is About to Create OPEC's Worst Nightmare," *Bloomberg*, November 20, 2018, <https://www.bloomberg.com/news/articles/2018-11-21/opec-s-worst-nightmare-the-permian-is-about-to-pump-a-lot-more>.

<sup>27</sup> "10 major downstream projects to watch in the USA," *NES Fircroft*, May 22, 2019, <https://www.fircroft.com/blogs/10-major-downstream-projects-to-watch-in-the-usa-91422216354>.

<sup>28</sup> For example see: "West Virginia Bets Big on Plastics, and on Backing of Trump Administration," *ProPublica*, July 31, 2019, <https://www.propublica.org/article/appalachian-storage-and-trading-hub-ethane-west-virginia-plastics-backing-of-trump-administration>.

<sup>29</sup> "Oil and gas 'bankruptcies' so far left about \$49.7 billion of secured and unsecured debt to be settled." "Second U.S. shale boom's legacy: Overpriced deals, unwanted assets," *Reuters*, August 31, 2020. <https://www.reuters.com/article/us-global-oil-shale-investments-idUSKBN25R1GG>.

<sup>30</sup> "Due to lack of funding, the EPA has had to delay the start of some cleanups for 14 out of the past 17 years." Katherine Probst, "Superfund 2017 Cleanup Accomplishments and the Challenges Ahead" (ACEC, 2017), [http://www.acec.org/default/assets/File/Superfund\\_2017\\_FINAL.pdf](http://www.acec.org/default/assets/File/Superfund_2017_FINAL.pdf).

<sup>31</sup> Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (Harvard University Press, 2001).



public, those exposed to such environmental harms, will have their lives and livelihoods forever transformed.

We stand at a vital point in history. The dramatic loss of oil and gas sector jobs since COVID-19<sup>32</sup> looms over industrial sectors riddled with debt from the building of pipelines and plastic productions facilities creating the conditions for neglect, accidents and cost-cutting.<sup>33</sup> It is vital to ensure these facilities from well heads to pipelines and crackers comply with and ideally exceed the laws established by Congress.<sup>34</sup> Environmental laws and enforcement processes and practices must change to ensure healthy, livable environments for everyone.

Now is the time to create the conditions for industries to transition to sustainable, just economies where they are as responsible and accountable as any other citizen to the law. We have an opportunity to build our societies around more sustainable energy sources and ensure just and equitable systems that live up to the promises that founded the U.S., laws as fundamental as water, air and healthy soils: the rights to life, liberty and justice.

## Environmental Injustice and the Permission to Pollute

In this project, we focus on the enforcement of environmental laws. However, no revisions to ECHO or increased enforcement of environmental laws will produce environmental health and justice without also addressing flaws in permission to pollute regulations. Many environmental laws must be rewritten to truly ensure healthy environments and to end environmental injustice.

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<sup>32</sup> The oil and gas sector has lost 118,000 jobs during COVID. “U.S. oil and gas industry sheds 118,000 jobs during pandemic,” *Houston Chronicle*, August 21, 2020, <https://www.houstonchronicle.com/business/energy/article/U-S-oil-and-gas-industry-sheds-118-000-jobs-15505020.php>.

<sup>33</sup> “More than 230 North American oil and gas producers, owing at least \$152 billion in debt, have filed for bankruptcy since the beginning of 2015, according to the latest report from law firm Haynes & Boone. In the second quarter [of 2020] alone, companies that went bankrupt had total debts of \$29 billion.” “Shale’s Bust Shows Basis of Boom: Debt, Debt and Debt,” *Washington Post*, July 23, 2020, [https://www.washingtonpost.com/business/energy/shales-bust-shows-basis-of-boom-debt-debt-and-debt/2020/07/22/0e6ed98c-cc41-11ea-99b0-8426e26d203b\\_story.html](https://www.washingtonpost.com/business/energy/shales-bust-shows-basis-of-boom-debt-debt-and-debt/2020/07/22/0e6ed98c-cc41-11ea-99b0-8426e26d203b_story.html)

<sup>34</sup> In 2019 GAO recommended that the BLM increase well bond amounts because present bond values are insufficient to pay for remediation. Holds have been placed on financing for new cracking facilities in Ohio, West Virginia and Pennsylvania, Exxon and Royal Dutch Shell lost money in their chemical production sectors in the last quarter of 2019. “Will Coronavirus Be the Death or Salvation of Big Plastic?,” *Time*, May 4, 2020, <https://time.com/5831005/coronavirus-plastic-industry/>.

Existing laws sanction a “permission to pollute” regime, based on the flawed idea that all chemicals have a “safe” level of exposure. But this is not true for persistent chemicals or chemicals that can affect us at miniscule doses. The effects of low-level lead exposure on brain development have already taught us this, and we are learning it again in a growing body of research on PFAS chemicals. These persistent chemicals used in myriad non-stick and waterproof products were initially produced by 3M and used in Teflon by DuPont. They now contaminate about 19 million American’s drinking water and are linked to increased cancers, thyroid dysfunction, asthma, liver damage and decreased fertility.<sup>35</sup>

Permission to pollute laws often also fundamentally rest on racist population-based logics: regulators set permissible limits of contaminants based on estimated increased risks of death or other “adverse outcomes” in a group of exposed people or population.<sup>36</sup> Such models frequently assume that risks are evenly distributed, but they demonstrably are not.<sup>37</sup>

Based on living in proximity to risks, economic and social constraints on employment, education, housing, and access to safe green spaces, exposure to

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<sup>35</sup>J. R. Parsons, M. Sáez, J. Dolfig, J., and P. de Voogt, P, “Biodegradation of perfluorinated compounds,” *Reviews of Environmental Contamination and Toxicology* (2008), 196, 53–71; Environmental Working Group, “Interactive Map: PFAS Contamination Crisis: New Data Show 2,230 Sites in 49 States,” July 20, 2020, [http://www.ewg.org/interactive-maps/pfas\\_contamination/](http://www.ewg.org/interactive-maps/pfas_contamination/); “Health Risks of Widely Used Chemicals May Be Underestimated,” Harvard School of Public Health, June 27, 2018, <https://www.hsph.harvard.edu/news/hsph-in-the-news/pfas-health-risks-underestimated/>; Cheryl Hogue, “Why Limiting PFAS in Drinking Water Is a Challenge in the US,” *Chemical & Engineering News* 98, no. 27 (July 13, 2020), <https://cen.acs.org/environment/persistent-pollutants/limiting-PFAS-drinking-water-challenge/98/i27>.

<sup>36</sup> The EPA sets limits on carcinogen emissions for instance based on models of acceptable levels of increased population-wide cancers. For example its 1 in 1-million risk level “means up to one person, out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the specific concentration over 70 years (an assumed lifetime)”. Ultimately, these regulations allow some level of increased health risk and in the end deaths in a population. For instance for pollutants regulated under the Clean Air Act: “The EPA will generally presume that if the risk to that individual [the Maximum Individual Risk] is no higher than approximately 1 in 10 thousand, that risk level is considered acceptable and EPA then considers the other health and risk factors to complete an overall judgment on acceptability.” <https://www.epa.gov/national-air-toxics-assessment/nata-frequent-questions#risk1>. For more on racism implicit in populations based thinking see Mary Murphy, *The economization of life* (Duke University Press, 2017).

<sup>37</sup> Tessum, C. W., Apte, J. S., Goodkind, A. L., Muller, N. Z., Mullins, K. A., Paoletta, D. A., ... & Hill, J. D., “Inequity in consumption of goods and services adds to racial-ethnic disparities in air pollution exposure” *Proceedings of the National Academy of Sciences* (2019), 116(13), 6001-6006.; R. Bullard, P. Mohai, R. Saha and B. Wright, “Toxic wastes and race at twenty 1987–2007: Grassroots struggles to dismantle environmental racism in the United States,” (2007) *United Church of Christ Justice and Witness Ministries*.; B. Bowe, Y. Xie, Y. Yan, and Z. Al-Aly, “Burden of Cause Specific Mortality Associated with PM 2.5 Air Pollution in the United States” *JAMA Network Open* (2019) 2(11).

hazardous contaminants are far more likely to be borne by systemically marginalized communities including Black, Brown, Indigenous, and undocumented peoples. Existing social systems routinely ensure that marginalized communities live in more contaminated places with constrained access to less-contaminated places and goods, despite that they produce less pollution via their consumption than Non-Latinx whites.<sup>38</sup>

**On average, Black and Latinx communities experience more pollution than they generate:** they are burdened by approximately 56% and 63% more hazardous air pollution respectively than they create by their consumption. **Conversely, Non-Latinx white majority communities experience less pollution than they generate** (approximately 17% less air pollution exposure than is caused by their consumption).<sup>39</sup> Contemporary population based models of excess risk hide this uneven and socially determined distribution of exposure to pollution and resulting health harms. Though appearing scientific, neutral, and bureaucratic, such risk assessments thereby help to ensure the persistence of environmental injustice. Thus, this permission to pollute approach means that even if enforcement and compliance were perfect, marginalized communities would still be disproportionately exposed and thereby more harmed by pollution.

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<sup>38</sup> Tessum et al., “Inequity in consumption.”

<sup>39</sup> Tessum et al., “Inequity in consumption.”

# CONCLUSION

## Improving EPA Enforcement: Oversight, Accuracy, Engagement, and Equity

There are many legal, scientific and structural changes that will be necessary to overcome the issues with the "permission to pollute" system and environmental injustice.<sup>40</sup> However, there is plenty that can be done in the present framework to improve four overarching areas: **oversight, accuracy, engagement, and equity**. Additionally, many of the data practices described below could be adopted under future environmental acts that do address the above concerns.

### 1. Oversight: Help Congress and the Public Monitor Pollution Compliance and Enforcement

It is not feasible for the EPA or state environmental agencies in their present configurations to effectively oversee the existing large number of operating facilities. In New York, there are more than 30,000 facilities regulated under RCRA alone. To close the huge gaps in reporting and compliance, we must develop systems that help environmental organizations and community stakeholders engage in oversight.

Such a system could include:

1. Organizing data more easily for public review through events like EEW that support crowdsourcing data analysis for regulatory follow up.
2. Organizing data in ways that are more meaningful for the general public such as by neighborhood, census tract, watershed, airshed or proximity to school districts and other vulnerable populations.
3. Adding automatic alerts that community residents can sign up to receive about local facilities, industries or chemicals of interest or concern.

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<sup>40</sup> Permission to pollute frameworks are built into current permitting systems established by the EPA but they are also built into the CWA and CAA acts which require the EPA to establish permissible limits for hazardous compounds see CWA Title I of the Great Lakes Critical Programs Act of 1990 which required the EPA to set maximum levels of 29 pollutants. And the Clean Air Act similarly required the EPA to establish emissions limits on criteria pollutants and to set national air quality standards.  
<https://www.epa.gov/laws-regulations/history-clean-water-act#:~:text=As%20amended%20in%201972%2C%20the,setting%20wastewater%20standards%20for%20industry;>  
<https://www.epa.gov/clean-air-act-overview/setting-emissions-standards-based-technology-performance>

4. Providing training on OSHA compliance and EPA compliance in other public systems such as in schools and in public libraries.
5. Improving and increasing public outreach and engagement by changing how we think about public notifications. In other words, considering whether sharing ECHO data is sufficient to inform the public about important enforcement and compliance issues.

**Case Study: Improving Engagement Through Physical Data** Rather than being merely represented with numbers and shared on a hard-to-access website, environmental data can be rendered in physical places and objects. Artists and environmental justice organizations are innovating more engaging physical approaches to data that bring data back into the public domain. For instance, the Environmental Justice organization GreenRoots, along with researchers from Northeastern University and MIT, organized a public data event. This event released glowing lanterns onto Chelsea Creek, an industrial waterway vital to New England's economy, to signify the local oil storage facilities CWA violations. This event helped community members see the violations not as bureaucratic numbers, but as real world acts, pollution that physically changed the creek.<sup>41</sup>



**Figure 17:** Images from the Chemicals in the Creek Event. Image credits (left to right): Rio Asch Phoenix, William Campbell, Rio Asch Phoenix from <http://datalanterns.com/>.

Public events and sharing data in public, interactive ways in the places most impacted by environmental contamination could move agencies and industries that share environmental data beyond performative pro forma data disclosures toward increasing community understanding, engagement and collective efficacy to address such violations.

<sup>41</sup> L.J. Perovich, S.A. Wylie, R. Bongiovanni, "Chemicals in the Creek: designing a situated data physicalization of open government data with the community," *IEEE Information Visualization* (2020).

In the short term, building on EEW's Congressional Report Card project, the EPA could provide members of Congress with annual reports on enforcement in their district. At the local level, the EPA could work with libraries and schools to analyze data for facilities in their regions. This would help build capacity for the public to understand and oversee enforcement and compliance in their backyards.

## **2. Accuracy: Require Direct Measurement and Digital Reporting of Emissions**

Currently, under the Clean Air Act, about 80% of emissions are estimated rather than directly measured. As Cythnia Giles describes below, estimates can be wildly inaccurate, and actual emissions can reach “even 448 times the estimated amounts.” Stack tests of facilities regulated under the CAA can occur as infrequently as every five years. Since the EPA's controversial COVID memo put enforcement on hold, stack tests dropped by 40%.<sup>42</sup>

“ Time and again, monitoring data have revealed that estimated pollution levels significantly under report actual pollution amounts, sometimes by an order of magnitude or more. At refineries, for example, actual emissions have been discovered to be four times, 25 times, 132 times, and even 448 times the estimated amount... EPA projected in 2001 that about 80% of facilities used emission factors for their emissions reporting. The title of one 2018 investigative report says it all: “Most of the EPA's Pollution Estimates are Unreliable, so Why is Everyone Still Using Them?”

Cynthia Giles, former Assistant Administrator for EPA's Office of Enforcement and Compliance Assurance, [Next Generation Enforcement](#)

”

Continuous, real-time, and public monitoring of smoke stack emissions is possible and should be required for all major sources. There are an estimated 200,000 annual U.S. deaths from fine particulate matter alone, and 46% of the population (about 150 million people) live in areas where air quality fails to meet EPA health-based standards.<sup>43</sup> **The public has the right clean air and to know what is in the air they breathe.**

<sup>42</sup> “More Permission to Pollute: The Decline of EPA Enforcement and Industry Compliance during COVID – Environmental Data and Governance Initiative,” *Environmental Data & Governance Initiative*, August 13, 2020, <https://envirodatagov.org/more-permission-to-pollute-the-decline-of-epa-enforcement-and-industry-compliance-during-covid/>.

<sup>43</sup> The EPA defines “major sources” as a “stationary source or group that emit or have the potential to emit 10 tons per year or more of a hazardous air pollutant or 25 tons per year or more of a combination of hazardous air pollutants.” Bow, “Burden of Cause Specific Mortality Associated “; American Lung Association *State of the Air 2020*, <https://www.stateoftheair.org/key-findings/>.



### 3. Engagement: Support Community Efforts to Monitor and Respond to Chemical Hazards

Industry monitoring should be combined with helping communities develop the ability to monitor pollution in homes and neighborhoods near polluting facilities. Communities should be supported by agencies and universities to produce, analyze and communicate their own data. Those living close to polluting industries—“fenceline communities”—should be trained on safety, evacuation plans, reporting infrastructure and emergency response. For chronic or periodic problems, they should be provided with affordable grab sampling equipment to take samples when contamination events occur. Such systems can be supported by the many community-centered non-profits and grassroots organizations who work daily with fenceline communities through expanding programs like the National Institute of Environmental Health Sciences’s Research to Action grant mechanism.<sup>44</sup>

The EPA has led the way in helping to test and validate low-cost air monitoring approaches.<sup>45</sup> The 2016 Report, *Environmental Protection Belongs to the Public*, by the National Advisory Council for Environmental Policy and Technology (NACEPT), described the importance of integrating citizen science throughout the agency.<sup>46</sup> Accessible, affordable, and public data systems should be developed with communities in support of community science. Systems such as Purple Air’s networked low-cost monitor for particulate matter, combined with the ability to take and process grab samples, would support rapid community-lead responses to emergency events.<sup>47</sup>

Academic institutions, nonprofits and grassroots community groups can also collaborate to support routine monitoring of environmental data. From sociology to law, environmental science, and computer science classrooms, students and faculty can support research on this public data, ECHO user experiences and improvement

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<sup>44</sup> “Research to Action,” *National Institute of Environmental Health Sciences*, accessed October 16, 2020, <https://www.niehs.nih.gov/research/supported/translational/rta/index.cfm>.

<sup>45</sup> Environmental Protection Agency, “Citizen Science for Environmental Protection,” *Collections and Lists*, EPA, April 19, 2016, <https://www.epa.gov/citizen-science>.

<sup>46</sup> “Environmental Protection Belongs to the Public - A Vision for Citizen Science at EPA” (Washington, D.C.: National Advisory Council for Environmental Policy, EPA, December 2016), [https://www.epa.gov/sites/production/files/2020-04/documents/nacept\\_cs\\_report\\_final\\_508.pdf](https://www.epa.gov/sites/production/files/2020-04/documents/nacept_cs_report_final_508.pdf)

<sup>47</sup> “PurpleAir | Real Time Air Quality Monitoring,” PurpleAir, <https://www2.purpleair.com/>. Other examples to build on are “Smell MyCity,” <https://smellmycity.org/> and Louisiana’s iWitness Pollution mapper, <https://labucketbrigade.org/pollution-tools-resources/iwitness-pollution-map/>.



in data analytics.<sup>48</sup> Such valuable learning experiences would also substantially improve agency capacity.

Finally, in addition to addressing chronic pollution issues, the EPA should help communities develop their capacity to respond to pollution and hazardous waste emergencies. Just under the Trump Administration, at least 19 of the 34 industrial accidents resulted in shelter-in-place orders, road closures or community evacuations. Communities should have a much better understanding of the risks in their midst and be educated on them through community training that combines information on OSHA and the EPA particularly on community level reporting and community-led science. The regulated facilities should be required to provide, in addition to evacuation plans, public start-up, shutdown, containment, and clean up procedures for emergency and disaster preparedness purposes.<sup>49</sup>

It is time to rethink how EPA enforcement engages with the public, both to improve the quality of data disclosed, but to also move beyond mere disclosure and toward research, learning, and response partnerships that engage the agency with the public that it serves.

#### **4. Equity: Develop Enforcement Metrics and Policies that Reduce Environmental Health Disparities**

It is vital that the EPA and local monitoring agencies work in partnership with frontline communities. Race is the strongest indicator of whether a person lives close to toxic waste and low-income, non-white communities disproportionately live amongst the most hazardous facilities.<sup>50</sup> Data on violations and enforcement must be freely and readily accessible to the surrounding community. Community members have the right to know of any potential hazards that may threaten their health, livelihood, and well being.

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<sup>48</sup> C. Tirrell, L. Senier, S. A. Wylie, C. Alder, G. Poudrier, J. DiValli, and G. Gehrke, "Learning in Crisis: Training Students to Monitor and Address Irresponsible Knowledge Construction by US Federal Agencies under Trump," *Engaging Science, Technology, and Society* (2020), 6, 81-93.

<sup>49</sup> See for instance the Chemical Safety and Hazard Board's (CSB) investigation of the 2017 Arkema chemical facility fire following Hurricane Harvey which identified a "significant lack" of industry guidance for emergency preparation for severe weather events and recently released guidance for chemical industry disaster preparedness in the context of climate change:  
<https://www.csb.gov/csb-issues-new-video-safety-message-and-safety-alert/>.

<sup>50</sup> M. Collins, I. Munoz, and J. Jaja, "Linking 'toxic outliers' to environmental justice communities," *Environmental Research Letters* (2016), 11(1), 015004. And Bullard et al., "Toxic wastes and race at twenty."

The community cannot effectively engage with policy makers and enforcement agencies without reliable data. In fact, it is not only community members and policy makers who need this data. Facility workers also have the right to know of any potential hazards.

As we seek a more just, healthy and equitable society, we must confront the legacy of environmental racism. We hope that these report cards can assist fence line communities facing environmental injustices in advocating for themselves and improving their lives.

EDGI fully recognizes the power of data in justice advocacy. These report cards provide both a snapshot and an opportunity for improvement. With these report cards, fenceline communities can both flag data gaps and call for improved enforcement.

Data collection and communication must improve for the sake of all involved. It will also improve trust and relationships between policy makers, enforcement agencies, and community residents. EDGI has taken steps to bridge the gap between a flawed existing system and community needs. This work must continue with input from all stakeholders as to how best address community needs.

### **Enable Enforcement to become Community Building**

While the EPA's enforcement program should not primarily be responsible for community building, it can actively participate by employing penalties and enforcement actions. EPA penalties and enforcement actions could be assessed according to whether they *improve the lived conditions of those most harmed or placed at risk by a facility's actions*. This could include requiring facilities to support the building of monitoring capacity or by creating community funds from fines levied.

The EPA historically achieved this, in part, through Supplemental Environmental Projects (SEPs) defined as “an environmentally beneficial project or activity that is not required by law, but that a defendant agrees to undertake as part of the settlement of an enforcement action.” For example, a 2019 settlement with Dow Silicones Corporation through a consent decree required “lead abatement projects to protect children from lead-based paint hazards” in Midland Michigan as well as “donation of air monitoring equipment to local responders; and more frequent

monitoring and improved repair and replacement procedures for equipment that contains HAPs [Hazardous Air Pollutants]”.<sup>51</sup>

However, the **EPA can no longer pursue SEPs due to recent decisions by the Department of Justice**, begun under Attorney General Jeff Sessions, which prohibited the DOJ from entering into SEPs with third parties.<sup>52</sup> SEPs were employed in particular during the Obama administration to “to remedy disproportionate impacts of pollution, including pollution arising from non-compliance, on communities of color and low-income communities”.<sup>53</sup> The loss of SEPs as a mechanism to address environmental injustice and improve the lives of impacted communities further illustrates that contemporary enforcement at the EPA is being crippled.

Beyond working to restore capacities like SEPs, we recommend the EPA work with OSHA to improve the capacity of managers, designers, safety engineers, and workers to understand the consequences of major potential accidents particularly in complex systems like oil rigs where knowledge is both specialized and compartmentalized.<sup>54</sup> Rather than only the EPA researching and further developing modeling for estimated emissions<sup>55</sup> (which should be directly measured), the EPA could help researchers, communities and industries so that they can model the estimated impacts of safety failures to better account for the potential costs of negligence.

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<sup>51</sup> DOJ, “The United States Reaches Agreement with Dow Silicones Corporation to Resolve Environmental Violations at Midland Michigan Chemical Manufacturing Facility,” *U.S. Department of Justice, Office of Public Affairs*, June 25, 2019, <https://www.justice.gov/opa/pr/united-states-reaches-agreement-dow-silicones-corporation-resolve-environmental-violations>.

<sup>52</sup> J.B. Clark, “Supplemental Environmental Projects (“SEPs”) in Civil Settlements with Private Defendants,” U.S. Department of Justice, Environment and Natural Resources Division, Memo, March 12, 2020, <https://www.justice.gov/enrd/page/file/1257901/download>.

<sup>53</sup> H. Bloomer L. Vizcarra, “DOJ Phases Out Supplemental Environmental Projects in Environmental Enforcement. EPA Mission Tracker,” *Environmental and Energy Law Program, Harvard Law School*, August 6, 2020, [https://eelp.law.harvard.edu/2020/08/doj-phases-out-supplemental-environmental-projects-in-environmental-enforcement/#\\_ftn1](https://eelp.law.harvard.edu/2020/08/doj-phases-out-supplemental-environmental-projects-in-environmental-enforcement/#_ftn1).

<sup>54</sup> Current safety programs focus on individual safety behaviors on the flawed assumption that the causes of injury and minor accidents are the same as those causes of major accidents. However research on complex events like the BP Oil Spill show they are rarely due to an individual’s behavioral safety issues but rather overlapping systemic failures. E. Marsden, “The Heinrich/Bird safety pyramid Pioneering research has become a safety myth” *Risk Engineering website* March 2, 2017, <https://risk-engineering.org/concept/Heinrich-Bird-accident-pyramid>.

<sup>55</sup> EPA, “Air Emissions Factors and Quantification: Emissions Estimation Tools,” *The Environmental Protection Agency*, last update August 12, 2020, <https://www.epa.gov/air-emissions-factors-and-quantification/emissions-estimation-tools>.

Academic research shows that current efforts to build “safety” cultures tend to perversely push the burden of performing safety-related paperwork onto workers and encourages workers to hide small failures to guard company insurance ratings.

<sup>56</sup> The rise of contemporary safety culture has also encouraged employers to outsource risky work and to hire contract laborers. Forty percent of the American workforce are now hired under contracts.<sup>57</sup> This, combined with the hiring of undocumented workers and using prisoners for our most risky forms of labor, has created a work force that is too economically and socially vulnerable to complain.<sup>58</sup> Instead of these performative safety cultures, we must work to build cultures of responsibility and reciprocity across and throughout our workplaces and communities.<sup>59</sup> We can begin by supporting rigorous data gathering with a willingness to hear and take seriously the lived experiences of communities and workers.

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<sup>56</sup> H. Appel, “Offshore work: Oil, modularity, and the how of capitalism in Equatorial Guinea,” *American Ethnologist* (2012), 39(4), 692-709.

<sup>57</sup> Senator Kirsten Gillibrand, Letter to Senator Patty Murray, Committee on Health, Education, Labor, and Pensions, United States Senate. April 20, 2015. <https://www.gao.gov/assets/670/669766.pdf>; Elaine Pofeldt, “Shocker: 40% of Workers Now Have ‘Contingent’ Jobs, Says U.S. Government,” *Forbes*, May 25, 2015, <https://www.forbes.com/sites/elainepofeldt/2015/05/25/shocker-40-of-workers-now-have-contingent-jobs-says-u-s-government/#41dd5eb614be>.

<sup>58</sup> Dvera Saxton, “Strawberry fields as extreme environments: The ecobiopolitics of farmworker health.” *Medical Anthropology* (2015), 34(2), 166-183; David Pellow, *What is critical environmental justice?* (John Wiley & Sons, 2017).

<sup>59</sup> For more about how we are doing that within EEW and EDGI, see our collaborator diagram that describes and celebrates our non-hierarchical structure which is organized through intersecting domains of care: <https://edgi-govdata-archiving.github.io/EEW-Website/about/>. Also see EDGI’s blogs about our approaches to authorship and our working group focused on iteratively developing our own community’s infrastructure called Rad Org:

<https://envirodatagov.org/collaborative-authorship-edgis-values-first-approach-to-attribution/>; <https://envirodatagov.org/radical-org-prototyping-alternative-organizational-structures/>. Such approaches have been inspired and supported by open source digital infrastructures such as Github that enable ‘recursive publics’ where participants have knowledge of the structures that bring them together because they actively participate in building and also further developing them. For more on recursive publics see Christopher Kelty, *Two bits: The Cultural Significance of Free Software* (Duke University Press, 2008) as well as feminist research in the sciences and social sciences on the role of care and reciprocity in socio-bio systems. See C. D’Ignazio and L.F. Klein, *Data feminism* (MIT Press, 2020) and M.P. de La Bellacasa, *Matters of care: Speculative ethics in more than human worlds* (University of Minnesota Press, 2017) as well as Robin W. Kimmerer, *Braiding sweetgrass: Indigenous wisdom, scientific knowledge and the teachings of plants*. Milkweed Editions, 2013). Building on Kimmerer’s work are also learning from indigenous research and southern theory that counsels rigorous empiricism, the importance of relationships as the most fundamental bio-social organizational unit, the inherent value of all beings and non-beings and that humans, as one of the youngest actors in this web have much still to learn. L.T. Smith, *Decolonizing methodologies: Research and indigenous peoples* (Zed Books Ltd. 2013).

## Build Compliance and Enforcement Data Systems that support and protect communities and workers

It is technically possible to build open, networked databases that gather community and worker stories while protecting participants from reprisal.<sup>60</sup> Rather than side-lining community voices as anecdotal and somehow less objective data, we need to recognize that lived experience is the frontline of changing environmental systems and that human experience is the foundation of our knowledge systems.

We therefore need to more actively connect enforcement to a new kind of research infrastructure – one designed to reveal emerging harms through both community experiences and science in collaboration with professionals’ analysis, one resembling the systems we have developed to analyze and respond to emerging infectious diseases where CDC ideally acts as a clearing house for reportable conditions. As COVID-19 has proven, the body, like our physical environment, is our shared proving ground. No amount of wishful thinking or well targeted public relations material and funding can imagine COVID-19 or climate change away. We need to take the knowledge and physical experiences of those most exposed to environmental risks far more seriously and recognize that **behind every effluent violation tracked in ECHO, there is a hazardous compound or pollutant unnecessarily, illegally, and irreversibly changing our shared environment.**

This analysis culminates in an overarching question central to both EDGI and EEW’s work: how do we collectively build the mechanisms and social will to create appropriate responsibility for, and responsiveness to, such violence in order to prevent it from happening again and again? We raise this question to the public and also directly to the representatives invested by the will of the public with the power to ensure that the EPA can enforce environmental laws. It is important these representatives make use of their oversight powers, and that the public understand those powers. The House Energy and Commerce Committee and the Senate Environment and Public Works Committee can require the EPA to explain why inspections, enforcement actions, and penalties have declined. They can probe whether the states are adequately enforcing national laws. They can question the EPA about the pervasiveness of noncompliance with environmental laws. They can demand more data, better data, and better reporting. In addition to their particular oversight roles, these committees, and other members of Congress, can also push

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<sup>60</sup> Sara Wylie, *Fractivism: Corporate bodies and chemical bonds* (Duke University Press, 2018).

for increased funding for EPA programs. And they can create the space for a rich, action-oriented public conversation about how to improve compliance with environmental laws, strengthen EPA enforcement, respond to the lived circumstances of those most burdened by these harms, and together improve the shared environment upon which we all depend.

# APPENDIX

For the following tables, red = Republican, blue = Democrat, and purple = Independent.

## Senate Environment and Public Works Committee members and states

State	Senator	Percentage change, Average per year 2001-2016 vs Average per year 2017-2019				Percent of active facilities in violation of CWA 3+ quarters out of the past 13	2019	
		CWA violations	Inspections	Enforcement actions	Penalties		CWA violations	CWA violations per 100 facilities
AK	Dan Sullivan	186	36	-32	-71	56	12,236	841
AL	Richard Shelby	-20	18	-45	-46	11	4,347	40
AR	John Boozman	-11	2	-16	-51	19	7,887	172
DE	Thomas Carper	-34	-44	-3	-32	21	82	105
IA	Joni Ernst	118	-51	-21	-40	58	11,778	666
IL	Tammy Duckworth	23	-78	-37	-58	27	22,076	285
IN	Mike Braun	-17	-10	-13	-56	8	8,598	73
MA	Ed Markey	-48	-40	-22	-66	11	1,804	41
MD	Benjamin Cardin	88	-41	-25	-36	25	3,874	80
MD	Chris Van Hollen	88	-41	-25	-36	25	3,874	80
MS	Roger Wicker	25	-14	-17	-62	18	2,828	65
ND	Kevin Cramer	296	7	36	3,717	19	370	19
NJ	Cory Booker	2,423	38	-17	-71	19	12,913	120
NY	Kristen Gillibrand	59	-19	-30	-60	31	19,589	271
OK	James Inhofe	26	48	33	-76	40	4,670	443
OR	Jeff Merkeley	135	-28	-46	-33	3	538	18
RI	Sheldon Whitehouse	-7	-29	-22	-61	15	730	130
SD	Mike Rounds	62	-17	-32	-45	23	827	127
VT	Bernie Sanders	175	-9	-24	-56	47	742	222
WV	Shelley Moore Capito	251	155	-29	-18	59	20,334	195
WY	John Barrasso	253	-15	-75	-46	29	1,956	107



## House Energy and Commerce Committee members and congressional districts

District	Representative	Percentage change, Average per year 2001-2016 vs Average per year 2017-2019				Percent of active facilities in violation of CWA 3+ quarters out of the past 13	2019	
		CWA violations	Inspections	Enforcement actions	Penalties		CWA violations	CWA violations per 100 facilities
AZ01	Tom O'Halleran	19	-29	1	-100	10	339	93.4
CA06	Doris Matsui	1084	-17	12	-41	16	249	108.3
CA09	Jerry McNerney	812	18	119	41	22	579	151.2
CA18	Anna Eshoo	331	2	-50	-97	12	65	54.6
CA29	Tony Cardenas	24821	62	-76	-76	23	337	120.4
CA36	Raul Ruiz	506	56	-68	-100	18	320	135.0
CA44	Nannette Diaz Barragan	1947	60	-54	-98	18	681	100.4
CA52	Scott Peters	991	-16	11	-89	4	179	59.9
CO01	Diana Degette	324	14	-8	30	20	1,164	171.7
DE (at large)	Lisa Blunt Rochester	-34	-44	-3	-32	21	82	105.1
FL09	Darrent Soto	666	-28	-81	210	2	193	16.5
FL12	Gus M. Bilirakis	102	-24	-56	-86	2	119	16.1
FL14	Kathy Castor	74	-28	-64	-37	5	178	20.6
GA01	Early L. "Buddy" Carter	282	32	-60	-78	11	964	55.7
IA02	David Loebsack	140	-61	-35	-80	65	3,486	826.1
IL01	Bobby Rush	39	-71	-40	-90	13	259	203.9
IL02	Robin Kelly	24	-61	-28	-95	24	587	182.3
IL09	Janice Schakowsky	28	-59	-30	-97	20	81	115.7
IL15	John Shimkus	30	-85	-33	-88	44	3,851	489.9
IL16	Adam Kinzinger	5	-79	-32	-50	40	2,797	404.8
IN05	Susan W. Brooks	-25	8	-8	-69	5	559	41.4
IN08	Larry Bucshon	-12	10	-27	-81	11	1,620	115.5
KY02	Brett Guthrie	15	33	6	-83	20	1,543	128.3
LA01	Steve Scalise	133	-50	31	215	29	4,417	144.2
MA04	Joseph Kennedy III	-49	-39	-33	-99	8	241	53.2
MD03	John Sarbanes	167	-40	-30	-18	20	204	40.5
MI06	Fred Upton	163	15	38	4	50	2,099	711.5
MI07	Tim Walberg	84	20	39	14	52	2,665	865.3
MI12	Debbie Dingell	97	0	-23	-65	45	879	614.7
MO07	Billy Long	98	34	-34	-88	26	4,431	266.6
MT (at large)	Greg Gianforte	102	-39	-20	-78	13	4,164	116.7
NC01	G.K. Butterfield	148	6	-35	-69	10	209	30.2
NC08	Richard Hudson	130	-14	-28	-25	17	344	85.6
NH02	Ann Kuster	-49	-14	-4	-80	13	233	36.1

NJ06	Frank Pallone	3655	31	-6	-73	29	1,098	181.8
NM03	Ben Ray Lujan	30	-44	-24	-85	13	1,035	84.4
NY09	Yvette Clarke	53	-37	-30	-81	75	106	2650.0
NY16	Eliot Engel	170	-47	-65	-78	36	397	389.2
NY20	Paul Tonko	68	-10	-38	-54	34	1,101	283.8
OH05	Robert E. Latta	-27	-39	-77	-93	51	1,249	372.8
OH06	Bill Johnson	-34	-27	-30	29	51	1,480	331.8
OK02	Markwayne Mullin	30	44	128	-64	48	2,037	553.5
OR02	Greg Walden	153	-37	-47	-61	4	211	38.3
OR05	Kurt Schrader	64	-17	-48	-47	3	71	10.3
PA18	Michael Doyle	339	-2	1	438	12	882	76.4
SC03	Jeff Duncan	8	-41	24	-74	37	375	136.9
TX17	Bill Fores	8	-70	-65	-78	9	453	40.6
TX22	Pete Olson	-15	-54	-53	85	8	230	19.6
TX26	Michael C. Burgess	29	-14	73	77	3	239	17.8
TX33	Marc Veasey	-39	-30	-11	204	1	21	1.9
VA04	A. Donald McEachin	551	-22	-5	-66	19	192	67.6
VA09	H. Morgan Griffith	248	-51	43	-52	14	442	35.8
VT (at large)	Peter Welch	175	-9	-24	-56	47	742	222.2
WA05	Cathy McMorris Rodgers	210	21	21	-18	78	2,100	1029.4
WV01	David B. McKinley	211	61	-4	-37	59	6,599	166.3