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## RCRA AS A TOOL FOR ENVIRONMENTAL JUSTICE COMMUNITIES AND OTHERS TO COMPEL CLIMATE CHANGE ADAPTATION

The spate of natural disasters in 2017 palpably illustrated how ill-prepared the United States is for climate change. And though all Americans have contributed to greenhouse gas emissions driving this phenomenon, they will not equitably share the effects of climate change-related disasters. Many communities — particularly low-income communities and communities of color — live in the shadow of chemical plants, oil refineries, and Superfund sites that likely leached toxic chemicals through these 2017 stormwaters.<sup>1</sup> Despite warnings of potential hurricanes and greater storm surges in the Gulf of Mexico from climate change, these toxic sites and their surroundings were ill-prepared for the hurricane season.<sup>2</sup> Hurricane Harvey was predicted to be “an unimaginable disaster”<sup>3</sup> and considered “unprecedented”<sup>4</sup> because of the massive scale of its devastation,<sup>5</sup> but it was just one storm in a series of environmental tragedies that year. Just weeks later, Hurricane Maria

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<sup>1</sup> See, e.g., News Release, U.S. Env'tl. Prot. Agency, EPA Statement — San Jacinto River Waste Pits Superfund Site Data (Sept. 28, 2017), <https://www.epa.gov/newsreleases/epa-statement-san-jacinto-river-waste-pits-superfund-site-data> [<https://perma.cc/Y2S2-V7VX>]; Press Release, Ctr. for Biological Diversity, Analysis: Majority of Flooded Texas Superfund Sites in Low-Income Neighborhoods, Communities of Color (Sept. 8, 2017), [https://www.biologicaldiversity.org/news/press\\_releases/2017/harvey-superfund-sites-09-08-2017.php](https://www.biologicaldiversity.org/news/press_releases/2017/harvey-superfund-sites-09-08-2017.php) [<https://perma.cc/Y9XA-8ANF>]; Alessandra Potenza, *Toxic Waste Seeps from a Houston Superfund Site After Harvey's Floods*, THE VERGE (Sept. 29, 2017, 2:23 PM), <https://www.theverge.com/2017/9/29/16385568/hurricane-harvey-superfund-site-houston-dioxin-cancer-chemicals> [<https://perma.cc/9XP3-2YW8>].

<sup>2</sup> See, e.g., David A. Graham, *Is Texas Ready for Hurricane Harvey?*, THE ATLANTIC (Aug. 24, 2017), <https://www.theatlantic.com/national/archive/2017/08/hurricane-harvey-predictions/537933/> [<https://perma.cc/7DDT-RAWJ>].

<sup>3</sup> Jason Samenow & Brian McNoldy, *Harvey Makes Landfall in Texas as Category 4 Storm, Destructive Winds and “Catastrophic” Flooding Expected*, WASH. POST (Aug. 25, 2017), <http://wapo.st/2wITeXr> [<https://perma.cc/67YT-QQ9F>].

<sup>4</sup> Lisa Friedman & John Schwartz, *How Hurricane Harvey Became So Destructive*, N.Y. TIMES (Aug. 28, 2017), <https://nyti.ms/2wb6NOM> [<https://perma.cc/98VG-5CAD>] (quoting a spokesman from the National Oceanic and Atmospheric Administration’s National Hurricane Center).

<sup>5</sup> Early estimates suggest that the cost of rebuilding after Hurricane Harvey could reach \$190 billion. *AccuWeather Predicts Hurricane Harvey to Be More Costly than Katrina, Sandy Combined*, ACCUWEATHER (Sept. 1, 2017, 1:15 PM), <https://www.accuweather.com/en/weather-news/accuweather-predicts-hurricane-harvey-to-be-more-costly-than-katrina-sandy-combined/70002597> [<https://perma.cc/C8CZ-X8TT>]; see also Chloe Anagnos, *Hurricane Harvey Damages Set to Break Katrina Record*, AM. INST. FOR ECON. RESEARCH (Sept. 12, 2017), <https://www.aier.org/blog/hurricane-harvey-damages-set-break-katrina-record> [<https://perma.cc/L8A7-DN7R>] (“[I]n terms of damage, Harvey will leave past US hurricanes in its wake.”).

became the worst natural disaster on record in Puerto Rico, and residents of the Island experienced similarly contaminated water and leaks.<sup>6</sup>

The destructive power of such storms is increasingly commonplace. Their disparate impact on low-income communities and communities of color is expected to continue in this age of climate change. Whether these specific storms were the result of global warming is debated, but the scientific consensus is that climate change is making tropical storms and other environmental disasters such as wildfires and flooding worse.<sup>7</sup> Global temperatures are also already increasing,<sup>8</sup> leading glaciers to shrink,<sup>9</sup> sea levels to rise,<sup>10</sup> and shoreline erosion to accelerate.<sup>11</sup> The human toll of these changes is difficult to overstate, and this toll is not and will not be shared equally.<sup>12</sup> Like the hurricanes of the last several years, climate change will have the most severe effects on low-income people and communities of color, particularly those that have been called “environmental justice communities” in the academic literature, because they bear disproportionate environmental risks and burdens.<sup>13</sup> The overlap between these predictable, though devastating, effects of climate change and the disparate siting of toxic facilities signals the need for adaptation to and preparation for the changing climate.

Environmental law has insufficiently supported the push for adaptation. High-profile lawsuits have focused almost exclusively on climate

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<sup>6</sup> Ed Lavandera & John Sutter, *Flirting with Another Disaster: Puerto Ricans Tap Into Potentially Unsafe Water*, CNN (Oct. 20, 2017, 3:18 PM), <https://us.cnn.com/2017/10/16/americas/puerto-rico-superfund-water/index.html> [<https://perma.cc/68W6-SP5Z>].

<sup>7</sup> See, e.g., Thomas R. Knutson et al., *Tropical Cyclones and Climate Change*, 3 NATURE: GEOSCIENCE 157, 160 (2010); Friedman & Schwartz, *supra* note 4. One study shows that large majorities of Americans believe that climate change has made extreme weather events worse. ANTHONY LEISEROWITZ ET AL., YALE PROJECT ON CLIMATE CHANGE COMM’N, EXTREME WEATHER, CLIMATE & PREPAREDNESS IN THE AMERICAN MIND 3 (2012), <http://environment.yale.edu/climate-communication/files/Extreme-Weather-Climate-Preparedness.pdf> [<https://perma.cc/Q3WJ-6KTZ>]. But see John Schwartz, *The Relationship Between Hurricanes and Climate Change*, N.Y. TIMES (Aug. 25, 2017), <https://nyti.ms/2w4Ji9Z> [<https://perma.cc/3PL7-VSVU>] (suggesting that scientists still believe there are too many variables to directly link number of hurricanes to climate change).

<sup>8</sup> See, e.g., Terry L. Root et al., Letter, *Fingerprints of Global Warming on Wild Animals and Plants*, 421 NATURE 57, 57 (2003).

<sup>9</sup> INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY 988 (Christopher B. Field et al. eds., 2014).

<sup>10</sup> *Id.* at 991.

<sup>11</sup> *Id.*

<sup>12</sup> *Id.* at 996–1001.

<sup>13</sup> The term “environmental justice communities” is a term of art within environmental law. For example, a 1994 Executive Order issued by President Clinton included the phrase “environmental justice,” see Exec. Order No. 12,898, 3 C.F.R. 859 (1995), *reprinted as amended in* 42 U.S.C. § 4321 (2012), and legal scholarship has embraced the term for low-income communities and communities of color that face greater environmental risks, see, e.g., Christopher D. Ahlers, *Race, Ethnicity, and Air Pollution: New Directions in Environmental Justice*, 46 ENVTL. L. 713, 715 (2016); Tseming Yang, *Melding Civil Rights and Environmentalism: Finding Environmental Justice’s Place in Environmental Regulation*, 26 HARV. ENVTL. L. REV. 1, 31 (2002).

change mitigation.<sup>14</sup> But debates about *preparation* are arguably as important as the political controversies over the *prevention* of climate change because regardless of actions taken now to reduce greenhouse gas emissions, climate change and its effects will continue in the next several centuries.<sup>15</sup> Some states have taken up the challenge, creating adaptation plans based on climate science.<sup>16</sup> These steps forward, however, provide only a patchwork of protections and often fail to consider existing risks.<sup>17</sup> Although the Environmental Protection Agency (EPA) previously endorsed climate change adaptation,<sup>18</sup> it has done little to require hazardous facilities or other regulated entities to prepare for climate change effects.<sup>19</sup> President Obama had issued an executive order with the stated goal to “prepare the [United States] for the impacts of climate change,”<sup>20</sup> but President Trump revoked the order soon after entering office.<sup>21</sup> Indeed, under the Trump Administration, the EPA has positioned itself as an opponent of climate science.<sup>22</sup>

<sup>14</sup> See, e.g., *Juliana v. United States*, 217 F. Supp. 3d 1224, 1233 (D. Or. 2016); *Kanuk ex rel. Kanuk v. State Dep’t of Nat. Res.*, 335 P.3d 1088, 1091 (Alaska 2014); *Peshlakai ex rel. Butler v. Brewer*, No. 1 CA-CV 12-0347, 2013 WL 1091209, at \*1 (Ariz. Ct. App. Mar. 14, 2013); *Filippone ex rel. Filippone v. Iowa Dep’t of Nat. Res.*, No. 12-0444, 2013 WL 988627, at \*1 (Iowa Ct. App. Mar. 13, 2013); *Aronow v. State*, No. A12-0585, 2012 WL 4476642, at \*1 (Minn. Ct. App. Oct. 1, 2012); see also Jacqueline Peel & Hari M. Osofsky, *Sue to Adapt?*, 99 MINN. L. REV. 2177, 2192 (2015).

<sup>15</sup> See Thomas Lukas Frölicher et al., *Continued Global Warming After CO<sub>2</sub> Emissions Stoppage*, 4 NATURE: CLIMATE CHANGE 40, 40 (2014).

<sup>16</sup> See, e.g., CAL. NAT. RES. AGENCY, SAFEGUARDING CALIFORNIA PLAN: 2018 UPDATE (2018), <http://resources.ca.gov/docs/climate/safeguarding/update2018/safeguarding-california-plan-2018-update.pdf> [<https://perma.cc/LF36-VX8M>] (providing information on California’s climate adaptation strategy); MATTHEW ROACH ET AL., CLIMATE AND HEALTH ADAPTATION PLAN 2017: PUBLIC HEALTH GUIDANCE FOR THE STATE OF ARIZONA (2017), <http://www.azdhs.gov/documents/preparedness/epidemiology-disease-control/extreme-weather/pubs/arizona-climate-health-adaptation-plan.pdf> [<https://perma.cc/HV5B-DEGF>] (discussing the public health preparations for climate uncertainty in the state).

<sup>17</sup> See, e.g., Vicki Arroyo et al., *State Innovation on Climate Change: Reducing Emissions from Key Sectors While Preparing for a “New Normal,”* 10 HARV. L. & POL’Y REV. 385, 429 (2016) (“[E]ven those leading states are at early stages of implementation and their efforts . . . pale in comparison to what is needed given the changes that lie ahead.”).

<sup>18</sup> *Adapting to Climate Change*, U.S. ENVTL. PROT. AGENCY (Jan. 19, 2017), [https://19january2017snapshot.epa.gov/climatechange/adapting-climate-change\\_.html](https://19january2017snapshot.epa.gov/climatechange/adapting-climate-change_.html) [<https://perma.cc/9HV4-AZR9>].

<sup>19</sup> See Alexander C. Kaufman, *Leaked Memo: EPA Shows Workers How to Downplay Climate Change*, HUFFINGTON POST (Mar. 28, 2018, 12:53 PM), [https://www.huffingtonpost.com/entry/epa-climate-adaptation\\_us\\_5abbb5e3e4b04a59a31387d7](https://www.huffingtonpost.com/entry/epa-climate-adaptation_us_5abbb5e3e4b04a59a31387d7) [<https://perma.cc/993D-WNS3>]; see also Brad Plumer & Coral Davenport, *E.P.A. to Give Dissenters a Voice on Climate, No Matter the Consensus*, N.Y. TIMES (June 30, 2017), <https://nyti.ms/2tvCscU> [<https://perma.cc/R259-TPH4>].

<sup>20</sup> Exec. Order No. 13,653, 3 C.F.R. 330 (2014).

<sup>21</sup> Exec. Order No. 13,783 § 3(a)(i), 82 Fed. Reg. 16,093, 16,094 (Mar. 31, 2017).

<sup>22</sup> For example, the Trump Administration has removed documents that discuss climate change from government websites. See Lisa Friedman, *EPA Scrubs a Climate Website of “Climate Change,”* N.Y. TIMES (Oct. 20, 2017), <https://nyti.ms/2zo6miO> [<https://perma.cc/WSK8-6ZGB>].

One potential starting point to push for greater climate change adaptation in an era of government inaction is the Resource Conservation and Recovery Act<sup>23</sup> (RCRA). The statute's unique citizen-suit provision allows claims against facilities storing toxic substances in ways that create an "imminent and substantial endangerment to health or the environment."<sup>24</sup> The growing documentation of climate change effects suggests that this imminence requirement is met in numerous facilities across the country already.<sup>25</sup> Individuals and groups bringing suit under RCRA could use this provision of the law to compel facilities housing toxic substances to consider climate change impacts in their planning for the storage, handling, transportation, and disposal of such substances. While the jurisprudence on RCRA has yet to catch up with the reality of climate change, our rapidly warming world will soon require that courts acknowledge both the imminent threat that climate change poses and the need to force adaptation.

Using RCRA as a means to compel climate change adaptation also presents an opportunity to protect the communities most vulnerable to the effects of climate disasters. Because many of these communities live near toxic waste facilities, the risks from flooding, storm surges, and other natural disasters related to global warming are heightened. Though the law's applications in this context are unproven, RCRA offers a possible legal tool for environmental justice communities to protect themselves from some of the worst effects of climate change.

This Note proceeds in four Parts. Part I explains briefly the history of the movement for climate change adaptation and the particular challenges — both legal and political — facing this push to protect vulnerable communities. Part II discusses how RCRA provides a means toward compelling facilities housing toxic waste to plan for climate change effects, and then considers how this legal tool would help abate the ongoing injustice of disparate climate change burdens. Part III explains how RCRA's unique citizen-suit provisions could allow lawsuits that guard communities against the known repercussions of both sea level rise and frequent flooding. The Note concludes with Part IV, which explores the benefits of using RCRA for such cases, including providing a means for environmental justice communities to protect themselves, and the likely practical challenges of such suits.

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<sup>23</sup> 42 U.S.C. §§ 6901–6992k (2012).

<sup>24</sup> *Id.* § 6972(a)(1)(B).

<sup>25</sup> See Michael Biesecker, *EPA Official Speaks on Risk of Climate Change to Toxic Sites*, ASSOCIATED PRESS (Jan. 19, 2018), <https://www.apnews.com/15e553a1e5b645da9d731bbe96b8d22> [<https://perma.cc/4TPS-GX8E>].

## I. CLIMATE CHANGE ADAPTATION

Mitigation efforts are no longer enough to stop climate change.<sup>26</sup> Because carbon dioxide remains in the atmosphere for centuries, even a complete cessation of emissions now will not reduce the climate change resulting from emissions from the early twentieth century.<sup>27</sup> The Third U.S. National Climate Assessment forecasts that in the next century the United States will experience rising temperatures, more intense hurricanes, increasing ocean acidification, more significant heatwaves, and greater flooding.<sup>28</sup> And recent evidence suggests that the world is unlikely to escape at least a 1.5-degree increase in global mean surface temperature as compared to the mean temperatures of just two hundred years ago.<sup>29</sup>

The spate of tropical storms and severe weather in the United States provides visceral proof of the need for climate change adaptation. Hurricane Harvey's intensity, for example, was considered attributable at least in part to increasing global temperatures.<sup>30</sup> The resulting flooding overwhelmed homes and numerous industrial facilities, including the nearby Arkema chemical plant that housed volatile chemicals.<sup>31</sup> The flooding led to the destabilization of these chemicals such that they eventually ignited.<sup>32</sup> Similarly, as climate change continues, scientists predict deteriorating conditions could leave many communities and states more vulnerable to devastating wildfires like those experienced in California in 2017.<sup>33</sup> And those wildfires went far beyond simply destroying property: the fires increased the air pollution throughout the

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<sup>26</sup> See, e.g., W. Neil Adger et al., *Social-Ecological Resilience to Coastal Disasters*, 309 SCIENCE 1036, 1039 (2005); Rasmus Heltberg et al., *Addressing Human Vulnerability to Climate Change: Toward a "No-Regrets" Approach*, 19 GLOBAL ENVTL. CHANGE 89, 89 (2009) ("Adaptation — adjusting to address ongoing and future climate changes — is increasingly recognized as an urgent and necessary complement to greenhouse gas emissions reductions." (footnote omitted)).

<sup>27</sup> INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: SYNTHESIS REPORT 14 (2007) ("[A]dditional adaptation measures will be required to reduce the adverse impacts of projected climate change and variability, regardless of the scale of mitigation undertaken over the next two to three decades.").

<sup>28</sup> U.S. GLOB. CHANGE RESEARCH PROGRAM, CLIMATE CHANGE IMPACTS IN THE UNITED STATES 11 (Jerry M. Melillo et al. eds., 2014).

<sup>29</sup> INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS 20 (Thomas F. Stocker et al. eds., 2013).

<sup>30</sup> See, e.g., David Roberts, *Climate Change Did Not "Cause" Harvey or Irma, but It's a Huge Part of the Story*, VOX (Sept. 11, 2017, 8:44 AM), <https://www.vox.com/energy-and-environment/2017/8/28/16213268/harvey-climate-change> [<https://perma.cc/268X-UKJR>].

<sup>31</sup> Julie Turkewitz et al., *New Hazard in Storm Zone: Chemical Blasts and "Noxious" Smoke*, N.Y. TIMES (Aug. 31, 2017), <https://nyti.ms/2wVS77C> [<https://perma.cc/4N8S-E5MM>].

<sup>32</sup> *Id.*

<sup>33</sup> Chelsea Harvey, *Here's What We Know About Wildfires and Climate Change*, SCI. AM. (Oct. 13, 2017), <https://www.scientificamerican.com/article/heres-what-we-know-about-wildfires-and-climate-change/> [<https://perma.cc/2YXT-253T>].

state, including pollution from toxic substances such as metals, pesticides and herbicides, and asbestos.<sup>34</sup>

As the health and environmental hazards of climate change manifest, adaptation “may have immediate benefits for social-ecological systems by decreasing vulnerability to future changes.”<sup>35</sup> Fortunately, some steps toward adaptation have occurred in the last decade.<sup>36</sup> Fifteen states have statewide climate adaptation plans in place.<sup>37</sup> Several more are in the process of crafting such plans or have regional and agency-specific plans.<sup>38</sup> In 2009, President Obama established the Interagency Climate Change Adaptation Task Force specifically to provide federal agencies support in preparing for climate change.<sup>39</sup> In October 2010, the Task Force released a Progress Report that provided adaptation principles, including prioritizing vulnerable populations, focusing on ecosystems, and using risk-management strategies.<sup>40</sup> The Defense Department has even continued adaptation work under the Trump Administration.<sup>41</sup> Even some politicians openly opposed to acknowledging climate change have taken to quietly investing in preparation efforts.<sup>42</sup> As positive a sign as these changes are, they have not moved the United States far enough toward true adaptation. Most states, including almost all the Gulf Coast states most vulnerable to tropical storms, still lack statewide climate change adaptation plans.<sup>43</sup>

The disparate impact of climate change provides a moral imperative to expand on these adaptation efforts. As the Obama Administration Task Force noted, climate change will not affect populations and places

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<sup>34</sup> Emily Atkin, *The Toxic Air in California Is a Public Health Crisis*, NEW REPUBLIC (Oct. 12, 2017), <https://newrepublic.com/article/145259/toxic-air-california-public-health-crisis> [https://perma.cc/WVX5-YB69]; see also U.S. ENVTL. PROT. AGENCY ET AL., WILDFIRE SMOKE: A GUIDE FOR PUBLIC HEALTH OFFICIALS 60–61 (May 2016).

<sup>35</sup> Robin Kundis Craig, “Stationary Is Dead” — *Long Live Transformation: Five Principles for Climate Change Adaptation Law*, 34 HARV. ENVTL. L. REV. 9, 21 (2010).

<sup>36</sup> See Peel & Osofsky, *supra* note 14, at 2188–92.

<sup>37</sup> *State and Local Adaptation Plans*, GEORGETOWN CLIMATE CTR., <http://www.georgetownclimate.org/adaptation/plans.html> [https://perma.cc/US4T-PTQ2].

<sup>38</sup> *Id.*

<sup>39</sup> See Exec. Order No. 13,514, 3 C.F.R. 248 (2010), *superseded by* Exec. Order No. 13,653, 3 C.F.R. 330 (2014). President Obama later replaced the Task Force with the Council on Climate Preparedness and Resilience. See Exec. Order No. 13,653 § 6, 3 C.F.R. 330, 334–35 (2014).

<sup>40</sup> See WHITE HOUSE COUNCIL ON ENVTL. QUALITY, PROGRESS REPORT OF THE INTERAGENCY CLIMATE CHANGE ADAPTATION TASK FORCE 10 (2010).

<sup>41</sup> See, e.g., Tara Copp, *Pentagon Is Still Preparing for Global Warming Even Though Trump Said to Stop*, MIL. TIMES (Sept. 12, 2017), <https://www.militarytimes.com/news/your-military/2017/09/12/pentagon-is-still-preparing-for-global-warming-even-though-trump-said-to-stop/> [https://perma.cc/MS8T-BZMK].

<sup>42</sup> See Robert R.M. Verchick, *Culture, Cognition, and Climate*, 2016 U. ILL. L. REV. 969, 1007–08 (describing, among other examples, former Louisiana Governor Bobby Jindal’s promotion of a coastal restoration plan that would help the state adapt to climate change).

<sup>43</sup> See *State and Local Adaptation Plans*, *supra* note 37 (showing that as of April 2018, Florida was the only Gulf Coast state with a statewide climate adaptation plan).

equally: “[S]horeline communities, socially or economically disadvantaged populations, as well as sensitive ecosystems such as coral reefs, wetlands, and Arctic habitats, are generally more vulnerable to climate impacts.”<sup>44</sup> As previously outlined, environmental justice communities have already faced the grim reality of climate change through the intense hurricanes and flooding of toxic facilities near their homes. Preventing further disparate and devastating impacts of climate change on these vulnerable populations should spur greater action on adaptation.

As one environmental advocate expressed during the Obama Administration, “the policy world’s fixation on achieving, or blocking, federal greenhouse gas emission legislation as part of our national strategy for climate change mitigation” has left little attention for necessary adaptation.<sup>45</sup> The bigger issue today, however, is how to continue these steps toward climate change adaptation with an executive branch hostile to climate science<sup>46</sup> and a Congress that has failed to provide climate change legislation.<sup>47</sup> One alternative path goes through the third branch of government. The way forward with the judiciary is not obvious: courts have seen at most only a handful of cases seeking to compel climate change adaptation,<sup>48</sup> and few causes of action would seem to provide compelled adaptation as a source of relief.<sup>49</sup> But RCRA offers a way to begin that work.

## II. CLIMATE CHANGE ADAPTATION LITIGATION UNDER RCRA

RCRA at first may seem like an odd fit for pursuing claims related to climate change.<sup>50</sup> At its core, RCRA neither takes a stance on climate

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<sup>44</sup> WHITE HOUSE COUNCIL ON ENVTL. QUALITY, *supra* note 40, at 7.

<sup>45</sup> J.B. Ruhl, *Climate Change Adaptation and the Structural Transformation of Environmental Law*, 40 ENVTL. L. 363, 365–66 (2010).

<sup>46</sup> See, e.g., Brad Plumer, *Trump Ignores Climate Change. That’s Very Bad for Disaster Planners.*, N.Y. TIMES (Nov. 9, 2017), <https://nyti.ms/2jeSBA3> [<https://perma.cc/TG8Q-NG6E>].

<sup>47</sup> See, e.g., Jody Freeman & David B. Spence, *Old Statutes, New Problems*, 163 U. PA. L. REV. 1, 20–22 (2014) (noting the failures of Congress to update the Clean Air Act or otherwise provide clear statutory responses to climate change).

<sup>48</sup> See David Markell & J.B. Ruhl, *An Empirical Assessment of Climate Change in the Courts: A New Jurisprudence or Business as Usual?*, 64 FLA. L. REV. 15, 35 (2012) (finding no cases that were “filed to require legislative or agency action on a statute, rule, policy, or permit to require new or more extensive climate change adaptation measures”); Peel & Osofsky, *supra* note 14, at 2197 (noting a small number of “newer cases around coastal hazards and disaster planning [that] have a clearer focus on government management of predicted climate change impacts”).

<sup>49</sup> Cf. *In re Katrina Canal Breaches Litig.*, 696 F.3d 436 (5th Cir. 2012), *rev’g* 673 F.3d 381 (5th Cir. 2012) (reversing a decision by the same panel and finding that the Army Corps of Engineers was completely insulated from liability for flood damage in Hurricane Katrina that was aggravated by dredging and levee design, *id.* at 441, because of the discretionary function exception of the Federal Tort Claims Act, *id.* at 454).

<sup>50</sup> However, using the traditional environmental law statutes for modern problems is increasingly common despite the frequent challenges of statutory fit. See Freeman & Spence, *supra* note 47, at 42–43, 62–63. While some commentators have suggested updating existing environmental

change nor concerns itself with carbon dioxide as a source of environmental pollution. But the preventative focus of the law includes requirements of facilities to guard against substantial risk to public health and the environment. In fact, environmental groups have used RCRA to bring actions against waste facilities after stormwater discharges of the kind that might occur due to climate change effects.<sup>51</sup> Courts have even hinted at a willingness to extend their constructions of RCRA to force more stringent protection against chemical releases.<sup>52</sup> Most importantly, RCRA provides a citizen-suit provision that lends itself well to adaptation-forcing lawsuits against facilities housing toxic materials.

A RCRA lawsuit would seek to compel facilities housing solid waste or toxic materials to include climate change impacts in their prevention plans, which ultimately could lead to more stringent measures protecting against possible spills or chemical releases into surrounding communities. As the extreme weather events of the last decade have shown, lack of adaptive planning in facilities housing such waste can substantially harm local populations.<sup>53</sup> RCRA provides a means to address this problem. This Part considers a construction of RCRA's unique citizen-suit provision that could provide a basis for climate adaptation litigation and the benefits of using RCRA's citizen-suit provision in this relatively novel way, particularly for environmental justice communities.

#### A. RCRA's Expansive Citizen-Suit Provision: Section 7002

In 1976, President Ford signed RCRA, which provided a qualified ban on the dumping of hazardous or solid waste.<sup>54</sup> Lawmakers intended to “eliminate[] the last remaining loophole in environmental law, that of unregulated land disposal of discarded material and hazardous

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statutes in order to address contemporary concerns, *see, e.g.*, Robin Kundis Craig, *Climate Change, Regulatory Fragmentation, and Water Triage*, 79 U. COLO. L. REV. 825, 911–20 (2008); H.M. Zamudio, Note, *Predicting the Future and Acting Now: Climate Change, the Clean Water Act, and the Lake Champlain Phosphorus TMDL*, 35 VT. L. REV. 975, 994–95 (2011), Congress has taken little action to amend the current environmental regime, *see* Freeman & Spence, *supra* note 47, at 17–19; Richard J. Lazarus, *Congressional Descent: The Demise of Deliberative Democracy in Environmental Law*, 94 GEO. L.J. 619, 621–22 (2006).

<sup>51</sup> *See, e.g.*, *Ecological Rights Found. v. Pac. Gas & Elec. Co.*, 874 F.3d 1083, 1087 (9th Cir. 2017).

<sup>52</sup> *See, e.g.*, *Little Hocking Water Ass'n, Inc. v. E.I. DuPont de Nemours & Co.*, 91 F. Supp. 3d 940, 965 (S.D. Ohio 2015) (accepting the claim that aerial emissions contaminating soil and groundwater are “disposal” within the meaning of RCRA).

<sup>53</sup> *See, e.g.*, Emily Atkin, *America Has a Toxic Waste Hurricane Problem*, NEW REPUBLIC (Sept. 8, 2017), <https://newrepublic.com/article/144737/america-toxic-waste-hurricane-problem> [<https://perma.cc/U8KN-F5R5>].

<sup>54</sup> *See* Resource Conservation and Recovery Act of 1976 § 1003, Pub. L. No. 94–580, 90 Stat. 2795, 2798 (codified as amended at 42 U.S.C. § 6902 (2012)).



wastes.”<sup>55</sup> This newly created legal regime had a dual focus.<sup>56</sup> First, RCRA required careful planning for the treatment, transportation, storage, and disposal of hazardous wastes so that regulation could stretch “from cradle to grave.”<sup>57</sup> Courts later construing the statute understood RCRA to mandate that the EPA “err on the side of caution.”<sup>58</sup> Second, the law set baseline requirements for the management of non-hazardous solid waste including minimum criteria for the location and design of municipal and industrial waste facilities.<sup>59</sup> The law created numerous requirements for facilities housing toxic chemicals, including mandatory reporting and permitting, monitoring, inspection, and submission of prevention plans.<sup>60</sup>

Amendments in 1984 provided an expanded citizen-suit provision, which allows individuals to bring suit for endangerments to the environment or health.<sup>61</sup> RCRA is the only environmental statute that provides such a broad citizen-suit provision.<sup>62</sup> The relevant provision, section 7002, provides a private right of action against a person “who has contributed or who is contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste which may present an imminent and substantial endangerment to health or the environment.”<sup>63</sup> Based on the language of the statute, an imminent-hazard claim under RCRA’s citizen-suit provision has three core elements: First, conditions at the site in question must present an imminent and substantial endangerment. Second, that endangerment must result from the past or current management, storage, treatment, transport, or disposal of hazardous or solid waste. And third, the defendant must have contributed to or be contributing to such management, storage, treatment, transport, or disposal.<sup>64</sup>

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<sup>55</sup> H.R. Rep. No. 94-1491, at 4 (1976), *reprinted in* 1976 U.S.C.C.A.N. 6238, 6241.

<sup>56</sup> The Supreme Court phrased this dual focus slightly differently than this Note, asserting that RCRA has the “twin goals of encouraging resource recovery and protecting against contamination.” *City of Chicago v. Env’tl. Def. Fund*, 511 U.S. 328, 339 (1994).

<sup>57</sup> *Id.* at 331.

<sup>58</sup> *Am. Chemistry Council v. EPA*, 337 F.3d 1060, 1066 (D.C. Cir. 2003).

<sup>59</sup> 42 U.S.C. § 6907.

<sup>60</sup> *E.g.*, 42 U.S.C. § 6922(b)(1) (requiring generators of hazardous waste to certify on hazardous waste manifests that they are taking steps to reduce the generation of those wastes, as established by amendments to RCRA in 1984).

<sup>61</sup> *See* 42 U.S.C. § 6972(a)(1)(B).

<sup>62</sup> *See* Randall James Butterfield, Note, *Recovering Environmental Cleanup Costs Under the Resource Conservation and Recovery Act: A Potential Solution to a Persistent Problem*, 49 VAND. L. REV. 689, 701 (1996).

<sup>63</sup> 42 U.S.C. § 6972(a)(1)(B).

<sup>64</sup> For an example of a court applying this statutory framework, see *PMC, Inc. v. Sherwin-Williams Co.*, 151 F.3d 610, 618 (7th Cir. 1998).

*B. The Untapped Potential of Section 7002's Citizen-Suit Provision*

The relatively straightforward language of section 7002 conceals its promise as a tool for forcing adaptation throughout the United States. A private plaintiff need not “show that the defendant’s actions violated any specific RCRA requirement or any RCRA-mandated order or permit.”<sup>65</sup> Once liability is established, courts with jurisdiction over a section 7002 RCRA suit have the power to grant injunctive relief.<sup>66</sup> Because RCRA requires covered facilities to be “designed, constructed, maintained, and operated to minimize the possibility of” certain emergencies,<sup>67</sup> the statute seems to provide a way to compel prevention planning with a focus on the likely risks of climate change resulting from hazardous wastes.

The first apparent application of section 7002 to force adaptation in response to predicted climate change effects arose in 2016. That year, the Conservation Law Foundation (CLF) filed a lawsuit against ExxonMobil that included a RCRA endangerment claim.<sup>68</sup> The complaint alleged that an ExxonMobil storage terminal posed an imminent and substantial endangerment “[b]ecause ExxonMobil ha[d] not taken climate change impacts into account in its” various RCRA-mandated prevention plans.<sup>69</sup> This alleged failure to implement stringent protective measures based on consideration of likely sea-level rise and storm events left members of the community “directly in harm’s way.”<sup>70</sup> CLF argued that the “location, elevation, and lack of preventative infrastructure” left the facility susceptible to future “sea level rise, increased precipitation, [and] increased magnitude and frequency of storm events[] and . . . surges.”<sup>71</sup> Without stronger measures, CLF asserted, the plans contravened the purpose of RCRA’s requirements.

In a three-page order, the district court dashed hopes that the RCRA claims would go further. While allowing CLF to proceed with its Clean Water Act<sup>72</sup> (CWA) claims, Judge Wolf concluded that CLF lacked standing to bring the RCRA claims.<sup>73</sup> He concluded that the “alleged injuries . . . are unlikely to occur until after the [p]ermit has expired or,

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<sup>65</sup> *Ecological Rights Found. v. Pac. Gas & Elec. Co.*, 874 F.3d 1083, 1089 (9th Cir. 2017); *see also Goldfarb v. Mayor & City Council of Balt.*, 791 F.3d 500, 505 (4th Cir. 2015).

<sup>66</sup> 42 U.S.C. § 6972(a).

<sup>67</sup> 40 C.F.R. § 264.31 (2018) (promulgating regulations under RCRA for the design and operation of hazardous waste treatment, storage, and disposal facilities).

<sup>68</sup> Complaint for Declaratory and Injunctive Relief and Civil Penalties ¶ 1, *Conservation Law Found., Inc. v. ExxonMobil Corp.*, No. 16-11950 (D. Mass. Sept. 29, 2016) [hereinafter *Complaint*].

<sup>69</sup> *Id.* ¶ 11.

<sup>70</sup> *Id.*

<sup>71</sup> *Id.* ¶ 70.

<sup>72</sup> 33 U.S.C. §§ 1251–1387 (2012).

<sup>73</sup> *Conservation Law Found., Inc.*, No. 16-11950, slip op. at 1 (D. Mass. Sept. 13, 2017).

if the [p]ermit remains in effect indefinitely, in the near future.”<sup>74</sup> The alleged injuries related to sea-level rise and “increases in the severity and frequency of storms and flooding” were not “imminent”<sup>75</sup> because they were predicted to occur “in the far future, such as in 2050 or 2100.”<sup>76</sup>

Judge Wolf’s decision should not deter future litigants that seek climate adaptation from pursuing claims under section 7002. Certainly, courts will not find the requirements of section 7002 met “where the risk of harm is remote in time, completely speculative in nature, or *de minimis* in degree.”<sup>77</sup> But courts also read the statutory language expansively, finding that it is “intended to confer upon the courts the authority to grant affirmative equitable relief to the extent necessary to eliminate *any risk* posed by toxic wastes.”<sup>78</sup> As the discussion below demonstrates, careful parsing of the statutory language in conjunction with longstanding interpretations of section 7002 should provide the necessary basis for bringing climate change adaptation suits against facilities storing hazardous waste.

*I. Interpreting “Imminent.”* — Perhaps the greatest barrier to those pursuing climate change adaptation claims under section 7002 is showing that there is an “imminent” endangerment from the effects of global warming on the facility in question. But judicial understandings of imminence in the standing context demonstrate that courts should construe “imminent” within the context of section 7002 broadly. It is a familiar requirement for standing that a plaintiff show “a concrete and particularized injury that is either actual or imminent.”<sup>79</sup> In *Massachusetts v. EPA*,<sup>80</sup> for example, the Court recognized “imminent” harm even where many of the harms considered were well into the future.<sup>81</sup> The Court discussed the predicted “precipitate rise in sea levels by the end of the

<sup>74</sup> *Id.* at 2.

<sup>75</sup> Judge Wolf’s interpretation suggests that his analysis of “imminence” was focused on whether CLF had standing to bring the suit. *Id.* This Note places the standing considerations to the side to discuss the requirement of an “imminent” endangerment under RCRA, assuming, as courts have typically found, that an imminent endangerment under the meaning of RCRA will also allow plaintiffs to meet the imminence requirement for standing. See *infra* section II.B.1, pp. 2419–21.

<sup>76</sup> *Conservation Law Found., Inc.*, No. 16-11950, slip op. at 2 (citing Complaint, *supra* note 68, ¶ 93(b), (e)–(g), (i)–(l)). Judge Wolf also noted that claims related to potential injuries “are not ripe for decision because, among other reasons, the [EPA] may require changes to the Permit that will prevent the harms from occurring.” *Id.*

<sup>77</sup> *E.g.*, *W.R. Grace & Co. v. EPA*, 261 F.3d 330, 339–40 (3d Cir. 2001) (quoting H.R. REP. NO. 93-1185 (1974), reprinted in 1974 U.S.C.A.N. 6554, 6488).

<sup>78</sup> *Dague v. City of Burlington*, 935 F.2d 1343, 1355 (2d Cir. 1991) (quoting *United States v. Prince*, 688 F.2d 204, 213 (3d Cir. 1982) (emphasis added)), *rev’d in part on other grounds*, 505 U.S. 557 (1992).

<sup>79</sup> *Massachusetts v. EPA*, 549 U.S. 497, 517 (2007) (citing *Lujan v. Defs. of Wildlife*, 504 U.S. 555, 560–61 (1992)).

<sup>80</sup> 549 U.S. 497.

<sup>81</sup> *Id.* at 521–23.

century, ‘severe and irreversible changes to natural ecosystems,’ a ‘significant reduction in winter storage in winter snowpack’ . . . and an increase in the spread of disease” as cognizable harms to Massachusetts.<sup>82</sup> In the context of flooding risks and increased storm severity caused by climate change, the Court’s analysis has particular force because it concluded that the threats to Massachusetts’s coastal lands were sufficiently “imminent” despite the century of gradual changes to the coastline predicted.<sup>83</sup> Most recently, the Supreme Court reaffirmed “that the risk of real harm” may suffice to establish standing.<sup>84</sup> Given courts’ general approach of accepting plaintiffs’ allegations as true in analyzing imminence in standing contexts, the expansive reading of “imminence” the Supreme Court has provided in such instances signals that risks of climate change — including emissions of toxic chemicals from climate change-induced flooding — are indeed imminent.

In fact, the standing test for imminence would seem *more* stringent than RCRA’s imminence requirement. Section 7002 provides that a lawsuit is permissible when “handling, storage, treatment, transportation, or disposal of any solid or hazardous waste . . . *may* present an imminent and substantial endangerment.”<sup>85</sup> The inclusion of the word “may” provides a flexibility missing from general constructions of standing doctrine.<sup>86</sup> While courts applying standing doctrine have struggled with “probabilistic injury,”<sup>87</sup> judges have clearly stated the RCRA imminence requirement speaks to “probabilistic harms.”<sup>88</sup> Proof of actual harm is unnecessary, as the “reasonable prospect of future harm is adequate.”<sup>89</sup> As discussed above, given that the Supreme Court has allowed an arguably probabilistic injury to qualify as imminent in the standing context,<sup>90</sup> it stands to reason that the same chain of events read under the less rigid standard of section 7002 would easily be “imminent.”

Within the context of RCRA section 7002 specifically, courts have generally embraced similarly broad constructions of the term “imminent.” Courts have clarified that a harm can manifest itself years in the future and need not be immediate as long as the *threat* of that harm is

<sup>82</sup> *Id.* at 521 (citations omitted) (quoting testimony from a climate scientist).

<sup>83</sup> *Id.* at 521–23.

<sup>84</sup> *Spokeo, Inc. v. Robins*, 136 S. Ct. 1540, 1549 (2016) (citing *Clapper v. Amnesty Int’l USA*, 568 U.S. 398 (2013)).

<sup>85</sup> 42 U.S.C. § 6972(a)(1)(B) (2012) (emphasis added).

<sup>86</sup> *Cf. Ctr. for Biological Diversity v. U.S. Dep’t of Interior*, 563 F.3d 466, 478 (D.C. Cir. 2009) (“Petitioners can only aver that any significant adverse effects of climate change ‘may’ occur at some point in the future. This does not amount to the actual, imminent, or ‘certainly impending’ injury required to establish standing.”).

<sup>87</sup> Courtney M. Cox, *Risky Standing: Deciding on Injury*, 8 NE. U. L.J. 75, 81 (2016).

<sup>88</sup> *Me. People’s All. v. Mallinckrodt, Inc.*, 471 F.3d 277, 283–84 (1st Cir. 2006).

<sup>89</sup> *Id.* at 296; *see also Parker v. Scrap Metal Processors, Inc.*, 386 F.3d 993, 1015 (11th Cir. 2004).

<sup>90</sup> *See Massachusetts v. EPA*, 549 U.S. 497, 521–23 (2007).

imminent.<sup>91</sup> The Senate Report for the 1984 RCRA amendments that created section 7002 citizen suits specifically noted that courts should construe the imminence requirement liberally and find an endangerment “imminent” when there is “a threat to human health or the environment, even if it may not eventuate or be fully manifest for a period of many years.”<sup>92</sup> While the vast majority of the prominent RCRA section 7002 lawsuits were brought when failures of handling or storage had already occurred,<sup>93</sup> an endangerment risk from a solid or hazardous waste facility already exists even if the event triggering such a storage or handling failure has yet to occur. With growing certainty about the effects of climate change (including increasingly concrete predictions about sea level rise), plaintiffs and courts alike can be certain that the effects of climate change will eventually reach toxic chemicals stored in coastal areas or in wildfire-prone regions if adaptive measures are not taken. The fact that this link in the chain to the ultimately detrimental effects to human health and the environment is a step before the immediate leaking of chemicals should not stop courts from finding imminence: courts have recognized that an imminent danger may exist “at any point in a chain of events which may ultimately result in harm to the public.”<sup>94</sup>

2. *Interpreting “Substantial Endangerment.”* — Judge Wolf’s dismissal of the section 7002 claim seeking climate change adaptation is not the final word on the viability of such claims for a further reason: his opinion did not address whether a “substantial endangerment” existed. This crucial second portion of the statutory language provides that a plaintiff may bring suit when an entity regulated under RCRA has acted or is failing to act in a way that endangers the public or environment. As discussed above, the endangerment need not be fully realized. The D.C. Circuit in *Ethyl Corp. v. EPA*<sup>95</sup> explained that the Clean Air Act’s<sup>96</sup> (CAA) similar language was intended to emphasize prevention: “A statute allowing for regulation in the face of danger is, necessarily, a precautionary statute. Regulatory action may be taken before

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<sup>91</sup> See, e.g., *Christie-Spencer Corp. v. Hausman Realty Co.*, 118 F. Supp. 2d 408, 419 (S.D.N.Y. 2000) (finding that “imminency” under RCRA does not mean “immediately”).

<sup>92</sup> S. REP. NO. 98-284, at 59 (1983), reprinted in 2 S. COMM. ON ENV’T AND PUB. WORKS, 102D CONG., A LEGISLATIVE HISTORY OF THE SOLID WASTE DISPOSAL ACT 2085 (Comm. Print 1991).

<sup>93</sup> See, e.g., *Price v. U.S. Navy*, 39 F.3d 1011, 1019–20 (9th Cir. 1994) (affirming that despite the presence of lead, there was no present imminent or substantial endangerment to health or the environment because “a concrete barrier block[ed] the only pathway to . . . contamination,” *id.* at 1020 (quoting *Price v. U.S. Navy*, 818 F. Supp. 1323, 1325 (S.D. Cal. 1992))).

<sup>94</sup> *Wilson v. Amoco Corp.*, 989 F. Supp. 1159, 1174 (D. Wyo. 1998) (quoting *Craig Lyle Ltd. P’ship v. Land O’Lakes, Inc.*, 877 F. Supp. 476, 482 (D. Minn. 1995)).

<sup>95</sup> 541 F.2d 1 (D.C. Cir. 1976) (en banc).

<sup>96</sup> 42 U.S.C. §§ 7401–7671q (2012).

the threatened harm occurs; indeed, the very existence of such precautionary legislation would seem to *demand* that regulatory action precede, and, optimally, prevent, the perceived threat.”<sup>97</sup>

The identical use of “endangerment” in the citizen-suit provision signals that *Ethyl Corp.*’s “precautionary principle” applies to the RCRA statutory language as well.<sup>98</sup> Indeed, the argument for finding an endangerment due to a solid or hazardous waste facility’s nonconsideration of climate change is even greater under RCRA because, unlike the language of the CAA, section 7002 allows a citizen suit when “handling, storage, . . . or disposal” merely “*may present*” a substantial endangerment.<sup>99</sup> This standard will likely be met due to the fact that the eventual leaking of chemicals (or the release of toxic chemicals into surrounding communities) can, in many cases, be predicted from the existence of solid or hazardous waste.

The EPA’s Endangerment Finding for greenhouse gases would further support finding a “substantial endangerment” in relation to facilities that have not planned for climate change. The 2009 Endangerment Finding notes that climate change as a whole “is reasonably anticipated both to endanger public health and to endanger welfare.”<sup>100</sup> Included in the evidence of the danger posed by climate change is that climate change “may alter extreme weather events”<sup>101</sup> and harm public health “by an increase in the severity of coastal storm events due to rising sea levels.”<sup>102</sup> Indeed, the Endangerment Finding indicates that one of the most important reasons for recognizing greenhouse gases as a danger to public health is the “increased risk of storm surge and flooding in coastal areas from sea level rise and more intense storms.”<sup>103</sup>

More valuable to showing that a substantial endangerment exists from such facilities is the recent history of storms inundating solid and hazardous waste facilities. The toxic chemical releases caused by Hurricane Harvey are only one example in a long line of storms overwhelming or putting at risk such facilities.<sup>104</sup> Particularly for environmental justice communities in coastal regions, the effects of the 2017 hurricane season provide ample support for the conclusion that, while

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<sup>97</sup> *Ethyl Corp.*, 541 F.2d at 13 (interpreting the term “endanger” in section 211(c)(1)(A) of the CAA, 42 U.S.C. § 7545(c)(1)(A)).

<sup>98</sup> International environmental law has adopted the “precautionary approach” as a foundational principle. U.N. Conference on Environment and Development, *Rio Declaration on Environment and Development*, Principle 15, U.N. Doc. A/CONF.151/26/Rev.1 (Vol. 1), annex I (Aug. 12, 1992).

<sup>99</sup> 42 U.S.C. § 6972(a)(1)(B) (emphasis added).

<sup>100</sup> Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66,496, 66,499 (Dec. 15, 2009) (to be codified at 40 C.F.R. ch. 1).

<sup>101</sup> *Id.* at 66,497.

<sup>102</sup> *Id.* at 66,498.

<sup>103</sup> *Id.*

<sup>104</sup> See *supra* notes 30–34 and accompanying text.

precise prediction of when a flood or major storm event will occur is challenging, climate change has created dangers that could “occur immediately.”<sup>105</sup>

Finally, section 7002’s demand for an “imminent and substantial endangerment,” when read as a whole, might also permit a “sliding scale” approach to suits involving probable climate change effects. In *Ethyl Corp.*, the D.C. Circuit indicated that the statutory language of “endangerment” should be read flexibly: “[T]he public health may properly be found endangered both by a lesser risk of a greater harm and by a greater risk of a lesser harm.”<sup>106</sup> The expected harm of flood- or storm-caused releases of waste could be great enough to justify some lack of specificity in determining the exact risk.

3. *A Purposive Reading of RCRA Section 7002.* — Reading section 7002 in light of the statutory purpose further supports permitting suits for climate change adaptation. Waiting until the point that toxic substances are already leaching into the environment would undermine the statute’s goal of prevention. While the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) addresses the remediation and cleanup of areas already contaminated with waste and toxic substances termed “Superfund” sites,<sup>107</sup> RCRA seeks to *prevent* the creation of such areas in the first place.<sup>108</sup> The citizen-suit provisions of the law underscore this preventative focus. The goal of citizen suits is providing relief to “ameliorate[] present or obviate[] the risk of future ‘imminent harms.’”<sup>109</sup> Because of this prevention focus, RCRA lawsuits would seem to have the power to require facilities to adopt stricter policies that guard against chemical releases before natural disasters strike.

#### IV. THE BENEFITS AND CONCERNS OF EMPLOYING SECTION 7002 TO FORCE CLIMATE CHANGE ADAPTATION

Lawsuits under section 7002 to compel facilities to provide climate change adaptation are clearly only a small step in the broader adaptation movement. Litigation is unlikely to force the widespread preparation measures necessary to truly protect the United States and its people from the worst effects of global warming. But pursuing such lawsuits is important to both reinforce the importance of climate change adapta-

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<sup>105</sup> *Meghrig v. KFC Western, Inc.*, 516 U.S. 479, 485 (1996) (quoting WEBSTER’S NEW INTERNATIONAL DICTIONARY OF ENGLISH LANGUAGE 1245 (2d ed. 1934)).

<sup>106</sup> *Ethyl Corp. v. EPA*, 541 F.2d 1, 18 (D.C. Cir. 1976) (en banc).

<sup>107</sup> See 42 U.S.C. §§ 9601–28 (2012).

<sup>108</sup> See, e.g., *Parker v. Scrap Metal Processors, Inc.*, 386 F.3d 993, 1015 (11th Cir. 2004) (“The operative word in the statute is the word ‘may.’ Accordingly, the plaintiffs need only demonstrate that the waste disposed of ‘may present’ an imminent and substantial threat.”).

<sup>109</sup> *Meghrig*, 516 U.S. at 486.

tion and empower the most vulnerable communities to protect themselves against some of the more severe global warming impacts. This Part explores the benefits of pursuing section 7002 lawsuits on a theory of climate change adaptation and the challenges facing potential plaintiffs should they bring such claims.

*A. Setting Up the Adaptation Dominos*

Local efforts to force facilities to implement stringent RCRA prevention plans could create a domino effect that eventually forces federal action on climate change resilience planning.<sup>110</sup> The optimistic view that coalitions between environmentalists and industry would produce climate change regulation<sup>111</sup> seems a distant memory during the Trump Administration. But creating local changes to prevention plans may spur industry interest in having a clear EPA statement on the requirements for such climate change-conscious prevention plans.<sup>112</sup> California's threats of placing more stringent requirements on greenhouse gas emissions in the years before the 2009 Endangerment Finding, for example, led car manufacturers to seek and even embrace federal emissions standards.<sup>113</sup> Lawsuits compelling facilities to include climate change adaptation in their plans might create a similar drive toward uniformity from the federal government vis-à-vis regulated industries.

Litigation under section 7002 also could serve an important messaging function to compel more widespread climate adaptation measures. CLF's lawsuit, for example, garnered attention in the press that underscored the risks of climate change.<sup>114</sup> Public attention to climate change adaptation efforts offers the chance for environmental groups and plaintiffs to craft a narrative about the importance of adaptation without attempting to break through the cacophony of the political sphere. And the value of the messages is not just for the voting public. Industries facing such litigation risks may also implement climate change adaptation preemptively to avoid court expenses.<sup>115</sup>

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<sup>110</sup> See Kirsten H. Engel & Scott R. Saleska, *Subglobal Regulation of the Global Commons: The Case of Climate Change*, 32 *ECOLOGY L.Q.* 183, 224 (2005) (noting how state action on air regulation prompted "preemptive federal regulation to eliminate a growing prospect of inconsistent regulation by individual states").

<sup>111</sup> See Bruce Yandle & Stuart Buck, *Bootleggers, Baptists, and the Global Warming Battle*, 26 *HARV. ENVTL. L. REV.* 177, 189–90 (2002).

<sup>112</sup> Cf. Engel & Saleska, *supra* note 110, at 224–26.

<sup>113</sup> See Jody Freeman, *The Obama Administration's National Auto Policy: Lessons from the "Car Deal"*, 35 *HARV. ENVTL. L. REV.* 343, 349, 353–58, 364 (2011).

<sup>114</sup> See, e.g., Natasha Geiling, *Exxon Faces a First-of-Its-Kind Lawsuit over Climate Deception*, THINKPROGRESS (Sept. 29, 2016, 7:39 PM), <https://thinkprogress.org/exxon-water-lawsuit-b36335e4e093/> [<https://perma.cc/6AY2-MF4Q>].

<sup>115</sup> Cf. Peel & Osofsky, *supra* note 14, at 2210–11 (concluding that litigation against municipalities may pressure them to adapt preemptively).



*B. Providing a Means for Environmental Justice  
Communities to Protect Themselves*

Climate change adaptation suits under section 7002 are particularly important for communities of color and low-income communities. The environmental justice movement has long concerned itself with redressing the disproportionate environmental burdens that such communities experience.<sup>116</sup> To this day, studies continue to show that environmental harms disproportionately affect low-income communities and communities of color.<sup>117</sup> For example, hazardous waste facilities are concentrated in areas with significant minority populations.<sup>118</sup> RCRA could prove a more attractive option for environmental justice advocates than Civil Rights Act suits, which require a showing of intentional discrimination,<sup>119</sup> particularly given courts' reticence to give effect to those more traditional environmental justice and civil rights tools.<sup>120</sup>

Much of the environmental justice work of the last several decades has focused on addressing the existing harms of environmental racism. For example, the NAACP Environmental and Climate Justice Program seeks to address the disproportionate impact that climate change has on

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<sup>116</sup> See, e.g., Alice Kaswan, *Environmental Justice: Bridging the Gap Between Environmental Laws and "Justice,"* 47 AM. U. L. REV. 221, 225–28 (1997).

<sup>117</sup> See Ihab Mikati et al., *Disparities in Distribution of Particulate Matter Emission Sources by Race and Poverty Status*, 108 AM. J. PUB. HEALTH 480, 480 (2018). See generally LUKE W. COLE & SHEILA R. FOSTER, FROM THE GROUND UP: ENVIRONMENTAL RACISM AND THE RISE OF THE ENVIRONMENTAL JUSTICE MOVEMENT 167–83 (2001) (offering an annotated bibliography of studies documenting and describing the correlation between environmental hazards and low-income and racial minority populations).

<sup>118</sup> Data supporting this correlation stretches back several decades. See, e.g., COMM'N FOR RACIAL JUSTICE, TOXIC WASTES AND RACE IN THE UNITED STATES: A NATIONAL REPORT ON THE ECONOMIC CHARACTERISTICS OF COMMUNITIES WITH HAZARDOUS WASTE SITES, at xiii–xiv (1987); U.S. GEN. ACCOUNTING OFFICE, SITING OF HAZARDOUS WASTE LANDFILLS AND THEIR CORRELATION WITH RACIAL AND ECONOMIC STATUS OF SURROUNDING COMMUNITIES 3–4 (1983); see also Luke W. Cole, *Empowerment as the Key to Environmental Protection: The Need for Environmental Poverty Law*, 19 ECOLOGY L.Q. 619, 622–31 (1992).

<sup>119</sup> See *Alexander v. Sandoval*, 532 U.S. 275, 293 (2001) (holding that individual plaintiffs have no “private right of action to enforce [disparate-impact] regulations promulgated under” Title VI of the Civil Rights Act of 1964).

<sup>120</sup> See, e.g., Kyle W. La Londe, *Who Wants to Be an Environmental Justice Advocate?: Options for Bringing an Environmental Justice Complaint in the Wake of Alexander v. Sandoval*, 31 B.C. ENVTL. AFF. L. REV. 27, 34–50 (2004) (noting the challenge of bringing civil rights suits for environmental justice groups after *Sandoval*); Tseming Yang, *The Form and Substance of Environmental Justice: The Challenge of Title VI of the Civil Rights Act of 1964 for Environmental Regulation*, 29 B.C. ENVTL. AFF. L. REV. 143, 155–58 (2002) (“[S]imple application of traditional civil rights tools, such as equal protection claims, have met with very limited success when raised in environmental discrimination suits.” *Id.* at 155.); see also *S. Camden Citizens in Action v. N.J. Dep’t of Env’tl. Prot.*, 274 F.3d 771, 790 (3d Cir. 2001) (holding that EPA regulations under Title VI do not create a privately enforceable right).

low-income communities and communities of color.<sup>121</sup> Environmental groups similarly tout dedicated projects for environmental justice concerns.<sup>122</sup> But notwithstanding President Clinton's 1994 Executive Order on environmental justice requiring federal agencies to "identify[] and address[], as appropriate, disproportionately high and adverse human health or environmental effects of [their] programs, policies, and activities on minority populations and low-income populations,"<sup>123</sup> the federal government has not made major strides in preventing disparate impact of environmental harms.<sup>124</sup> In instances in which cleanup of hazardous sites impacted by hurricanes and other environmental disasters likely related to global warming does occur, the EPA typically provides slower and less effective cleanup in areas in environmental justice communities.<sup>125</sup> Some studies of the CAA, the CWA, and RCRA indicate that the EPA conducts less compliance monitoring of and imposes fewer sanctions on regulated facilities when they are located in environmental justice communities.<sup>126</sup> The federal government's actions in the wake of major natural disasters similarly do not inspire confidence about even climate change–reactionary policies. Officials have reportedly declined to visit toxic waste cleanup sites — officially known as "Superfund" sites — and largely ignored concerns of environmental justice communities who live near those sites.<sup>127</sup>

In the face of this federal inaction, environmentalists have considered how state and local actors could lead preparation efforts for climate change.<sup>128</sup> Speculation about local leadership has more recently become

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<sup>121</sup> See *Environmental & Climate Justice*, NAACP, <http://www.naacp.org/issues/environmental-justice/> [<https://perma.cc/6RB5-8ZL7>].

<sup>122</sup> See, e.g., *Healthy Communities*, EARTHJUSTICE, <https://earthjustice.org/healthy-communities> [<https://perma.cc/5MLX-333B>]; *Environmental Justice*, SIERRA CLUB, <https://www.sierraclub.org/environmental-justice> [<https://perma.cc/S9EM-8Y82>].

<sup>123</sup> Exec. Order No. 12,898 § 1-101, 3 C.F.R. 859, 859 (1995), *reprinted as amended in* 42 U.S.C. § 4321 (2012).

<sup>124</sup> See, e.g., U.S. COMM'N ON CIVIL RIGHTS, ENVIRONMENTAL JUSTICE: EXAMINING THE ENVIRONMENTAL PROTECTION AGENCY'S COMPLIANCE AND ENFORCEMENT OF TITLE VI AND EXECUTIVE ORDER 12,898, at 40, 78–88 (Sept. 2016), [http://www.usccr.gov/pubs/Statutory\\_Enforcement\\_Report2016.pdf](http://www.usccr.gov/pubs/Statutory_Enforcement_Report2016.pdf) [<https://perma.cc/GL7D-Y5AK>].

<sup>125</sup> See Eileen Gauna, *Federal Environmental Citizen Provisions: Obstacles and Incentives on the Road to Environmental Justice*, 22 *ECOLOGY L.Q.* 1, 36–37 (1995).

<sup>126</sup> See David M. Konisky & Christopher Reenock, *Evaluating Fairness in Environmental Regulatory Enforcement*, in *FAILED PROMISES: EVALUATING THE FEDERAL GOVERNMENT'S RESPONSE TO ENVIRONMENTAL JUSTICE* 173, 177–78 (David M. Konisky ed., 2015).

<sup>127</sup> For example, in the early days after Hurricane Harvey, when leaks from facilities housing toxic materials would have been most apparent, EPA officials were reported to have not visited the affected Superfund sites. See Jason Dearen & Michael Biesecker, *AP Exclusive: Toxic Waste Sites Flooded in Houston Area*, ASSOCIATED PRESS (Sept. 3, 2017), <https://apnews.com/27796dd13b9549boac76aded58a15122> [<https://perma.cc/3PE2-4Q4D>].

<sup>128</sup> See, e.g., Katherine A. Trisolini, *All Hands on Deck: Local Governments and the Potential for Bidirectional Climate Change Regulation*, 62 *STAN. L. REV.* 669, 675–79 (2010).

a concrete call to action.<sup>129</sup> And past grassroots efforts of environmental justice communities have created networks dedicated to challenging the harmful effects of disproportionate environmental risks.<sup>130</sup> New lawsuits focused on addressing climate change effects among such communities may inspire new coalitions against climate change to develop.<sup>131</sup>

Most importantly, environmental justice communities are those most likely to be impacted by facilities governed under RCRA. The disproportionate siting of solid and hazardous waste facilities in these low-income communities and communities of color means that RCRA climate adaptation litigation will also disproportionately involve environmental justice groups. Foundational studies have shown that communities of color face a disproportionate risk from toxic waste,<sup>132</sup> and the environmental justice movement's original focus was on the issues central to RCRA, such as "leaking toxic waste dumps, dangerous incinerators," and siting of dangerous facilities.<sup>133</sup> And these are among the most vulnerable to the impacts of climate change. For example, Hurricane Katrina caused severe flooding throughout New Orleans,<sup>134</sup> but those areas that were most vulnerable and hardest hit were overwhelmingly black.<sup>135</sup> Superfund sites and landfills were overwhelmed with water, which was especially egregious given that New Orleans had encouraged black homebuyers to purchase property in an area near such a site.<sup>136</sup> Providing a litigation tool to these groups could help address the moral imperative of climate change adaptation.

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<sup>129</sup> See, e.g., Christopher Brown, *A Litigious Proposal: A Citizen's Duty to Challenge Climate Change, Lessons from Recent Federal Standing Analysis, and Possible State-Level Remedies Private Citizens Can Pursue*, 25 J. ENVTL. L. & LITIG. 385, 418–19 (2010); Hari M. Osofsky, *Is Climate Change "International"? Litigation's Diagonal Regulatory Role*, 49 VA. J. INT'L L. 585, 604–16 (2009).

<sup>130</sup> See generally COLE & FOSTER, *supra* note 117.

<sup>131</sup> A potential counterargument to this proposal is that white and affluent communities could also use such RCRA suits and thereby raise the cost of siting toxic facilities in their neighborhoods. Widespread use under this theory could actually exacerbate environmental racism by providing a further reason for companies to prefer siting facilities in poor and minority communities. Cf. Gauna, *supra* note 125, at 32 n.108 (1995) (discussing a California Waste Management Board report that recommended avoiding wealthier communities when placing waste sites because those communities could better "effectuate their opposition" than lower-income communities). But this concern is misplaced because RCRA operates against *already* sited facilities, which, as discussed previously, are disproportionately located in environmental justice communities.

<sup>132</sup> See, e.g., sources cited *supra* note 118.

<sup>133</sup> Cole, *supra* note 118, at 636–37.

<sup>134</sup> See Joseph B. Treaster & N.R. Kleinfeld, *New Orleans Is Now Off Limits; Pentagon Joins in Relief Effort*, N.Y. TIMES (Aug. 31, 2005), <http://nyti.ms/2oMr7Bf> [<https://perma.cc/K24C-X5JD>] ("Offering up howling winds of as much as 145 miles an hour, the hurricane hit land in eastern Louisiana . . . as one of the strongest to strike the United States.")

<sup>135</sup> Jonathan D. Stringfield, *Higher Ground: An Exploratory Analysis of Characteristics Affecting Returning Populations After Hurricane Katrina*, 31 POPULATION & ENV'T 43, 46 (2010).

<sup>136</sup> Juliet Eilperin, *Flooded Toxic Waste Sites Are Potential Health Threat*, WASH. POST (Sept. 10, 2005), <http://wapo.st/2F6ERlk> [<https://perma.cc/QH9F-J5ZU>].

*C. Limits to RCRA as a Means to Force Climate Change Adaptation*

Of course, section 7002 suits have their limitations. The statute contains both “integration” and “anti-duplication” provisions to avoid superseding the conflicting requirements of other environmental statutes, such as the CWA.<sup>137</sup> The majority of courts have limited RCRA’s anti-duplication provision to situations in which there is clearly inconsistency between RCRA and specific mandates imposed under another statute.<sup>138</sup> Furthermore, while RCRA’s imminent citizen-suit provision authorizes injunctive relief, it does not allow courts to provide monetary damages or awards of restitution in creating equitable relief.<sup>139</sup> The statute’s allowance for costs of litigation to the prevailing party may somewhat mitigate these potential financial burdens.<sup>140</sup>

As with most environmental cases, a primary concern for section 7002 litigants is whether a court will find that the plaintiffs have standing. Courts have typically raised significant concerns about climate change cases “because the non-localized nature of global warming raises greater concerns of injury, causation, and redressability than [traditional] suits.”<sup>141</sup> Causation, in particular, hinders such suits because numerous entities emit greenhouse gases, which makes determining a specific emitter to hold responsible all but impossible.<sup>142</sup> Lawsuits against refineries and energy producers for their contributions to climate change have similarly failed on this ground.<sup>143</sup> But unlike general emissions cases, RCRA climate change adaptation claims will be tied to specific

<sup>137</sup> Ecological Rights Found. v. Pac. Gas & Elec. Co., 874 F.3d 1083, 1089–90 (9th Cir. 2017).

<sup>138</sup> See, e.g., Edison Elec. Inst. v. U.S. EPA, 996 F.2d 326, 337 (D.C. Cir. 1993) (finding no direct conflict between the Atomic Energy Act’s promotion of nuclear energy and RCRA section 3004(j), which governs storage of hazardous waste); S.F. Herring Ass’n v. Pac. Gas & Elec. Co., 81 F. Supp. 3d 847, 866 (N.D. Cal. 2015) (holding that the antiduplication statute was not triggered where there was not evidence that the CWA completely covered the alleged RCRA violation); Cmty. Ass’n for Restoration of the Env’t, Inc. v. George & Margaret LLC, 954 F. Supp. 2d 1151, 1160 (E.D. Wash. 2013) (finding that the “broader scope of RCRA’s endangerment provision” meant that the antiduplication provision was not triggered).

<sup>139</sup> Commerce Holding Co. v. Buckstone, 749 F. Supp. 441, 445 (E.D.N.Y. 1990) (“[R]egardless of how the request [for remediation costs] is denominated, it does not comport with the statute’s purpose of allowing private parties to bring suit if ‘genuinely acting as private attorneys general rather than pursuing a private remedy’” (quoting Env’tl. Def. Fund, Inc. v. Lamphier, 714 F.2d 331, 337 (4th Cir. 1983))).

<sup>140</sup> 42 U.S.C. § 6972(e) (2012).

<sup>141</sup> Note, *Causation in Environmental Law: Lessons from Toxic Torts*, 128 HARV. L. REV. 2256, 2262 n.36 (2015) (citing Mark Latham et al., *The Intersection of Tort and Environmental Law: Where the Twains Should Meet and Depart*, 80 FORDHAM L. REV. 737, 761 (2011)).

<sup>142</sup> See, e.g., Massachusetts v. EPA, 549 U.S. 497, 523–25 (2007) (noting this difficulty). While *Massachusetts v. EPA* suggested that a “meaningful contribution” to the pollution would suffice, *id.* at 525, lower courts have struggled to define what is necessary to show a meaningful contribution, see *Amigos Bravos v. U.S. Bureau of Land Mgmt.*, 816 F. Supp. 2d 1118, 1135–36 (D.N.M. 2011).

<sup>143</sup> See, e.g., Wash. Env’tl. Council v. Bellon, 732 F.3d 1131, 1135 (9th Cir. 2013) (holding that plaintiffs did not have standing in suit seeking to compel a state agency “to regulate greenhouse gas emissions from . . . oil refineries”).

failures of a specific facility, avoiding the problems of injury and causation. Although courts may limit citizen suits to situations in which “there is a reasonable prospect that a serious, *near-term* threat to human health or the environment exists,”<sup>144</sup> the effects of climate change, as discussed above, are occurring now.<sup>145</sup>

An additional challenge for suits under section 7002 is providing sufficient proof of endangerment. While plaintiffs are not required to quantify the danger posed,<sup>146</sup> to survive a motion to dismiss, a complaint must show that there is some insufficiency in a facility’s planning. CLF’s complaint against ExxonMobil, for example, explained the layout of the facility, the precise fuel and materials stored in the facility, the number of employees involved, the language of the facility’s “Storm Water Pollution Prevention Plan,” federal flood maps, and information from ExxonMobil’s own memoranda.<sup>147</sup>

Perhaps the greatest challenge for climate change adaptation suits to succeed under section 7002 is the double-edged sword of government action. These RCRA suits may have the beneficial effect of encouraging federal attention to climate change adaptation, but once the government acts on a particular endangerment, citizen suits are barred.<sup>148</sup> This played out in *Supporters to Oppose Pollution, Inc. v. Heritage Group*.<sup>149</sup> A citizens’ group filed under section 7002 to target a creditor of a waste facility that continued to violate RCRA despite EPA action compelling remediation efforts.<sup>150</sup> The Seventh Circuit concluded that even though the EPA had yet to succeed in forcing complete cleanup of the facility, the citizens’ group could not maintain its suit against the different but related defendant.<sup>151</sup> A legitimate worry, then, exists that under this standard an EPA that is not dedicated to climate change adaptation<sup>152</sup> may simply provide requirements for climate change adaptation plans that are inadequate, weakly enforced, or both, but would still preclude action under RCRA. Plaintiffs could rely on the statutory language of section 7002 requiring that the government is “diligently prosecuting”

<sup>144</sup> Me. People’s All. v. Mallinckrodt, Inc., 471 F.3d 277, 279 (1st Cir. 2006) (emphasis added).

<sup>145</sup> See, e.g., *supra* notes 7–13 and accompanying text.

<sup>146</sup> See, e.g., Interfaith Cmty. Org. v. Honeywell Int’l, Inc., 399 F.3d 248, 259–60 (3d Cir. 2005); United States v. Union Corp., 259 F. Supp. 2d 356, 400 (E.D. Pa. 2003); Raymond K. Hoxsie Real Estate Tr. v. Exxon Educ. Found., 81 F. Supp. 2d 359, 367 (D.R.I. 2000).

<sup>147</sup> Complaint, *supra* note 68, ¶¶ 34–69, 80–81, 97–160.

<sup>148</sup> 42 U.S.C. § 6972(b)(1)(B), (b)(2)(B)–(C) (2012).

<sup>149</sup> 973 F.2d 1320 (7th Cir. 1992).

<sup>150</sup> *Id.* at 1322.

<sup>151</sup> *Id.* at 1323–24 (“Notice that this statute refers to an action to ‘require compliance with such permit [or] regulation’ — not an action against the private party’s chosen adversary, but an action to require compliance.” *Id.* at 1323 (alteration in original) (quoting § 6972(b)(1)(B)).).

<sup>152</sup> See, e.g., Coral Davenport, *Trump’s Infrastructure Plan May Ignore Climate Change. It Could Be Costly*, N.Y. TIMES (Feb. 10, 2018), <https://nyti.ms/2BlfcSG> [<https://perma.cc/VA5Z-GD97>].

an action in order for there to be a preclusive effect.<sup>153</sup> But given the generally deferential attitude of the judiciary to agencies,<sup>154</sup> it is unlikely that such arguments would have great force.

## V. CONCLUSION

Litigation has become a valuable, though not often successful, tool to push for climate change mitigation.<sup>155</sup> Citizen suits have allowed environmental groups both to engage local populations and to seek the protection of environmental interests.<sup>156</sup> Several lawsuits have sought recognition that governments have an obligation under public trust doctrine to protect the environment through greenhouse gas regulations.<sup>157</sup> But while these lawsuits are often novel and promising as means to secure regulation of greenhouse gas emissions,<sup>158</sup> they do little to help environmental justice communities avoid bearing an outsized portion of climate change's harm. Rebuilding vulnerable areas after climate change-caused disasters is one necessary step,<sup>159</sup> but requiring facilities threatening public health and the environment to account for climate change in their planning is also essential.

One underused arrow in the quiver of groups desiring climate change adaptation is RCRA. The law's preventative focus and unique citizen-suit provision provide a means for compelling private preparation. And section 7002 also would protect communities that are most susceptible to those effects. After all: "[P]ollution will not be stopped by people who are not being polluted. If environmental degradation is stopped, it will be stopped by its victims."<sup>160</sup> This statement by Luke Cole in 1992 was meant to express the importance of engaging with communities most affected by environmental harms in any effort to achieve environmental justice. As irreversible climate change looms, Cole's sentiment has continued force. If the worst effects of climate change are to be stopped, they will be stopped by its victims. The role of lawyers will be to empower these communities, and RCRA section 7002 provides one means to do so.

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<sup>153</sup> 42 U.S.C. § 6972(b)(1)(B).

<sup>154</sup> See, e.g., *Supporters to Oppose Pollution, Inc.*, 973 F.2d at 1323–24; see also Jeffrey G. Miller, *Theme and Variations in Statutory Preclusions Against Successive Environmental Enforcement Actions by EPA and Citizens* (pt. 1), 28 HARV. ENVTL. L. REV. 401, 456–73 (2004).

<sup>155</sup> See, e.g., Randall S. Abate, *Kyoto or Not, Here We Come: The Promise and Perils of the Piecemeal Approach to Climate Change Regulation in the United States*, 15 CORNELL J.L. & PUB. POL'Y 369, 392 (2006).

<sup>156</sup> See Jessica Owley, *From Citizen Suits to Conservation Easements: The Increasing Private Role in Public Permit Enforcement*, 43 ENVTL. L. REP. 10,486, 10,486 (2013).

<sup>157</sup> See, e.g., sources cited *supra* note 14.

<sup>158</sup> See Michael C. Blumm & Mary Christina Wood, "No Ordinary Lawsuit": *Climate Change, Due Process, and the Public Trust Doctrine*, 67 AM. U. L. REV. 1, 1 (2017).

<sup>159</sup> See Michael B. Gerrard & Justin Gundlach, Commentary, *We Need to Be Better Prepared for the Next Irma*, FORTUNE (Sept. 11, 2017), <http://for.tn/2foxKyJ> [<https://perma.cc/HET7-8RKH>].

<sup>160</sup> Cole, *supra* note 118, at 649.