# C O M M E N T

# Financial Assurance Mandates: No Substitute for Agency Expertise and Oversight

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### I. Introduction

Arnold's article highlights an important issue of growing urgency: the exposure of industrial facilities-many with toxic products or by-products-to risks of flooding exacerbated by sea-level rise and storm surge. His proposal to use financial assurance mandates (FAMs) is a compelling one, and he provides substantive details, including a draft local ordinance, to help implement this type of policy. However, the article is far too sanguine about the ability of this one policy tool to protect communities located in proximity to these industrial facilities, and it is overly dismissive of the role of complementary policies including robust chemical regulation, disclosure, and standards for pre-disaster mitigation measures and post-disaster response. Rather than pit these policies against one another using pejorative terms like "command-and-control," a more thoughtful and comprehensive approach would be to combine elements of these to implement a suite of policies designed to help build the resilience of industrial facilities to climate and extreme weather impacts while prioritizing the safety and well-being of local communities. Finally, to enact any of these policies at the national level will require political will from Congress and the administration-both of which are sorely lacking with respect to addressing climate change.

# II. Lessons From Houston After Hurricane Harvey

The example of Houston that Arnold cites repeatedly is particularly poignant considering the destruction wrought upon the city by Hurricane Harvey in August 2017. (His article was written prior to that signal event.) The flood damage to the Arkema chemical storage plant in Crosby, Texas and subsequent explosions, fires, and toxic pollution epitomize the dangers of industrial facilities that Arnold attempts to address. Yet, that example provides a cautionary note to the limits of FAMs as a sole means of addressing risks. That incident highlights the need for robust chemical safety standards, monitored and enforced by the Environmental Protection Agency (EPA) and Occupational Safety and Health Administration (OSHA), as well as the importance of the Chemical Safety Board, an independent agency charged with investigating chemical accidents. Strikingly, Arkema had been engaged in lobbying EPA and Congress to delay implementing key chemical safety regulations and found a sympathetic ear in EPA Administrator Scott Pruitt.<sup>1</sup>

There were more than 100 toxic spills after Harvey, many more incidents than were initially reported, and the full extent of the health burden of that pollution is still unclear.<sup>2</sup> A recent *New York Times* analysis of the Toxic Release Inventory found that there are more than 1,400 facilities using toxic chemicals in high flood risk areas and an additional 1,100 in moderate flood risk zones as designated by the Federal Emergency Management Agency.<sup>3</sup>

#### III. Need for a Suite of Policies

The challenge of safeguarding coastal industrial facilities is not simply one of robust building standards, back-up power systems that can withstand flooding, and other protective measures—it requires specialized knowledge of chemical

<sup>1.</sup> David Sirota et al., *Texas Republicans Helped Chemical Plant That Exploded Lobby Against Safety Rules*, INT'L BUS. TIMES (Aug. 31, 2017, 1:20 PM), www.ibtimes.com/political-capital/texas-republicans-helped-chemical-plant-exploded-lobby-against-safety-rules.

Frank Bajak & Lise Olsen, Silent Spills Part 1: In Houston and Beyond, Harvey's Spills Leave a Toxic Legacy, HOUSTON CHRON. & ASSOCIATED PRESS (2017), https://www.houstonchronicle.com/news/houston-texas/houston/article/In-Houston-and-beyond-Harvey-s-spills-leave-a-12771237.php.

Hiroko Tabuchi et al., *Floods Are Getting Worse, and 2,500 Chemical Sites Lie in the Water's Path*, N.Y. TIMES (Feb. 6, 2018), www.nytimes.com/interac-tive/2018/02/06/climate/flood-toxic-chemicals.html.

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safety and emergency response and the resources to deploy in the event of a disaster. Further, industrial facilities will need to coordinate closely with local, state, and federal emergency response efforts in the event of a disaster. First responders need to know what chemicals may be implicated in order to protect the local populations. FAMs can help with the costs of cleanup after the fact but not with the emergency response itself. Clearly, industrial facilities cannot self-regulate on issues that are vital to the public's health—so additional standards will need to be in place.

Arkema claimed that the events were unprecedented and therefore the company had no way of preparing for them—a claim not unlike that made by other companies in the aftermath of major industrial disasters. And yet the chemical storage facility was located in a known floodplain and had been identified as a risky site in a study by Texas A&M.<sup>4</sup> Will companies actually take responsibility for the myriad ways in which climate change is contributing to worsening disasters—or will they resort to the "Act of God" clause to escape responsibility? Best practice guidelines will need to be in place to determine sufficiently protective measures in light of what we know about projected climate change.

Arnold singles out the nuclear power industry as a successful example of FAMs. Yet the industry is shielded from bearing the full cost of its risks by statute, under the Price Anderson Act. The Nuclear Regulatory Commission is charged with setting and enforcing safety standards to limit the risks from these power plants. While Florida was ultimately lucky enough to escape a direct hit from Hurricane Irma in 2017, that storm could have had a serious effect on the Turkey Point nuclear plant near Miami. In the event of a total loss of power, hurricane force winds and debris could damage condensate storage tanks and compromise their ability to serve as a back-up option to cool the reactors.<sup>5</sup>

Industrial facilities that shut down as a precaution ahead of extreme weather events also need to exercise care in the start-up process post-disaster. For example, the U.S. Chemical Safety and Hazard Investigation Board (CSB) issued a safety alert after Harvey urging oil and chemical facilities to take special precautions when restarting in the wake of shutdowns due to Hurricane Harvey.

Contrary to what Arnold claims, an authoritative study from the National Institute of Building Sciences underscores the value and cost-effectiveness of protective building codes to limit damages to homes from extreme weather events. The study found that designing new buildings to exceed provisions of the 2015 International Codes (I-Codes), the model building codes developed by the International Code Council (ICC), can save the nation \$4 for every \$1 spent.<sup>6</sup> While the study was done in the context of residential buildings, its lessons lend themselves to industrial facilities.

FAMs have been used in other contexts including for underground storage tanks and some mining operations. However, under the current administration there are challenges regarding the use of FAMs. Earlier this year, EPA rolled back financial requirements for certain hardrock mining facilities under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, or Superfund). This Obama era rule was a first step toward meeting a long-standing recommendation from the U.S. Government and Accountability Office that EPA do more to ensure that liable parties do more to meet their cleanup obligations, including by implementing financial assurance mandates allowed by the Superfund statute since 1980.7 The agency is next set to evaluate similar requirements for chemical manufacturing, petroleum and coal products manufacturing, and electric power generation, transmission, and distribution. Given the precedent with hardrock mining, there are clearly no guarantees that requirements will be set.

The potential for companies to go bankrupt or be bought and sold to other entities can result in cleanup costs and risks being passed on to the public. Finally, FAMs should not be used as a way to sidestep legal proceedings and citizen lawsuits brought to expose culpability, provide remedy, and hopefully to improve safeguards going forward.

## IV. Climate Risks and Coastal Industrial Facilities

Major industrial zones along the East and Gulf coasts of the United States are hotspots of chronic inundation because of a combination of climate-induced sea-level rise and local land subsidence. Storm surge riding on high sea levels can also reach much further and higher inland, causing greater damage, as experienced during Hurricane Ike in 2008 and Hurricane Sandy in 2012. Climate change also increases extreme precipitation events, contributing to growing risks of flooding in both coastal and inland locations.<sup>8</sup> Yet these types of risks are not adequately captured in the Federal Emergency Management Agency's current flood risk maps, as evidenced by recent flooding events. Population growth and growing development in floodplains also put more people and property in harm's way.

The 2017 Climate Science Special Report, Volume 1 of the National Climate Assessment, finds that "nuisance

TEXAS A&M, MARY KAY O'CONNOR PROCESS SAFETY CENTER, RANKING OF CHEMICAL FACILITIES BASED ON THE POTENTIAL TO CAUSE HARM TO THE PUBLIC (Jan. 2016), assets.documentcloud.org/documents/2822336/ PCHP-Report-Updated-Edited-on-050216.pdf.

Ed Lyman, *Florida's Nuclear Plants and Hurricane Irma*, UNION OF CON-CERNED SCIENTISTS BLOG: ALL THINGS NUCLEAR (Sept. 8, 2017, 8:18 PM), www.allthingsnuclear.org/elyman/floridas-nuclear-plants-and-hurricaneirma.

NATIONAL INSTITUTE OF BUILDING SCIENCES MULTIHAZARD MITIGATION COUNCIL, NATURAL HAZARD MITIGATION SAVES: 2017 INTERIM REPORT (National Institute of Building Sciences Dec. 2017), https://www.eenews. net/assets/2018/02/02/document\_pm\_01.pdf.

<sup>7.</sup> U.S. Gov't Accountability Office, EPA Should Do More to Ensure That Liable Parties Meet Their Cleanup Obligations (U.S Gov't Accountability Office 2005), www.gao.gov/products/GAO-05-658.

DONALD J. WUEBBLES ET AL., CLIMATE SCIENCE SPECIAL REPORT: FOURTH NATIONAL CLIMATE ASSESSMENT, VOL. 1. (U.S. Global Change Research Program 2017), www.science2017.globalchange.gov.

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flooding" has increased in severity and frequency, in many places increasing 5- to 10-fold or more since the 1960s.<sup>9</sup> This type of flooding will increase with projected sea-level rise. The report also finds that: "A projected increase in the intensity of hurricanes in the North Atlantic could increase the probability of extreme flooding along most of the U.S. Atlantic and Gulf Coast states beyond what would be projected based solely on sea-level rise."<sup>10</sup>

Similarly, a 2017 publication from the Union of Concerned Scientists, *When Rising Seas Hit Home: Hard Choices Ahead for Hundreds of US Coastal Communities*, also highlights the worsening risks of chronic inundation.<sup>11</sup> Well before their land goes completely underwater, and even in the absence of storms, many communities will face a level of disruptive flooding that will seriously impede daily lives and activities. The analysis finds that by 2035, about 170 communities—roughly twice as many as today—will face chronic inundation and possible retreat from affected areas under intermediate or high scenarios of sea-level rise, with more than 100 seeing at least one-quarter of their land chronically flooded.

A 2015 Union of Concerned Scientists report highlighted the risks to coastal oil refineries from sea-level rise and storms.<sup>12</sup> It found that 120 U.S. oil and gas facilities are situated within 10 feet of the local high tide line. Many of these facilities are located along the Gulf of Mexico and they include facilities belonging to major corporations like Exxon Mobil and Chevron Corporation. With sea-level rise, by 2030 or 2045, many of these facilities could be partially or fully flooded by storms.

#### V. Conclusion

Arnold's proposal for FAMs could play an important role in encouraging companies to invest in measures to reduce risks from sea-level rise at coastal industrial facilities. However, they will not be a sufficient policy mechanism on their own. Additional policies, including the implementation, monitoring, and enforcement of robust public health safeguards, will also be needed. Because of the complex nature of these facilities and the myriad specialized chemicals and processes involved, adequate disclosure requirements are also key to ensuring that emergency responders and the public are aware of the risks to which they might potentially be exposed. The role of key regulatory agencies including EPA and OSHA cannot be overstated.

<sup>9.</sup> *Id.* 

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

<sup>11.</sup> ERIKA SPANGER-SIEGFRIED ET AL., WHEN RISING SEAS HIT HOME: HARD CHOICES AHEAD FOR HUNDREDS OF US COASTAL COMMUNITIES (Union of Concerned Scientists July 2017), www.ucsusa.org/sites/default/files/attach/2017/07/when-rising-seas-hit-home-full-report.pdf.

CHRISTINA CARLSON ET AL., STORMY SEAS, RISING RISKS: WHAT INVES-TORS SHOULD KNOW ABOUT CLIMATE CHANGE IMPACTS AT OIL REFINERIES (Union of Concerned Scientists Feb. 2015), www.ucsusa.org/sites/default/ files/attach/2015/02/stormy-seas-rising-risks-ucs-2015.pdf.