



**American Water Works  
Association**

*Dedicated to the World's Most Important Resource™*

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October 31, 2022

**VIA ELECTRONIC SUBMISSION**

Mr. Michael Regan  
Administrator  
Environmental Protection Agency  
Mail Code 28221T  
1200 Pennsylvania Ave. NW  
Washington, DC 20460

**RE: U.S. Environmental Protection Agency's Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act; Safer Communities by Chemical Accident Prevention Proposed Rule, 87 Fed. Reg. 53,556 (Aug. 31, 2022); Docket [EPA-HQ-OLEM-2022-0174](#)**

Dear Administrator Regan,

The American Water Works Association (AWWA or the Association) appreciates the opportunity to provide comments on the U.S. Environmental Protection Agency's (EPA or the Agency) Safer Communities by Chemical Accident Prevention Proposed Rule (the Proposed Rule), which would amend EPA's Risk Management Program (RMP) regulations issued pursuant to Clean Air Act (CAA) Section 112(r)(7).

AWWA shares EPA's goal of enhancing the safety of drinking water and wastewater treatment systems. AWWA and its members devote substantial time and resources to safety programs and training and have demonstrated commitment to risk management and process safety per the multiple American National Standards Institute (ANSI) standards, manuals of practice, and training resources we provide to the water sector. However, AWWA is concerned that the proposed changes impose costs on regulated entities that do not justify the benefits that EPA believes the Proposed Rule will provide. This is particularly true for AWWA's water utility members, who have a proven track record of safety in handling chemicals covered by RMP requirements. At the same time, there is an absence of evidence demonstrating how many of the recommended changes will reduce the risk of a catastrophic chemical release and actually improve chemical process safety.

After reviewing the Proposed Rule and associated technical documents, we are concerned that EPA's cost-benefit analysis has underestimated costs and overestimated benefits associated with the Proposed Rule. For water utilities, increased costs of compliance created by the Proposed Rule will be passed on to customers in the form of higher rates. As a result, any unjustified compliance costs will disproportionately impact members of environmental justice communities, who can least afford rate increases. By failing to properly take costs into account and explain changes from past policy, we are concerned that the Proposed Rule is legally vulnerable and risks violating the CAA and the Administrative Procedure Act (APA).


On a broader level, and perhaps more concerning, we found so many flaws in EPA's analysis and places where EPA failed to make use of its own internal data that we are concerned more generally that EPA has not properly consulted with its own subject matter experts to understand the implications that this Proposed Rule would have on regulated entities. In order to ensure that any final rule is informed by the technical expertise and resources available to the Agency and does not violate the CAA and EPA's other legal obligations, AWWA recommends that EPA revisit the Proposed Rule with the appropriate EPA offices and provide the public with an opportunity to comment on the underlying technical documents on which EPA has based its analysis.

In addition, some of EPA's proposed changes and new definitions are so broad and vague that they create due process and fair notice concerns. Moreover, these broad terms will open our water sector members up to litigation risk in the form of potential suits under the CAA's citizen suit provisions. Because these proposed changes and new definitions are unnecessary, the associated risks and burdens can be avoided if EPA removes the changes from any final rule. To the extent EPA retains them in a final rule, the Agency should clarify and substantially narrow these definitions, including the definition of natural hazards, to avoid these legal infirmities.

We have included a more detailed explanation of our concerns below.

If you have any questions about these comments, please feel free to contact myself or [Kevin Morley](#) in our Washington office.

Yours Sincerely,

  
G. Tracy Mehan, III  
Executive Director for Government Affairs

cc: Barry Breen – EPA/OLEM  
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**Who is AWWA?**

AWWA is an international, nonprofit, scientific, and educational society dedicated to providing total water solutions assuring the effective management of water. Founded in 1881, the Association is the largest organization of water supply professionals in the world. Our membership includes more than 4,000 utilities that supply roughly 80 percent of the nation's drinking water and treat almost half of the nation's wastewater. Our 50,000-plus total membership represents the full spectrum of the water community: public water and wastewater systems, environmental advocates, scientists, academicians, and others who hold a genuine interest in water, our most important resource. AWWA unites the diverse water community to advance public health, safety, the economy, and the environment.

**Comments of the American Water Works Association**  
**on the Proposal Rule for the**  
**Accidental Release Prevention Requirements: Risk Management Programs Under the Clean**  
**Air Act; Safer Communities by Chemical Accident Prevention**  
**[87 Fed. Reg. 53,556](#) (Aug. 31, 2022); Docket [EPA-HQ-OLEM-2022-0174](#)**

Submitted October 31, 2022

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## Summary

As detailed below, the U.S. Environmental Protection Agency's (EPA or the Agency) Safer Communities by Chemical Accident Prevention Proposed Rule (the Proposed Rule) includes a number of provisions that would be unduly burdensome for the water sector. This is particularly true in light of the water sector's proven track record in avoiding Risk Management Program (RMP) incidents and the unique burdens these new requirements would place on ratepaying customers. Some of the proposed provisions are also so broad and vague that they create due process concerns and unjustified enforcement risks. As a result, EPA should either remove or revise the requirements or should provide additional exemptions or flexibilities for the water sector.

Moreover, the current cost-benefit analysis of the Proposed Rule hinders the public's ability to meaningfully comment on the proposal. The analysis should be revised and the public should be allowed additional time to comment on the revised proposal and Regulatory Impact Analysis (RIA).

As you know, AWWA has a long history of engaging with the Agency on its proposals regarding the RMP requirements. AWWA previously commented in both 2016 and 2019 on EPA's rulemaking efforts, and has included copies of its prior comments and attachments here because many of its prior concerns remain relevant to this rulemaking.<sup>1</sup>

### **1. EPA's cost-benefit analysis does not support finalizing the requirements in the Proposed Rule.**

As the American Water Works Association (AWWA or the Association) has explained in its comments on prior RMP rulemakings, water utilities have a proven track record of safely handling chemicals at their facilities.<sup>2</sup> As a result, the additional burdens that would be imposed by the requirements in this Proposed Rule cannot be justified with regard to the water sector. Even if the water sector did not have an exemplary safety record, AWWA has identified a number of problems with EPA's current cost-benefit analysis. While each of these issues needs to be specifically addressed before promulgating any final rule, the number of issues that AWWA identified within the brief comment period that EPA provided for the proposal also indicates that there are likely far more flaws in the current analysis. EPA should undertake a broader review of its entire cost-benefit analysis rather than proceed based on the current analysis. In addition, AWWA identified instances where the Agency failed to take into account or use its own databases and resources. This suggests that EPA did not engage in the appropriate level of internal coordination to ensure that the Proposed Rule is adequately informed by its own data and expertise. Rather than rushing to finalize a rule based on an inaccurate analysis and incomplete information, EPA should take the time necessary to make sure all internal stakeholders and experts have a chance to provide feedback on the Proposed Rule. While courts defer to agencies because of their subject matter expertise, this deference is not warranted when EPA does not make use of such expertise.

Under the Clean Air Act (CAA) and the Administrative Procedure Act (APA), courts must set a rule aside if it is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law,"<sup>3</sup> or if it was

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<sup>1</sup> See AWWA Comments on 2016 RMP Proposed Rule (May 13, 2016) <https://www.regulations.gov/comment/EPA-HQ-OEM-2015-0725-0554>, [Appendix A]; AWWA Comments on the RMP Reconsideration Rule (August 23, 2018), [Appendix B].

<sup>2</sup> See AWWA Comments on 2016 RMP Proposed Rule, *supra* note 1.

<sup>3</sup> 5 U.S.C. § 706(2)(A).

promulgated “without observance of procedure required by law.”<sup>4</sup> In addition, a rule will be set aside if the Agency failed to provide a reasonable explanation for its decision, failed to consider an important part of the problem, or provided an explanation that runs counter to the evidence before it.<sup>5</sup> As further detailed below, the Proposed Rule does not comply with the CAA or APA and both the substance of the Proposed Rule and supporting technical documents need to be revised and made available for additional public comment before EPA finalizes any rule on this matter.

**A. The burden that the Proposed Rule places on water utilities is not justified in light of the industry’s record of safety and other unique features.**

***i. The water sector has one of the best safety records for RMP incidents.***

The water sector has a demonstrated record of safety under the existing RMP regulatory requirements. EPA itself has recognized this fact in its 2017 RMP rulemaking, noting that “according to RMP accident history data, the [water supply and wastewater treatment facilities] sector is among the least accident-prone sectors covered under the risk management program.”<sup>6</sup> In that same rulemaking, EPA also acknowledged that “drinking water utilities already may have considered alternative technologies for their disinfection process while addressing safety and health considerations, risk tradeoffs and compliance with” the Safe Drinking Water Act (SDWA).<sup>7</sup> EPA also acknowledged that not all of the proposed requirements were appropriate for the water sector because of its safety record: “In the water treatment sector in particular, the sector’s lower accidental release rates do not demonstrate that requiring thousands of facilities to conduct [Safer Technology and Alternatives Analysis (STAA)] would result in a significant drop in accidental releases.”<sup>8</sup>

EPA’s prior conclusions were supported by EPA’s own data on the 10-year accident history of the industry under the program presented during the Small Business Regulatory Enforcement Fairness Act (SBREFA) panel process for the 2017 RMP Rule. EPA data indicated that there are approximately 2,000 drinking water and wastewater treatment facilities regulated under RMP, representing 16% of all total RMP regulated facilities. Over this 10-year period of analysis, these facilities represented about 4.9% of all RMP reportable incidents, with an approximate annual average of 0.037 incidents per facility over that same compliance period.

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<sup>4</sup> *Id.* § 706(2)(D); see also *Owner-Operator Indep. Drivers Ass’n, Inc. v. Fed. Motor Carrier Safety Admin.*, 494 F.3d 188, 198 (D.C. Cir. 2007). The CAA requires compliance with the APA’s notice-and-comment requirements at 5 U.S.C. § 553(b) and 42 U.S.C. § 7607(d)(3). And courts “review final administrative actions of the EPA pursuant to the Clean Air Act under the same standard as set forth in the Administrative Procedure Act.” *W. States Petroleum Ass’n v. E.P.A.*, 87 F.3d 280, 283 (9th Cir. 1996); “To withstand review, an agency must have examined all relevant facts and data and articulated a rational explanation for its decision, including a reasonable connection between the facts and ultimate outcome.” *Hearth, Patio & Barbecue Ass’n v. Env’t Prot. Agency*, 11 F.4th 791, 805 (D.C. Cir. 2021)(citing *Am. Petrol. Inst. v. EPA*, 684 F.3d 1342, 1347 (D.C. Cir. 2012)).

<sup>5</sup> See *Motor Vehicle Mfrs. Ass’n of the U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

<sup>6</sup> Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act, 82 Fed. Reg. 4594, 4635 (Jan. 13, 2017) [“2017 RMP Rule”].

<sup>7</sup> *Id.*

<sup>8</sup> *Id.* at 4630.

EPA's RIA for the Proposed Rule indicates that the water sector's incident rate has fallen even further to 0.02 incidents per facility based on 2016–2020 data.<sup>9</sup> The RIA's Exhibit 3-11 indicates that a number of other sectors join the water sector in already having achieved an incident rate exceedingly close to zero under existing RMP regulations.<sup>10</sup>

Given the low accident rate, it is not clear how additional regulatory requirements could meaningfully reduce the risk of reportable incidents in the water sector beyond this extremely low baseline. This safety record is attributable, at least in part, to the fact that water utilities have been handling chlorine for more than 100 years and are well aware of what is required to safeguard this material, using a range of methods from secure storage sites up to and including scrubbers that neutralize leaks. Given that the water sector and other sectors with relevant experience are already familiar with the requirements necessary to maintain safe chemical practices, EPA should reconsider whether the specific revisions that it has proposed will in fact reduce the risk of potential releases of chemicals in communities, recognizing that RMP regulated process present different risk profiles. In addition, EPA should tailor the requirements to ensure that it does not place unjustified burdens on these facilities. If EPA does not do so, it must explain its justification for imposing these requirements despite its previous conclusion and the record evidence indicating that the additional requirements will not provide a benefit when applied to the water sector.

***ii. Many water utilities are small businesses or government entities.***

In addition to the water sector's proven safety record, the burdens of these new requirements on water utilities cannot be justified because many water utilities are small entities or are owned and operated by municipal government entities operating on fixed budgets that are not easily adapted to costly Federal mandates. The Proposed Rule does not take into account the operational imperatives that these systems face when making decisions about resource tradeoffs. In light of the Agency's obligations under Unfunded Mandates Reform Act (UMRA) and the significant and unique impacts to municipally owned water systems, AWWA encourages EPA to reduce the requirements on these entities and consider additional flexibilities for these entities as it works to develop any final rule.

***iii. Water utilities are funded by customers through rates, and additional compliance costs will impact economically disadvantaged and environmental justice communities.***

EPA's current analysis also fails to consider how these increased compliance costs will impact environmental justice communities, as required by Executive Order 12898. As you know, Executive Order 12898 directs each Federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." Drinking water and wastewater treatment systems provide a unique public good to

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<sup>9</sup> EPA, Regulatory Impact Analysis: Safer Communities by Chemical Accident Prevention Proposed Rule at 29 (April 19, 2022) [RIA].

<sup>10</sup> See *id.* Food/Beverage Manufacturers, Other Manufacturing, Agricultural Chemical Distributors, Chemical/Petroleum Wholesale, Warehouse, Water/POTW, and Other Wholesale sectors have all achieved incident rates less than or equal to 0.03. *Id.*

communities by protecting health and welfare by ensuring the safety, reliability, and affordability of public water resources.

Water utilities are funded by rates paid by their customers. In many cases, increased compliance costs stemming from the Proposed Rule will be directly passed on to customers in the form of higher rates. As a result, unjustified compliance costs have a disproportionate impact on economically disadvantaged customers as they are least able to afford such rate increases. This is troubling for several reasons. First, because water utilities serve local customers, they do not have the ability to spread costs out across a national customer-base. Second, because most households cannot meaningfully scale back on their needs for drinking water when prices increase, they are unable to take steps to reduce their water bills when utilities are forced to increase rates. EPA should revise its environmental justice analysis to reflect the burdens that the compliance costs associated with the new requirements would place on environmental justice communities and further consider whether these additional burdens are appropriate in light of these impacts.

**B. EPA should provide additional regulatory flexibilities for the water sector.**

As we have noted in these comments and in our prior comments to EPA during prior RMP rulemakings, the water sector is uniquely situated among facilities subject to RMP requirements. CAA Section 112(r)(7)(B)(i) calls for EPA regulations to recognize differences in “size, operations, processes, class and categories of sources,” when designing RMP requirements. One size does not fit all, and the costs of implementation vary primarily by the complexity of the processes involved. Thus EPA should differentiate the stringency of program requirements based on the risk profile of regulated processes.

As described above, water sector represents the lowest chemical safety risk profile under the RMP program among all regulated sectors. In addition, nearly half of all RMP facilities in the water sector are classified as small business entities under SBREFA. Many RMP facilities in the water sector are also municipally owned and operated and depend on ratepayer financing to provide important public health goods. When faced with costly regulatory requirements with no clear benefits, very real potential unintended consequences can result for the water sector in making decisions about the allocation of scarce resources devoted to public safety, affordability and reliability of public water resources. AWWA believes that these considerations should be taken into account as EPA considers how best to promote risk management planning.

New regulatory requirements that constrain operational choices regarding water contamination control technologies must be carefully weighed against their continued ability to provide these services without compromising public health imperatives. Choices by the water sector regarding the use of disinfection technologies require balancing many factors, including source water quality, cost, transportation access, facility space, and inherent safety. Each community must have the flexibility to decide which approach is most appropriate for their situation given these complex variables.

AWWA recommends that EPA tailor the RMP regulatory requirements to account for these differentiated characteristics. This approach would classify facilities under North American Industry Classification System (NAICS) codes 22131 and 22132 under a “lowest risk” subset of EPA’s existing “simple process” category that would further distinguish the water sector among other categories with higher risk profiles within the “simple process” category.

Because water utilities make up a significant portion of the facilities subject to RMP requirements, EPA should also consider whether the burdens of these proposed revisions are justifiable more broadly, or if

it should instead issue more targeted regulations aimed at particular facilities that pose a larger threat to public safety or have specific concerns that are not addressed by the existing regulations.

**C. EPA's RIA is fatally flawed and must be revised in order to meet EPA's legal obligations, including under the CAA, APA, and Information Quality Act.**

To comply with Executive Orders for regulatory review and EPA's statutory obligations, the Agency prepared an RIA for the Proposed Rule. AWWA reviewed the RIA and found numerous instances where EPA failed to use fundamental economic science, failed to follow Executive branch guidelines for conducting an RIA, and failed to follow its own economic guidelines. Unfortunately, the analysis is so deeply flawed that it fails to provide meaningful information to policy officials and the public to allow effective comment on the Proposed Rule by not appropriately identifying the costs and benefits associated with each of the Proposed Rule's provisions.<sup>11</sup>

More specifically, EPA's RIA contains numerous methodological flaws and is inconsistent with EPA's Economic Analysis Guidelines, Executive Order 12866 and other relevant executive orders, and government-wide requirements for regulatory analysis issued by the Office of Management and Budget (OMB). In most instances, the effect of these flaws is to overstate this proposal's likely social benefits. In addition, the public's ability to independently assess the values used by the Agency are impeded by the Agency's use of proprietary data sources, which are not provided for public inspection.<sup>12</sup> This directly violates the "reproducibility standard" for influential information used to inform federal decisions as detailed in OMB Circular M-19-15 and associated guidelines.<sup>13</sup>

In order to comply with the CAA and APA requirements that the public be offered notice and an opportunity to comment on the Proposed Rule, EPA must revisit the RIA, correct these infirmities, and offer the public additional time to comment on the revised RIA and the technical documents supporting its analysis before finalizing any rule.<sup>14</sup>

The Information Quality Act (IQA) also requires EPA to correct the RIA's flaws and provide additional time for comment because EPA has not satisfied the IQA's requirement to appropriately identify the

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<sup>11</sup> See *Chesapeake Climate Action Network v. Env't Prot. Agency*, 952 F.3d 310, 319 (D.C. Cir. 2020) (finding that EPA erred in a CAA rulemaking where EPA failed to make its technical assumptions available prior to issuance of the final rule); *Owner-Operator Indep. Drivers Ass'n, Inc.*, 494 F.3d at 204 (finding arbitrary and capricious an agency's failure to explain an important analytical step in its RIA).

<sup>12</sup> See *Owner-Operator Indep. Drivers Ass'n, Inc.*, 494 F.3d at 199 (explaining that it is integral to the APA's requirements "to identify and make available technical studies and data that it has employed in reaching the decisions to propose particular rules," such that "[a]n agency commits serious procedural error when it fails to reveal portions of the technical basis for a proposed rule in time to allow for meaningful commentary") (internal quotation marks omitted).

<sup>13</sup> Off. of Mgmt. & Budget, Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies; Notice; Republication, 67 Fed. Reg. 8452 (Feb. 22, 2002).

<sup>14</sup> See U.S. Small Business Administration comments on 2022 Safer Communities by Chemical Accident Prevention Proposed Rule (October 28, 2022) (recommending that EPA "withdraw its proposal....If the agency intends to finalize the proposed requirements, EPA must improve its analysis to provide an adequate factual basis to support the certification that the rule will not have a significant economic impact on a substantial number of small entities. The agency must also ensure that the final rule is not inconsistent with, duplicative of, or overlapping with other existing federal regulations.") [Appendix C].

costs and benefits associated with each of the Proposed Rule's provisions in a manner that allows reproducibility.<sup>15</sup>

Our concerns regarding the RIA's methodological flaws and the significant differences in the values used by the Agency to estimate burden are further discussed below.

*i. Ownership Status of Water Utilities*

Under the current analysis, EPA expects that government-owned facilities will incur different burden hours than similar private facilities. EPA accepts that both public and private entities perform the same function, and provides no explanation to support its claim that the ownership status changes the implementation burden imposed by the Proposed Rule. This assumption is not justified and shows a fundamental misunderstanding about the way that the water sector operates. In all cases, the ratepaying customers of the utility fund utility operations and therefore any new costs incurred by the Proposed Rule will be carried by those ratepayers regardless of ownership type.

EPA also used a flawed approach to determine the difference in ownership status, and did not make use of the better tools that EPA has to make this determination. According to the Agency, "EPA reviewed all facilities categorized as NAICS 2213 to distinguish between private and government ownership."<sup>16</sup> This "manual operation" is subject to error because the registered name of the facility does not provide a clear indication of ownership class. EPA's guesswork is subject to error and is unnecessary. It is unclear why EPA did not use the universal EPA ID number to crosscheck the RMP facility list with Safe Drinking Water Information System (SDWIS) to determine the actual number of government-owned versus non-government owned water entities. SDWIS includes an ownership classification record for all public water systems. Likewise, EPA's Permit Compliance System includes an ownership data field for wastewater systems. In both instances, these datasets exist and are regularly maintained. Each is readily available and would provide a more definitive assessment of ownership status than a manual review of nearly 2,000 RMP registered facilities.

EPA's failure to use its own data and knowledge about the water sector to perform this analysis not only introduced errors into the RIA analysis, but it also indicates that the Agency has not made use of its own internal expertise in drafting the Proposed Rule. Many of AWWA's members are already subject to complex EPA regulation under the SDWA. We are certain that other facilities subject to the RMP requirements are likewise subject to numerous additional EPA regulatory requirements. By failing to properly consult with its own subject matter experts on the availability of information and existing regulatory requirements, EPA risks creating a final rule that is not informed by its own expertise and that places unjustified or potentially conflicting regulatory requirements on the regulated community. Such a rule would certainly be arbitrary and capricious, and the Agency should not be entitled to deference when it fails to make use of its own technical expertise.

To further complicate the public's ability to assess EPA's analysis, EPA has not provided lists of systems and associated classification in the docket to support a review of how this would alter the distribution.

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<sup>15</sup> Treasury and General Government Appropriations Act, 2001, Pub. L. No. 106-554, § 515(a) (2000) (as codified at 44 U.S.C. § 3516); Memorandum from Russell T. Vought, Acting Dir., Off. of Mgmt. & Budget, to Heads of Exec. Dept's & Agencies, OMB No. M-19-15, regarding Improving Implementation of the Information Quality Act (April 24, 2019), <https://www.whitehouse.gov/wp-content/uploads/2019/04/M-19-15.pdf>

<sup>16</sup> RIA at 22.

Table 1 provides a comparison of EPA’s counts in 2016 during the prior RPM rulemaking effort<sup>17</sup> with the 2022 numbers that EPA used for the Proposed Rule. As the table demonstrates, the differences are not insignificant and should be reexamined by the Agency. EPA is either using incorrect numbers or has changed its approach since the prior rulemaking. EPA either needs to revise and correct its figures or explain the change in its approach. It appears that EPA has changed its methodology for assessing costs and benefits in the RIA without any explanation for how it did so, in violation of the CAA and APA.<sup>18</sup>

It also appears that once EPA removed the facilities that it believed are privately owned, it combined the remaining government-owned water facilities in NAICS 2213 facilities with facilities that report as NAICS 92 (government administration). This approach frustrates the review and analysis of direct impacts of the Proposed Rule on the water sector and limits the public’s ability to assess and comment on EPA’s Proposed Rule.

**Table 1. Total Water Sector Registered RMP Facilities in 2016 and 2022**

Sector	NAICS Code	2016 RIA	2022 RIA	Difference
Administration of environmental quality programs (i.e., governments)	924	1,923	1,449	-33 % (-474)
Utilities	221 (except 22131, 22132)	343	519	14 % (74)
Water/wastewater Treatment Systems	22131, 22132	102	#	
<b>Total</b>		<b>2,025*</b>	<b>1,968</b>	<b>-3 % (-57)</b>

\* Value from 2016 Small Business Administration review.

# Value for water and wastewater utilities were included with other utilities (e.g., power, gas, etc.)

**ii. Small Entity Impact Analysis**

AWWA also found similar discrepancies between EPA’s prior RMP rulemaking analysis and the analysis done for the Proposed Rule. Compared to the 2016 SBRFA analysis, the Proposed Rule suggests that there has been a 36% reduction in the number of small government entities (communities of 50,000 or less) and a 26% reduction in the number of small private entities covered by the rule and/or potential changes. This is a significant change for which the Proposed Rule and accompanying docket does not include an explanation. AWWA has attempted to replicate these values and could not do so with the information EPA has provided.

In 2016, the Small Business Administration’s review and EPA’s Regulatory Impact Assessment for the RMP “Amendments Rule”<sup>19</sup> determined that 49% of water sector facilities were classified as small (992). Given water systems are essential to daily life and the basic functioning of a community, they rarely go out of business. If we assume water systems remain in business and apply the proportion to the total number of registered systems in 2022, there should be approximately 964 small water systems.

<sup>17</sup> Env’t Prot. Agency, Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act; Proposed Rule, 81 Fed. Reg. 13,638 (Mar. 14, 2016).

<sup>18</sup> See *Owner-Operator Indep. Drivers Ass’n, Inc.*, 494 F.3d 188, 201 (D.C. Cir. 2007).

<sup>19</sup> 81 Fed. Reg. at 13,638.

However, EPA's 2022 RIA states that "based on . . . Census data, 630 of the 1,111 government entities are small."<sup>20</sup> This analysis presents several issues:

- *Total Number of Water Systems.* We call attention to difference in the total number of government systems referenced in RIA Chapter 8 (1,111) and the value reported in Table 1 of the Proposed Rule and Exhibit 3-4 of the RIA. Both state that there are 1,449 government entities. This is a difference of 338 entities when compared to the Census data referenced by EPA. This is a 30% difference, which represents a significant change in the number of water systems classified as government facilities. This difference is not readily explained with the available data in the RIA or supporting materials in the docket. The lower value appears to be the value used in the subsequent cost analysis, which underestimates the total burden the Proposed Rule is expected to impose on water systems and government entities.
- *Number of Small Government Entities.* Small governments are cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than 50,000.<sup>21</sup> In the RIA, the Agency assumes that the 2019 Census population of a registered facility's city is representative of the water system's customer base. This is the means by which EPA determined if a registered government-owned water system satisfied the small entity threshold. This approach is significantly flawed because the Census population of a community often is not representative of the customer service area of a drinking water or wastewater system. Again, EPA has data in related compliance datasets like SDWIS that provide the actual population served by a drinking water system. Similarly, a city's reported revenue is not a valid proxy for the revenue available for drinking water or wastewater utility operations. Water utility budgets are directly linked to payments from actual customers and not the total number of individuals or entities that may be taxed by a city. This is especially true of water systems that serve multiple communities or where portions of a community may not be served by a drinking water or wastewater system. The methodology applied by EPA is a flawed and appears to underestimate the number of small government systems that may be impacted by the Proposed Rule, and does not accurately capture the ways these costs will impact environmental justice communities.

If a water RMP facility was classified as private, then EPA used proprietary data to examine the annual revenue of the facility or its parent company to determine if it met the small entity threshold. For drinking water facilities in NAICS 22131, revenue must not exceed \$27.5 million, and the threshold for wastewater facilities in NAICS 22132 is \$20.5 million. In the 2016 RIA, EPA reported a total of 102 private, non-government owned water systems, of which only 18 were considered small. In the 2022 RIA, EPA's analysis combines private water systems with other entities in NAICS 221112, which includes Fossil Fuel Electric Power Generation for a total of 519 entities. The small business threshold for NAICS 221112 is 750 full-time employees (FTE). The 2022 assessment does not provide a breakdown of the number of small entities by NAICS. We are unable to replicate EPA's analysis because the data tables for small entity analysis are based on proprietary information and thus have not been made available for public. In addition, the aggregated value of all private entities in NAICS 221 in the Proposed Rule RIA makes it nearly

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<sup>20</sup> RIA at 75.

<sup>21</sup> *Id.*

impossible to differentiate the burdens EPA assumes for a private water/wastewater utility versus a fossil fuel electric power generation facility.

The CAA and APA's rulemaking procedures<sup>22</sup> require an agency "to identify and make available technical studies and data that it has employed in reaching the decisions to propose particular rules," such that "[a]n agency commits serious procedural error when it fails to reveal portions of the technical basis for a proposed rule in time to allow for meaningful commentary."<sup>23</sup> EPA has failed to do so here. In addition, EPA "must explain the evidence which is available, and must offer a 'rational connection between the facts found and the choice made.'"<sup>24</sup> Once again, EPA has not done so.

In addition to these legal shortcomings with EPA's rulemaking, we note again that the discrepancies in EPA's RIA indicate that it is not making use of internal expertise and data available to the Agency. Whether this is a result of improperly outsourcing the analysis or rushing to issue the Proposed Rule, EPA's conclusions should not be entitled to deference on its technical assessments if it is not making use of the expertise available to the Agency. We strongly encourage EPA to take the time necessary to develop a legally sound and fully informed rule that the public has had a meaningful opportunity to comment on before finalizing any new RMP requirements.

### **iii. Burden Assessment**

AWWA cannot meaningfully review or provide comments on EPA's burden assessment for the Proposed Rule because of the arbitrary and confusing way that EPA has organized our members into facility types in its analysis. For purposes of the cost analysis for the Proposed Rule, all facilities with NAICS 324 or 325 (petroleum and coal products manufacturing and chemical manufacturing) processes are considered complex; all other facilities are considered simple.<sup>25</sup> For purposes of examining the burden on the water sector, the only difference would be instances in which the system is considered small or large. However, as detailed below, EPA applies several facility types to examine cost across multiple Proposed Rule changes. This variance in facility type and the absence of clear explanation of how many entities within the water sector fall within the various types made the review of sector-level burden impossible to replicate.

The Agency does not explain the purpose of using multiple facility types to assess cost and why they were not uniformly applied. This approach once again frustrates efforts to assess impacts on small entities and impedes independent review of burden imposed by the Proposed Rule at sector- or NAICS-level review. AWWA's ability to review the burdens on the water sector was further frustrated by the

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<sup>22</sup> See *supra*, note 2 (describing the relationship between CAA and APA rulemaking provisions); 5 U.S.C. § 553(b)(3), (c).

<sup>23</sup> *Owner-Operator Indep. Drivers Ass'n, Inc.*, 494 F.3d at 199; *id.* at 201 ("The failure to provide an opportunity for comment on the model's methodology therefore constitutes a violation of the APA's notice-and-comment requirements."); see also *Air Transp. Ass'n of Am. v. FAA*, 169 F.3d 1, 7 (D.C. Cir. 1999) ("[T]he most critical factual material that is used to support the agency's position on review must have been made public in the proceeding and exposed to refutation.");

<sup>24</sup> *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 52.

<sup>25</sup> RIA at 21.

arbitrary and alternating ways in which EPA decided to divide entities for the sake of performing its analysis.

We list the RIA’s seemingly arbitrary facility type groupings in Table 2 below.

**Table 2: RIA Cost and Burden Classification by Facility Type**

<b>RMP Provision</b>	<b>Facility Type</b>
Rule Familiarization	Simple P1 and P2: Complex P3: Complex LEPC Delegated Implementing Agencies
Root Cause Analysis	P2: Simple P2: Complex P3: Simple P3: Complex
Third-Party Audit	Simple w/ 0-19 FTEs Simple w/20-99 FTEs Simple w/100+ FTEs Complex w/ 0-19 FTEs Complex w/20-99 FTEs Complex w/100+ FTEs Small Government Large Government
Employee Participation Plan	P2 Simple (<20 FTE) P2 Simple (20+ FTE) P2 Complex (<20 FTE) P2 Complex (20+ FTE) P3 Simple P3 Complex
Emergency Backup Power for Perimeter Monitors	\$1,000 per affected facility
Information Availability	Simple Facilities Small Complex Large Complex
Community Notification	Simple Facilities Complex Facilities

Additional flaws in EPA’s analysis include the following:

- 1) **Rule Familiarization:** EPA indicates that Local Emergency Planning Committees (LEPCs) will require five hours to become familiar with the rule, but delegated state and local implementing agencies can apparently read faster and so will only need four hours to do the same reading, with no explanation.<sup>26</sup>
- 2) **Third-Party Audit:** The process by which EPA determined a facility’s FTE category is unclear based on available data. Additionally, this is the only analysis where EPA distinguished

<sup>26</sup> *Id.* at 35.

between small and large government entities, but EPA did not clearly state its assumptions regarding differences in burden.

- 3) **Emergency Power for Perimeter Monitors:** Unit cost for backup power is the same for all types of entities, but EPA never explains how it determined that 392 entities will need to implement backup power using a small generator, nor does EPA specify the NAICS code for these entities.<sup>27</sup>
- 4) **Information availability:** EPA assumes facilities will receive only one request per year, yet the benefits discussion implies that this is an important factor in reducing risk.<sup>28</sup> It is unclear how one information request will provide such benefits. EPA's analysis also fails to consider translation costs.

As a result, EPA does not appear to have satisfied the IQA's requirements for data reproducibility and transparency and has hindered the public's ability to review and comment on the Proposed Rule. In order to comply with its statutory obligations, including under the IQA, APA, and CAA, AWWA recommends that EPA revise its analysis to provide consistent and justified treatment of regulated facilities so that the public has a meaningful opportunity to comment on its analysis. When EPA applies different treatment in its analysis, EPA should explain its reasons for doing so.

***iv. Inconsistent use and explanation of empirical data***

EPA's cost benefit discussion in the RIA selectively uses empirical data, most often focused on potential costs, while making no attempts to quantify the benefits. This approach belies the principals of traditional benefit cost and guidance from OMB. For example, regarding benefits, EPA states in the RIA that it "has no data or empirical estimates of the precise impact of each rule provision on the probability and magnitude of an accident, or on improved efficiency due to better information. In the next section of the RIA, EPA describes in detail the number and costs of accidents currently associated with RMP facilities to describe the current baseline. To the extent practicable, the analysis monetizes the costs of damages to partially estimate the baseline costs that EPA expects will decline due to the Proposed Rule. It also qualitatively discusses other expected benefits of the Proposed Rule."<sup>29</sup> This one-sided analysis prevents the public from understanding the cost and benefits associated with the Proposed Rule.

***v. Lack of Sensitivity Analysis***

OMB guidance strongly encourages agencies to perform sensitivity analyses and provide the public the results, but EPA has not done so here.<sup>30</sup> For example, it would benefit public transparency if EPA's

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<sup>27</sup> *Id.* at 42; Ex. 5-6 at 48.

<sup>28</sup> *See id.* at 43.

<sup>29</sup> RIA at 59.

<sup>30</sup> *See, e.g.*, Off. of Mgmt. & Budget, Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies; Notice; Republication, 67 Fed. Reg. 8452, 8456 (Feb. 22, 2002).

Natural Hazards and Technological Disaster report<sup>31</sup> provided a sensitivity analysis to show the effect of large incidents that account for a large share of onsite and offsite consequences. Such incidents are attributable to a relatively small group of facilities that are not part of the water sector. By not providing a sensitivity analysis that excludes this small number of incidents, EPA has skewed the cost benefit analysis, and it is unlikely the proposed changes could be justified without taking into account the outliers that EPA has focused on. The lack of sensitivity analysis also reduces the transparency of the RIA's benefits assessment, which averages all prior damages across all sectors as a proxy for avoided future incidents. As OMB's Office of Information and Regulatory Affairs has instructed, "risk assessments must provide some estimates of the probability distribution of risks with and without the regulation and, where possible, some estimates of central tendency (e.g., mean and median) must be provided in addition to ranges, variances, specified low-end and high-end percentile estimates, and other characteristics of the distribution."<sup>32</sup>

## **2. Several of the proposed RMP revisions are vague, overly burdensome, and do not appreciably reduce risk of chemical releases**

### **A. Natural Hazards**

EPA proposes emphasizing that natural hazards, including those associated with climate change, must be explicitly addressed in hazard reviews and process hazard analyses (PHAs) for Program 2 and Program 3 RMP-regulated processes.<sup>33</sup> EPA is proposing to make regulatory changes that include requiring hazard evaluations under 40 C.F.R. § 68.50(a)(5) and § 68.67(c)(8) to address "[e]xternal events such as natural hazards, including those caused by climate change or other triggering events that could lead to an accidental release."<sup>34</sup> EPA is also proposing to define natural hazard as "naturally occurring events that have the potential for negative impact including meteorological or geological hazards."<sup>35</sup>

AWWA strongly encourages the Agency to remove or substantially revise these provisions from any final rule. Under existing rules, RMP facilities are already adequately addressing challenges that might result from extreme weather events, such as severe hurricanes, tornadoes, and floods.<sup>36</sup> As a result, there is no regulatory gap that requires revisions. In addition, the record cannot support EPA's proposed changes. According to the Government Accountability Office, a natural hazard was the initiating event in

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<sup>31</sup> Env't Prot. Agency, Natural Hazards and Technological Disasters - Appendix B (2021), <https://www.regulations.gov/document/EPA-HQ-OLEM-2022-0174-0067>.

<sup>32</sup> Government Accounting Office, OMB's Role in Reviews of Agencies' Draft Rules and the Transparency of Those Reviews 66 (2003), <https://www.govinfo.gov/content/pkg/GAOREPORTS-GAO-03-929/pdf/GAOREPORTS-GAO-03-929.pdf> (internal quotation omitted).

<sup>33</sup> 87 Fed. Reg. at 56,567.

<sup>34</sup> *Id.* at 53,610, 53,612.

<sup>35</sup> *Id.* at 53,609.

<sup>36</sup> See Am. Fuel & Petrochemical Mfrs., What's Working in EPA's Risk Management Program at 12 (2022) ("Addressing potential mitigation challenges that might result from extreme weather events such as severe hurricanes, tornadoes and floods is already part of RMP prevention programs and [Process Safety Management] for the 31% of RMP facilities located in areas where these events are prevalent.").

a mere 2% of RMP reportable accidental chemical releases in the last five years.<sup>37</sup> EPA similarly has analyzed RMP incidents during major natural disasters such as hurricanes Harvey, Katrina, and Rita and found only two accidental releases from RMP facilities, neither of which led to significant impacts.<sup>38</sup> Moreover, as discussed above, the water sector has already achieved an exceptional safety record under existing RMP regulations. As a result, it appears that EPA may be revising the regulatory text not because of an identified problem that needs to be addressed, but instead because of the broader administration initiative focused on climate change.<sup>39</sup>

AWWA and its members support taking steps to meaningfully prepare their operations for changes in our climate. But given the many ways that our members and other RMP-regulated facilities will need to focus their resources on addressing climate-related concerns in the upcoming years, regulations that purport to address climate change but that in reality just add administrative burdens do more to hinder than help our country prepare. And while AWWA appreciates that policy objectives have a role to play in agency rulemaking, such policy directives cannot subsume EPA's actual statutory requirements, including under the CAA and APA. As the Supreme Court recently stated, "Agencies have only those powers given to them by Congress, and enabling legislation is generally not an open book to which the agency may add pages and change the plot line."<sup>40</sup> While AWWA understands that including climate-related considerations in proposed rules may be a way to advance political initiatives, we respectfully disagree that this is an appropriate use of agency power or a justified burden on regulated entities already working to address true climate challenges. Here, the record cannot support EPA's proposed revisions because there is insufficient evidence demonstrating that extreme weather events or natural hazards create a meaningful risk of additional RMP reportable incidents beyond those addressed by current regulations. This is particularly true for the water sector. As a result, this new provision cannot "satisfy the APA's arbitrary and capricious standard," because EPA cannot "articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made."<sup>41</sup>

The vagueness of EPA's proposed regulatory language could make compliance impossible and raises significant notice and due process concerns. The fair notice doctrine provides that "a regulation cannot be construed to mean what an agency intended but did not adequately express . . . [The agency] as enforcer of the Act has the responsibility to state with ascertainable certainty what is meant by the

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<sup>37</sup> U.S. Gov't Accountability Office, GAO-22-104494, Chemical Accident Prevention: EPA Should Ensure Regulated Facilities Consider Risks from Climate Change 12–13 (2022), <https://www.gao.gov/assets/gao-22-104494.pdf> [Appendix D].

<sup>38</sup> *Id.* at 12.

<sup>39</sup> *See, e.g.*, Exec. Order No. 14,008, Tackling the Climate Crisis at Home and Abroad, 86 Fed. Reg. 7619 (Jan. 27, 2021); Exec. Order No. 13,990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, 86 Fed. Reg. 7037 (Jan. 20, 2021); 87 Fed. Reg. at 53,563.

<sup>40</sup> *West Virginia v. EPA*, 142 S. Ct. 2587, 2609 (2022) (internal quotation marks omitted); *see also Louisiana Pub. Serv. Comm'n v. FCC*, 476 U.S. 355, 374 (1986); *Michigan v. EPA*, 268 F.3d 1075, 1081 (D.C. Cir. 2001).

<sup>41</sup> *Owner-Operator Indep. Drivers Ass'n, Inc.*, 494 F.3d at (citing *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43); *Clean Air Council v. Pruitt*, 862 F.3d 1, 9 (D.C. Cir. 2017) ("it is 'axiomatic' that 'administrative agencies may act only pursuant to authority delegated to them by Congress.'").

standards [it] has promulgated.”<sup>42</sup> Vagueness is all the more problematic where, as here, violations carry potential criminal liability.<sup>43</sup> These concerns cannot be fully addressed through agency guidance.<sup>44</sup> As a result, if EPA does include references to natural hazardous or climate change, then it must provide a clear, specific, and narrow definition of what types of events will be covered by the new definition.

EPA’s proposed language raises notice and due process concerns because there is a *very* broad range of natural hazards that “have the *potential* for negative impact.”<sup>45</sup> Similarly, the requirement to address triggering events that “*could* lead to an accidental release” is ambiguous and does not provide sufficient notice to RMP facilities about the kinds of events that should be included.<sup>46</sup> EPA has not offered language identifying what probability thresholds EPA would deem reasonable. Absent clear regulatory text, much less a direct explanation of how EPA would interpret these provisions, it is impossible to meaningfully comment on the burden and reasonableness of EPA’s proposal. Such vagueness could also create significant burden in the form of litigation by outside groups using the CAA’s citizen suit provisions. AWWA’s RMP facility owners and operators are the ones that best understand the potential vulnerabilities of their complex processes, and litigation brought by citizen groups endlessly second-guessing the determinations of facility owners would represent a wasteful diversion of resources from AWWA’s members’ core mission of ensuring the safety, reliability, and affordability of public water resources. Additionally, as detailed above, the costs of such litigation will ultimately be borne by customers in the form of higher rates, including members of economically disadvantaged and environmental justice communities.

EPA also has not explained why the current regulatory provisions are inadequate. In addition to the existing RMP requirements, certain RMP facilities (and AWWA members) are subject to additional requirements. For example, under Section 2013 of America’s Water Infrastructure Act, community water systems are already required to consider threats to operations from natural hazards, including potential impacts on the storage of treatment chemicals. There, Congress defines natural hazards as “a natural event that threatens the functioning of a community water system, including an earthquake, tornado, flood, hurricane, wildfire, and hydrologic changes.”<sup>47</sup> Therefore, community water systems are already required to examine such threats as part of a larger risk and resilience assessment. EPA has not justified introducing new requirements with differing definitions, on these systems. Indeed, doing so will likely create confusion for regulated entities.

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<sup>42</sup> *Gates & Fox Co. v. OSHRC*, 790 F.2d 154, 156 (D.C. Cir. 1986) (citation omitted); see also *Trinity Broad. of Fla., Inc. v. FCC*, 211 F.3d 618 (D.C. Cir. 2000); *Gen. Elec. Co. v. EPA*, 53 F.3d 1324 (D.C. Cir. 1995).

<sup>43</sup> See *Sessions v. Dimaya*, S. Ct. 1204, 1212 (2018) (“The prohibition of vagueness in criminal statutes . . . is an essential of due process, required by both ordinary notions of fair play and the settled rules of law. The void-for-vagueness doctrine, as we have called it, guarantees that ordinary people have ‘fair notice’ of the conduct a statute proscribes. And the doctrine guards against arbitrary or discriminatory law enforcement by insisting that a statute provide standards to govern the actions of police officers, prosecutors, juries, and judges.”) (cleaned up).

<sup>44</sup> See *Kisor v. Wilkie*, 139 S. Ct. 2400, 2420 (2019) (interpretive rules cannot form the basis for an enforcement action).

<sup>45</sup> 87 Fed. Reg. at 53,609 (emphasis added).

<sup>46</sup> *Id.* at 53,610, 53,612 (emphasis added).

<sup>47</sup> 42 U.S.C. § 300i–2(h)(2).

## **B. Power Loss**

EPA is proposing to require air pollution control or monitoring equipment associated with prevention and detection of accidental releases from RMP-regulated processes to have standby or backup power. EPA states that multiple RMP facilities have been impacted by power loss and implies that additional action is necessary to ensure power losses are “properly evaluated and managed to prevent or mitigate releases.”<sup>48</sup>

EPA offers no assessment of the feasibility of requiring facilities to operate independently of the power grid, nor any consideration of the restrictions imposed by the CAA for Reciprocating Internal Combustion Engines (RICE) and other stationary engine regulations that restrict operation of emergency generators. The RICE standards create regulatory hurdles to the resilience EPA seeks in this provision even if limited to monitoring systems, and the conflict between this proposed requirement and CAA provisions again suggests that EPA has not adequately coordinated the internal review of this Proposed Rule.

EPA’s review and justification for this provision also transfers significant burden from traditional power generators and distributors to RMP facilities. RMP facilities are not responsible for the reliability and integrity of the power grid. The deficiencies of standard grid power in California and Texas alone have required entities like water systems to invest tens of millions of dollars in backup power. This represents a significant opportunity cost for the ratepayers that support water systems in forgone investments in utility operations, repair, and replacement. And once again, these increased costs must be borne by the utilities’ customers, including their economically disadvantaged customers.

EPA’s concern that facilities will use extreme weather events as a pretext for disabling monitoring equipment and evading monitoring equipment has no support, at least as applied to the water sector.<sup>49</sup> In the water sector, the substances that typically trigger RMP applicability are essential to ensuring public health and safety via treatment processes, and they would never be intentionally discharged. Unless EPA provides evidence that regulated facilities are engaging in such practices, then the justification for this provision will not be supported by the administrative record as required by the CAA and APA.

Finally, EPA states in the Proposed Rule that “not all RMP-regulated processes will need emergency backup power (for example, certain RMP-regulated storage processes).”<sup>50</sup> While AWWA recommends that EPA entirely remove this provision from any final rule, to the extent EPA does retain a version of this requirement, AWWA encourages EPA to expressly include exceptions like the one above in the regulatory text.

## **C. Backup Power for Perimeter Monitors**

The Proposed Rule would require perimeter monitoring equipment associated with prevention and detection of RMP-regulated substances to have standby or backup power.<sup>51</sup> AWWA recommends

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<sup>48</sup> 87 Fed. Reg. at 53,570.

<sup>49</sup> *See id.* at 53,571.

<sup>50</sup> *Id.* at 53,570 n.55.

<sup>51</sup> *Id.* at 53,571.

removing this requirement for the same reasons it opposes requiring standby or backup power for air pollution control or monitoring equipment, as discussed above.

#### **D. Stationary Source Siting**

EPA proposes amending the regulatory text for Program 2 and Program 3 under 40 C.F.R. §§ 68.50(a)(6) and 68.67(c)(5), to define stationary source siting evaluation as inclusive of the placement of processes, equipment, buildings, and hazards posed by proximate facilities, and accidental release consequences posed by proximity to the public and public receptors.<sup>52</sup>

AWWA is concerned that existing facilities have very limited flexibility to alter siting of processes and equipment. In addition, EPA's proposed evaluation criteria may conflict with local zoning codes that were in place at the time the facility was established. Neither the facility nor EPA have any authority or control over local zoning ordinances that may have allowed development within an area that EPA's new criteria may deem to have inappropriate buffers or setbacks. In addition, existing RMP regulations and industry guidance already adequately require consideration of proximity and potential offsite consequences.

This provision appears ill conceived and insufficiently explained. AWWA recommends removing the new text. Should EPA decide not to do so, then in any final rule, EPA should provide additional information indicating how it believes existing facilities can meet the new requirements and make clear that facilities are not required to take any steps that would conflict with other legal and regulatory requirements.

#### **E. Hazard Evaluation Recommendation Information Availability**

EPA proposes that facilities would be required to implement recommendations from hazard evaluations or list in their risk management plans the recommendations from their natural hazard, loss of power, and siting evaluations that were not adopted and the justification for those decisions.<sup>53</sup>

As proposed, EPA is effectively imposing inherently safer technology (IST) analysis on Program 2 and Program 3 facilities. Existing regulations already require these facilities to consider multiple risks that may impact operations.

These new requirements create the same due process and fair notice concerns and are arbitrary, capricious, and unsupported by the record for the same reasons described in our discussion of natural hazards and power loss. Consistent with AWWA's concerns discussed above regarding natural hazards and power loss, the requirement to further document recommendations not adopted ignores the drastic decrease in accident rates that facilities have already achieved under existing RMP regulations. EPA acknowledges that the severity and number of accidents have been declining steadily since 2004. The objectives of the RMP program are being met by the majority of regulated facilities, and a small number of facilities have been responsible for the vast majority of the damages onsite and offsite attributable to RMP reportable incidents in recent years. Requiring facilities with low incident rates to document and provide justifications for recommendations that have not been adopted creates an unnecessary burden and would not be expected to change accident rates. EPA acknowledged this fact in the 2017 RMP Rule when it observed that:

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<sup>52</sup> *Id.* at 53,574.

<sup>53</sup> *Id.*

There are some sectors, such as water treatment, with known ISTs that we do not require to evaluate or implement ISTs under this rule. In the water treatment sector in particular, the sector's lower accidental release rates do not demonstrate that requiring thousands of facilities to conduct STAA would result in a significant drop in accidental releases.<sup>54</sup>

As with EPA's proposed requirements for justifying declined natural hazard, power loss, and siting hazard evaluation recommendations, EPA's proposal here creates significant enforcement risks from both EPA and citizen groups. Given the vague and ambiguous obligations the Proposed Rule would impose, the Proposed Rule could subject RMP facilities to unreasonable expectations to eliminate any and all risks, including "potential" risks that "could" lead to a release.<sup>55</sup> This is neither technically nor financially feasible. Moreover, the IST-type analysis EPA proposes, in which all rejected recommendations must be justified, could set facilities up for significant second guessing through citizen suits, even in the absence of an incident. Such legal exposure would divert already constrained resources away from day-to-day operations of water utilities to the detriment of ratepaying customers.

#### **F. Safer Technologies and Alternatives Analysis**

The Proposed Rule would require facilities with Program 3 processes in NAICS codes 324 and 325, located within one mile of another facility having a process in NAICS code 324 or 325, to conduct a Safer Technology and Alternatives Analysis (STAA).<sup>56</sup> The Proposed Rule would also require that all facilities in NAICS 324 using hydrofluoric acid (HF) in an alkylation unit (approximately 45 facilities) conduct a STAA to consider safer alternatives to HF alkylation, regardless of proximity to another NAICS 324- or 325-regulated facility.<sup>57</sup>

AWWA supports EPA's proposal not to apply STAA to the water sector. As detailed above, drinking water and wastewater treatment systems represent an appreciably lower risk profile than other sectors regulated by the RMP program. And EPA has acknowledged that the water sector "is among the least accident-prone sectors covered under the risk management program."<sup>58</sup>

AWWA does not believe that any mandatory STAA requirements could appropriately capture the variety of contingencies water utilities must consider when choosing a treatment chemical. Any EPA definition of a "safer" chemical alternative in the context of CAA § 112(r) would focus primarily on preventing an accidental chemical release. But a comprehensive consideration of "safer" technology from a water service point of view would also have to consider a wide array of safety and health considerations, as well as numerous risk trade-offs for all water consumers, not just those in close proximity to a treatment facility. Water utilities must consider how to best meet their primary objective of ensuring that any treatment method fully complies with the statutory and regulatory requirements of the SDWA. These are the types of evaluations that water systems undertake when carrying out independent reviews of disinfectant treatment options – a part of providing their core service. Any STAA review or implementation requirement under the RMP program would therefore be duplicative and potentially

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<sup>54</sup> 82 Fed. Reg. at 4630.

<sup>55</sup> See 87 Fed. Reg. at 53,609, 53,612.

<sup>56</sup> *Id.* at 53,575.

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

<sup>58</sup> 82 Fed. Reg. at 4635.

counterproductive for water utilities that have already considered the public health benefits and risk tradeoffs associated with their selected disinfectant process.

We also note it is unlikely that the record could support requiring STAA for the water sector. In the RMP rule promulgated in 1996, EPA did not adopt a requirement for STAA in part because it was costly and failed to deliver any meaningful safety benefit.<sup>59</sup> In the last twenty years, EPA has yet to collect any data demonstrating any safety benefit from STAA, including data from the handful of jurisdictions that have implemented STAA at the state or local level. In the absence of such data, AWWA recommends that STAA requirements remain excluded from RMP.

### **G. Root Cause Analysis**

EPA proposes to require Program 2 and Program 3 facilities to conduct a root cause analysis as part of an incident investigation following an RMP-reportable accident.<sup>60</sup> AWWA is supportive of the concept of conducting performance based analyses regarding the root causes of incidents involving catastrophic releases with off-site consequences. However, in terms of “near miss” incidents, we believe that any effort to require facilities to capture and report such instances absent a clear definition would be overly burdensome and divert scarce resources from higher-priority safety and risk management activities. It would also risk creating the same due process concerns that we have previously noted in this letter. Further, we submit that prior Agency effort to define the term “near miss” was inclusive of events in which engineering controls were activated. But activation of engineering controls, like collision avoidance braking systems in newer model vehicles, is not a failure. To the contrary, activation of engineering controls designed to prevent accidents is a desired result. Thus, activation of an engineering control should not be deemed a “near miss.” While EPA may have interest in this type of information, it must provide a more reasoned justification for the collection and associated value of this type of data. AWWA does not support including a universal definition of “near miss” in any final rule. To the extent that EPA includes new provisions regarding a root cause analysis for any “near miss” in a final rule, AWWA recommends that the Agency more clearly define the term and do so in a way that does not include activating engineering controls.

While AWWA is supportive of the concept of conducting root-cause analyses for catastrophic chemical releases with off-site consequences, we believe that the requirement should only be mandated for Program 3 facilities for several reasons. First, Program 3 facilities have the most complex RMP-regulated processes. Second, conducting root-cause analyses is extremely costly and resource intensive, and imposing these requirements beyond Program 3 facilities will not have benefits commensurate with these burdens. This is true also because root-cause analyses are most useful when applied to complex, multifaceted incident scenarios that do not have obvious causes and consequences. Any root cause

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<sup>59</sup> As EPA explained in the 1996 RMP final rule:

Although some existing processes may be judged to be inherently less safe than others, EPA believes most of these processes can be safely operated through management and control of the hazards without spending resources searching for unavailable or unaffordable new process technologies. Application of good PHA techniques often reveals opportunities for continuous improvement of existing processes and operations without a separate analysis of alternatives.

Accidental Release Prevention Requirements: Risk Management Programs Under Clean Air Act Section 112(r)(7), 61 Fed. Reg. 31,668, 31,674 (June 20, 1996).

<sup>60</sup> 87 Fed. Reg. at 53,581.

analysis requirement that EPA finalizes should focus on truly significant, catastrophic events so as to avoid an endless cycle of investigations that drain time and resources from other safety oversight activities. As we have previously noted in this letter, for the water sector, the costs of such analyses will ultimately be passed on to customers in the form of higher rates, and those rate increases will have a particularly detrimental impact on economically disadvantaged and environmental justice communities.

#### **H. Third-Party Compliance Audits**

The Proposed Rule would require facilities with Program 2 and Program 3 processes to have their next scheduled compliance audit be a third-party audit when:

- a) The facility has had two RMP-reportable accidents within the past five years; or
- b) The facility has had one RMP-reportable accident from a Program 3 covered process at a facility in NAICS code 324 or 325 within the past five years, located within one mile of another facility having a process in NAICS code 324 or 325; or
- c) An implementing agency requires a third-party audit due to conditions at the facility that could lead to an accidental release of a regulated substance, or when a previous third-party audit failed to meet the competency or independence criteria of § 68.80(c).<sup>61</sup>

Existing regulations already require Program 2 and Program 3 processes to conduct a compliance audit at least once every three years. AWWA firmly believes that the existing RMP audit requirements have been highly effective in identifying deficiencies in RMP incident prevention program requirements. In fact, as discussed above, EPA's 10-year accident history data for the RMP program demonstrates that the water sector has a demonstrated record of safety over the life of the program. There is no empirical audit data that suggests a systemic problem exists with the current RMP audit process or how audits are performed and reported. In the absence of evidence suggesting that the current compliance audit regime is deficient, it is not clear how imposing a new third-party audit requirement will improve safety. As a result, it is unlikely that the administrative record will support EPA's proposed changes.

Should EPA proceed in including this requirement in any final rule, the Agency should revise the current eligibility criteria for auditors, which are overly restrictive. These rigid criteria needlessly and arbitrarily suppress the universe and availability of "qualified" auditors with valuable industry-specific knowledge of process hazard mitigation. EPA has not provided any substantive evidence that the "independence" of an audit would be improved in some meaningful and measurable manner with these restrictions. AWWA does not believe that the record or past history of auditor use would support the Agency's attempts to dictate procurement protocols used to select an auditor, including who should be party to that decision process. This is all the more true because EPA retains the right to inspect any incident investigation regardless of who performs the review.

AWWA does not support EPA's proposal to require facilities to list in their risk management plans those third-party audit findings that the owner or operator chooses to decline. AWWA opposes this requirement for the same reasons it opposes the requirement to include justification for rejected hazard analysis recommendations, as discussed above, and recommends removing any such requirement from any final rule.

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<sup>61</sup> *Id.* at 53,584–87.

## I. Employee Participation

The Proposed Rule would revise employee participation requirements in a number of ways.<sup>62</sup> For Program 3 processes, employee participation plans would be required to ensure that employees and their representatives have authority to refuse to perform tasks where there is a reasonable risk of a catastrophic release and specific stop work authorities based on the potential for a catastrophic release.<sup>63</sup> AWWA recommends that EPA remove these proposed requirements from any final rule as they are unnecessary at best, given that existing RMP regulations already address many aspects of stop work authority, and at worst create brand new risks at regulated facilities.

We particularly oppose EPA's proposed language under Section 68.83(d) as overly broad and largely unnecessary in light of existing regulatory requirements. For example, the Occupational Safety and Health Administration's (OSHA) regulations already protect workers from discrimination by employers where an employee refuses to perform a task based on fear of dangerous conditions that could cause death or injury.<sup>64</sup> As compared to EPA's proposal, OSHA's regulations are more appropriately tailored to strike the correct balance between worker safety and other potential concerns by providing that:

The condition causing the employee's apprehension of death or injury must be of such a nature that a reasonable person, under the circumstances then confronting the employee, would conclude that there is a real danger of death or serious injury and that there is insufficient time, due to the urgency of the situation, to eliminate the danger through resort to regular statutory enforcement channels. In addition, in such circumstances, the employee, where possible, must also have sought from his employer, and been unable to obtain, a correction of the dangerous condition.<sup>65</sup>

EPA's proposed language goes much further and would provide every employee authority to refuse to perform a task or to request a shutdown of a process based on that employee's determination that there is a risk of a release. EPA should abandon these requirements or, at a minimum, more narrowly tailor them to ensure that they extend only to employees qualified to make such determinations and to ensure that employees do not use such authority inappropriately. EPA should also confer with OSHA to ensure that it does not create requirements that may either conflict with OSHA's requirements, or cause confusion for regulated entities and their personnel as they attempt to implement both sets of requirements. Too many overlapping requirements can do more harm than good, especially in potentially dangerous operating scenarios. Because of the complexity of these facilities, an employee refusing to perform a task and the potential shutdown of a process based on their own subjective decision about the risk of the task or process creates new safety risks for these facilities. Not all employees will have the judgment or complete knowledge of facility operations to accurately assess risks, or to take into account countervailing safety concerns based on what could happen if a particular process is shut down. Overlapping but different EPA and OSHA requirements around these issues could make matters worse by making personnel and managers uncertain about their actual legal authority and responsibilities.

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<sup>62</sup> See *id.* at 53,587–91.

<sup>63</sup> *Id.* at 53,590–91.

<sup>64</sup> 29 C.F.R. § 1977.12(b)(2).

<sup>65</sup> *Id.*

When creating new regulatory provisions like this one, It is important to recognize that water system operations are not like an assembly line that could be shut down on moment's notice without significant public health implications. Drinking water systems are critical to protection of the environment, public health, and safety given demands for safe water at places like hospitals, dialysis centers, and schools, as well as the need to use the water system for fire protection. In addition, drinking water system influent cannot be "turned off" without potential negative impacts on receiving waters or exposing the public to untreated water. AWWA is concerned that the proposed changes do not take these countervailing risk into account and could result in harm to the public.

#### **J. Field Exercise Frequency**

EPA's proposal would require all facilities with Program 2 and Program 3 processes to, at a minimum, conduct field exercises involving a simulated accidental release of a regulated substance once every ten years, unless local responders indicate that frequency is infeasible.<sup>66</sup>

We recognize the value of field exercises but believe that EPA has inadequately considered the significant resources and time necessary to properly run such an event. Existing RMP regulations provide the necessary flexibility to facilities and local responders to collaborate and support exercises. While the revisions proposed by EPA do not mandate participation by local responders, it is incumbent upon EPA to provide a reasonable estimate of the burden such engagement would place on local responders, who are government entities. EPA should provide upper and lower bound estimates of the resources required for a local responder to participate in an exercise for simple and complex RMP facilities. EPA cannot compel local responders to support an exercise, but it is clear that this is the expectation, and therefore EPA should provide estimates of the burden imposed on the government entities that comprise the local responder community.

The Proposed Rule's provisions regarding the justification necessary for a local responders to opt out of the mandated exercise lacks the clarity that regulated parties need to know how the provision should be applied. How will EPA determine if a justification is adequate? And if EPA determines that the justification is inadequate, what are the burden implications for local responders?

We would also note that a 2016 National Association of SARA Title III Program Officials (NASTTPO) survey found that the number of LEPCs had decreased nationwide due to complacency, time, interest, and funding.<sup>67</sup> A 2008 survey prepared by EPA found that the majority of responding LEPCs do not have an operating budget (59.3%) and do not receive direct funding (64.1%). None of the approaches recommended by EPA address this capacity deficiency. The benefit of supporting LEPCs extends beyond collaboration with RMP facilities, yet EPA does not appear to be making substantive effort to support the capacity of LEPCs to fulfill their mission envisioned by the CAA.

EPA has also suggested that the proposed field exercises will eliminate confusion about "what is required when evaluating an actual or simulated response."<sup>68</sup> This change in the documentation protocol and associated burden is not included in the RIA both in terms of cost and expected benefit.

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<sup>66</sup> 87 Fed. Reg. at 53,598.

<sup>67</sup> See NASTTPO Survey (2016) [Appendix E].

<sup>68</sup> *Id.* at 53,599.

EPA does not provide any evidence that RMP facilities are confused about how to document exercise activities.

In sum, AWWA believes that requiring a full field exercise every ten years, regardless of the accident history of the facility, is extremely costly, overly burdensome and does not have clear benefits beyond what would result from conducting annual tabletop exercises. EPA appears to grossly underestimate costs associated with conducting full field exercises, and, in the absence of clearly articulated benefits, this proposed requirement is not justified. As a result, EPA should either remove the requirement, or provide additional explanation and support in the record for why these exercises, and the associated costs, are justified.

#### **K. Community Notification of RMP Accidents**

The Proposed Rule would add a requirement for RMP facility owners and operators who designate themselves as a non-responding facility to develop and implement, as necessary, procedures for informing the public and the appropriate emergency response agencies about accidental releases of RMP-regulated substances.<sup>69</sup> EPA is also proposing that responding and non-responding facilities must ensure that a community notification system is in place and that the public is promptly notified of an accidental release from an RMP-covered process by providing appropriate, timely data and information to local responders and the community, detailing the current understanding and best estimates of the nature of the release.<sup>70</sup>

EPA states that it “expects local responding authorities to notify the community as authorized through IPAWS,” and EPA seems to assume that all RMP facilities have access to and are covered by the Integrated Public Alert & Warning System (IPAWS).<sup>71</sup> However, EPA does not appear to have made any effort to verify this assumption with data and information available from the Federal Emergency Management Agency (FEMA). Coverage for RMP locations could be verified with FEMA, which reports that 1,600 federal, state, local, tribal, and territorial authorities use IPAWS to issue critical public alerts and warnings in their jurisdictions. Thus EPA’s assumption very likely underestimates the burden on facilities that may be in areas not covered by IPAWS. EPA also did not estimate the burden on local responders (government entities) required to implement and sustain IPAWS capability in a community.

EPA’s benefit analysis, while not empirical, assigns significant value to the sharing of information. However, on the cost analysis, EPA assumes that any given RMP facility will only have one request annually under this provision. This assessment does not consider the cost of translating required notifications into multiple languages, which in some larger metropolitan communities could be as many as thirty languages within a six-mile radius. Translating a highly technical document could result in meaningful costs, and given that EPA itself states that it only expects one request annually, it is not clear how much benefit the public will actually receive from these burdens, which EPA appears to have underestimated in its analysis. In addition, the current regulatory text is vague, indicating that “any member of the public residing within 6 miles of the stationary source,” can request chemical hazard information for all regulated processes “in the language requested.”<sup>72</sup> There is no requirement that the

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<sup>69</sup> *Id.* at 53,596–97.

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

<sup>71</sup> *Id.* at 53,597.

<sup>72</sup> *Id.* at Proposed § 68.210(d).

member of the public speak the requested language themselves or make any showing for needing the materials in the requested language. Nor does the member of the public need to make any demonstration regarding their ability to pay for their own translation services.

EPA also underestimates the translation requirement's burden on small business entities and government entities. In addition, the low frequency of requests suggested by EPA does not support the benefit assigned to this provision in the RIA. The analysis prepared by EPA for this provision does not reasonably account for associated burdens and values absent any empirical evidence that demonstrates the behavioral response expected by individuals as a result of additional information.

If EPA decides to keep a translation requirement in any final rule, then a more supportable requirement would be for a facility to pay to translate the information only after it has been requested in a particular language by a member of the public who primarily speaks that language or attests that they are unable to use the documents in English for their stated purpose, and then only after a showing that the requestor cannot afford to have the translation service performed themselves. AWWA believes these revisions would allow members of the public to obtain the information that they need, without also creating unjustified compliance costs that would be borne by other ratepaying customers.

#### **L. Information Availability**

The Proposed Rule would require all facilities, upon receiving a request from a member of the public residing within six miles of the facility, to disclose certain chemical hazard information to the requester in the language requested.<sup>73</sup> The facility or its parent company, if applicable, would have to make the information available in an easily accessible manner, such as on a company website, by posting the information at public libraries, by publishing it in local papers, or through other means appropriate for particular communities and facilities. Information that must be disclosed includes (i) the non-Offsite Consequence Analysis (OCA) portion of the RMP, (ii) names of regulated substances and Safety Data Sheets, (iii) accident history, (iv) summary of the facility's emergency response program, (v) summary of the facility's emergency response exercises, and (vi) LEPC contact information.

AWWA supports efforts to enhance information sharing and collaboration between facility owners and operators, LEPCs, first responders and the public in a manner that balances security and considerations and leads to meaningful improvements in safety. As managers of critical infrastructure, AWWA and its members are very concerned about the requirement to make sensitive operational data of water sector facilities publicly available, which can present significant security risk without appropriate safeguards. AWWA reiterates its comments made in its March 9, 2012 letter to EPA regarding EPA's plan to provide Internet access to the non-OCA sections of risk management plans.<sup>74</sup> For the same reasons given in that letter, and included in our comments here, AWWA recommends removing the proposed requirements to make this information publicly available. AWWA further recommends that EPA engage in an interagency review process to reexamine the security risks prior to mandating disclosure of RMP information. As part of that process, AWWA recommends that EPA coordinate with Department of Justice (DOJ) and the Cybersecurity and Infrastructure Security Agency to update EPA and DOJ's 2000

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<sup>73</sup> See *id.* at 53,599–602.

<sup>74</sup> See Letter from AWWA to EPA (Mar. 9, 2012) and associated materials [Appendix F].

report examining security concerns relating to publicly available RMP information.<sup>75</sup> The threat landscape has only grown more complex and sophisticated since 2000, and serious consideration should be given to how the disclosure of certain information may enhance the capacity of malevolent actors and put public safety at greater risk of harm. Indeed, given that the Proposed Rule is designed to increase public safety, EPA will have “failed to consider an important part of the problem” as required by the CAA and APA if it does not engage in an assessment of the potential security risks associated with disclosing this information and provide an explanation supported by record evidence.<sup>76</sup>

In addition, if EPA does keep any such requirements in a final rule, then it should further assess whether it has satisfied the Paperwork Reduction Act’s “practical utility” requirement: it is unclear how some of the information requirements proposed to be provided to LEPCs and emergency response officials under Section 68.210 will improve community response and preparedness.<sup>77</sup>

### **3. EPA should provide a supplemental notice and comment period.**

The Proposed Rule is complex, and the currently flawed RIA has made it impossible for the regulated community to fully digest and comment on EPA’s proposed changes during this comment period. Providing meaningful comments has been a particularly challenge for the water sector, as it is made up of many small businesses and government entities with limited resources. EPA has also proposed these changes at the same time that these entities are attempting to digest and implement new regulatory requirements under the SDWA, including the revised Lead and Copper Rule, as well as EPA’s new health advisories for PFOA and PFOS. EPA denied AWWA’s request for an extension of the comment period.<sup>78,79</sup>

Once EPA has revised its RIA and conducted appropriate internal coordination and inter-agency review to ensure that it is making proper use of its internal expertise, EPA should provide the public with an opportunity to comment on the revised proposed rule and the supporting analysis before finalizing any rule.

### **4. Conclusion**

AWWA would like to reiterate its support for the RMP and the risk minimization that it promotes. However, given the success of the program as measured by extremely low incident rates in water and other sectors, we are skeptical of the anticipated additional benefits that will be achieved by the Proposed Rule. In particular, EPA needs to perform a more rigorous analysis of marginal and overall net benefits. Based on AWWA’s review, a plausible case can be made that the Proposed Rule will result in a negative net-benefit for some sectors. In other words, the costs of the Proposed Rule do not justify the anticipated benefits. Although the potential benefits are described by EPA in the RIA, much deeper analysis based on historical data is necessary to evaluate expected marginal and net benefits, with an emphasis on working from the extremely low baseline of incidents to improve upon. We respectfully request that EPA reevaluate all the Proposed Rule requirements by sector, including a more thorough

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<sup>75</sup> See EPA & DOJ, Assessment of the Increased Risk of Terrorist or Other Criminal Activity Associated with Posting of Off-Site Consequence Analysis Information on the Internet (April 18, 2000), <https://www.regulations.gov/document/EPA-HQ-OLEM-2022-0174-0009> [Appendix G].

<sup>76</sup> See *Motor Vehicle Mfrs. Ass’n*, 463 U.S. at 43.

<sup>77</sup> See 5 C.F.R. Part 1320.

<sup>78</sup> Joint Association letter Sept 7, 2022 to EPA RE: Comment Period Extension. [Appendix H]

<sup>79</sup> EPA letter Oct 26, 2022 Denial of Comment Period Extension. [Appendix I]

consideration of how changes will reasonably be expected to reduce already low incident rates. In addition, to the extent EPA includes a new definition of “natural hazard” or “near miss” in any final rule, we recommend that the definitions be clarified and narrowed to avoid unjustified burdens and due process concerns for the regulated community. Finally, we request that EPA update its environmental justice analysis to fully account for the impact that these regulations will have on those communities as a result of the higher compliance costs that they cause water utilities.

## APPENDICES

- Appendix A**     **AWWA Comments on 2016 RMP Proposed Amendments Rule (May 13, 2016) and associated materials**
  
- Appendix B**     **AWWA Comments on the 2018 RMP Proposed Reconsideration Rule (August 23, 2018), and associated materials**
  
- Appendix C**     **Small Business Administration Comments on 2022 RMP Proposed Safer Communities by Chemical Accident Prevention Rule**
  
- Appendix D**     **U.S. Government Accountability Office, GAO-22-104494. Chemical Accident Prevention: EPA Should Ensure Regulated Facilities Consider Risks from Climate Change (February 2022)**
  
- Appendix E**     **National Association of SARA Title III Program Officials (NASTTPO), 2016 Local Emergency Planning Committee (LEPC) Survey: Final Report (May 23, 2016)**
  
- Appendix F**     **AWWA letter March 9, 2012 to EPA RE: Planned Release of non-OCA data via the Internet**
  
- Appendix G**     **EPA & DOJ, Assessment of the Increased Risk of Terrorist of Other Criminal Activity Associated with Posting of Off-Site Consequence Analysis Information on the Internet (April 18, 2000)**
  
- Appendix H**     **Joint Association letter Sept 7, 2022 to EPA RE: Comment Period Extension**
  
- Appendix I**     **EPA letter Oct 26, 2022 to AWWA RE: Denial of Comment Period Extension**

**Appendix A AWWA Comments on 2016 RMP Proposed Amendments Rule (May 13, 2016) and associated materials**



**American Water Works  
Association**

*Dedicated to the World's Most Important Resource®*

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**VIA ELECTRONIC SUBMISSION**

**Attention: Docket ID No. [EPA-HQ-OEM-2015-0725](#)**

Environmental Protection Agency

Mailcode 28221T

1200 Pennsylvania Ave. NW

Washington, DC 20460

**RE: Comments of the American Water Works Association on the U.S. Environmental Protection Agency's Accident Prevention Release Requirements: Risk Management Program under the Clean Air Act; Proposed Rule 81 Fed. Reg. 16,637 (Mar. 14, 2016)**

Dear Administrator McCarthy,

The American Water Works Association (AWWA) appreciates the opportunity to provide comments on the U.S. Environmental Protection Agency's (EPA's) proposed amendments to the Accidental Release Prevention Requirements of Risk Management Programs (RMP) under the Clean Air Act, Section 112(r)(7).<sup>1</sup>

AWWA is an international, nonprofit, scientific and educational society dedicated to providing total water solutions assuring the effective management of water. Founded in 1881, the Association is the largest organization of water supply professionals in the world. Our membership includes over 3,900 utilities that supply roughly 80 percent of the nation's drinking water and treat almost half of the nation's wastewater. Our over 50,000 total memberships represent the full spectrum of the water community: drinking water and wastewater systems, environmental advocates, scientists, academicians, and others who hold a genuine interest in water, our most important resource. AWWA unites the diverse water community to advance public health, safety, the economy, and the environment.

AWWA supports the efforts of the Administration to review chemical safety. However, AWWA has a number of concerns with the proposed rule, most of which center around the fact that drinking water and wastewater treatment facilities do not represent the same risk profile as many of the other industries regulated by the RMP program and have demonstrated a strong record of safety throughout the life of the program. As a result, AWWA is making specific recommendations to EPA that provide

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<sup>1</sup> <https://www.gpo.gov/fdsys/pkg/FR-2016-03-14/pdf/2016-05191.pdf>


flexibilities for the water sector that builds on the risk based approach that EPA outlines throughout the proposed rule.

AWWA's comments represent a concern that various proposed elements are arbitrary, unjustified and overly burdensome. The comments have been organized to address five major categories as explained in more detail in the enclosed comments::

1. The drinking water and wastewater treatment sector has a demonstrated record of safety and is not representative of the chemical process safety risks that the proposed RMP regulatory revisions are intended to address.
2. Drinking water and wastewater treatment systems are uniquely impacted by the proposed RMP regulatory revisions and warrant considerations for flexibilities afforded by EPA's discretion under CAA section 112(r), and the requirements of the Small Business Regulatory Enforcement Act (SBREFA) and Unfunded Mandates Reform Act (UMRA).
3. Several of the proposed RMP revisions are overly burdensome and do not appreciably decrease risks of catastrophic chemical releases.
4. The social benefits of the proposed regulatory revisions as outlined in EPA's regulatory impact analysis (RIA)<sup>2</sup> are grossly overestimated and the social costs to water sector in particular are severely underestimated.
5. Recommended regulatory flexibilities for the drinking water and wastewater treatment sector.

If you have any questions about these comments please feel free to contact myself or [Kevin Morley](#) in our Washington office.

Yours Sincerely,



G. Tracy Mehan, III  
Executive Director – Government Affairs

cc: AWWA Water Utility Council  
Mathy Stanislaus – EPA/OLEM  
Peter Grevatt – EPA/OGWDW  
David Travers – EPA/OGWDW/WSD  
Kevin Morley  
Steve Via

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<sup>2</sup> <http://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OEM-2015-0725-0037&disposition=attachment&contentType=pdf>

## I. Executive Summary

AWWA shares EPA's goal of enhancing safety of drinking water and wastewater treatment systems. AWWA and its members devote substantial time and resources to safety programs and training and have demonstrated commitment to risk management and process safety per the multiple ANSI standards, manuals of practice, and training resources we provide to the water sector. In the context of the information presented in the Final Report on the Small Business Advocacy Review Panel and the RMP proposed rule and regulatory impact analysis, we note an absence of evidence that demonstrates how many of the recommended changes will reduce the risk of a catastrophic chemical release and actually improve chemical process safety. The U.S. Chemical Safety Board (CSB) recently completed its investigation of the investigation in West, citing poor regulatory oversight of fertilizer storage facilities and the lack of hazard awareness of fertilizer grade ammonium nitrate as key findings. In addition, the CSB identified the need for improved storage practices of fertilizer grade ammonium nitrate and for improved land use and zoning practices. It is not clear from EPA's proposal how any of these findings would be addressed also given the recent classification of the incident as an "intentional criminal act" by the Bureau of Alcohol, Tobacco and Firearms.<sup>3</sup>

AWWA's comments on the RMP proposed rule fall into five major categories explained in more detail in the enclosed comments:

1. The drinking water and wastewater treatment sector has a demonstrated record of safety and is not representative of the chemical process safety risks that the proposed RMP regulatory revisions are intended to address.
2. Drinking water and wastewater treatment systems are uniquely impacted by the proposed RMP regulatory revisions and warrant considerations for flexibilities afforded by EPA's discretion under CAA section 112(r)(7), and the requirements of the Small Business Regulatory Enforcement Act (SBREFA) and Unfunded Mandates Reform Act (UMRA).
3. Several of the proposed RMP revisions are overly burdensome and do not appreciably decrease risks of catastrophic chemical releases.
4. The social benefits of the proposed regulatory revisions as outlined in EPA's regulatory impact analysis (RIA) are grossly overestimated and the social costs to water sector in particular are severely underestimated.
5. Recommended regulatory flexibilities for the drinking water and wastewater treatment sector.

### 1. Demonstrated Safety Record of the Water Sector under RMP

Drinking water and wastewater treatment systems represent an appreciably lower risk profile than other sectors regulated by the RMP program. The water sector has had a demonstrated record of safety under the existing RMP regulatory requirements as demonstrated by EPA's own data on the 10 year accident history of the industry under the program. According to EPA's data presented during the SBREFA panel process for the proposed rule, there are approximately 2,000 drinking water and

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<sup>3</sup> <https://www.atf.gov/news/pr/atf-announces-50000-reward-west-texas-fatality-fire>

wastewater treatment facilities regulated under RMP, representing 16% of all total RMP regulated facilities. Over this 10 year period of analysis, these facilities represent about 4.9% of all RMP reportable incidents, with an approximate annual average of .037 incidents per facility over that same compliance period.<sup>4</sup> The low accident rate indices is acknowledged by EPA's classification of the water sector facilities as a 'simple' regulated process. Water sector facilities have a demonstrated record of safety under the existing RMP requirements and it is not abundantly clear how additional regulatory requirements could further reduce the risk of reportable incidents in the sector beyond this extremely low baseline.

On July 31, 2014, the U.S. Environmental Protection Agency (EPA) published (79 FR 44604) a Request for Information (RFI) seeking comment on potential revisions to its Risk Management Program (RMP) regulations and related programs to modernize its regulations as required under Executive Order (EO) 13650: Improving Chemical Facility Safety and Security. In comments filed October 29, 2014, AWWA noted an absence of information that might suggest how the recommended changes would change risk. The comments also made the point that additional regulatory action would not change the risk associated with a facility that failed to comply with the multitude of existing regulatory standards that have not been proven to be inadequate when implemented appropriately at other facilities.

Water utilities have been handling chlorine for more than 100 years and are well aware of what is required to safeguard this material, using a range of methods from secure storage sites up to and including scrubbers that neutralize leaks. Careful attention should be taken by EPA to examine the costs and benefits of each proposed RMP regulatory change to ensure that each provision will in fact reduce the risk of potential releases of chemicals in communities, recognizing that RMP regulated process present different risk profiles. EPA acknowledges the dynamic of tiered risk by establishing categories of "simple" and "complex" facilities in the proposal. Water sector facilities are almost always labeled as simple since they have fewer processes and number of chemicals than the average RMP facility. In addition to just recognizing this inherent difference, EPA should tailor the requirements using these differences.

## **2. Unique impacts to the water and waste water treatment industry**

Relative to other sectors regulated under the RMP program, drinking water and wastewater treatment systems provide a unique public good to communities by protecting health and welfare by ensuring the safety, reliability and affordability of public water resources. Given the water sector's demonstrated record of safety over the life of the RMP program, additional regulatory requirements that constrain operational choices regarding water contamination control technologies must be carefully weighed against their continued ability to provide these services without compromising public health imperatives. Choices by the water sector regarding the use of particular disinfection technologies require balancing many factors including source water quality, cost, transportation access, facility space, and inherent safety. Each community must have the flexibility to decide which approach is most

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<sup>4</sup> Appendix A – SBREFA RMP data.

appropriate for their situation given these complex variables. One factor, industrial safety, shouldn't alter this balance - especially when the public safety risk of potential chemical releases for the water sector is so low.

### **Small business entity impacts**

There are over 50,000 community water systems in the U.S. and of the approximately 2,000 water sector facilities subject to the Risk Management Program regulations, 49% are classified as small business entities under the U.S. Small Business Administration. In the fall of 2015, AWWA staff supported the City of Troy's (NY) participation as a Small Entity Representative (SER) on the Small Business Advocacy Review (SBAR) Panel for the EPA rulemaking "Risk Management Plan Modernization." AWWA appreciated the opportunity to participate in this process and provided some preliminary information to the Agency regarding the proposed rule's potential impacts to the water sector.<sup>5</sup> However, the truncated panel review process, limited data regarding the costs of potential rule provisions and complete lack of data regarding the benefits of any individual provision made it difficult to provide constructive input regarding the relative risk tradeoffs for any of the regulatory changes considered.

One of the additional difficulties that small business entities in the water sector faced when providing comments during the SBAR panel process was the lack of information regarding the interaction of the RMP proposed revisions with the OSHA Process Safety Management (PSM) regulations. These two programs are so interrelated that parties cannot effectively comment on one without knowing how they will interact. EPA's compressed schedule for the RMP proposal makes it all but impossible to effectively understand and comment on the RMP proposal because OSHA's parallel PSM rulemaking process lags far behind. In light of OSHA's recent changes to its retail exemption policies, there is additional uncertainty among AWWA members regarding whether they will in fact be subject to RMP Program 2 or Program 3 requirements. At a minimum, EPA should update industry specific RMP guidance resources<sup>6</sup> and undertake additional consultation with small business entities in the water sector regarding the interaction of the RMP revisions with existing PSM policies and regulation. However, AWWA strongly urges EPA to consider delaying further development of potential RMP revisions until after the SBAR panel process for OSHA's potential PSM proposed revisions are complete in order to gain a more complete picture of the universe of requirements impacting the water sector and design appropriate flexibilities for small entities under its SBREFA obligations.

### **Unfunded Mandates for municipally owned water systems**

In addition to a preponderance of small entities in the water sector, many of these facilities are also owned and operated by municipal government entities operating on fixed budgets that are not easily adaptable to costly Federal mandates. In the Unfunded Mandates Reform Act (UMRA) analysis presented in the proposed rule<sup>7</sup>, EPA acknowledges that the RMP revisions may significantly impact the

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<sup>5</sup> Appendix B – SBREFA Comments City of Troy 12/9/2015

<sup>6</sup> <https://www.epa.gov/sites/production/files/2013-11/documents/appendix-f1.pdf>

<sup>7</sup> Federal Register/ Vol. 81, No. 49 pp. 13701

Congress. UMRA, Pub. L. 104-4, was passed in an effort to limit the number of unfunded federal mandates imposed by the federal government on state, local, and tribal governments. In addition, UMRA was intended to strengthen the partnership and communications between the federal government and its state, local, and tribal counterparts. AWWA and its member appreciate the efforts of EPA to consult with states and local communities through the NASTTPO annual meetings prior to the issuance of the proposed rule. However, as the EPA proceeds with the development of a final RMP rule, more effort should be undertaken by the Agency to fulfill its obligation contained in section 7(b) of UMRA to,

“require that Federal agencies prepare and consider estimates of the budgetary impact of regulations containing Federal mandates upon State, local, and tribal governments and the private sector before adopting such regulations, and ensuring that small governments are given special consideration in that process.”<sup>8</sup>

In consideration of the unique impact of the RMP proposed revisions on municipally owned and operated water systems, EPA should devote additional efforts to consult with these entities regarding the impact of the proposed revisions on their operating budgets. Specific attention should be paid to how compliance with the proposed revisions may impact the operational imperatives that these systems face when making decisions about resource tradeoffs. In light of its obligations under UMRA and the significant and unique impacts to municipally owned water systems, AWWA encourages EPA to consider additional flexibilities for these entities as it works to develop a final RMP rule.

### **3. Several of the proposed RMP revisions are overly burdensome and do not appreciably reduce risks of catastrophic chemical releases**

AWWA appreciates EPA’s efforts to develop flexible, performance based approaches to the proposed revisions for the RMP rule. However, as currently proposed many of the provisions being considered impose unnecessary burdens on regulated entities without clear benefits in terms of reducing the risks of potential chemical safety incidents. In the RIA for the proposed rule, EPA acknowledges that it, “had no data to project the specific impact of each proposed rule element on the probability and magnitude of chemical accidents. Indeed, the frequency and severity of the accidents themselves would be difficult and challenging to predict.”<sup>9</sup> The inability to appropriately match the costs and benefits of any of the proposal’s program elements makes it extremely difficult to ascertain whether any particular provision would in fact reduce the risk of chemical safety incidents.

Given EPA’s estimate that the proposed RMP revisions are likely to result in impacts to industry of \$161 million annually, the proposed rule meets the criteria of an “economically significant regulation under Executive Order 12866<sup>10</sup> and therefore would be subject to the requirements of OMB Circular A-4. In particular, Circular A-4 instructs agencies to “explain how the actions required by the rule are linked to the expected benefits. For example, indicate how additional safety equipment will reduce safety risks. A

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<sup>8</sup> 2 U.S. Code § 1501 (7)(b)

<sup>9</sup> RMP Regulatory Impact Analysis pg. 7

<sup>10</sup> [https://www.whitehouse.gov/sites/default/files/omb/info/eg/12866/12866\\_10041993.pdf](https://www.whitehouse.gov/sites/default/files/omb/info/eg/12866/12866_10041993.pdf)

similar analysis should be done for each of the alternatives.”<sup>11</sup> While AWWA appreciates EPA’s approach to develop low, medium and high cost estimates for each of the proposed revisions, while seeking comment from stakeholders on these options, more effort should be undertaken by the agency to quantify the benefits associated with of each program elements. In the absence of any clear benefit estimate for any of the proposed revisions, it is impossible to understand how any particular provision would reduce the risk chemical releases or improve chemical safety. In the absence of such evidence, AWWA encourages EPA to adopt the least burdensome option for each of the proposed program elements in a potential final rule.

In addition to the lack of clarity regarding the costs and benefits of each program element, some of the revisions being considered also introduce potential unintended consequences that can further detract from the stated purpose of the regulation to “improve chemical safety and security.” Below is a more detailed description of these dynamics with respect to several specific revisions contained in the proposed rule.

### **Third Party Audits**

The proposed rule would require facilities with Program 2 and/or Program 3 processes to contract with an independent third-party to conduct the next scheduled compliance audit following an RMP reportable incident or after an implementing agency determines that “certain circumstances exist that suggest heightened risk for an accident.” AWWA is concerned that EPA’s proposal to require third party audits is overly prescriptive, impractical to implement and could potentially result in unintended consequences, particularly for the water sector, which manages critical infrastructure and provides valuable public goods.

The third party auditors would be subject to rigid and eligibility criteria, including a three year “cooling off” period that disqualifies any personnel to conduct third party audits if they have conducted past research, development, design, construction services or consulting with the owner or operator. In addition, EPA proposes a requirement barring any third party auditors from accepting future employment with the owner or operator for a period of three years. These rigid criteria could result in the unintended consequence of severely limiting the availability of “qualified” auditors, which could actually hamper efforts to address deficiencies in process safety management and compromise audit quality by eliminating potential candidates with valuable industry specific knowledge of process hazard mitigation. Disinfection operations are relatively confined to the water sector and there is little incentive to enter this market since the demand for audits will be so low due to the extremely low RMP incident rates. When audit needs actually do arise, the chances of finding a qualified firm will be low. For these reasons, AWWA strongly recommends that EPA eliminate the three year “cooling off period” restricting the eligibility of qualified auditors.

In addition, EPA proposes to allow the RMP implementing agency to require a third-party audit based on alleged non-compliance with Subpart C or D. In effect, this provision has the implication of delegating EPA’s enforcement authority to this third party. Once a company receives an audit report from an

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<sup>11</sup> [https://www.whitehouse.gov/omb/circulars\\_a004\\_a-4](https://www.whitehouse.gov/omb/circulars_a004_a-4)

implementing agency, it would trigger the duty to prepare a response report, including a “schedule” for identifying any “deficiencies” identified by the third-party auditor within 90 days of receiving an adverse finding in a third-party audit. Such sub-delegation of regulatory authority raises serious questions about EPA’s statutory authority to authorize this regulatory requirement for another agency to enforce. In fact, many of the examples cited by EPA in the preamble of the proposed rule refer to cases where third party audits are expressly authorized through statute. In the absence of clear statutory authority to sub-delegate its authority, AWWA recommends that EPA eliminate this provision.

Finally, EPA’s proposal in §68.80(c)(4) to strip the attorney client privilege from any documents “related” to the audit reports is arbitrary. It is not clear how this action will improve the authenticity or integrity of audits. In addition, this requirement creates serious concerns regarding potential litigation liabilities that could result from enforcement actions that occur as a result of audit findings. For these reasons AWWA strongly recommends removing this provision.

In the proposed rule EPA seeks comment on the proposed third party audit applicability requirements and whether to eliminate or further limit the applicability of the provision. The existing rule requires Program 2 and Program 3 processes to conduct a compliance audit at least once every 3 years. AWWA strongly believe that the existing RMP audit requirements have been highly effective in identifying deficiencies in RMP incident prevention program requirements. Indeed, EPA’s 10 year accident history data for the RMP program demonstrates that the water sector in particular has a demonstrated a record of safety over the life of the program. There is no empirical audit data that demonstrates whether systemic problems exist in how the current RMP audits are performed or reported. In the absence of evidence suggesting that the current compliance audit regime has proven ineffective in applying lessons learned from the few incidents that have occurred in the water sector over the life of the program, it is not clear how imposing a third party audit requirement would further improve the safety culture for these “good actors.” At a minimum, AWWA recommends that EPA provide additional empirical data to support the assumption that the current audit regime is deficient, while removing the problematic provisions described above.

### **Emergency Planning and Response Provisions**

The proposed rule would require a facility owner or operator with a Program 2 or Program 3 process to coordinate annually with local emergency responders to determine response needs and ensure that response resources and capabilities are in place to respond to an accidental release of a regulated substance. In addition, when the outcomes of the response coordination activities demonstrates that local response capabilities are not adequate to respond, or upon the request of local responders, the facility or owner must develop an emergency response capability in accordance with §68.95. AWWA supports several of these proposed emergency coordination requirements, subject to a few clarifications.

AWWA supports emergency response preparedness and the coordinating of response capabilities with local emergency responders, but it has significant concerns about allowing LEPCs to limit their response obligations to our communities. EPA delegates its authority to determine which facilities must develop

their own emergency response programs to LEPCs if the response capabilities of local first responders are inadequate without providing any guidance regarding the criteria for LEPCs to demonstrate their capabilities. As a result, regardless of the adequacy of local public response capabilities, facilities must develop their own independent programs if the LEPC requests it. It is not clear how CAA §112(r) authorizes this type of sub-delegation of authority. This requirement may have the unintended consequence of counties and municipalities with budgetary pressures to disinvest from safety programs and shift the burden of response to local facilities that may not have demonstrated public safety risks. For municipalities that own their own water systems, this would simply mean a shifting of resources within the same cash-strapped budget. In addition, requiring facilities to provide full emergency response capabilities in accordance with §68.95 would be extremely costly and burdensome. Please see the attached comments on the regulatory impact analysis for AWWA's alternative estimate of the costs associated with providing full emergency response capabilities for the water sector.<sup>12</sup>

EPA proposes additional new requirements for emergency response coordination between facilities and LEPCs, including annual checks of emergency notification systems and the requirement to conduct tabletop and field exercises. AWWA is supportive of the annual notification requirements proposed by EPA and believes that providing local responders with up to date information regarding emergency response planning procedures and contacts is both necessary and prudent. However, the requirement to conduct a full field exercise every 5 years, regardless of the accident history of the facility is extremely costly, overly burdensome and does not have clear benefits beyond what would result from conducting table annual table top exercises. AWWA believes that the EPA's estimated costs associated with conducting full-field exercises are grossly underestimated and in the absence of clearly articulated benefits is not clearly justified. Please see attached comments on EPA's regulatory impact analysis for AWWA's alternative cost estimate. As a result, AWWA strongly urges EPA to adopt the least burdensome alternative among the Emergency Planning and Response provisions, which according to the description provided in the RIA, would "eliminate the provision allowing an LEPC to require that the facility comply with §68.95."<sup>13</sup>

### **Information Disclosure**

EPA is proposing to require RMP facilities to make available to LEPCs six categories information: (1) names and quantities of regulated substances held in a process, (2) 5-year accident history information (3) summaries of audit reports, (4) summaries of incident investigation reports, (5) summaries of IST/ISD measures that are planned or implemented, and (6) facility exercise information, including the schedule for upcoming exercises.

AWWA supports efforts to enhance information sharing and collaboration between facility owners and operators, LEPCs, first responders and the public in a manner that balances security and considerations and leads to meaningful improvements in safety. However, some of the information requirements proposed to be provided to LEPCs and emergency response officials contained in §68.205 do not clearly

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<sup>12</sup> See Appendix D - AWWA Public Comments on the RMP Regulatory Impact Analysis

<sup>13</sup> RMP Regulatory Impact Analysis pg. 63

demonstrate how they will specifically improve community response and preparedness and therefore do not meet the test of practical utility under the Paperwork Reduction Act (5 CFR 1320).<sup>14</sup> For example, it is not clear how providing LEPCs with complex summaries of IST measures and audit reports would assist communities in their ability to plan for and provide emergency response functions. While it may seem practical to provide information to the public about the chemical safety hazards of facilities, it is important to ensure that the all of the information required to be provided to LEPCs and the public will actually be used to enhance safety and security. Please see the attached comments from AWWA regarding the Information Collection Requirements associated with the proposed rule.

In addition, EPA is proposing to require facilities to make available to the public on an “easily accessible” platform such as the company website: (1) the non-OCA portion of the RMP, (2) names of regulated substances and SDSs, (3) accident history, (4) summary of the facility’s emergency response program, (5) summary of the facility’s emergency response exercises, and (6) LEPC contact information. EPA also requests comment on posting summaries of IST analysis and third-party audits. As managers of critical infrastructure, AWWA and its members are very concerned about the requirement to make sensitive operational data of water sector facilities publicly available, which can present very real potential security risk without appropriate safeguards. AWWA reiterates its comments made in its March 9th 2012 letter<sup>15</sup> to the EPA Administrator regarding EPA’s plan to provide Internet access to the non-Off-site Consequence Analysis (OCA) sections of Risk Management Plans. AWWA recommends that EPA engage in an inter-agency review process of the security risks prior to mandating disclosure of RMP information. As part of that process, AWWA recommends that the Department of Justice (DOJ) update their 2000 report<sup>16</sup> on security concerns relating to publically available RMP information that evaluates the current state of society in terms of security and technological advancements.

### **Incident Investigation**

EPA proposes to require Program 2 and Program 3 facilities to conduct root cause analyses for “catastrophic releases” and “near misses,” the latter of which EPA defines as incidents that “reasonably could have resulted in a catastrophic release.” The Proposal defines “root cause” as a “fundamental, underlying system-related reason why an incident occurred that identifies a correctable failure(s) in management systems.” AWWA is supportive of the concept of conducting performance based analyses regarding the root causes of incidents involving catastrophic releases with off-site consequences. However, we are concerned that expanding this requirement to apply in cases of “near misses” will be costly, unnecessary and divert scarce resources to from other public safety imperatives provided by the water sector. Significant compliance uncertainty will result if “near miss” incidents are not clearly defined and AWWA has serious concerns that defining the term will be difficult if not impossible to reasonably capture its intended meaning.

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<sup>14</sup> <https://www.gpo.gov/fdsys/pkg/CFR-2010-title5-vol3/xml/CFR-2010-title5-vol3-part1320.xml>

<sup>15</sup> See Appendix C – March 9, 2012 letter to EPA RE: Planned Release of non-OCA data via the Internet

<sup>16</sup> EPA and DOJ. 2000. Assessment of the increased risk of Terrorist or Other Criminal Activity Associated with Posting of Off-Site Consequence Analysis Information on the Internet. April 18, 2000.

AWWA would like to reiterate the recommendations of the SBAR panel to further minimize the impacts of this provision on small businesses. The Panel recommended that EPA clarify the intent that incident investigations are not intended to cover minor accidents or minor near misses that could not reasonably have resulted in a catastrophic release. The Panel further recommended that EPA consider proposing to require root cause analysis only for reportable releases, not including near misses. Finally, the Panel recommended that EPA clarify in the preamble the comparative advantages of a root cause analysis to the current incident investigation requirements in §§ 68.60 and 68.81 of the rule.

While AWWA is supportive of the concept of conducting root-cause analyses for catastrophic chemical releases with off-site consequences, we believe that the requirement should only be mandated for the most complex RMP regulated processes among Program 3 facilities for several reasons. First, conducting root-cause analyses is extremely costly and resource intensive. Secondly, the root-cause analyses are most useful when applied to complex, multifaceted incident scenarios that do not have obvious causes and consequences. In the preamble, EPA seeks comment on a low cost alternative that would only require root-cause analyses in the case of RMP reportable incidents involving Program 3 processes. AWWA strongly urges EPA to adopt this low cost alternative as it considers finalizing the rule and emphasizes that its application should be limited to catastrophic releases with off-site consequences. While AWWA supports root cause investigations, the proposal's scope needs to be narrowed to focus on truly significant, catastrophic events, rather than any potential incident that could create an endless cycle of investigations, draining time and resources from other safety oversight activities.

### **STAA analysis**

As proposed EPA sought comment on the medium and high cost alternatives for the Safer Technology and Alternatives Analysis (STAA). Those alternatives would expand the applicability of this provision to all Program 3 facilities in the medium cost alternative and for both Program 2 and Program 3 facilities in the high cost alternative. AWWA has serious concerns with the prospect of STAA being applied to water facilities and strongly urges EPA to limit the applicability of this provision to the most complex regulated processes as outlined in the preferred alternative.

AWWA notes the efforts of EPA to tailor this provision according to the risk profile of the regulated process, and suggest that such a risk based approach be adopted more widely throughout the rule. In the preamble to the proposed rule, EPA discusses the rationale behind limiting the applicability of STAA to "complex" as opposed to "simple" processes. In discussing the limits of "simple" processes to apply inherently safer technology (IST) strategies EPA states that,

"Although such sources may also have opportunities to identify and implement IST, the existence of such sources is predicated on handling and distributing a specific regulated substance. Therefore, their opportunities to implement certain IST strategies such as substitution or minimization may be limited. Similarly, sources involving relatively simpler chemical processes may have opportunities to implement chemical substitution strategies but may be limited in their ability to apply moderation and simplification strategies.<sup>17</sup>

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<sup>17</sup> Federal Register/ Vol. 81, No. 49 pp. 13668

This scenario is particularly relevant to the water sector. AWWA does not believe that a STAA mandate for water utilities through CAA §112(r), and in particular any mandatory IST requirements, could appropriately capture the variety of contingencies water utilities must consider when choosing a treatment chemical. Any EPA definition of a “safer” chemical alternative in the context of CAA §112(r) would focus primarily on preventing an accidental chemical release. But a comprehensive consideration of “safer” technology from a water service point of view would also have to take into account a wide array of safety and health considerations as well as numerous risk trade-offs for all water consumers, not just those in close proximity to a potential chemical release. Water utilities must consider how to best meet their primary objective of ensuring that any treatment method fully complies with the statutory and regulatory requirements of the Safe Drinking Water Act (SDWA). These are the types of evaluations that water systems undertake when carrying out independent reviews of disinfectant treatment options – a part of providing their core service. Any STAA review or implementation requirement under a revised RMP would therefore be repetitive and potentially counterproductive to water utilities that have already considered the public health benefits and risk tradeoffs associated with their selected disinfectant process.

In its first RMP rule promulgated in 1996 EPA did not adopt a requirement for STAA in part because it was costly and failed to deliver any meaningful safety benefit. In the last 20 years, EPA has yet to collect any data demonstrating any safety benefit as a result of STAA, including data from the handful of jurisdictions that have implemented STAA at the state or local level. In the absence of such data, AWWA strongly urges EPA to keep any such mandatory STAA requirements for water facilities out of the final revisions to the RMP.

**4. The social benefits of the proposed regulatory revisions as outlined in EPA’s regulatory impact analysis (RIA)<sup>18</sup> are grossly overestimated and the social costs to water sector in particular are severely underestimated.**

To comply with Executive Orders for regulatory review and EPA’s statutory obligations, the agency prepared a Regulatory Impact Analysis (RIA). AWWA reviewed the RIA and found numerous instances where EPA failed to use fundamental economic science, failed to follow Executive branch guidelines for regulatory impact analysis, and failed to follow its own economic guidelines.<sup>19</sup> These flaws have the effect of substantially overstating the potential social benefits and understating the expected social costs. Moreover, the analysis fails to provide meaningful information to policy officials and the public to allow effective comment on the proposed rule by not appropriately identifying the costs and benefits associated with each of the proposed rule’s provisions. EPA’s Regulatory Impact Analysis (RIA) contains numerous methodological flaws and is inconsistent with EPA’s Economic Analysis Guidelines, Executive orders, government-wide requirements for regulatory analysis issued by the Office of Management and Budget (OMB). In most instances, the effect of these flaws is to overstate this proposal’s likely social benefits.

Some of the principal flaws include the following:

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<sup>18</sup> <http://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OEM-2015-0725-0037&disposition=attachment&contentType=pdf>

<sup>19</sup> See Appendix D – AWWA public comments on the RMP Regulatory Impact Analysis

- The RIA claims a level of social benefits that implicitly assumes the rule will prevent all future accidents;
- The RIA includes private benefits as social benefits;
- The RIA claims as a benefit of this rule all of the existing state, local, other Federal regulation and independent efforts to increase facility safety; and,
- The RIA assumes future hazards will be as great as they have been in the past, ignoring trends in reduced severity of accidents and technology improvements.

Each of these flaws is discussed in more detail in the attached comments on the RIA. In addition, we have estimated the maximum social benefits of this proposal by removing private benefits from the social benefit estimate. This revised maximum social benefit of the proposed rule for the requirements for water and wastewater facilities is this rulemaking are extremely small -- \$10,000 per year. EPA's own data show that water utilities have an excellent track record of serving their communities safely. Additional regulation would provide almost no incremental benefit above current regulation and current practices.

Water utilities are also a tiny proportion -- 0.12 percent -- of the maximum potential social benefits across all sectors using EPA's approach. As discussed in the throughout our public comments, the water sector is different than other RMP sectors. Even if EPA finds additional regulation is needed, it should tailor the requirements to those sectors where some social benefit may occur.

Although the maximum incremental social benefits for the water sector are extremely low, even these low numbers overstate the likely social benefits. These numbers still assume that the rule eliminates all accidents, assumes that facilities are not already enacting some of the proposed provisions, ignores existing local and Federal regulation, and the other flaws in the social benefit analysis described in the attached comments on the RIA.

Regarding costs, we examined the major provisions of the rule to estimate the costs on the water sector. We find that the RIA contains some systematic errors which lead to an underestimation of the real resource costs that will likely be necessary for compliance.

Finally, since the social costs of the proposed rule as applied to the water sector is approximately \$125 million (or 200,000 times) greater the social benefits for each year, EPA's proposal represents a significant transfer of resources away from drinking water and wastewater treatment facilities to other sectors in the economy. At a time when our water infrastructure is in great need of resources to maintain constant, safe, and affordable water to the public, water sector facilities would have to divert scarce funds away from other priorities to comply with these proposed provisions. As required under OMB guidelines for regulatory review, EPA is required to estimate the opportunity costs of this transfer. The opportunity costs include greater service disruptions due to failing distribution pipes, higher water rates and economic impact on low income and fixed income households, and deferred investments to improve the efficiency and capacity of water system.

## 5. Recommended regulatory flexibilities for the Drinking Water and Wastewater Treatment Sector

Clean Air Act §112(r)(7)(B)(i) calls for EPA regulations to recognize differences in “size, operations, processes, class and categories of sources,”<sup>20</sup> when designing regulatory requirements for the RMP program. AWWA applauds EPA’s efforts in the proposed rule to acknowledge that an underlying principle of the regulations is that “one size does not fit all,” in structuring the requirements of the rule in a way that the costs of implementation vary primarily by the complexity of the processes involved. In doing so, EPA has designed a number of provisions in the proposed rule that differentiate the stringency of program requirements based on the risk profile of regulated processes. For example EPA differentiates regulated processes under RMP between “simple” and “complex” processes to acknowledge that certain regulated processes,

“have more covered processes per facility and more complex issues to consider when evaluating hazards, designing exercises, conducting audits, investigating incidents, and explaining information to first responders and the public compared to facilities that simply store or use chemicals in simple processes (e.g. refrigeration systems and water and waste water treatment systems.)<sup>21</sup>”

To further distinguish among the complexity of regulated processes, EPA established three RMP Program Levels to ensure that individual processes are subject to requirements appropriately matched the complexity of their operations and risk profile. In addition, the requirement to conduct STAA analysis hinges on the classification of a subset of Program 3 facilities distinguished by 3 specific NAICS codes that represent the highest risk profile among the most complex regulated processes. These specific sectors were selected because they represent relatively complex processes that have had a high frequency of accidental releases accounting for 49% of all RMP reportable incidents.<sup>22</sup> Finally, EPA examined low, medium and high cost regulatory alternatives for many of the proposed revisions, while seeking specific information from stakeholders that would support particular alternatives.

As described previously, the water sector represents the lowest chemical safety risk profile under the RMP program among all regulated sectors. In addition, nearly half of all RMP facilities in the water sector are classified as small business entities under SBREFA. Many RMP facilities in the water sector are also municipally owned and operated and depend on rate payer financing to provide important public health goods. When faced with costly regulatory requirements with no clear benefits, very real potential unintended consequences can result for the water sector in making decisions about the allocation of scarce resources devoted to public safety, affordability and reliability of public water resources. AWWA believes that these considerations should be taken into account as EPA considers how best to promote risk management planning.

As a result of the unique characteristics of the water sector, disproportionate economic impacts and low risk profile of its regulated processes, AWWA recommends that EPA tailor the RMP regulatory

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<sup>20</sup> Federal Register/ Vol. 81, No. 49 pp. 13646

<sup>21</sup> Regulatory Impact Analysis pp 28

<sup>22</sup> Ibid, pp 28

requirements to account for these differentiated characteristics. This approach would classify facilities under NAICS codes 22131 and 22132 under a “lowest risk” subset of EPA’s existing “simple process” category that would further distinguish the water sector among other categories with higher risk profiles within the “simple process” category. Similar to the risk-tiering approach that EPA undertook for the STAA requirement for the most complex regulated processes, the specific water sector NAICS codes would be subject to the lowest cost alternatives that EPA considered in its proposed rule for each provision. By exercising discretion to provide for these risk-based flexibilities for the water sector, EPA would achieve the following objectives:

- 1) Provide relief to the water sector under SBREFA by adopting recommendations of the SBAR panel for streamlined requirements for small entities.
- 2) Consider the disproportionate impacts of the rule on municipally owned drinking water and wastewater utilities under UMRA.
- 3) Avoid unintended consequences associated with shifting resources among severely constrained water utility budgets that protect critical infrastructure and provide important public health benefits.

In addition, AWWA recommends the following changes to the regulatory text outlined below related to specific provisions described earlier in our comments:

#### *Third Party Audits*

- 1) Remove the provision in §68.59(b)(2)(iii) within the eligibility requirements for third party auditors regarding the three year “cooling off” period requirement.
- 2) Remove the provision in §68.59(c)(4) that would strip attorney client privilege from all third party audit documentation.
- 3) Remove the provision in §68.58(f)(2) allowing “implementing agencies” to require third party audits based on non-compliance with the requirements of this subpart.

#### *Root Cause Analysis*

- 4) Remove the provision in §68.60(a)(2) to conduct root cause analyses for “near miss” incidents.

#### *Information Sharing*

- 5) Remove the provision in §68.210(a) to make non-OCA RMP data publicly available should be eliminated due to security concerns related to critical infrastructure protection.

## **Conclusion**

In conclusion, AWWA would like to reiterate its support for the RMP and the risk minimization that it promotes. However, given the success of the program as measured by extremely low incident rates in water and other sectors, we are skeptical of the implied benefits that will be achieved by the proposed RMP regulatory changes. In particular, a more rigorous analyses of marginal and overall net benefits needs to be made. Based on this review, a plausible case can be made that a negative net-benefit may be realized for some sectors. Although the potential benefits are described by EPA in the Regulatory Impact Analysis, much deeper analyses, based on historical data are necessary to evaluate expected marginal and net benefits, with an emphasis on working from the extremely low baseline of incidents to improve upon. We respectfully request that EPA reevaluate all the of proposed RMP rule requirements by sector, including a more thorough consideration of how changes will reasonably be expected to reduce already low incident rates.

## **APPENDICES**

- Appendix A RMP SBREFA Data 10 year accident (Excel Data file)**
- Appendix B SBREFA Comments City of Troy 12/9/2015**
- Appendix C March 9, 2012 letter to EPA RE: Planned Release of non-OCA data via the Internet**
- Appendix D AWWA Public Comments on the RMP Regulatory Impact Analysis**

Louis A. Rosamilia  
*Mayor*

Peter Ryan  
*Deputy Mayor*



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## Department of Public Utilities

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December 9, 2015

Laura Free  
Regulatory Management Division  
Office of Policy, U.S. Environmental Protection Agency  
1200 Pennsylvania Ave. NW  
Washington, DC 20460  
Email: Free.Laura@epa.gov

Re: Risk Management Modernization Rule - Small Business Advocacy Review

Dear Ms. Free:

As the Superintendent for the Department of Public Utilities for the City of Troy, NY, I appreciate the opportunity to participate in this process. However, I am concerned with the quality of the information provided by the Agency to the SBREFA panel regarding to potential impacts on small utilities (and small businesses) that could result from the proposed revisions in rules for Risk Management Plans under the Clean Air Act. The cost and benefit data, as presented, does not support a transparent opportunity to myself and others on this panel to adequately evaluate projected impacts on small entities.

Much of the data was presented in a disparate fashion that inhibits an open, collaborative exchange of knowledge. For example, a concise summary of preliminary cost estimates was included as part of the September 22, 2015 information package (slide 28), but that summary format was not retained for purposes of the November 19, 2015 panel briefing. Various elements of the prior cost data were included, but it is unclear how some of this data has been updated, including supporting assumptions. This makes a review of the projected overall cost burden for each rule element more unclear, especially as it pertains to potential impacts on small systems.

Though the Agency does provide insight on cost estimates for each rule element, the Agency does not provide a comparative estimate of benefits per rule element. The benefits as reported derive an expected aggregate value per-accident-avoided based on average costs of historical on-site and off-site consequences. However, the information provided by the Agency does not provide any assumptions for how the various rule modifications under consideration would contribute to benefits claimed. The Agency approach is limited to one single benefit estimate that assumes all rule element modifications are implemented. This approach frustrates the purpose of

the SBREFA panel by inhibiting an objective review of the value contributed by each rule element modification. This is especially pertinent to my ability to represent the interest of fellow water utilities, since, according to the data provided, 49% of the water facilities potentially impacted by these rule changes are classified as small entities. I believe that, in order to support an effective and transparent review process, the Agency must provide a more comprehensive options analysis to allow objective consideration of the expected value provided by each proposed rule modification.

In addition, there appears to be some assumptions regarding various rule modifications that are not representative of the burden the changes will have on small systems. The following assumptions require further consideration and justification:

- **Third Party Audits** - As reported by the Agency there is an average hourly rate difference of approximately \$25 for staff supporting a small government entity versus a large government entity. This is partially influenced by the Agency's assumption that management time will double if it is a large government entity (60hrs vs 30hrs), yet the difference between engineering staff is only 14hrs. As a small system manager, I would assert that additional time involved in hiring a third party auditor is not any less burdensome than it might be for a large governmental entity, since procurement rules and requirements are relatively similar. In addition, it is not clear why the Agency believes that additional attorney hours would not occur for governmental entities. At minimum it is likely to be equivalent, if not greater, than what was reported for private entities.

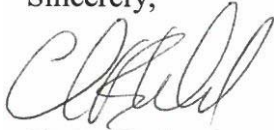
Furthermore, requiring a Third Party Audit for any RMP Incident, would add an unnecessary additional cost burden, as the current requirements for an Incident Investigation (handled by internal staff) accomplishes the desired remediation objective.

- **Incident Investigations & Root Cause Analysis** -The Agency assumption that managers would have zero added hours should such an action be necessary is inappropriate. Given the importance of such an investigation and analysis, I firmly believe that management would be involved in support and review of any such analysis.
- **New Responder ER Program Development** – The Agency does not provide any estimated cost for development of an emergency response program for small or large government entity, yet this rule modification would apply to these facilities. Inclusion of these facilities is anticipated since the Agency does provide an estimated cost for training personnel for local government entities. In general the Agency does not present a consistent breakdown of estimated costs by facility type which inhibits the transparency of a small entity impact assessment. It should also be noted again that an assumption of zero hours for management under personnel training is inappropriate and counter to purpose of this suggest rule modification.
- **Exercises** -The Agency provide no cost estimates for small or large government entities, which again inhibits effective analysis for purposes of this panel. In addition, while some facilities may run these exercises with in-house staff, my experience and observation is that, to be effective, this often requires consultant based facilitation ... especially for small entities, without the luxury of a large cadre of support staff. The data presented appears to capture the expected cost of staff time at a facility, however it should also capture the added burden placed on the various partnering organizations needed to make such exercises effective. This includes, but is not limited to law enforcement, fire/hazmat, and city/county/state emergency managers. This is an important consideration, especially

in communities with multiple RMP facilities, since they will all be required to host the proposed exercises with the same entities. Example one fire department may cover 10 RMP facilities, meaning the potential for ten (10) new exercises for the external response agency, versus one (1) for the facility. Therefore, the overall burden on various elements of a local government is much greater ... and not accounted for in this data provided by the Agency. This additional burden is not insignificant, especially in small communities with limited resources and in today's reality of strained budgets.

I appreciate the opportunity to participate in this process. The comments provided are intended to highlight opportunities for the Agency to increase transparency and clarity for evaluation of the proposed rule modifications by all entities potentially covered by this action, especially the smaller ones with less resources to shoulder any additional burden.

Sincerely,



Chris Wheland  
Superintendent of Public Utilities  
Department of Public Utilities  
City of Troy, NY

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March 9, 2012

The Honorable Lisa P. Jackson  
 Administrator  
 U.S. Environmental Protection Agency  
 Ariel Rios Building  
 1200 Pennsylvania Avenue, N.W.  
 Washington, DC 20460

**RE: Planned Release of Non-OCA data via the Internet**

Dear Mrs. Jackson:

As representatives of the Nation's drinking water and wastewater community, we were very disturbed to learn of EPA's plan to re-establish Internet access to the non-Off-site Consequence Analysis (OCA) sections of Risk Management Plans. This announcement from the Office of Emergency Management (OEM), dated December 7, 2011, cites the burden of complying with Freedom of Information Act (FOIA) requests and a need for the FBI and others to have greater access to non-OCA data as the principle reasons the Agency is proposing this change in data handling.

We find it ironic that in an April 2000 report from EPA and the Department of Justice (DOJ)<sup>1</sup> the agencies noted that the release of such information via the Internet can help advance terrorist ends in an environment that provides complete anonymity. We do not believe that this interest, intent, or capability to leverage the Internet to support malevolent acts has waned in the ensuing years. In addition, the report notes that "many terrorist organizations are Internet savvy", and that savvy has only increased with technology advances over the past 12 years. Given this acknowledgement in 2000 and the continued and ongoing threat from terrorist organizations per Department of Homeland Security notices, we are highly skeptical of EPA's plan. We believe a thorough review and consideration of the post-

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<sup>1</sup> EPA and DOJ. 2000. Assessment of the increased risk of Terrorist of Other Criminal Activity Associated with Posting of Off-Site Consequence Analysis Information on the Internet. April 18, 2000.

Letter to the Honorable Lisa P. Jackson

Page 2

9/11 threat environment will show that releasing this sensitive information would constitute a threat to National security.

Equally important is the inclusion of facility safety measures in the non-OCA dataset, specifically, the section on preventative programs. It is not clear how this information came to be reclassified as non-OCA, since the 2000 report by EPA-DOJ labels this information as “data that would be salient to a terrorist for purposes of causing a chemical release”. This data indexes the active and passive mitigation measures installed at a facility. We believe that anonymous and open sharing of such information via the Internet as proposed will serve to further enable those seeking to cause harm. This data could be used to prioritize targets based on the type of mitigation measures and thereby inform perpetrators of the actions necessary to thwart designed protection measures.

In terms of the claim that the FBI and others need access to this information, we would remind the Agency that this is already required under several sections of the following:

- Clean Air Act §112(r) requires entities to provide all Risk Management Plan information to local first responders and response planners;
- Emergency Planning and Community Right-to-Know Act §301-303 requires certain entities to coordinate emergency response plans with state and local emergency planning commissions; and,
- P.L. 109-295 §550(c) provides for sharing of sensitive chemical facility security information with law enforcement officials and first responders.

We do not believe that satisfying information needs of other government entities supports putting such sensitive information on full view to the world. Surely technological advances have enabled the government to make the information available on a secure platform available only to personnel with a need to know.

Finally, in terms of the FOIA burden, we point back to the 2000 analysis which notes that the “more personal contact that is required to obtain information, the less likely it is that someone seeking to misuse the information will attempt to obtain it.” The Internet provides anonymity that undermines the intent of protecting this information from being openly disseminated. We support the current approach for managing access to both OCA and non-OCA which allows an appropriate level of transparency.

Letter to the Honorable Lisa P. Jackson

Page 3

We strongly discourage the Agency from proceeding with this planned release of sensitive data and would welcome the opportunity to meet with you to discuss our concerns.

Best regards,

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COMMENTS ON EPA'S REGULATORY IMPACT ANALYSIS  
FOR THE PROPOSED CHANGES TO THE RISK MANAGEMENT PROGRAM

Prepared for the American Water Works Association

May 11, 2016

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## SECTION 1: EXECUTIVE SUMMARY

The U.S. Environmental Protection Agency's (EPA) recently issued a notice of proposed rulemaking for updates to the current regulations governing the Risk Management Plan (RMP) program.<sup>1</sup> To comply with Executive orders for regulatory review and EPA's statutory obligations, the agency prepared a Regulatory Impact Analysis (RIA).<sup>2</sup>

The RIA has numerous instances where EPA failed to apply fundamental economic science, failed to follow Executive branch guidelines for regulatory analysis, and failed to follow its own economic guidelines. These flaws have the effect of substantially overstating the potential social benefits and understating the expected social costs. Moreover, the analysis fails to provide meaningful information to policy officials and the public to allow effective comment on the proposed rule.

### Problems with the Social Benefit Estimate

EPA's RIA contains many methodological flaws. Some of the principal flaws include the following:

- The RIA presents monetized levels of social benefits that implicitly assumes the rule will prevent all future accidents;
- The RIA includes private benefits as social benefits;
- The RIA claims as a benefit of this rule all of the existing state, local, other Federal regulation; and,
- The RIA assumes future hazards will be as great as they have been in the past, ignoring trends in reduced severity of accidents and technology improvements.

Even a partial re-analysis of EPA's approach suggests that the maximum social benefits are approximately three percent of the value given in the RIA. Due to the low accident rate at water facilities and the very small number with off-site consequences, the maximum social benefits that could be gained from this rule's application to the water sector is approximately \$10,000 per year, as noted in Table 1-1.

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<sup>1</sup> 81 FR 13638

<sup>2</sup> U.S. Environmental Protection Agency, Regulatory Impact Analysis: Accidental Release Requirements, Risk Management Programs Under Clean Air Act, Section 112(r)(7), February 24, 2016. [RIA]

Table 1-1. Average Annualized Avoided Accident Costs for Water Sector and All RMP Facilities

(7% Discount Rate)

Column 1	Water/Wastewater Facilities	Water Supply Facilities Only
Excluding On-Site Property Damage	\$77,000	\$33,000
Excluding On-Site Property Damage, Worker Deaths, Worker Injuries	\$10,000	\$10,000

### Problems with the Social Cost Estimate

We examined the major provisions of the rule to estimate the costs on the water sector. We find that the RIA contains some systematic errors which lead it to underestimate the real resource costs that will likely be necessary for compliance. We included an estimate of the Safer Technology and Alternatives Analysis (STAA) provision if it is applied to the water sector. A revised estimate of these provisions is listed below in Table 1-2:

Table 1-2. Average Annualized IST Costs for Water Sector

Proposed Provision	Annualized Costs (7%) (mil \$/yr.)
Rule Familiarization	0.3
Data Disclosure Costs	20
Third-Party Audit Costs	17
Incident Investigation Costs	22
Emergency Response	73
Information Disclosure	27
STAA Costs	97
Total	160 - 260

### Opportunity Cost

Since the social costs of the proposed rule as applied to the water sector is approximately \$160 million (or 160,000 times) greater the social benefits for each year, EPA's proposal represents a large transfer of resources away from drinking water and wastewater treatment facilities to other sectors in the economy. At a time when our water infrastructure is in great need of resources to maintain constant, safe, and affordable water to the public, water sector facilities would have to divert scarce funds away from other priorities to comply with these proposed provisions. As required under OMB guidelines for regulatory review, EPA must

estimate the opportunity costs of this transfer.<sup>3</sup> The opportunity costs include higher water rates and economic impacts on low income and fixed income households, deferred investments to improve the efficiency and capacity of water systems, which can caused result in more service disruptions due to deferred maintenance on distribution and collection systems.

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<sup>3</sup> Office of Management and Budget, *Circular A-4 Regulatory Analysis*, September 17, 2003. 19.

## **SECTION 2: DRINKING WATER AND WASTEWATER FACILITIES REGISTERED UNDER THE RMP PROGRAM**

### **2.1. SUMMARY**

The Risk Management Program (RMP) encompasses a wide range of economic sectors, from oil refineries to pulp and paper mills and drinking water treatment plants. Drinking water treatment and wastewater treatment facilities have very different characteristics than other regulated RMP facilities. This section describes some of the salient characteristics that distinguish water and wastewater facilities from other sectors regulated under the RMP.

### **2.2. DATA SOURCES**

To obtain the data for this analysis, we employ two sources: the information EPA provided in the docket and a third-party source, RTK.net. This third-party has continuously gathered RMP information from EPA. We found differences between these two sources of data.

In an attempt to measure the average annual accident rate for the water sector, we obtained the RMP data CD-ROM offered by EPA in their virtual docket. We used information on RMP-registered facilities from the "facilities" and "accidents" sections of the Microsoft Access master file. The accident data was accompanied by facility-by-facility NAICS codes, enabling us to screen data from the general water treatment industry (NAICS code 2213) as well as the water supply sub-sector (NAICS code 22131). For each industry, we gathered facility information and tallied all reported deaths, injuries, property damage, hospitalizations, other medical treatment, sheltering, and evacuations for each accident year over the 2004 -2014 and 2009-2014 period.

The other data is published by the Right-to-Know Network through repeated FOIA requests to the EPA.<sup>4</sup> While RTKNet's data scope should be similar to the Access file, the user interface allows a simple search by NAICS code. The RTKNet data has facility submissions that provide the five-year accident history. For this reason, the RTKNet data is most complete from the time period of 2009-2014. Based on the issues identified in Section 2.6, we used the RTKNet data in this analysis.

### **2.3. NUMBER OF REGISTERED WATER TREATMENT AND WASTEWATER TREATMENT FACILITIES**

From our analysis of the RMP database current at the end of 2014, we find that over 2,000 drinking water and wastewater treatment facilities are registered. This estimate contrasts with 1,998 water sector facilities in the RIA.<sup>5</sup> Since the RMP Program level 1 is for facilities that can demonstrate no impact from a worst-case release, relatively few water sector facilities qualify. Most drinking water and wastewater facilities fall into the Program 2

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<sup>4</sup> <http://www.rtknet.org/>

<sup>5</sup> Regulatory Impact Analysis (RIA). 35.

(P2) and Program 3 (P3) categories and thus are subject to the expanded requirements of the proposal.

Table 2-1. Water Sector Facilities by RMP Program Level and Number of Processes

Program Level	Facilities	Processes
1	16	67
2	957	1,292
3	1,041	1,519
Total	2,014	2,878

A significant portion of regulated water facilities are municipal entities. Only 94 of the over 2,000 registered water sector facilities are private, investor owned facilities. Most community water systems are directly owned and operated by a local government or a multi-jurisdiction public authority.

#### 2.4. REGISTERED PROCESSES AND CHEMICALS AT WATER FACILITIES

As show in Table 2-1, water sector facilities have on average one or two processes per facility. The most common chemicals by far are chlorine and ammonium. While the average volume of regulated chemicals stored on site is over 60,000 lbs., the median facility has 12,000 lbs. located on site. This feature highlights that there are a large number of small facilities and a fewer number of larger facilities.

#### 2.5. NUMBER OF EMPLOYEES AT REGISTERED FACILITIES

This size split is also reflected in the distribution of the number of employees. Many water sector facilities have relatively few employees. Only 61 of the RMP facilities have more than 100 employees on-site in total. Most facilities have less than 20 employees. As discussed in EPA's analysis, the water sector has one of the largest numbers of small entities among all RMP sectors, as defined by the Small Business Administration.<sup>6</sup>

Table 2-2. Regulated Water Sector Facilities by Number of Full-Time Equivalent (FTE) Employees

Program Level	0-19 FTEs	20-99 FTEs	100+ FTE
1	13	3	0
2	748	186	23
3	791	212	38

#### 2.6. ACCIDENT RATE AT WATER TREATMENT FACILITIES

In EPA's analysis of accident rates by sector, the water sector and agricultural retail facilities have the lowest reportable accident rates of any regulated sector. Based on EPA's

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<sup>6</sup> RIA. 108.

analysis, the water sector has an accident rate per facility more than 25 times lower than petroleum refining and nine times lower than chemical manufacturing.<sup>7</sup>

To obtain yearly accident rates, we use both EPA's data in the docket and the RTKNet data. We divide the year-by-year accident tally (derived from the data described in Section 2.2), by the number of in-universe drinking water/wastewater facilities to obtain an estimate for the water industry (NAICS code 2213) on the whole. As the facilities section lacks NAICS codes alongside facility entries in EPA's data, we ran a search algorithm in the facilities section of the Microsoft Access file, where entries containing word strings of "water," "treatment," and "WTP" are catalogued and separated. Manual verification ensured that the results only reflected water facilities; we overestimate the water sector accident rate to the extent that our algorithm missed certain water sector facilities not found with these search terms. We then group this separated data by year to obtain year-by-year RMP submission tallies. As each RMP submissions report five years of data for that facility, we take submissions from the current year and add that facility to the subsequent four years. This approach yields the estimate of the number of water sector facilities with reportable RMP processes for each year. Once we derive the number of water sector registered facilities per year, we divide each year's accident tally by the number of facilities. This data is in Table 2-3 below.

Taking the ten-year average of these results yields 0.011 reportable accidents per year, a value several times smaller than the EPA estimate. We were unable to replicate the EPA's reported (2004-2013) average of 0.04 for the water/wastewater industry on the whole.<sup>8</sup>

As we were unable to replicate EPA results using the files given to us, we opt to use "RTKNet" data. Despite a smaller sample size, the data likely gives us a better yearly average accident rate because the in-universe number of firms for each year can be calculated using NAICS codes rather than imprecise search algorithms. Using RTKNet data on yearly submissions and accidents and performing an otherwise-similar analysis to the procedure described above, we obtain yearly accident social costs estimates and average accident rate from the water industry for the 2009-2014 period.

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<sup>7</sup> RIA. 34.

<sup>8</sup> RIA. 34.

Table 2-3. Annual Average Water Sector Accident Rate Calculated from EPA's Docket Information

Year	Number of Accidents	Submissions	In-Universe	Accident Rate
2003	21	44	1,976	0.011
2004	24	1,235	2,059	0.012
2005	15	290	1,847	0.008
2006	28	233	1,839	0.015
2007	26	174	1,829	0.014
2008	13	127	1,850	0.007
2009	13	1,023	1,866	0.007
2010	20	282	1,778	0.011
2011	30	223	1,787	0.017
2012	16	195	1,564	0.010
2013	14	143	1,369	0.010
2014	11	935	1,226	0.009
2015	7	291	291	0.024
Average (2009-2014)				0.011

Since the number of submissions in 2015 is lower than previous years, we assume that the data has not been compiled yet and therefore did not include it in this analysis.

## 2.7. CONCLUSIONS

Water utilities in the RMP program have specific characteristics: they usually have one regulated process at their facility and manage one or two chemicals. These processes provide an essential public health function - safe drinking water and clean sewage treatment. Virtually all registered facilities are public services and do not have a near-term replacement in their service area. On the drinking water side, the water disinfection processes are generally unique and do not have an analogue in other sectors.

Water utilities also have fewer employees than most other RMP facilities. More than  $\frac{3}{4}$  of water sector facilities have less than 20 full-time equivalent employees. Therefore, regulatory requirements that require more site labor pose a direct incremental cost to facility staff.

## SECTION 3: FLAWS IN THE RIA'S SOCIAL BENEFIT ESTIMATES

### 3.1. SUMMARY

EPA's Regulatory Impact Analysis (RIA) contains many methodological flaws and is inconsistent with EPA's Economic Analysis Guidelines, Executive orders, government-wide requirements for regulatory analysis issued by the Office of Management and Budget (OMB), and inconsistent with best practices recommended by the National Academies of Science (NAS).<sup>9</sup> In most instances, the effect of these flaws is to overstate this proposal's likely social benefits.

Some of the principal flaws include the following:

- The RIA presents a monetized level of social benefits that implicitly assumes the rule will prevent all future accidents;
- The RIA includes private benefits as social benefits;
- The RIA claims as a benefit of this rule all of the existing state, local, other Federal regulation and independent efforts to increase facility safety; and,
- The RIA assumes future hazards will be as great as they have been in the past, ignoring trends in reduced severity of accidents and technology improvements.

Each of these flaws is discussed in more detail below. In addition, we have estimated the maximum social benefits of this proposal by removing private benefits from the social benefit estimate. This revised maximum social benefit of the proposed rule for the requirements for water and wastewater facilities is presented in Section 3.3.

### 3.2. PROBLEMS WITH THE RIA'S METHODOLOGY

#### 3.2.1. The Proposed Rule Presents Monetized Benefits as if the Proposal Eliminates All Damages

In the RIA, the monetized benefits are presented by quantifying the costs of reported accidents by RMP facilities over the recent ten-year period. If the future is like the past, this presentation essentially assumes that the proposed RMP regulation will eliminate all future accidents and avoid all future accident costs.

While EPA states that it is unable to quantify the marginal social benefit from this proposal, the avoided private and social cost of accidents is the only quantified estimate. EPA should revise the final RIA to remove any possible misinterpretation that it is claiming all

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<sup>9</sup> Office of Management and Budget, *Circular A-4 Regulatory Analysis*, September 17, 2003; U.S. Environmental Protection Agency, *Guidelines for Preparing Economic Analyses*, December 17, 2010, updated May 2014; Institute of Medicine, *Valuing Health for Regulatory Cost-Effectiveness Analyses*, Washington, D.C., 2006.

damages for future social benefits. Once this highly unlikely scenario of the post-regulatory future is put aside, the question remains of what scenarios EPA should use to estimate the marginal social benefit of this rulemaking. One possible scenario comes from existing experience. Since many of the proposed provisions are already in place in certain jurisdictions, the attendant reduction, if any, in accident severity might be a plausible future scenario of the proposed rulemaking's overall effectiveness. EPA could examine accident severity before and after these local programs came into effect.<sup>10</sup>

While any prediction of the future has uncertainties, the analytic requirements of OMB guidance still require EPA to make credible projections. OMB Circular A-4 requires that, "when benefit and cost estimates are uncertain, you should report benefit and cost estimates (including benefits of risk reductions) that reflect the full probability distribution of potential consequences. Where possible, present probability distributions of benefits and costs and include the upper and lower bound estimates as complements to central tendency and other estimates."<sup>11</sup> If a reasonable distribution estimate cannot be arrived at due to lack of knowledge, benefits should be described, "under plausible scenarios... [that] characterize the evidence and assumptions underlying each alternative scenario."<sup>12</sup>

The scenario that these proposed provisions will effectively eliminate all accidents is implausible. In any final rule, EPA should adopt more plausible scenarios of a rulemaking's effectiveness.

### 3.2.2. Most of the RIA's Social Benefits are Private Benefits

Executive Order 12866 makes it clear that, when drafting an RIA, "each agency should identify a problem that it intends to address (including, where applicable, the failures of private markets or public institutions that warrant new agency action) as well as assess the significance of that problem."<sup>13</sup> Circular A-4 describes externalities as a market failure; they occur "when one party's actions impose uncompensated benefits or costs on another party." The EPA's Guidelines for Preparing Economic Analyses states that, "because those [externality] costs are not borne by the firm, the firm typically does not consider them in its production decisions."<sup>14</sup>

The RIA counts as social benefits the avoided injuries and fatalities of on-site workers. However, these are private benefits and not social benefits. To understand this distinction, it is important to review the origin of benefit-cost analysis for these situations. In a groundbreaking paper, Schelling (later a Nobel Laureate) extended welfare economics to environmental and occupational risk situations. As expanded by Mishan, Schelling showed that a program that reduces mortality risk should be valued by what the reduction in risk is

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<sup>10</sup> As any prediction of the future, this scenario has strengths, limitations, and uncertainties.

<sup>11</sup> Circular A-4. 18.

<sup>12</sup> Circular A-4. 18.

<sup>13</sup> Executive Order 12866, October 4, 1993. 1.

<sup>14</sup> U.S. Environmental Protection Agency, *Guidelines for Preparing Economic Analyses*, December 17, 2010, updated May 2014. A-5.

worth to the people who benefit.<sup>15</sup> These authors extended a concept of consumer welfare, the consumer's willingness to pay (WTP), to these policy choices.

As a National Academy of Sciences report summarized:

Basing the values used in economic analysis on the preferences of the affected individuals is a fundamental tenet in welfare economics. Thus, the monetary measure of the benefit of a reduction in mortality risk is based on the value placed on the benefit by the individuals receiving it. It is not the value held by the policy-maker or the experts. The standard approach for cost-benefit analyses is thus to measure the benefits of a mortality-risk reduction on the basis of the value to each individual of his or her own reduction in risk and then to sum these values across all affected individuals.<sup>16</sup>

In Circular A-4, OMB explicitly calls for agencies to use WTP measures to quantify benefits in regulatory analysis.<sup>17</sup> The NAS then summarized the current methods to measure WTP:

WTP is typically measured by analyzing the prices paid for goods and services. The maximum price that a person is willing to pay for a good or service is a measure of how much the person values the good or service. Prices for reducing or preventing mortality risks cannot be directly observed, because, for the most part, reduction or prevention of mortality risks is not directly purchased in the marketplace. However, there are instances in which the monetary tradeoffs that people are willing to make between income and mortality risks can be observed or measured, for example, higher wages for riskier jobs or higher prices for safer products.<sup>18</sup>

Therefore, it is well established in the economic literature that workers and employers negotiate wage and job conditions to equal workers' willingness to accept/willingness to pay for small changes in occupational injury risk. The NAS explained:

An example ... is a wage-risk study in which wage premiums for risks of death on the job are estimated. This approach analyzes the factors that determine differences in actual wages between jobs, including on-the-job risks of death. The additional wages that people are paid per unit of additional risk of fatal injury is a measure of the

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<sup>15</sup> Schelling, Thomas C.; Bailey, Martin J.; Fromm, Gary, *The life you save may be your own, Problems in public expenditure analysis : papers presented at a conference of experts held September 15- 16, 1966 ; [this was the second Brookings conference on government expenditures].* - Washington, DC: Brookings Institution. - 1968, p. 127-162. Mishan Ei. *Cost-benefit analysis: an informal introduction.* London: Allen & Unwin, 1971.

<sup>16</sup> National Research Council, *Estimating Mortality Risk Reduction and Economic Benefits from Controlling Ozone Air Pollution*, Washington, D.C., 2008, pg. 131.

<sup>17</sup> Circular A-4. 18.

<sup>18</sup> Ibid. 135.

monetary value of the additional risk to the person who voluntarily accepts the risk in exchange for a given wage increment.<sup>19</sup>

This marketplace outcome has been observed in numerous wage-risk-studies in thousands and thousands of workers, in multiple countries, and in multiple studies.<sup>20</sup> Wage-risk studies are the foundation of EPA economic analyses. As the NAS observed,

EPA focused on the valuation of private rather than public goods, that is, on estimates of individual WTP for reductions in their own risks of death, not for those of society more generally. This choice was (and still is) consistent with the bulk of empirical literature (as addressed below) and the state of welfare economics (as noted above).

Based on these choices, the agency has performed hundreds of RIAs, many arguably influencing agency decisions and even subsequent decisions over legislation in Congress. Furthermore, these choices have been ratified as the best practical options by all of the Science Advisory Board (SAB) panels EPA has asked to examine them, most recently in 2007 (EPA-SAB 2007), as detailed below.<sup>21</sup>

As the NAS observed, these studies measure the private benefits workers receive based on their job choices. These studies are the empirical proof of the public welfare economic proposition that individuals attempt to maximize their welfare when faced with risks.

The relevance to this proposed rule is that, absent this rule, individuals can - and are - maximizing their welfare without government regulation. They can seek jobs, quit them, and negotiate compensation based on their individual preferences and WTP, a characteristic of a well-functioning market. In the language of public welfare economics, there is no externality, i.e., an uncompensated effect of one party on another. If there is no externality, government regulation cannot then improve the market's functioning or increase social welfare or add social benefits.

By including on-site work risk reduction as a potential social benefit, the RIA's methodology is counter to fundamental economic theory that is supported by empirical evidence. It is so well-established that, as the NAS points out, EPA bases its principal human health risk reduction valuation upon this economic tenet. EPA uses values derived from individual's private WTP in hundreds of RIAs, including the RIA for this rulemaking.

Therefore, EPA should remove these private benefits from its analysis to be consistent with fundamental economics, OMB guidelines, and its own standard practice. Therefore, the EPA is not justified in counting this avoided cost category as a part of the social benefits. In

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<sup>19</sup> Ibid. 135.

<sup>20</sup> See, for example, the summaries in U.S. Environmental Protection Agency, *Valuing Mortality Risk Reductions for Environmental Policy: A White Paper Draft*, December 2010.

<sup>21</sup> National Research Council, *Estimating Mortality Risk Reduction and Economic Benefits from Controlling Ozone Air Pollution*, Washington, D.C., 2008, pg. 139. Since this NRC report, EPA's SAB again in 2011 reviewed and endorsed EPA's valuation of small changes in risk based on wage-risk studies.

the final RIA, EPA should only include social benefits that arise from correcting market failures.<sup>22</sup>

### 3.2.3. No Analysis of the Marginal Social Benefits of the Specific Proposed Requirements or Regulatory Alternatives

When there is a range of regulatory alternatives to choose from, Circular A-4 makes clear that all must be quantitatively examined. In these cases, the agency “should use your [its] judgment to choose reasonable alternatives for careful consideration.” The Circular further dictates that, “whenever you report the benefits and costs of alternative options, you should present both total and incremental benefits and costs.”<sup>23</sup>

The RIA fails to comply with this part of Circular A-4 in two important ways. First, the RIA does not disaggregate the social benefits for each proposed requirement. Policy officials and the public have no idea which proposed requirement – third-party audits, emergency response – provide the greatest social benefits. Without this information, it is impossible to know which provisions justify their social costs, a requirement of the Executive order on regulatory review.<sup>24</sup>

Second, in the proposal and in the RIA, EPA calls for comment on three regulatory options – high, proposed, and low. While the RIA presents cost estimates of the alternatives, it fails to demonstrate the incremental social benefit of each option. Despite the lack of data on accident risk reduction under different options, EPA cannot omit benefit estimates of low and high cost regulatory options. Without knowing the incremental benefits between different levels of regulatory stringency, the agency has no basis for selecting one option over another.

This flaw is not just a failure to comply with EPA’s obligations under Executive orders, but also a failure to provide the public with sufficient information to evaluate EPA’s actions. EPA should provide these estimates and then give the public additional opportunity to comment on these incremental estimates.

### 3.2.4. The Baseline for the Future Is Not Plausible

According to Circular A-4, an RIA should include a baseline to determine the incremental social benefits and costs of a proposed rule. Baseline estimates should try to capture the “evolution of the market” and “changes in external factors” that would shape the future in the absence of proposed regulation.<sup>25</sup> There are three, long-term trends changing

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<sup>22</sup> EPA’s claim of informational externality for workers does not apply since the needed data is already available. On site accident and fatality information is already under the current RMP program and OSHA.

<sup>23</sup> Circular A-4. 16.

<sup>24</sup> Executive Order 12866. 2.

<sup>25</sup> Circular A-4. 15.

the RMP universe and the likelihood of damaging consequences: existing regulation, declining accident rates, and increased emergency response capacities.

First, the analytic baseline should include existing regulation. Some jurisdictions already require some of the proposed Federal requirements. New Jersey's Toxic Catastrophe Prevention Act (TCPA) and Contra Costa County's California Accidental Release Prevention Program have similar provisions to the proposed regulation. Yet, in the RIA benefit estimate, EPA includes accident cost data from New Jersey and Contra Costa County, California. EPA can only claim the incremental social benefits and costs of the unique Federal requirements for facilities in these jurisdictions. In addition, at the Federal level, the OSHA Process Safety Management (PSM) program encompasses many RMP facilities. The RIA does not demonstrate how the proposed provisions will provide incremental social benefits above current PSM requirements.

Second, in the RIA, EPA states, "although the accident histories submitted with RMPs have shown a reduction in the frequency of accidents since the beginning of the program, there continue to be serious chemical releases."<sup>26</sup> Year-by-year reductions in accident costs by sector, however, are not shown.

Additionally, EPA refrains from discussing trends in facility participation in the Risk Management Program. If accidents prompt firms to deregister their facilities from the RMP, then the remaining pool of covered facilities will likely be safer than before. The remaining facilities may have greater attention to safety, may make greater investments in accident prevention, and may have simpler processes. We might expect, all other things equal, less accident costs from RMP facilities over time.

Third, with rapid advances in communication technology and in data processing, facility staff and emergency responders can more quickly communicate to workers and to the public. They can also access important information in real time, speeding up containment, first aid, and reaction to unanticipated problems. These advances should continue to decrease the likelihood of the severity and duration of accidents.

In summary, EPA does not attempt to account for changes in chemical safety spurred by technological advances and by previous government regulations in its assumption of the future baseline condition without this proposed rulemaking. Based on EPA's statement in the RIA and the RMP reportable data, assuming that the off-site damages from registered facilities will be equal to the past ten years is not the most plausible estimate of the future.

The RIA's social benefit and social cost analysis must be limited to the incremental Federal requirements over this existing compliance baseline. The social benefit estimate should also be based upon EPA's finding and the data in the docket that accident rates are declining for some sectors. The marginal social benefits calculated for this proposal are then the incremental social benefit of avoided off-site property damage and injury from the proposed provisions over this more plausible baseline.

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<sup>26</sup> RIA. 16.

### 3.3. PARTIAL RE-ESTIMATE OF THE MAXIMUM SOCIAL BENEFITS OF THE PROPOSED REQUIREMENTS ON THE WATER SECTOR

Using RMP accident data, we calculate accident costs for the water/wastewater sector.<sup>27</sup> Due to a lack of data availability, we restricted our analysis to a six-year period (2009-2014). Since on-site property damage and worker injuries are not externalities, we limited the social benefit estimate to only off-site consequences.

The social cost of accidents in the water/wastewater industry drops to an annual average of \$10,000 per year; water supply facilities contribute virtually the entire amount (due to rounding).

Table 3-1. Average Annualized Avoided Accident Costs for Water Sector and All RMP Facilities (2009-2014)  
(7% Discount Rate)

	Water/Wastewater Facilities	Water Supply Facilities Only	All Industries
All Reported Damages	\$200,000	\$42,000	
Excluding On-Site Property Damage	\$77,000	\$33,000	\$52,000,000
Excluding On-Site Property Damage, Worker Deaths, Worker Injuries	\$10,000	\$10,000	\$7,800,000

The maximum social benefits of including water facilities in this rulemaking are extremely small -- \$10,000 per year. EPA's own data show that water utilities have an excellent track record of serving their communities safely. Additional regulation would provide almost no incremental social benefit above current regulation and current practices.

Water utilities are also a tiny proportion -- 0.12 percent -- of the maximum potential social benefits across all sectors using EPA's approach. As discussed in Section 2, the water sector is different than other RMP sectors. Even if EPA finds additional regulation is needed, it should tailor the RMP requirements to only those sectors where some social benefit may occur.

Although the maximum incremental social benefits for the water sector are extremely low, even these low numbers overstate the likely social benefits. The numbers in Table 3-1 still assume that the rule eliminates all accidents, assumes that facilities are not already enacting some of the proposed provisions, and are not corrected for the other flaws in the social benefit analysis listed above.

<sup>27</sup> <http://www.rtknet.org/db/rmp>

## SECTION 4: FLAWS IN THE RIA'S SOCIAL COST ESTIMATES

### 4.1. SUMMARY

In this section, we review EPA's social cost estimates for the proposed regulatory requirements. We first identify some systemic flaws that occur in several parts of the RIA's methodology. We then review each major provision of the proposal, review the RIA's analysis, and create alternative social cost estimates that are more consistent with OMB requirements and EPA guidance.

### 4.2. SYSTEMIC FLAWS IN THE SOCIAL COST ANALYSIS

#### 4.2.1. Inconsistent Treatment of Response Costs

##### 4.2.1.1. *Issue*

Several provisions of the proposal change the audience, the level of oversight, and facility response to required safety analyses. For example, EPA is proposing to modify the incident response requirement and the process hazard analysis (PHA) requirement so that the RMP facility must address findings from all incident investigations required. In addition, prior to any deregistration of a process or facility, the RMP facility must report any accidents and conduct incident investigations.

The proposal also requires RMP facilities, as soon as possible, but no later than 90 days after receiving the final third-party audit report, to determine an appropriate response to each of the findings in the audit report and provide to EPA a findings response report. This findings response report must include:

- a copy of the final audit report;
- an appropriate response to each of the audit report findings;
- a schedule for promptly addressing deficiencies; and,
- A statement, signed and dated by a senior corporate officer, certifying that appropriate responses to the findings in the audit report have been identified and deficiencies were corrected.

In addition, EPA is increasing the regulatory scrutiny of facility responses to compliance audits, incident investigations, and to the proposed third-party audit. For example, EPA proposes that third-party auditors give regulatory agencies copies of the audit findings before the facility receives them. EPA also proposes to bar facilities from preparing the audit under attorney-client privilege protection.

At a minimum, these changes will likely increase the amount and intensity of communications with regulatory agencies. If the auditor's report contains errors, the facility must formally explain these errors in the response report. If the audit report could become the basis for fines and penalties, the facility's management and legal counsel will seek to review it before releasing it. A facility is likely to seek meetings with the audit firm and its regulatory agency to explain these errors and its planned actions in response to the findings.

While facilities are already required to respond to these reports under current regulation, the proposal changes the immediate consequences and the response process. Facility operators have a strong economic incentive to begin direct conversations with EPA much sooner. The legal and compliance implications of the reports would be greater under the proposed provisions. Therefore, an organization would spend more resources to review its response than it does currently.

Fundamentally, EPA is proposing these changes for some purpose. It is either seeking greater attention to response activity through enforcement or through facilities voluntarily increasing their efforts to avoid sanctions. If EPA is seeking a change in behavior, it must estimate the real resource cost and the expected social benefits of this change.

The RIA does not directly include the costs of facility's response to the third-party audits, the expanded incident investigation requirements, and the requirements to submit this information to government agencies, local responders, and the public. The RIA may have these costs embedded in its estimate of hours needed for incident investigations; however, the RIA does not appear to include any costs in its third-party audit unit cost estimate.<sup>28</sup>

#### 4.2.1.2. *Approach More Consistent with Best Practices*

As an alternative, we assume that facilities conduct a management and legal review of a draft response report before submitting it to EPA or the implementing agency. For an estimate the level of effort, we use the management review component of the recent American Institute of Chemical Engineers (AIChE) estimate of the labor hours necessary to evaluate and to document the findings of a fault-tree analysis.<sup>29</sup> The AIChE analysis estimates the burden of the multi-step project to conduct a fault-tree analysis; one of those steps is management review. We assume that RMP facilities would give a comparable level of effort to review the new, mandated response reports from this rule as the effort AIChE paper estimated firms would spend reviewing a fault-tree analysis. This level of effort is likely at the low end of the likely real resource cost since organizations will likely involve other parts of their team - e.g., finance, public affairs, and outside legal counsel.

We then assume that facility operators meet with their regulatory agency to explain their responses. In the case of a third-party audit, this meeting is an opportunity to clarify their findings and discuss any factual errors and misunderstandings. The meeting is likely to have some follow-up activity by RMP facility staff.

We also expect that the agency review and the internal review is likely to lead to required changes in the draft response report. We include a value equal to ten percent of the cost of the incident report (see Section 4.5.2). Table 4-1 below gives our estimate of the incremental real resource costs for the RMP facility to prepare its response. This cost is included in subsequent sections' of their report where the facility must prepare a response report.

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<sup>28</sup> RIA. 38-39.

<sup>29</sup> EPA (Region 10). Chemical Emergency Prevention & Planning Newsletter, March - April 2013 quoting the American Institute of Chemical Engineers (AIChE).

Table 4-1. Additional Response Cost per Report

Activity and Facility Type	Management	Corporate Management	Attorneys	Engineers	Labor Costs
Preparing Response	12	4	8	96	\$10,000
Meeting with Agency staff	4	0	4	8	\$1,500
Follow up	0	0	4	4	\$810
Corrections					\$2,000
Total					\$15,000

*Numbers rounded to two significant digits; values may not add due to rounding*

#### 4.2.2. Failure to Account for Employee Turnover and Equipment Replacement Costs

##### 4.2.2.1. Issue

The proposal has several provisions that require RMP facilities to maintain certain capacities - to investigate incidents using root cause analysis, to provide emergency response, and others. The RIA inconsistently estimates the real resource costs to maintain a facility's capacity. The RIA does not include the on-going costs to retrain new workers over time, but for most of these elements estimates a one-time cost to build the capacity. Since workers shift jobs, the RIA's approach systematically underestimates the social costs of compliance by omitting these on-going costs to train new workers and maintain these capacities.

##### 4.2.2.2. Approach More Consistent with Best Practices

To incorporate new employee training costs into the baseline, we used Bureau of Labor Statistics (BLS) estimates of employee tenure from the 2014 Current Population Survey (CPS).<sup>30</sup> Using survey data, the BLS derives industry-by-industry estimates of the median number of years that wage and salaried workers have been with their current employers. Using the broad NAICS code for manufacturing as a stand-in for covered RMP industries, we find that the median job duration is 5.9 years. The comparable duration is 7.8 years for staff of the LEPCs and the implementing agencies. Thus, in this analysis, we assume that new employees must spend time to understand the proposed provisions at these frequencies.

#### 4.2.3. Underestimated Employer's Labor Costs

##### 4.2.3.1. Issue

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<sup>30</sup> Bureau of Labor Statistics (BLS). Employee Tenure in 2014 (2014). <http://www.bls.gov/news.release/tenure.nr0.htm>.

The RIA gathers wage data for different occupation categories and states that these are national averages.<sup>31</sup> We note that the RIA's values are out of date - the BLS has published compensation data through 2015. The RIA then applies a multiple of 1.5 to its estimated hourly rates to account for fringe benefits. This multiple does not include employer's full costs to employ labor.

Employing labor efficiently demands more resources from the employer than monetary and nonmonetary compensation paid to the employee. For these proposed regulatory requirements, the employer must provide shelter, electricity, computer and other information technology, and many other workplace items. These overhead costs are well understood in accounting and cost estimation.<sup>32</sup> EPA uses overhead rates in several of its own guidance documents.<sup>33</sup> The RIA systematically understates the social costs by not including the real resource overhead costs for the labor necessary to carry out the rule.

#### 4.2.3.2. *Approach More Consistent with Best Practices*

We update EPA's wage estimates using the latest available wage data from the BLS -- the May 2015 Occupational Employment and Wage Survey.<sup>34</sup> Additionally, due to the skewed distribution of wage data, we use median wages instead of the mean figures used in the RIA.

We collect wage data from the six occupational categories for the respective industries characterized by the EPA as "simple" and "complex." Then we weight the BLS wage estimates by the share of affected facilities that fall under each relevant NAICS code. This weighting convention closely follows the EPA's approach in their RIA and gives a median value for "simple" and "complex" facilities.

Weighted wage estimates are multiplied by a fringe benefits multiplier of 1.5, which follows the EPA's approach in the RIA and is consistent with BLS data for nonwage compensation. We add to the wage calculation by also multiplying an overhead multiplier to reflect non-compensatory costs that come with having additional employees. We calculate this labor overhead rate by consulting the Census Bureau's 2014 Service Annual Survey for selected expenses borne by employer firms.<sup>35</sup> Estimates are provided by NAICS code and are not agreeable across industries due to missing data. We use the NAICS code for utilities (22) for this analysis.

Comparing estimates of total compensation with operating expenses, we arrive at an overhead multiplier of 1.31. Based on this analysis, we use the wage rates found in Table 4-2 throughout this analysis.

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<sup>31</sup> We note that the RIA does not cite a source to support its claim that its wage values are national averages, medians, or some other descriptor.

<sup>32</sup> EPA. EPA Air Pollution Control Cost Manual- Sixth Edition (2002). 2-34 - 2-37.

<sup>33</sup> For example, EPA has an estimated range (1.2-1.7) of overhead multipliers in its Air Pollution Control Cost Manual.

<sup>34</sup> BLS. May 2015 National Occupational Employment and Wage Estimates (2015). [http://www.bls.gov/oes/current/oes\\_nat.htm](http://www.bls.gov/oes/current/oes_nat.htm)

<sup>35</sup> U.S. Census Bureau. Service Annual Survey (2014). <https://www.census.gov/services/index.html>

Table 4-2. Fully Loaded Labor Costs (2016 \$)

Labor Category	Complex Facilities	Simple Facilities
Management	\$114.25	\$91.53
Corporate Management	\$122.26	\$93.91
Attorneys	\$140.47	\$121.15
Engineers	\$87.84	\$81.59
Production Staff	\$39.04	\$34.30
Local Responders	\$46.28	\$46.28
Operators	\$57.50	\$45.40

#### 4.2.4. Social Costs of Critical Infrastructure Data Disclosure

##### 4.2.4.1. Issue

*Proposed Data Disclosure and Implications.* The proposed rule requires disclosure of information about RMP facilities to numerous third parties such as government agencies, local emergency planning commissions, and third-party auditors.

Many RMP sectors are designated as the nation's critical infrastructure by the Department of Homeland Security. For example, chemical facilities, petroleum refineries, electricity generation, and water treatment facilities are also subject to the RMP and are designated as critical infrastructure.<sup>36</sup> Therefore, the rule is requiring information disclosure about critical infrastructure and potential facility vulnerabilities to third-parties.

Concerns about the malicious use of RMP data have been voiced since its inception. At the outset, officials and Federal agencies were most concerned with the public release of the offsite consequence analysis (OCA). EPA commissioned a security assessment in 1997 that concluded "the risk (although still very small) was slightly more than two times higher with unrestricted availability of the RMP with OCA data on the Internet...Taken together, primary utility of the unrestricted RMP and OCA data to a terrorist emerges from the capability to scan across the country for the 'best' targets."<sup>37</sup>

The proposed public disclosure would give the names and quantities of the regulated substances to the LEPC. As EPA notes in the preamble, data submitted to the LEPC becomes

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<sup>36</sup> U.S. Department of Homeland Security (DHS). Critical Infrastructure: Chemical Security. <https://www.dhs.gov/critical-infrastructure-chemical-security>.

<sup>37</sup> EPA. *Security Study: An Analysis of the Terrorist Risk Associated with the Public Availability of Offsite Consequence Analysis Data under EPA's Risk Management Program Regulations* (1997). 10.

public.<sup>38</sup> As correctly predicted by EPA's 1997 security assessment, third-party organizations could, and likely would, collect this information and make it easy for the public to access.

EPA also proposes that LEPCs be given the summary of the audit reports and a description of the facility's responses. They could obtain more information on the facility's safety assessment upon request.<sup>39</sup> The full audit likely will have specific information on potential vulnerabilities. Auditors can deem IT systems, control systems, and other operating systems as within the scope of their safety audit; with automated controls an essential part of a facility's operations and safety program, it is almost assured that third party auditor will review these systems. Thus, the audit reports and intermediate work products may contain potentially detailed information on the vulnerabilities of the RMP facility. The proposed rule does not require audit companies to take any special care with the information or to achieve minimum levels of protection against data loss. It also does not give facilities the right to restrict an auditor's access to critical operational control systems.

In the language of EPA's 1997 assessment, the proposed rule could allow terrorists to select the "best" facilities (via the foreseeable public disclosure of the chemical name and amount stored on site) and to identify potential attack strategies (via direct public release or through cyber theft) based on their specific vulnerabilities.

*Cyber theft is a Foreseeable Risk of the Proposed Rule.* As mentioned above, it is reasonable that a third-party audit would review the information systems of a facility after an accident. To be thorough, they would likely document the specific controls systems, software, and any vulnerabilities identified. This information would then be stored on the audit firm's computer systems, be shared likely electronically with EPA and other regulatory agencies, and may be required to be disclosed to the LEPC.

Knowing this likelihood, a terrorist or other maleficent party would direct efforts to steal this information. Cybersecurity attacks and data theft are commonplace.<sup>40</sup> For this reason, there is a non-zero risk an auditing firm or the government agency could be hacked. In the last year, actors have penetrated US government systems to obtain sensitive information as well have targeted industrial facilities.<sup>41</sup> Industrial control systems have seen a rise in attacks.<sup>42</sup> The threat is certain enough that the U.S. Department of Homeland

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<sup>38</sup> RIA. 45.

<sup>39</sup> RIA. 46.

<sup>40</sup> Piggan, R. (2016). Cyber Security Trends: What Should Keep CEOs Awake at Night. *International Journal of Critical Infrastructure Protection*.

<sup>41</sup> See [https://www.washingtonpost.com/world/national-security/chinese-government-has-arrested-hackers-suspected-of-breaching-opm-database/2015/12/02/0295b918-990c-11e5-8917-653b65c809eb\\_story.html](https://www.washingtonpost.com/world/national-security/chinese-government-has-arrested-hackers-suspected-of-breaching-opm-database/2015/12/02/0295b918-990c-11e5-8917-653b65c809eb_story.html); and, <http://www.computerweekly.com/news/4500272123/Industrial-control-systems-a-growing-target-for-cyber-attack>

<sup>42</sup> Cite: <http://www.sans.org/reading-room/whitepapers/analyst/breaches-rise-control-systems-survey-34665>

Security has a dedicated industrial system cyber response team.<sup>43</sup> In addition, there is also anecdotal data that U.S. industrial control systems are vulnerable and still are not given full cybersecurity protections.<sup>44</sup> While critical infrastructure facilities are likely to have a higher level of protection against data loss, the RMP universe covers many small businesses and industrial facilities not designated as critical infrastructure.

In conclusion, the proposed rule mandates certain sensitive information disclosure and creates a foreseeable risk of unintentional data disclosure to malicious parties that will, in turn, use that information to attempt to harm these facilities and US citizens.

*EPA's Analytic Obligation to Quantify the Costs of these Risks.* EPA is required to quantify the social costs of this foreseeable risk created by its proposed regulatory action. OMB Circular A-4 states:

Your analysis should look beyond the direct benefits and direct costs of your rulemaking and consider any important ancillary benefits and countervailing risks. An ancillary benefit is a favorable impact of the rule that is typically unrelated or secondary to the statutory purpose of the rulemaking (e.g., reduced refinery emissions due to more stringent fuel economy standards for light trucks) while a countervailing risk is an adverse economic, health, safety, or environmental consequence that occurs due to a rule and is not already accounted for in the direct cost of the rule (e.g., adverse safety impacts from more stringent fuel-economy standards for light trucks).<sup>45</sup>

In this case, the countervailing risk are the increased likelihood of attempts to steal information from audit firms and government agencies, the likelihood of increased cybersecurity attempts to gain access to RMP control systems and IT networks, and the increased likelihood of a damaging attack. In response to this countervailing risk, society will spend real resources costs managing the increased cybersecurity risk.

*Quantifying the Costs of Managing this Countervailing Risk.* Managing this risk and private and social costs. Social costs arise from the well-known market externalities in information security. Researchers have documented several market failures from data management:

- Misaligned incentives;
- Information asymmetries; and,
- Externalities.<sup>46</sup>

Consider market externalities in more detail. In the classic description of an externality, since the costs of data theft to the private firm are less than the social costs, the

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<sup>43</sup> <https://ics-cert.us-cert.gov/About-Industrial-Control-Systems-Cyber-Emergency-Response-Team>,

<sup>44</sup> SANS Institute. The State of Security in Control Systems Today (2015). <https://www.sans.org/reading-room/whitepapers/analyst/state-security-control-systems-today-36042>.

<sup>45</sup> Circular A-4. 26.

<sup>46</sup> National Research Council of the National Academies. At the Nexus of Cybersecurity and Public Policy: Some Basic Concepts and Issues (2014). <http://www.nap.edu/read/18749/chapter/1>.

firm invests less than the socially optimal amount in cybersecurity protections. It is very likely that audit firms will not incorporate the full social costs of a data breach in their internal investments. To do so would increase their costs and place them at a competitive disadvantage as compared to firms that underinvest. This negative externality has been described by several researchers.<sup>47</sup>

Due to this negative externality, three foreseeable consequences have social costs:

- *Audit firm's increased cybersecurity protection costs.* The audit firm will invest in some cybersecurity protection for its critical infrastructure clients. However, as researchers have demonstrated, audit firms have an economic incentive to underinvest since its private costs are less than the social costs of data loss.
- *RMP Facilities' Increased Cyber protection Costs.* While the audit firm may suffer greater cybersecurity attacks, the RMP facility will also bear costs. This rule creates a classic negative externality for RMP facilities - if government agencies and audit firms underinvest in cyber protection or have accidents, the RMP facility has an uncompensated cost. Recognizing this risk, the RMP facility may increase its cybersecurity protections and may bear greater costs fending off attacks.
- *Expected value of the societal costs from an attack with off-site consequences.* Of course, the worst consequence of this externality would be a data breach that enables a terrorist attack that damages a RMP facility and causes damage, injury, and fatalities. Due to these proposed provisions, the probability will increase that critical information will be released and end up being used for harm. This incremental probability multiplied by the consequence is the expected social cost of this cybersecurity risk.

EPA can quantify these consequences. While there will be uncertainties, the RIA's current estimate - zero cost - is not the most likely estimate.

In summary, the proposed regulation creates a new and an increased cybersecurity hazard by creating additional disclosure of critical infrastructure vulnerabilities. While the RIA discusses the potential positive social benefits that could occur as a result of increased facility information disclosure, the RIA did not estimate the social costs of this increased disclosure. The RIA must account for both the positive and negative effects from mandated and foreseeable information disclosure.

#### 4.2.4.2. *Approach More Consistent with Best Practices*

The economics of cybersecurity has been described well. Researchers have presented numerous examples of externalities that arise from data sharing and internet

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<sup>47</sup> Gordon, L. A., Loeb, M. P., Lucyshyn, W., & Zhou, L. (2015). The impact of information sharing on cybersecurity underinvestment: a real options perspective. *Journal of Accounting and Public Policy*, 34(5), 509-519.

interconnections.<sup>48</sup> There is an adequate methodology, published research in peer-reviewed journals, and quantifiable information for EPA to estimate the addition private costs and social costs from the proposed rule's countervailing risk.

As discussed above, the negative externality caused by one firm's investment choices in cybersecurity has been described by Gordon and Loeb. They, and subsequent researchers, have demonstrated that the profit-maximizing firm would optimally invest in protection up to roughly 37 percent of the expected loss from cyberattacks.<sup>49</sup> Therefore, the optimal level of investment for one firm such as a third-party auditor or government agency - is not the optimal level for society as a whole. The cost of the externality can be empirically estimated with sufficient data. In a recent paper, Gordon et al. provides a quantified example.<sup>50</sup>

At a minimum, the RIA should include reasonable private cost estimates of cyber risk management scenarios for audit firms, RMP firms, and the government. For example, in one possible scenario, RMP facilities and audit firms increase their cybersecurity spending in order to keep the data as secure as it was prior to the regulation. If the data disclosure to third-parties increases each assumed audit firm, government agency, and RMP facility's cyber protection costs by \$10,000, the incremental total annual private costs of this required information disclosure is close to \$140 million. For the water sector, the costs will be \$20 million.

At a rough estimate, these incremental risk mitigation costs likely may exceed the incremental social benefits from the proposal. In other words, what this policy may gain in accident prevention, it loses in terms of less cybersecurity.

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<sup>48</sup> National Research Council, *Proceedings of a Workshop on Deterring Cyberattacks: Informing Strategies and Developing Options for U.S. Policy*, Washington, D.C., 2010. See Moore, T. *Introducing the Economics of Cybersecurity*.

<sup>49</sup>Gordon, L. A., & Loeb, M. P. (2002). The economics of information security investment. *ACM Transactions on Information and System Security (TISSEC)*, 5(4), 438-457.

<sup>50</sup> *Ibid.*

### 4.3. RULE FAMILIARIZATION

#### 4.3.1. Issue

EPA estimated that, for all facilities with P1 or P2 processes and simple facilities with P3 processes, managers will only need two hours of to read and to understand the rule. In contrast, complex facilities with P3 processes will require managers to expend four hours in learning the new provisions. Despite having multiple members, LEPC are estimated to only require one hour to understand the rule.<sup>51</sup> Implementing agencies are estimated to expend four hours of management time. In justifying their low estimates, the EPA states that “the time required for this review would be limited because most of the proposed provisions amend current requirements as opposed to introducing completely new provisions.”

However, the RIA does not cite previous regulatory analyses’ estimates of rule familiarization for comparable rules, or citation of any empirical estimates. These estimates seem to underestimate the costs and likely do not reflect the true familiarization burden that affected facilities will face.

#### 4.3.2. Approach More Consistent with Best Practices

To arrive at an informed estimate of required rule familiarization hours, we rely on estimates provided by the New Jersey Department of Environmental Protection (NJDEP) in their 2008 Economic Impact Assessment of the proposed re-adoption of its state RMP program with amendments.<sup>52</sup> The state of New Jersey estimated costs that would arise with amending TCPA rules, such as increasing non-compliance fines and merging Program 2 into Program 3. As in EPA’s RIA for the proposal, NJDEP reasoned that the incremental familiarization costs would be low since facilities have already familiarized themselves with the current RMP regulations.

In estimating the number of hours required for compliance, NJDEP analyzed facility experiences in complying with 1998 EPA alterations of the federal RMP regulation that exempted certain chemicals from the list of substances. As the NJDEP estimates are grounded in empirical estimates of firms responding to changes in RMP regulations, we believe that these figures have more foundation than the RIA’s unjustified rule familiarization costs.

We multiply the NJDEP compliance hours by the updated, fully loaded wage figures to arrive at new rule familiarization estimates shown in Tables 4-3 through 4-4.

**Table 4-3. Required Rule Familiarization Hours for Proposed Revisions**

Entity	Labor Hours	Labor Cost
Simple Facilities	4	\$370

<sup>51</sup> RIA. 37.

<sup>52</sup> N.J. Department of Environmental Protection (NJDEP). Toxic Catastrophe Prevention Act Program- Proposed Re-adoption with Amendments: N.J.A.C. 7:31.

P1 and P2 Complex Facilities	4	\$460
P3 Complex Facilities	16	\$1,800
LEPCs	5	\$230
Delegated Implementing Agency	4	\$380

*Numbers rounded to two significant digits; values may not add due to rounding*

**Table 4-4. Annualized Cost of Rule Familiarization**

	Annualized Cost (7%) (\$/yr.)	No. of Facilities	Total Annual Cost (\$/yr.)
Simple	78	10,921	850,000
P1 and P2 Complex	98	145	10,000
P3 Complex	391	1,476	580,000
LEPCs	39	1,724	70,000
Implementing Agencies	65	14	900
Total			1,500,000

*Numbers rounded to two significant digits; values may not add due to rounding*

#### 4.4. THIRD-PARTY AUDIT COSTS

##### 4.4.1. Increase in the Number of Audits

###### 4.4.1.1. *Issue*

EPA is proposing to require third-party compliance audits to be conducted at RMP facilities following an accident meeting the regulatory criteria. EPA is also proposing a provision to allow an implementing agency to require a third-party audit be performed at a facility that the regulatory agency finds in noncompliance with the RMP program. The regulatory agency has sole discretion to make this noncompliance determination and to order a third-party audit.

The RIA does not include any costs for the increased number of agency-mandated audits. Since EPA has proposed this authority for itself, it must envision circumstances where agency staff believe it should be used. Therefore, the RIA must include these costs.

###### 4.4.1.2. *Approach More Consistent with Best Practices*

For the purposes of this alternative estimate, we assume that EPA and other agencies will use this authority to increase the number of third-party audits by requiring five percent of facilities with near-miss incidents each year to have a third-party audit, or 15 additional third-party audits per year for the water sector (see Section 4.5 for the estimate of the annual near-miss rate for water sector facilities). It is reasonable to expect that, when a

facility identifies a near-miss incident and when regulatory agencies see these incident reports during facility inspections, agencies will use near-misses as a determining factor to order a more comprehensive safety audit.

Therefore, based on the accident data in Table 2-3, there have been an annual average of 17 reported accidents in the water sector. Therefore, we assume 32 third-party audits per year in the water sector.<sup>53</sup>

#### 4.4.2. Costs to Comply with the Proposed Audit Requirements

##### 4.4.2.1. *Issue*

In the RIA, the EPA relies on public comments submitted by two organizations to arrive at two separate estimates for third-party audit fees: \$15,000 for simple facilities and \$40,000 for complex facilities.<sup>54</sup> No information is provided on how these ranges were estimated. Since the public commenters offered these values without knowledge of the proposal's independence criteria for auditors, it is not clear if these values are relevant.

Additionally, the RIA does not contain a discussion, or attempted quantification, of the likely shifts in the auditing market in response to the third party requirement. New auditor independence standards may raise prices through restricting supply and creating new certification costs that pass-through to the RMP facility. Auditors have pricing power since facilities face a compliance deadline to contract for and to complete the audit. In addition to increasing audit prices, the proposed provision may result in a small number of audit suppliers obtaining a large market share. Facilities then in some affected industries may find themselves with a small number of auditor choices that simultaneously specialize in the niche industry while having no financial links with that industry. As Bandyopadhyay documents, a coordinated move by the "big three" U.S. automakers in 1997 to require part suppliers to undergo third-party quality audits caused considerable strain due to the resulting auditor shortage. He recounts, "QS-9000 qualified auditor shortage, and looming 1997 deadline as mandated by the three big auto makers created so much strain on their tier-one and sub-tier suppliers, that the big three automakers set up the Supplier Quality Requirements Task Force (SQRTF) to examine the situation and improve supplier relation."<sup>55</sup>

The resulting small number of choices may mean a forced relationship with a sub-par auditor and lead to additional RMP facility costs stemming from correcting and responding to auditor mistakes. Furthermore, as E.L. Talley notes, the collapse of a major auditing firm in

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<sup>53</sup> By using the full history to calculate the annual average and then using this rate as the prediction of the future rate, this assumption may overestimate the costs based on the observed trend of a declining accident rate over time.

<sup>54</sup> RIA. 38.

<sup>55</sup> Bandyopadhyay, J. K. (2001). Quality systems requirements in supply chain management: The implementation of QS-9000 by United States automakers. *International Journal of Management*, 18(2), 206-212.

a concentrated market-share environment can greatly increase audit prices and leave some firms unable to find an auditor.<sup>56</sup>

EPA's requirement that RMP facilities contract with a third-party auditor places burden on the facilities to ensure that auditors are in fact independent. For example, EPA states that a rationale for ordering a third-party audit is evidence that a previous facility did not comply with the independence criteria. By enforcing against the party not responsible for the poor behavior distorts incentives and increases social costs. For example, in 2012, there were several cases of fraudulent Renewable Identification Numbers (RINs) issued as a part of the renewable fuel standard (RFS) program. To comply with the RFS mandate, gasoline sellers typically purchase RINs, which are created when fuel producers generate renewable fuel. In these cases, however, the RINs were fraudulent and not based on actual renewable fuel created. EPA levied penalties and prosecuted not only on the sellers of the fake credits, but also the purchasers. To bring calm to the RIN market, EPA established a compliance program by which RIN sellers could prove the authenticity of their credits.

Since EPA does not propose an analogous tool that can assure third-party audit purchasers that the vendor is truly independent, it is expected that RMP facilities will demand proof of compliance from potential audit firms. RMP facilities must also screen job applicants to ensure that they are compliant with the restrictions on hiring audit employees. Audit firms, in turn, must then screen potential employees and retain records of their past employment.

The proposal also includes requirements that third-party auditors retain reports, intermediate work products, and records. The audit report and intermediate work products must be submitted to the implementing agency at the same time, or before, it is provided it to the RMP facility owner or operator. Finally, EPA is proposing that the audit report and related records cannot be claimed as attorney-client communications or as attorney work products even if the auditors are themselves, or are managed by or report to, attorneys.

The RIA does not explicitly model these market changes. Restricting the supply of potential auditors by requiring auditor independence has previously led to price increases. As required by the Sarbanes-Oxley legislation, the Securities and Exchange Commission (SEC) promulgated a rule which required greater independence of financial auditors. Notably, the SEC proposed, but did not finalize, some the independence criteria EPA is proposing in this proposal. Audit Analytics documented a spike in financial auditor fees following the 2004 effective date of the SEC rule.<sup>57</sup> EPA can readily access this data on price changes following the SEC auditor independence mandate, but has chosen not to do so in quantifying third-party auditor fees.

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<sup>56</sup> Talley, E. L. (2006). Cataclysmic Liability Risk Among Big Four Auditors. *Columbia Law Review*, 1641-1697.

<sup>57</sup> Audit Analytics, 2014: <http://www.auditanalytics.com/blog/audit-fees-and-non-audit-fees-a-thirteen-year-trend/>

#### 4.4.2.2. Approach More Consistent with Best Practices

*Costs to Find a Compliant Auditor.* We divide the costs into the ones borne by the RMP to identify and to evaluate candidate firms and the costs the audit firms must bear to demonstrate their independence. For the RMP facility, the request for proposals must be detailed since it is the only opportunity for the facility to set the audit's scope. The facility will also have a detailed, written process with an ample record to demonstrate compliance to regulatory agencies. In short, it will resemble the Federal procurement process.

We use empirical evidence from MacKay on federal procurement of janitorial services.<sup>58</sup> While janitorial services are different than auditor services, we believe that the similarities are in the formality and in the bid requirements likely to arise.

Using price and vendor data from the Federal Procurement Data System (FPDS), MacKay estimates that the search process comprises 10.1 percent of the contract's value. We then multiply the derived value to our alternative audit values for simple and complex facilities to approximate labor costs.

In addition, the audit firm must gather and maintain records to determine if it meets the independence criteria for a certain company. To provide a conservative estimate of the independence verification costs that would be borne by the facility and the auditing firm, we applied EPA's cost estimate provided for the aforementioned RIN verification program. While many of the listed costs are not relevant, we believe that managerial and clerical labor estimates are relevant to our analysis. Similar to RIN buyers and sellers, RMP third-party audit buyers and sellers would need to create and process verification-related paperwork. Additionally, managerial meetings would need to take place to communicate needed verification procedures and ensure trust. Hourly estimates from the EPA's RIN rule estimate were multiplied by our fully-loaded wage rates to arrive at the figures in Table 4-5.

Table 4-5. Annualized Cost of Rule Familiarization

Facility/Org. Type	Management Hours	Clerical Hours	Facility Labor Cost
Simple Facilities	14	53	\$2,800
Complex Facilities	18	53	\$3,200
Auditor	3	10	\$700

*Numbers rounded to two significant digits; values may not add due to rounding*

*Costs to Conduct the Audit.* Since EPA is requiring a service that is not available in private markets today, we estimate its costs using two scenarios. First, we consider the potential for a third-party audit to be a scaled-up process analysis that currently is being done. The major difference between those on the market today and what would be required is the independence requirements. We use market observations after similar requirements for audit independence to estimate the potential third-party audit costs.

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<sup>58</sup> MacKay, A. The Structure of Costs and the Duration of Supplier Relationships, Job Market Paper, U. of Chicago. 2016.

Second, the US Chemical Safety Board meets the requirements of EPA's proposed audit requirements - it is a third-party, it is independent, and can draw upon independent technical expertise. Its primary mission is independent industrial accident investigation. We estimate the Chemical Safety Board's costs per investigation as another potential model for third-party audit costs.

*Estimated Costs Based on Existing PHA Analyses.* We use a fault-tree analysis form of PHA as a proxy for third-party audit costs. We rely on AIChE figures estimating the number of hours needed for simple and complex facilities to complete a fault-tree analysis (FTA) on a regulated process. We believe that the hours necessary for managers, engineers, and operators to complete FTA analyses is roughly similar to the required time contribution for third-party audit of that process.

To reflect the fact that these audits must be conducted by a third-party, we include a multiplier to reflect a different market in which auditor supply is limited by independence requirements. As a proxy for this alternate market, we use data from Audit Analytics comparing financial auditor fees before and after the SEC's public company audit 2004 reforms. As these reforms mandate auditor independence, dividing the average audit price in the two years following the reform (2005-2006) by the average price in the two years prior to the reform (2002-2003) should roughly indicate the auditor independence premium. We take the resulting figure of 1.33 and multiply it to the FTA analysis costs per process. We then multiply this amount by the average number of processes per water sector facility for this estimate of the third-party audit costs per facility.

Table 4-6. Audit Cost per Accident Using FTA per Process

Type of Facility	Estimated Audit Cost
Audit Cost	\$35,000
Facilities' Costs to Discuss Audit Response	\$23,000

*Estimated Costs Based on US Chemical Safety Board.* To derive estimates for third-party audit costs, we used Chemical Safety Board budget data for years 2011-2015. As the Chemical Safety Board currently investigates facilities that have spilled hazardous chemicals, we believe that calculating the approximate cost per investigation serves as a valid proxy for third-party audit costs. These costs also demonstrate the resources that it would take for an independent, capable organization to start and to sustain a competent workforce and its independence.

Not all appropriations to the CSB are devoted to inspection; some funds are devoted to increasing chemical hazard awareness amongst the public. To arrive at a more accurate figure, we subtracted the non-inspection portions of the budget by examining proposed budgets, and calculating the percentage of each line item containing non-inspection

amounts.<sup>59</sup> These percentages were then extrapolated to the line items of the actual budget, and the non-inspection amount was identified.

To ensure that the overhead costs related to the non-inspection activities were taken into account, the non-inspection total was then multiplied to an overhead rate calculated from the budget. The total was then subtracted from the total budget amount to arrive at the "inspection budget" total. Additionally, for years 2011-2013, investigation costs related to the Deepwater Horizon spill were subtracted from the investigation portion of the budget. Given that oil spills are not relevant to the proposed RMP provisions and that the Deepwater Horizon spill's scope skews the cost data, we subtracted the Deepwater investigation cost equally from 2011, 2012, and 2013 totals. The final inspection budget figure was then divided by the number of concluded investigations for the relevant year. Simply using the number of current investigations would lead to a double-counting of costs, while using the number of new investigations would be unrepresentative of all years due to a severe backlog of cases during the time period studied. For the time period of 2011-2016, the average cost per investigation is \$3 million.

*Annual Cost Estimate.* We combine the two types of estimates to predict the future compliance costs of this audit. We assume that agencies would require full-scale, \$3 million audits for five of the 17 accidents per year. The rest would resemble the PHA analysis costs with an independence multiplier. In addition to the audit costs, facilities would bear the additional response costs. Based on this scenario, Table 4.7 gives the total annual compliance costs.

Table 4-7. Estimated National Incremental Costs of Third-Party Audits

Type of Audit	Cost of Audit and Response (\$)	No. of Audits per Year	Audit Cost (\$/yr.)
Simple	58,000	27	1,700,000
Full Scale	3,000,000	5	15,000,000
Total			17,000,000

*Numbers rounded to two significant digits; values may not add due to rounding*

#### 4.5. ADDITIONAL INCIDENT INVESTIGATION COSTS

##### 4.5.1. Increase in the Number of Investigations

###### 4.5.1.1. Issue

EPA is proposing to clarify that incident investigations are required even if the process involving the regulated substance is destroyed or decommissioned following or as the result of an incident. The RIA does not include these costs in the analysis.

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<sup>59</sup> The American Institute of Chemical Engineers (AIChE). Streamline Your Process Hazard Analysis (2013).

The RIA does include an estimate of one additional near-miss per accident. There is no basis for this assumption. The preamble discusses the experience of New Jersey officials who state that there is less than one near-miss incident per facility per year. It is unclear why EPA cites this value in the preamble and does not use the same value in the RIA.

The uncertainty is compounded by the lack of a clear definition of what constitutes a near-miss. Since reasonable people may differ, there is uncertainty as what constitutes compliance. Further, EPA determines compliance after the fact - through its review of the RMP and facility operating history, EPA has the ability to define a "near-miss" long after the event happened. Therefore, to avoid fines and penalties, firms have an incentive to conduct incident investigations on questionable incidents if the costs of the investigation are less than the expected value of agency disagreement and potential fines in the future.

Therefore, the expected number of incident investigations in the future will be greater than the number of physical incidents due to the uncertainty in what constitutes regulatory compliance.

#### *4.5.1.2. Approach More Consistent with Best Practices*

The New Jersey experience appears to be the best available data. It has an investigation requirement similar to EPA's proposed definition of near-miss. Therefore, we use the rates of near miss per reporting facility provided in NJDEP's comments.<sup>60</sup> For the reasons discussed above, due to incentives of the regulation - the uncertainty over compliance and the after-the-fact determination - we round up the frequency to 0.26 near-miss per water sector facility per year.

### **4.5.2. Costs to Comply with the Proposed Investigation Requirements**

#### *4.5.2.1. Issue*

EPA is proposing to require that, for all Program 2 and Program 3 process incidents that resulted in, or could reasonably have resulted in, a catastrophic release, the facility operator determine and identify the factors that contributed to the incident, including immediate and contributory causes, either direct or indirect, and root causes. EPA proposes that root causes shall be determined by conducting a root cause analysis for each incident using a recognized method or approach.

EPA is also proposing to require that for incident investigations conducted by Program 2 sources, an incident investigation team be established and consist of at least one person knowledgeable in the process involved and other persons with appropriate knowledge and experience to thoroughly investigate and analyze the incident.

The hourly rate the RIA assumes is substantially lower than the GSA rates offer to Federal agencies for this expertise.

#### *4.5.2.2. Approach More Consistent with Best Practices*

To derive cost estimates for root cause analyses, we used data from the American Institute of Chemical Engineers (AIChE) appearing in the March-April 2013 edition of the EPA's

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<sup>60</sup> NJDEP RFI comments. 16.

*Chemical Emergency Prevention & Planning* Newsletter on the estimated hours needed to conduct a fault-tree analysis (FTA).<sup>61</sup> While the paper does not give a resource estimate for a root cause analysis, we believe a fault-tree analysis has a similar level of analytic rigor and scope. The AIChE paper gives a range of time needed for each step of a FTA, and gives different ranges for simple facilities and complex facilities.

We use the lowest point in each range, and calculate needed hours by occupational category. While occupational categories are not specified in the newsletter, AIChE has previously written that one PHA leader, three engineers, and one operator are needed to conduct a process hazard analysis (PHA).<sup>62</sup> As the AIChE states that engineers and operators are not needed during the preparation and documentation phases of a FTA, we only incorporate hourly estimates for managers for those phases of the analysis. Hourly estimates for each occupational category are multiplied to our fully-loaded wage estimates. The result is our per-facility cost estimate of each root cause analysis.

Under the proposed regulation, a near miss triggers cost per facility (such as responding to regulators) and cost per process. To estimate the total annual cost incurred by each facility subject to a root cause analysis, we first estimate the expected number of facilities that will be required to conduct a root-cause analysis. The number of facilities is the number of processes at a facility multiplied by the accident and near miss rate per process for that sector. We then multiply the facility-specific costs from the proposed incident investigation requirements and then divide this amount by the total number of facilities to get the annual total costs per facility per year.

Under the proposed regulation, it appears that these costs will likely have to be borne for each process that the facility has. To estimate the total amount incurred by each facility subject to a root cause analysis, we estimate the unit FTA analysis cost by the average number of processes at facilities. The results are then multiplied to multi-year averages of accidents and near-misses per facility, to reflect that a facility will only need to undergo a root cause analysis if they are responsible for an accident or near-miss. Accident per facility estimates are derived using EPA data. Due to insufficient EPA data on near-misses, we incorporate estimates based on NJ data for TCPA-regulated facilities. We then multiply this value by the total number of RMP facilities in each category. We also add the additional response costs discussed in Section 4.2.1 above.

**Table 4-8. Annual per Facility Cost for New Incident Investigation Requirements**

	Root Cause Analysis (\$)	Response Cost (\$)	No. Processes Per Facility	Annual Accident and Near-Miss Rate	Total Costs per Facility (\$/yr.)
Simple	18,000	15,000	1.54	0.276	12,000

<sup>61</sup> EPA (Region 10). *Chemical Emergency Prevention & Planning* Newsletter, March - April 2013.

<sup>62</sup> The American Institute of Chemical Engineers (AIChE). "Streamline Your Process Hazard Analysis." January 2013.

Complex	70,000	15,000	1.54	0.276	34,000
Water Sector	19,000	15,000	1.43	0.261	11,000

*Numbers rounded to two significant digits; values may not add due to rounding*

**Table 4-9. Annual Cost for New Incident Investigation Requirements**

	No. of Facilities	Total Costs per Facility (\$/yr.)	Total Annual Costs (\$/yr.)
Simple	8,347	12,000	100,000,000
Complex	1,555	34,000	53,000,000
Water Sector	1,998	11,000	22,000,000
Total			170,000,000

*Numbers rounded to two significant digits; values may not add due to rounding*

## 4.6. STAA/IST ANALYSIS

### 4.6.1. Issue

EPA is proposing to modify the process hazard analysis (PHA) provisions to require analysis of potential safer technology and alternatives that would include, in the following order of preference: inherently safer technologies (IST) or inherently safer design (ISD), passive measures, active measures, and procedural measures.<sup>63</sup> EPA is limiting the proposed provisions to Program 3 processes in the petroleum and coal products manufacturing (NAICS 324), chemical manufacturing (NAICS 325), and paper manufacturing (NAICS 322) sectors. The proposal does call for comment on extending the requirement to water sector facilities.

EPA is proposing to specify that the analysis include, in the following order of preference: IST or design, passive measures, active measures, and procedural measures. The RMP facility may evaluate a combination of risk management measures to reduce risk. EPA is also proposing to require that the owner or operator determine the feasibility of the IST or ISD considered.<sup>64</sup> The results of the feasibility analysis must be documented as part of the current PHA requirements, which requires the owner or operator to document the actions to be taken and the resolution of the recommendations.

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<sup>63</sup> RIA. 80

<sup>64</sup> RIA. 80

The RIA estimates the costs of this provision using an estimate of the hours based on a 24-year old analysis of hours to conduct a “what-if/checklist” and HAZOP study.<sup>65</sup> There is no discussion whether this amount varies by complexity of the process, number of potential alternatives, or by the level of detail in the feasibility analysis. If this estimate is an average, the RIA does not provide a range of possible IST costs within a sector. Although the preamble suggests that the analysis include a specially-trained staff person, the RIA does not include the costs to retain the specialized expertise among the facility staff. For these reasons, the RIA social cost estimates seem implausible.

Furthermore, the RIA does not describe any facility response costs. As discussed in Section 4.2.1, facility response costs could be significant since regulatory agencies may determine fines and penalties based on this information. The RIA does not include any legal review in its cost estimate. At a minimum, regulatory agencies may review the facility’s IST and require additional work. In the preamble, to determine feasibility, EPA expects “this decision should be based on a careful analysis and take into account: the chemicals present and their associated hazards; the operations and process conditions involved; consequences to workers, nearby populations and the environment; and the types of equipment that are specific to the facility’s process.”<sup>66</sup> EPA’s definition of “feasible” is broad – consideration of economic, environmental, legal, social and technological factors that can be accomplished in a reasonable period of time. A checklist does not seem likely to comply with EPA’s regulatory (and likely enforcement) expectation.

EPA’s intention in proposing this requirement must be to give firms an incentive to conduct a thorough IST analysis. As is consistent with OMB guidance, EPA must include the social benefits and costs based on successful regulatory implementation.

#### 4.6.2. Approach More Consistent with Best Practices

EPA divides the STAA analysis into two parts: the initial assessment and the feasibility analysis. We retain this structure in our reanalysis. For the initial assessment, like EPA, we draw on AIChE estimates. To identify the possible improvements, the facility first must define the potential hazards and potential alternatives. This evaluation appears similar in scope and intensity to a root cause analysis – a “careful analysis” of “the operations and process conditions involved.”<sup>67</sup> Therefore, for the initial analysis, we use the costs in Section 4.5.2 of a root cause analysis for the specific process.

The feasibility analysis requirement is more complex and requires more effort. The potential alternatives include improvements to the current process and its replacement with inherently safer alternatives. The analysis EPA seems to be defining as compliance is an engineering feasibility analysis that a facility conducts when considering different equipment

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<sup>65</sup> RIA, pg. 41.

<sup>66</sup> RIA, pg. 125

<sup>67</sup> RIA, pg. 85

or technology approaches. In cost estimation, a standard rule-of-thumb is that a feasibility analysis costs about 2.5 percent of the total project cost.<sup>68</sup>

For the water sector, the feasible alternative disinfection techniques to gaseous chlorine are liquid chlorine systems like chlorine dioxide and hypochlorite. EPA evaluated the conversion costs to construct these disinfection plants are part of its final groundwater rule. Researchers at AWWA and at IHS have updated these costs based on implementation experience and construction cost factors.<sup>69</sup>

Table 4-10 shows the updated capital costs for large treatment facilities. These values rest on EPA's estimates and more recent construction data. Only ultraviolet and ozone eliminate chlorine stored at the site. It is reasonable that EPA would require the IST analysis to consider one of these options.

Therefore, for the feasibility analysis, we assume that a regulatory agency would require a facility to evaluate the two common liquid chlorine alternative and UV-treatment. We assume the feasibility analysis costs 2.5 percent of the estimated capital costs of the alternative disinfection options. Therefore, the feasibility analysis would evaluate the first three options in Table 4-10 and thus would cost \$190,000 per regulated disinfection process. These costs may underestimate the true costs since these costs do not include costs of changes to transportation siting and other site infrastructure.

In addition to the analyses, the facilities are required to submit the information to EPA and other regulatory agencies for their review. Facilities will hold discussions with regulatory agencies and respond to their questions about the STAA analysis. We use the incremental response cost estimates given in Section 4.2.1 above.

Table 4-10. Estimated Feasibility Study Costs

Disinfection Technology	Capital Costs (\$)	Estimated Feasibility Study (\$)
Hypochlorite	1,950,000	24,000
Chlorine dioxide	890,000	11,000
Ultraviolet	12,200,000	150,000
Ozone	24,600,000	310,000

<sup>68</sup> See for example, <https://www.whitehutchinson.com/leisure/articles/100.shtml>, and DOE cost estimation manual.

<sup>69</sup> <https://chlorine.americanchemistry.com/Econ-Water-Treatment>, quoting Technology and Cost Document for the Final Groundwater Rule," United States Environmental Protection Agency, October, 2006, and "Treatment Alternatives for Compliance with the Stage 2 D/DDPBR: An Economic Update", A. J. Roy, AWWA Journal, March 2010, p 44.

In the regulatory alternatives (the medium and high options), water utilities that are P3 facilities must submit an initial IST analysis and then update it during each five-year update to the PHA. While it is possible that new disinfection technologies could emerge, it is likely that the updates would refine the technology cost estimates. The five-year review would be thus less resource-intensive than the initial one. In our estimate, we assume that facility owners spend half the cost of the initial analysis on subsequent IST analyses.

Table 4-11 gives the national costs if EPA imposed the STAA requirement on the water sector. In Exhibit 3-7 of the RIA, the number of “water/gas/utility” P3 processes are listed as 1,899. Although this number may somewhat overestimate the number of water utilities covered by the STAA requirement, we use this number to estimate the national annual costs. Further, the cost per STAA discussed above is for alternatives to drinking water disinfection; wastewater alternatives will be different. We use the drinking water STAA costs as an estimate for wastewater STAA assessments; this assumption may overestimate or underestimate the true social costs.

Table 4-11. Annual Cost for If IST Analysis Requirement is Added to Water Sector

Requirement	Annualized Cost (\$/yr.)
Initial Assessment and Feasibility Analysis	83,000,000
Response Costs	14,000,000
Total	97,000,000

#### 4.7. EMERGENCY RESPONSE REQUIREMENTS

##### 4.7.1. Issue

In the proposal, EPA creates a contingent requirement for water and wastewater facilities to be responsible for the emergency response requirements for their facility. The LEPC or equivalent local response authorities can request in writing that the RMP facility develop an emergency response program.<sup>70</sup> The facility then must develop an emergency response capability: train responders and purchase equipment such as communication equipment, vehicles, tools, storage, protective gear, and other necessary items. In addition to training and equipment, the facility must develop an emergency response plan and implement its provisions.

One required provision is for coordination with community emergency responders to occur at least annually, and more frequently if necessary -- to address changes at the source; changes in the source’s emergency action plan; in local authorities’ response resources and capabilities; or, changes in the local community emergency response plan. Regulated facilities must perform exercises as an element of the emergency response program and plan. EPA proposes that both responding and non-responding RMP facilities with any Program 2 or 3 process must perform emergency exercises.

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<sup>70</sup> 81 FR 13672

This emergency response exercise program is to have two types of exercises—field exercises and tabletop exercises. EPA is proposing to require the RMP facility to annually conduct an emergency tabletop exercise involving the simulated accidental release of a regulated substance. Under the proposal the owner or operator to conduct an emergency response field exercise involving the simulated accidental release of a regulated substance at least once every five years and within one year of any accidental release. The field exercise must be conducted with local safety and emergency responders.

The RIA includes some costs for the emergency response requirements. The RIA includes the costs of a chlorine emergency response, the most common capacity that would be required at water treatment facilities. This methodology seems incorrect, however, for other RMP facilities. For example, facilities that store flammables would have little use for a Chlorine B kit. They would need fire suppression equipment and specialty vehicles (like water pumpers, fire trucks).

However, the RIA omits the following essential required elements of an emergency response at a water utility:

- *Vehicles.* The RIA does not include any costs for dedicated vehicles for emergency response. The chlorine emergency response kits weigh over 90 lbs.; people in personal protective equipment also do not move quickly. A vehicle is necessary to transport the equipment and the responders quickly and safely from a central point to the incident location. In addition, to manage an off-site release, a utility will need vehicles to direct traffic, transport people to medical facilities, and transport on-site workers away from the incident. We assume a water treatment facility dedicates two pickup trucks to emergency response.
- *Back-up Response Kit.* For an effective response, the facility would not have just one response kit in case the primary emergency response location is affected by the release. At a minimum, we assume a facility will maintain two Chlorine A and B kits at different points on the facility.
- *Equipment Replacement.* The RIA assumes the equipment lasts indefinitely. In reality, even if rarely used, some response equipment must be replaced after a certain time period to maintain its effectiveness. For example, the manufacturer's recommendation is that the gaskets in the standard chlorine response kit must be replaced every four years.<sup>71</sup> We use the manufacturers' recommended shelf-life of the required equipment to estimate replacement costs.
- *Emergency Communication and Road Safety Equipment.* Since the facility now is responsible for at least the initial stages of the community response, the facility must purchase some basic equipment to create roadblocks to direct other responders to the facility and evacuated workers away from the danger zone. We also add some simple sirens, megaphones, and two-way radios for emergency communication to the emergency response costs.

#### 4.7.2. Approach More Consistent with Best Practices

Since the most common registered chemical at water facilities is chlorine, we estimate the full costs to maintain an emergency response capability for chlorine container

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<sup>71</sup> The Chlorine Institute, *Pamphlet 64: Emergency Response Plans for Chlor-Alkali, Sodium Hypochlorite, and Hydrogen Chloride Facilities Edition 7*, November 2014.

release.<sup>72</sup> The Chlorine Institute publishes guidelines for emergency response planning for facilities using chlorine.<sup>73</sup> If water utilities must develop an on-site emergency response due to this proposed regulation, they will follow these long-standing, industry-standard recommendations.

We compare the Chlorine Institute guidelines to the cost elements included in the RIA for the emergency response capability. The table below expands Exhibit 4-11 of the RIA to include the modifications discussed above. The table also gives the shelf-life of the equipment. We divide the unit cost by the shelf life to create a constant annual expense to maintain the equipment.

Table 4-12. Equipment Costs for Emergency Response

	Unit Costs (\$)	No. per Facility	Useful Life	Annual Total (\$)
Sirens/horns	200	2	7	57
Dedicated Telephone Line	50	1	1	50
Megaphones	200	2	5	80
Two-way radios	1500	2	5	600
Flashlights	5	10	4	13
Chlorine Monitors	600	3	3	600
2 Pick-up trucks	27000	2	7	7,714
Traffic Barricades	150	6	15	60
Traffic Wands, Suits	150	10	5	300
Computer	1000	1	5	200
Level A Suit	1750	6	5	2,100
Tyvek Suit	200	1	5	40
Cryogenic Gloves	180	10	5	360
Chemical Resistant Boots	150	6	5	180
Vinyl Boot Covers	7	6	1	42
Neoprene Boot Covers	100	6	1	600
Nitrile Rubber Gloves	12	6	7	10
Vitron Rubber Gloves	10	6	20	3 <sup>74</sup>
PVC/Nitrile Gloves	57	6	5	68

<sup>72</sup> While some larger facilities receive chlorine through rail car shipments, ton containers are the more common storage device at water facilities.

<sup>73</sup>The Chlorine Institute, *Pamphlet 64: Emergency Response Plans for Chlor-Alkali, Sodium Hypochlorite, and Hydrogen Chloride Facilities Edition 7*, November 2014.

<sup>74</sup><http://www.safetyandhealthmagazine.com/articles/determining-the-shelf-life-of-gloves-shouldn-t-be-a-stretch-2>

SCBA	5500	6	15	2,200 <sup>75</sup>
Hydrostatic Testing	20	12	3	80
Spare SCBA Bottles	800	6	15	320
Chlorine Kit A	2300	2	7	657 <sup>76</sup>
Chlorine Kit B	2500	2	7	714 <sup>77</sup>
Replacement Gaskets B	390	2	4	195
Replacement Gaskets A	240	2	4	120
Non-sparking Tool Kit	900	1	7	129
Sledgehammer	55	3	7	24
Bolt Cutter	85	1	7	12
Sorbent Pad	64	1	3	21
Neutralizer	436	1	5	87
Eye Wash Station	129	1	5	26
Plastic Pools	10	3	5	6
<b>First year Cost</b>		<b>\$130,000</b>		
<b>Annual Cost</b>		<b>\$18,000</b>		

*Numbers rounded to two significant digits; values may not add due to rounding*

The Chlorine Institute recommends that the emergency response team check access to, and the functioning of, the emergency equipment on a regular basis. We model the costs of a monthly inspection encompassing two hours of an engineer's time.

We apply these equipment and inspection costs to the estimated number of water sector facilities expected to be asked to become responders. Table 4-13 below gives the national estimate of the emergency equipment costs using EPA's baseline assumption that 50 percent of these facilities become responders. Based on these assumptions, the water sector will purchase \$39 million in equipment per year.

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<sup>75</sup> <http://www.nfpa.org/codes-and-standards/document-information-pages?mode=code&code=1852>

<sup>76</sup> [http://www.chlorineinstitute.org/emergency-preparedness/Emergency\\_Equipment.cfm](http://www.chlorineinstitute.org/emergency-preparedness/Emergency_Equipment.cfm)

<sup>77</sup> [http://www.chlorineinstitute.org/emergency-preparedness/Emergency\\_Equipment.cfm](http://www.chlorineinstitute.org/emergency-preparedness/Emergency_Equipment.cfm)

Table 4-13 National Cost Estimate of Equipment Costs for Emergency Response for the Water Sector

Equipment Costs	No of Facilities'	Initial Costs (\$)	Annualized Cost (\$/yr.)	Total Annualized Cost (\$/yr.)
Simple w/ 0-19 FTEs	776	130,000	39,000	30,000,000
Simple w/ 20-99 FTEs	201	130,000	39,000	7,900,000
Simple w/ 100+ FTEs	31	130,000	39,000	1,200,000
<b>Total</b>				39,000,000

*Numbers rounded to two significant digits; values may not add due to rounding*

We use the RIA's estimated costs for the LEPC coordination, notification of drills, table top exercises, and field exercises. We update the RIA's costs with the most current employer costs of labor given in Section 4.1.3. Table 4-14 gives these costs:

Table 4-14. National Cost Estimate for Emergency Response for the Water Sector

	Number of Water Facilities	Coord. (\$/yr.)	Notif. Of Drills (\$/yr.)	Table Top Exercise (\$/yr.)	Field Exercise Cost (\$)	Annual Field Exercise Cost (\$/yr.)
Simple w/ 0-19 FTEs	1,551	550	163	6,700	9,400	1,900
Simple w/ 20-99 FTEs	401	550	163	7,800	16,000	3,200
Simple w/ 100+ FTEs	61	550	163	15,000	27,000	5,300

Similarly, for the training costs, we update the wage rates and add one additional person as a receiving training. Since there are two levels of training in the RIA and in the Chlorine Institute recommended approach, the RIA's assumption of only one backup trained person would not leave a backup person for each level of training. In this instance, the RIA properly includes the costs for employee turnover.<sup>78</sup> Given a turnover rate of approximately six years and seven people trained for the facility, we agree with the RIA's assumption of one newly-trained person per year. Table 4-15 show that the annualized training costs is \$14 million per year for the water sector.

<sup>78</sup> RIA. 65.

Table 4-15. National Cost Estimate for Emergency Response Training for the Water Sector

Training Costs	Number of Water Facilities	Initial Costs (\$)	Annual Costs (\$/yr.)	Annualized Cost (\$/yr.)	Total Annualized Cost (\$/yr.)
Water Sector	2,014	28,000	4,000	7,000	14,000,000

In summary, the costs to the water sector of the proposed emergency response program capacity is given in Table 4-16. EPA's proposed requirements will increase costs to the water sector by \$73 million per year.

Table 4-16. National Cost Estimate for the Proposed Emergency Response Requirements for the Water Sector

Requirement	Annualized Cost (\$/yr.)
Notification, Coordination, Exercises	20,000,000
Training	14,000,000
Equipment Costs	39,000,000
Total	73,000,000

## 4.8. INFORMATION SHARING

### 4.8.1. Issue

The proposed rule adds two information disclosure requirements - one set of information to the LEPC on request and another set to the public. EPA proposes to require RMP facilities to provide information to local emergency responders and LEPCs upon request.<sup>79</sup> The specific information that must be provided to LEPCs or emergency response officials upon request is the following:

- Information on regulated substances.
- Summaries of compliance audit reports. The audit report summary shall include:
  - the date of the report;
  - the name and contact information of the auditor and the facility contact person;
  - a brief description of the audit findings;
  - an appropriate response to each of the findings; and,
  - a schedule for addressing each of the findings.
- Incident investigation Reports.

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<sup>79</sup> 81 FR 13711-13712.

- Summaries of incident investigation reports.
- Safer Technology and Alternatives Analysis (STAA) if required.

EPA is also proposing to require regulated facilities that have any accident meeting the five-year accident history criteria to hold a public meeting within 30 days after the accident. Additionally, the proposal requires a public meeting be held after accidents that destroy a process or stationary source or cause the process or source to be subsequently decommissioned. The owner or operator of the RMP facility must inform the community including, at a minimum, the following information:

- when the accident occurred;
- the nature of the accident including initiating event and contributing factors if known;
- chemicals involved and quantities released;
- weather conditions, if known;
- on-site and offsite impacts;
- emergency response notifications; and,
- operational or process changes that resulted, thus far, from investigation of the release.

The facility representative should describe the risks that are associated with the facility, and what the facility is doing to protect the public from those risks. In addition, the facility personnel should relay information that would assist the public to prepare for accidental releases. For example, at the meeting, the facility representative should discuss the process for public emergency notification, procedures for sheltering in place or evacuating, and where to obtain further updates on the status of an emergency incident. The discussion should also address how the public can access community emergency response plans and identify what the community may expect to see during a field exercise.

In addition, under the proposed rule, regulated facilities must disclose to the public certain information about the regulated chemicals, the emergency contact information, their accident history, and other information.

The RIA's costs appear somewhat low given the implications of public disclosure. For example, since public disclosure defines regulatory compliance, a facility would have its legal counsel review the proposed disclosure. The LEPC consists of multiple members; it is unlikely that all of them could read the disclosed information in a combined total of one hour.

In addition, the RIA's cost estimates include the costs to provide this information, but do not include the expected costs to respond to public inquiries and LEPC members. It is unreasonable for the RIA to discuss the qualitative social benefits from public access to information, but not to include the facility's costs to respond to public inquiries, challenges, and discussions.

#### **4.8.2. Approach More Consistent with Best Practices**

Since most water facilities have one or two regulated processes, we base our estimates off of the RIA's values for simple facilities. However, for larger water systems with more than 100 FTEs, we treat these facilities as complex. Table 4-17 and 4-18 lists our estimate of the information disclosure elements both to the public and to LEPCs and the hourly burden to review and to disclose them.

Table 4-17. Estimated Resource Costs for LEPC and Public Information Disclosure

Activity and Facility Type	Management	Corporate Management	Attorneys	Engineers	LEPCs	Labor Costs
Public Disclosure- Small Complex	2	0	1	2	0	\$470
Public Disclosure- Large Complex	8	0	1	8	0	\$1,500
Public Disclosure- Simple	1	0	1	1	0	\$290
Accident History- Simple	0.5	0.5	1	1	0	\$300
Accident History- Complex	1	1	2	2	0	\$590
Audit Report- Simple	2	2	2	4	0	\$940
Audit Report- Complex	4	4	4	8	0	\$1,900
Investigation Reports- Simple	6	4	4	4	0	\$1,700
Investigation Reports- Complex	8	4	8	12	0	\$3,100
Exercise Reports- Simple	2	1	1	4	0	\$720
Exercise Reports- Complex	2	2	2	8	0	\$1,300
LEPC Review- Simple	0	0	0	0	5	\$230
LEPC Review- Large	0	0	0	0	15	\$700

Table 4-18. Estimates of the Hours Needed to Comply with LEPC and Public Information Provision

	Number of Water Facilities	Disclosure Annual Costs (\$/yr.)	Public Response Annual Costs (\$/yr.)	Total Annual Costs (\$/yr.)
Simple w/ 0-19 FTEs	1,539	\$2,022	\$2,354	\$7,870,000
Simple w/ 20-99 FTEs	398	\$2,022	\$2,354	\$5,560,000
Simple w/ 100+ FTEs	61	\$3,697	\$4,708	\$17,630,000
Total				\$31,060,000

*Numbers rounded to two significant digits; values may not add due to rounding*

Since catastrophic accidents are so rare at water sector facilities, we omit the relatively infrequent cost to disclose a third-party audit report from our estimate of the total labor costs to disclose the information. The costs include the public disclosure compliance audit report produced every three years.

Although the proposal only requires to facility to provide the information to the LEPC upon the request of the LEPC, it is likely that every facility would prepare the information to be prepared for such a request due to the bearing on a facility's compliance. The exercise

report summary costs will occur each year. We assume the investigation report summary occur based on the frequency of incident investigations in Section 4.X.

In addition, there is a cost to respond to the data disclosure to the public. We assume a one-time cost to provide data that is amortized over seven years. However, once that initial data is disclosed, responding to public inquiries prompted by the proposal's data disclosure requirements will incur real resource costs for RMP facilities. It is unrealistic - and inconsistent with EPA's proposed objectives for this rulemaking - that the facility would ignore public questions in response to the required data release. The facility's communication effort may come in many forms and in many situations - such as direct inquiries, public meetings on other issues, or permit renewals. For example, most municipal water authorities will have board meetings open to the public. Rate adjustment also will likely involve at least one public hearing. Concerned members of the public and the media can bring up questions and/or give opinions that require facilities to evaluate and to address.

For these reasons, we add to the RIA's resource estimates. We assume that a manager, an engineer, and a legal staff member spend eight hours each per year responding to public interest from the data disclosures. This time could be spent answering questions at public meeting, posting on social media, and offering detailed technical information to operational questions from LEPC members and other civic officials, for example.

Table 4-19 combines the estimates costs for the information disclosure and for the facility's costs due to this information disclosure. These estimated costs are \$27 million per year for the water sector.

Table 4-19. Total Annual Cost for Public Disclosure Requirements for the Water Sector

	Number of Water Facilities	Disclosure Annual Costs (\$/yr.)	Public Response Annual Costs (\$/yr.)	Total Annual Costs (\$/yr.)
Simple w/ 0-19 FTEs	1,551	\$1,600	\$2,400	\$6,100,000
Simple w/ 20-99 FTEs	401	\$1,600	\$2,400	\$4,300,000
Simple w/ 100+ FTEs	61	\$3,600	\$4,700	\$17,000,000
Total				\$27,000,000

*Numbers rounded to two significant digits; values may not add due to rounding*

**Appendix B AWWA Comments on the 2018 RMP Proposed Reconsideration Rule (August 23, 2018), and associated materials**



**American Water Works  
Association**

*Dedicated to the World's Most Important Resource®*

Government Affairs Office  
1300 Eye **Street NW**, Suite 701W  
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**August 23, 2018**

**Docket ID No. [EPA-HQ-OEM-2015-0725](#)**

Environmental Protection Agency  
Mailcode 28221T  
1200 Pennsylvania Ave. NW  
Washington, DC 20460  
**VIA ELECTRONIC SUBMISSION**

**RE: Comments of the American Water Works Association on the U.S. Environmental Protection Agency's Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act; Proposed Rule 83 Fed. Reg. 24850 (May 30, 2018); Docket EPA-HQ-OEM-2015-0725**


Dear Acting Administrator Wheeler,

The American Water Works Association (AWWA) appreciates the opportunity to provide comments on the U.S. Environmental Protection Agency's (EPA's) reconsideration proposal for the Accidental Release Prevention Requirements of Risk Management Programs (RMP) under the Clean Air Act, Section 112(r)(7).

AWWA supports the efforts of the Administration to review the efficacy of the RMP "Amendments Rule" promulgated in January 2017 (82 FR 4594). We believe that Amendments Rule was overly burdensome and lacked substantive justification demonstrating the risk reduction values implied by the action, especially given the fact that the drinking water and wastewater sector has demonstrated a strong record of safety throughout the life of the program. Given our prior comments, we support the actions proposed in the Reconsideration Rule and the comments that follow seek to provide support or request clarification of the proposed actions.

If you have any questions about these comments, please feel free to contact myself or [Kevin Morley](#) in our Washington office.

Yours Sincerely,

  
G. Tracy Mehan, III  
Executive Director – Government Affairs

cc: Barry Breen – EPA/OLEM  
Peter Grevatt – EPA/OGWDW  
David Travers – EPA/OGWDW/WSD

### **Who is AWWA**

*The American Water Works Association (AWWA) is an international, nonprofit, scientific and educational society dedicated to providing total water solutions assuring the effective management of water. Founded in 1881, the Association is the largest organization of water supply professionals in the world. Our membership includes more than 4,000 utilities that supply roughly 80 percent of the nation's drinking water and treat almost half of the nation's wastewater. Our 50,000-plus total membership represents the full spectrum of the water community: public water and wastewater systems, environmental advocates, scientists, academicians, and others who hold a genuine interest in water, our most important resource. AWWA unites the diverse water community to advance public health, safety, the economy, and the environment.*

**AWWA Comments on the Reconsideration Proposal for the  
Accidental Release Prevention Requirements of Risk Management Programs (RMP)  
under the Clean Air Act, Section 112(r)(7)**

**Summary**

AWWA shares EPA's goal of enhancing the safety of drinking water and wastewater treatment systems. AWWA and its members devote substantial time and resources to safety programs and training. This is evidenced with a demonstrated commitment to risk management and process safety per the multiple ANSI standards, manuals of practice, and training resources we provide the water sector. In the context of the information EPA used to support the RMP Amendments Rule, we highlighted a significant absence of evidence that demonstrating the reduction in risk value of the actions that were eventually promulgated in January 2017. These concerns were raised during the SBREFA review process and in comments on the proposed rule and supporting regulatory impact assessment (RIA). This concern is reinforced by EPA acknowledgement in the RIA that it "had no data to project the specific impact of each proposed rule element on the probability and magnitude of chemical accidents. Indeed, the frequency and severity of the accidents themselves would be difficult and challenging to predict."<sup>1</sup> The inability to appropriately match the costs and benefits of any of the Amendment Rule's program elements makes it extremely difficult to ascertain whether any particular provision would in fact reduce the risk of chemical safety incidents.

In the Reconsideration Rule, EPA has requested comment on the proposal to rescind several prevention program requirements promulgated in the 2017 Amendments Rule. Consistent with prior comments, AWWA concurs with these proposed rescissions. In addition, EPA has proposed modifications to several emergency response coordination provisions which AWWA supports with some recommendations for clarification as noted in the following sections.

**1. Incident Investigation**

The Amendment Rule would require Program 2 and Program 3 facilities to conduct root cause analyses for "catastrophic releases" and "near misses," the latter of which EPA defines as incidents that "reasonably could have resulted in a catastrophic release." The "root cause" is defined as a "fundamental, underlying system-related reason why an incident occurred that identifies a correctable failure(s) in management systems." AWWA is supportive of the concept of conducting performance-based analyses regarding the root causes of incidents involving catastrophic releases with off-site consequences. However, the requirements in the Amendments Rule divert scarce resources to from other public safety imperatives provided by the water sector.

***Recommended Action:*** Rescind as proposed.

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<sup>1</sup> USEPA, RMP Regulatory Impact Analysis, page 6 of 149, February 24, 2016.  
<https://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OEM-2015-0725-0029&contentType=pdf>

## 2. Third Party Audits

As promulgated auditors would be subject to rigid eligibility criteria, including a three year “cooling off” period that disqualifies any personnel from conducting third party audits if they have conducted past research, development, design, construction services or consulting with the owner or operator. In addition, the requirement prohibits any third-party auditors from accepting future employment with the owner or operator for a period of three years. These rigid criteria needlessly suppress the universe and availability of “qualified” auditors with valuable industry specific knowledge of process hazard mitigation.

The existing rule requires Program 2 and Program 3 processes to conduct a compliance audit at least once every 3 years. AWWA firmly believes that the existing RMP audit requirements have been highly effective in identifying deficiencies in RMP incident prevention program requirements. In fact, EPA’s 10-year accident history data for the RMP program demonstrates that the water sector has a demonstrated a robust record of safety over the life of the program. There is no empirical audit data that suggest there is a systemic problem with the current RMP audit process or how they are performed and reported. In the absence of evidence suggesting that the current compliance audit regime is deficient e in applying lessons learned from the few incidents that have occurred in the water sector over the life of the program, it is not clear how imposing a third-party audit requirement would further improve the safety culture for these “good actors.”

The provisions in the Amendment Rule for third party auditors is overly prescriptive, impractical to implement and could potentially result in unintended consequences. Absent empirical data indicating that the existing audit process is deficient, AWWA supports the rescission of this provision.

**Recommended Action:** Rescind as proposed.

## 3. Safer Technology and Alternatives Analysis (STAA)

Drinking water and wastewater treatment systems represent an appreciably lower risk profile than other sectors regulated by the RMP program. The water sector has a robust record of safety under the existing RMP regulatory requirements as demonstrated by EPA’s own data on the 10-year accident history of the industry under the program. According to EPA’s data presented during the SBREFA panel process for the proposed Amendments Rule, there are approximately 2,000 drinking water and wastewater treatment facilities regulated under RMP, representing 16% of the total RMP regulated facilities. Over this 10-year period of analysis, these facilities represent about 4.9% of all RMP reportable incidents, with an approximate annual average of .037 incidents per facility over that same compliance period.<sup>2</sup> The water sectors low accident rate was acknowledges in final Amendments Rule, where EPA noted that the water sector “is among the least accident-prone sectors covered under the risk management program.”

While the Amendments Rule would not apply the Safer Technology and Alternatives Analysis (STAA) to the water sector, the prospect that this provision could be expanded raised significant concerns.

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<sup>2</sup> Appendix A – SBREFA RMP data.

AWWA does not believe that a STAA mandate for water utilities through CAA §112(r), and any mandatory STAA requirements, could appropriately capture the variety of contingencies water utilities must consider when choosing a treatment chemical. Any EPA definition of a “safer” chemical alternative in the context of CAA §112(r) would focus primarily on preventing an accidental chemical release. But a comprehensive consideration of “safer” technology from a water service point of view would also have to consider a wide array of safety and health considerations as well as numerous risk trade-offs for all water consumers, not just those in close proximity to a treatment facility. Water utilities must consider how to best meet their primary objective of ensuring that any treatment method fully complies with the statutory and regulatory requirements of the Safe Drinking Water Act (SDWA). These are the types of evaluations that water systems undertake when carrying out independent reviews of disinfectant treatment options – a part of providing their core service. Any STAA review or implementation requirement under the RMP program would therefore be repetitive and potentially counterproductive to water utilities that have already considered the public health benefits and risk tradeoffs associated with their selected disinfectant process.

In the RMP rule promulgated in 1996, EPA did not adopt a requirement for STAA in part because it was costly and failed to deliver any meaningful safety benefit. In the last 20 years, EPA has yet to collect any data demonstrating any safety benefit because of STAA, including data from the handful of jurisdictions that have implemented STAA at the state or local level. In the absence of such data, AWWA concurs with the rescission of the STAA requirements from the RMP program.

***Recommended Action:*** Rescind as proposed.

#### **4. Information Disclosure**

The Amendments Rule would require RMP facilities to make available to LEPCs six categories information: (1) names and quantities of regulated substances held in a process, (2) 5-year accident history information (3) summaries of audit reports, (4) summaries of incident investigation reports, (5) summaries of IST/ISD measures that are planned or implemented, and (6) facility exercise information, including the schedule for upcoming exercises.

AWWA supports efforts to enhance information sharing and collaboration between facility owners and operators, LEPCs, first responders and the public in a manner that balances security and considerations and leads to meaningful improvements in safety. However, justification for these information requirements are not clearly demonstrated relative to improved community response and preparedness and therefore do not meet the test of “practical utility” under the Paperwork Reduction Act (5 CFR 1320).<sup>3</sup> For example, it is not clear how providing LEPCs with complex summaries of safety technology measures and audit reports would assist communities in their ability to plan for and provide emergency response functions. While it may seem practical to provide information to the public about the chemical safety hazards of facilities, it is important to ensure that the all the information required to be provided to LEPCs and the public has a clear value in improving safety.

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<sup>3</sup> <https://www.gpo.gov/fdsys/pkg/CFR-2010-title5-vol3/xml/CFR-2010-title5-vol3-part1320.xml>

In addition, the Amendments Rule desire to make available to the public on an “easily accessible” platform such as the company website: (1) the non-OCA portion of the RMP, (2) names of regulated substances and SDSs, (3) accident history, (4) summary of the facility’s emergency response program, (5) summary of the facility’s emergency response exercises, and (6) LEPC contact information. As managers of critical infrastructure, we are very concerned about making operationally sensitive data publicly available, which can present very real potential security risk without appropriate safeguards. AWWA reiterates its comments made in its March 9, 2012 letter<sup>4</sup> to the EPA Administrator regarding a prior plan to provide Internet access to the non-Offsite Consequence Analysis (OCA) sections of Risk Management Plans. AWWA recommended that EPA engage the Department of Justice (DOJ) to update the 2000 report<sup>5</sup> addressing security concerns associated with making RMP data publicly available relative to the current intelligence report and technological advancements.

**Recommended Action:** Rescind provisions as proposed.

#### **5. Emergency Planning and Response Provisions**

AWWA supports emergency response preparedness and the coordinating of response capabilities with local emergency responders. The proposed modification to the exercise program that would maintain a 3-year minimum frequency for tabletop exercises is appropriate. While we recognize the value the field exercises, we are cognizant of the significant resources and time necessary to properly run such an event. Therefore, we support removing the requirement that all facilities conduct field exercise once every ten years. In addition, we believe that by recommending elements for inclusion in exercises rather than by requirements provides a necessary level of flexibility for the facility to construct the exercise in manner that most suits their needs in collaboration with local responders.

**Recommended Action:** Support modification as proposed to retain the requirement for tabletop exercises and remove mandate for field exercises.

#### **6. Coordination with OSHA Process Safety Management Program**

The City of Troy (NY) participated as a Small Entity Representative (SER) on the Small Business Advocacy Review (SBAR) Panel for the EPA rulemaking “Risk Management Plan Modernization.” AWWA appreciated the opportunity to support a member’s participation in this process. However, the truncated panel review process, limited data regarding the costs of potential rule provisions and complete lack of data regarding the benefits of any individual provision made it difficult to provide constructive input regarding the relative risk tradeoffs for any of the regulatory changes considered.

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<sup>4</sup> See Appendix C – March 9, 2012 letter to EPA RE: Planned Release of non-OCA data via the Internet

<sup>5</sup> EPA and DOJ. 2000. Assessment of the increased risk of Terrorist or Other Criminal Activity Associated with Posting of Off-Site Consequence Analysis Information on the Internet. April 18, 2000.

One of the additional difficulties that small business entities in the water sector faced when providing comments during the SBAR panel process was the lack of information regarding the interaction of the RMP proposed revisions with the OSHA Process Safety Management (PSM) regulations. These two programs are very interrelated yet affected stakeholders could not effectively comment on one without knowing how they will interact. EPA's compressed schedule for the RMP proposal made it all but impossible to assess and comment on the RMP proposal because OSHA's parallel PSM rulemaking process has yet to be initiated. Considering OSHA's changes to the retail exemption policies, there was additional uncertainty among AWWA members regarding their classification for purposes of compliance under RMP Program 2 or Program 3 requirements. At a minimum, we recommend that EPA update industry specific RMP guidance resources<sup>6</sup> and undertake additional consultation with small business entities regarding the interaction of the RMP revisions with existing PSM policies and regulation. The actions proposed in the Reconsideration Rule recognize the need for a collaborative assessment that includes OSHA's PSM to gain a more complete picture of the universe of requirements impacting various sectors, including consideration of flexibilities for small entities under SBREFA obligations.

**Recommended Action:** Support collaborative review with OSHA; update EPA's sector specific RMP guidance resources.

## Conclusion

In conclusion, AWWA would like to reiterate our support for the Risk Management Program and the risk minimization that it promotes. Given the success of the existing program, as measured by extremely low incident rates in water and other sectors, the actions proposed in Reconsideration Rule are appropriate.

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<sup>6</sup> <https://www.epa.gov/sites/production/files/2013-11/documents/appendix-f1.pdf>



**Appendix C Small Business Administration Comments on 2022 RMP Proposed Safer Communities by Chemical Accident Prevention Rule**



October 28, 2022

VIA ELECTRONIC SUBMISSION

The Honorable Michael S. Regan  
Administrator  
Environmental Protection Agency  
Washington, DC 20460

**Re: Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act; Safer Communities by Chemical Accident Prevention, (Docket ID No.EPA-HQ-OLEM-2022-0174)**

Dear Administrator Regan:

The Office of Advocacy (Advocacy) submits the following comments in response to the Environmental Protection Agency's (EPA) proposed rule, *Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act; Safer Communities by Chemical Accident Prevention*.<sup>1</sup> Accident prevention and safety precautions remain a priority for small entities that use and distribute hazardous chemicals to protect both the public and their employees. Advocacy, however, is concerned that EPA is unjustifiably adding burdensome requirements to the Risk Management Program (RMP) regulations, especially since the long-term trend demonstrates a decrease in RMP-related accidents.

Advocacy recommends that the agency withdraw its proposal. Instead, EPA should expend its resources to increase compliance assistance under existing regulations and address violations through timely enforcement. If the agency intends to finalize the proposed requirements, EPA must improve its analysis to provide an adequate factual basis to support the certification that the rule will not have a significant economic impact on a substantial number of small entities. The agency must also ensure that the final rule is not inconsistent with, duplicative of, or overlapping with other existing federal regulations.

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<sup>1</sup> 87 Fed. Reg. 53556 (Aug. 31, 2022).

## **I. Background**

### **A. The Office of Advocacy**

Congress established the Office of Advocacy under Pub. L. 94-305 to represent the views of small entities before Federal agencies and Congress. Advocacy is an independent office within the U.S. Small Business Administration (SBA). As such, the views expressed by Advocacy do not necessarily reflect the views of the SBA or the Administration. The Regulatory Flexibility Act (RFA),<sup>2</sup> as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA),<sup>3</sup> gives small entities a voice in the rulemaking process. For all rules that are expected to have a significant economic impact on a substantial number of small entities, the RFA requires federal agencies to assess the impact of the proposed rule on small entities and to consider less burdensome alternatives.

The Small Business Jobs Act of 2010 requires agencies to give every appropriate consideration to comments provided by Advocacy.<sup>4</sup> The agency must include a response to these written comments in any explanation or discussion accompanying the final rule's publication in the *Federal Register*, unless the agency certifies that the public interest is not served by doing so.<sup>5</sup>

Advocacy's comments are consistent with Congressional intent underlying the RFA, that “[w]hen adopting regulations to protect the health, safety, and economic welfare of the nation, federal agencies should seek to achieve statutory goals as effectively and efficiently as possible without imposing unnecessary burdens on the public.”<sup>6</sup>

### **B. The Proposed Rule**

On August 31, 2022, EPA published proposed revisions to its RMP regulations under the Clean Air Act (CAA).<sup>7</sup> EPA is proposing to reestablish the requirements for a safer technologies and alternatives analysis, root cause analysis incident investigations, third-party compliance audits, emergency response exercises, and information availability finalized in its 2017 final rule.<sup>8</sup> These provisions were rescinded by the agency in its 2019 final rule.<sup>9</sup> In addition, EPA is proposing new requirements for employee participation and emergency response notification procedures. The agency is also proposing to amend its existing requirements that natural hazards, loss of power, and facility siting be included in hazard evaluations, among other changes.

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<sup>2</sup> 5 U.S.C. § 601 et seq.

<sup>3</sup> Pub. L. 104-121, Title II, 110 Stat. 857 (1996) (codified in various sections of 5 U.S.C. §601 et seq.).

<sup>4</sup> Small Business Jobs Act of 2010 (PL. 111-240) §1601.

<sup>5</sup> *Id.*

<sup>6</sup> *Id.*

<sup>7</sup> 87 Fed. Reg. 53556 (Aug. 31, 2022).

<sup>8</sup> 82 Fed. Reg. 4594 (Jan. 13, 2017).

<sup>9</sup> 84 Fed. Reg. 69834, (Dec. 19, 2019).

In 2015, before EPA originally proposed some of the revisions in this rule, the agency convened a Small Business Advocacy Review Panel (SBREFA panel) because the agency could not certify that the rule did not have significant economic burden on a substantial number of small entities.<sup>10</sup> However, in this proposed rule, the agency proposes to certify that the rule will not have a significant economic impact on a substantial number of small entities.<sup>11</sup>

## **II. Advocacy's Small Business Concerns**

Advocacy strongly supports improving safety at facilities that use and distribute hazardous chemicals. However, Advocacy is concerned that the agency is unjustifiably adding burdensome requirements to the RMP regulations, especially since the long-term trend demonstrates a decrease in RMP-related accidents. Advocacy has three chief concerns. First, Advocacy is concerned with EPA's proposal to add costly requirements to its existing regulations without providing any quantitative benefits. Advocacy is also concerned that the agency's small business impact analysis does not provide an adequate factual basis to support its certification that the rule will not have a significant economic impact on a substantial number of small entities, under the RFA. Finally, Advocacy is concerned that EPA's proposed requirements may be inconsistent, duplicative of, and overlap with other existing federal requirements.

### **A. EPA Should Not Reinsert Previously Removed or Add New Burdensome Requirements.**

#### **1. EPA's Proposed Requirements Are Not Justified Under the Existing Circumstances.**

In the proposed rule, EPA recognizes that there has been a long-term trend of reduction in accidents, including a reduction in the gravity of those accidents. EPA further admits that the existing RMP rule has been effective in preventing and mitigating chemical accidents and protecting human health and the environment from chemical hazards. As a justification for this proposed requirement, the agency explains that stricter RMP rules can improve outcomes. As a result, the agency issued this proposal, imposing about \$42 million in costs for 2,911 small private entities. There does not seem to be an estimate for the total costs for the 630 small government entities affected by the rule, which is a concern discussed further below.

The agency does not provide any quantitative benefits associated with the changes proposed in this rule. Instead, the agency provided a breakeven analysis to demonstrate the value of benefits the rule would need to generate or the number of accidents the rule would need to avert to yield zero net benefits. EPA estimates that the rule would need to generate \$76 million in annualized benefits, or a reduction of about 15 accidents per year for the rule to break even. Before requiring small entities to pay the costs of implementing this proposed rule, EPA should be able to show how the provisions of the rule will result in benefits. The breakeven analysis provided is

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<sup>10</sup> Final Report of the Small Business Advocacy Review Panel on EPA's Planned Proposed Rule, Risk Management Modernization Rule, (Feb. 19, 2016), <https://www.regulations.gov/document/EPA-HQ-OEM-2015-0725-0032>.

<sup>11</sup> 87 Fed. Reg. 53556 at 53607, (Aug. 31, 2022).

insufficient to support the selection of optimal provisions or sectors to target with those provisions. It seems possible based on the information EPA has provided that the implementation costs paid by small entities would yield little or no benefits.

Advocacy recognizes that EPA is rightfully concerned about accidents, especially major ones, that do still occur. For instance, EPA repeatedly refers to an explosion at the TPC Group facility in Port Neches, Texas to support the need for additional regulations proposed in this rule. The TPC facility was, however, out of compliance or in violation of existing requirements at the time of the accident.<sup>12</sup> Given this information, it is unclear what incentive these types of facilities will have or whether it is realistic to assume that compliance with additional, potentially more burdensome and costly requirements will be accomplished. The additional costs imposed by the proposed provisions will constrain the already limited resources of small entities. Instead, small entities could allocate their resources to directly improve compliance with existing requirements, which based on EPA's own data, are effective in reducing RMP-accidents. Therefore, Advocacy recommends EPA withdraw this proposal and expend its resources on compliance assistance for regulated entities and enforcement against the types of entities that are responsible for such accidents.

## **2. EPA Made the Correct Decision in Rescinding the 2017 Rule Requirements to Reduce Regulatory Burden and Provide Flexibility to Regulated Entities in the 2019 Final Rule.**

Advocacy is concerned with the agency's repropoed provisions based on the 2017 final rule. These proposed provisions include requirements for a safer technology and alternatives analysis (STAA), third-party compliance audits, and emergency response exercises. The agency rescinded most of these provisions in the 2019 final rule, mostly to reduce regulatory burden and to provide regulatory flexibility for impacted entities.

In 2016, Advocacy wrote a comment letter to express these concerns based on the feedback obtained from small entity representatives during the SBREFA panel and from additional outreach with small business stakeholders during the public comment period. Advocacy incorporates by reference its own public comments submitted to the docket on May 13, 2016, included here as an attachment. Advocacy urges the agency not to add these requirements to the RMP regulations. Advocacy believes the agency's rationales for removing these requirements in the 2019 final rule continue to be applicable and appropriately address valid concerns raised by the regulated entities.

### STAA

For the STAA requirement, EPA is repropoing the 2017 rule requirement to consider and document feasibility of applying STAA. However, in this reiteration, the agency is limiting the STAA to petroleum and coal products manufacturing processes (NAICS code 324) and chemical manufacturing processes (NAICS code 325) located within 1 mile of another RMP-regulated

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<sup>12</sup> The Texas Tribune, Kiah Collier, "Ahead of explosion, Port Neches plant reported an increase of rogue emissions of explosive gas", (Jan. 30, 2020), [Texas plant reported an increase of rogue emissions before explosion | The Texas Tribune](#).

facility with these same processes. The agency is also proposing to require STAA for facilities using hydrofluoric acid (HF) classified in NAICS code 324.

In the 2019 final rule, the agency removed the STAA requirement based on its analysis that accident rates in jurisdictions that adopted STAA-like programs were not any lower than national accident rates. Based on this assessment, EPA stated that STAA regulations would likely not be effective at reducing accidents if applied on a national scale. Instead, the agency finalized a source-specific, compliance-driven approach, using oversight and enforcement tools to identify sources that would benefit from STAA and seek its adoption at those sources. Advocacy supports this approach, especially since in this proposal the agency specifically identifies the facilities that might be of concern, such as those in NAICS code 324 and 325 within one mile of one another. Advocacy recommends EPA focus its oversight and enforcement to identify and evaluate, on a case-by-case basis, facilities that would benefit from STAA, instead of requiring every facility in those sectors to conduct a costly analysis that may not result in safety improvement and accident prevention at the facility.

In addition, Advocacy remains concerned about the application of this rule to batch toll processes. Advocacy reiterates its recommendation from its 2016 comments that these entities be exempt from the STAA provision, if finalized. This exemption should apply unless the firm has a contractual relationship with a customer for five or more years, since the requirement is unlikely to yield practical information for shorter contracts. Small business representatives reported that batch toll manufacturers already incorporate STAA-like analysis in their processes. They also expressed concerns that such an analysis will not be feasible for products regulated or specified by a government agency. Therefore, Advocacy recommends EPA exclude processes that are governed by specifications established by a government agency or by a customer through a contractual relationship. Alternatively, Advocacy urges the agency to consider providing flexibility for these entities in demonstrating compliance with a STAA-like analysis.

#### Third Party Compliance Audits

In 2019, EPA rescinded the third-party audit requirements to allow for coordination of process safety requirements with the Occupational Safety and Health Administration (OSHA) before proposing future regulatory changes and to reduce unnecessary regulatory costs and burdens of a broad rule-based approach to third-party audits. EPA further indicated that the agency prioritizes inspections at facilities with accidental releases. For this reason, EPA can address accident-prone facilities without additional broad regulatory mandates. EPA concluded that this surgical approach to accident prevention was reasonable and practicable, and Advocacy agrees.

EPA is now proposing to require certain facilities, classified in NAICS code 324 and 325 that have had one RMP-reportable accident and are located within a 1-mile radius of another facility with a regulated NAICS code 324 and 325 process, to conduct a third-party audit after one accident. Since the agency has demonstrated its ability to identify sectors with accident-prone facilities, Advocacy recommends that EPA not reinstate this requirement. Instead, EPA should target its enforcement or compliance assistance to facilities within the scope of this proposed provision. EPA already can compel third-party audits as a corrective action and therefore can do so on a case-by-case basis.

EPA adds in this proposal that reliance on inspections may be impractical because of the COVID-19 pandemic and long timeframe for settling enforcement matters as the basis to impose an automatic requirement for third party compliance audits. EPA is thus implying that it is not able to enforce its existing requirements in a timely manner to prevent accidents. Advocacy is unclear how the agency will be able to enforce the additional and new proposed requirements in a timely manner to meet its goal to prevent further accidents at facilities when it cannot enforce the existing regulations in a timely manner.

#### Emergency Response

For the emergency response provisions, EPA is proposing to add back the 10-year frequency requirement for the currently required field exercises. In the 2019 final rule, the agency removed the 10-year field exercise frequency to reduce the burden on local emergency responders with multiple RMP-covered facilities and on small counties with limited resources including those in rural areas and those who rely on volunteers. As a result, the current rule provides flexibility to consult with local emergency response officials to establish an appropriate frequency. Advocacy recommends that the agency retain this flexibility. Alternatively, the agency should allow compliance based on the demonstration of a good faith effort to plan such a field exercise, especially in communities where there is no identified or responsive local emergency planning committee (LEPC).

EPA is further proposing that the current recommended field and tabletop exercise evaluation report components be mandatory. In 2019, the agency recognized that making the reporting requirements non-mandatory would reduce the regulatory burden and allow emergency response personnel the flexibility to decide which exercise documentation would be most appropriate for the facility and community. Advocacy urges the agency to also retain this flexibility.

EPA is also adding new requirements to the emergency response provisions which include developing procedures for notification. As part of this requirement, EPA expects facilities to work with the local responders to ensure that, during a release, all necessary resources are in place for a community notification system to function and operate as expected. EPA is proposing that the facility, even if it is a non-responding facility, ensure that the public is promptly notified by the method outlined in the facility's emergency response plan in coordination with local responders. This will include many small businesses as many of them tend to be non-responding facilities. Advocacy is concerned that the agency did not take into consideration that such facilities are not in a position to compel the implementation of a notification system. Therefore, it is inappropriate to impose this responsibility on these entities when they do not have control or the authority to require one.

For all the reasons stated above, Advocacy recommends EPA not add these requirements to the existing RMP rule.

## **B. EPA Must Improve its Small Entity Impact Analysis to Support the Factual Basis Required for its RFA Certification.**

If EPA intends to finalize its proposed regulations, the agency must improve its small entity impact analysis to support the factual basis for its certification that the rule will not have a significant economic impact on a substantial number of small entities. Under the RFA, a certification must include, at a minimum, a description of the affected entities and the impacts that clearly justify the “no impact” certification.<sup>13</sup> The agency’s reasoning and assumptions underlying its certification should be explicit in order to obtain meaningful public comment and thus receive information that would be used to evaluate the certification.<sup>14</sup> Agency certifications of final rules are subject to judicial review<sup>15</sup> and courts evaluate them by determining whether the statement of basis and purpose accompanying the rule identifies a “factual basis” to support the certification.<sup>16</sup>

### **1. EPA Should Provide a More Granular Analysis of Small Entity Impacts**

To support a factual basis for certification, EPA should provide a more granular analysis of small entity impacts. Generally, RFA analysis examines impacts at the six-digit NAICS level, and EPA’s analysis appears to be at the three-digit level. An assessment of whether a substantial number of small entities will have significant impacts is most appropriately done at the six-digit NAICS, as these groups of entities are more likely to share common characteristics and a common market.

In Exhibit 8-6 of EPA’s Regulatory Impact Analysis for this proposal, 89 out of 2,911 entities would have costs exceeding 1% of revenues. However, this analysis is neither transparent nor sufficient factual basis for certification. It is not appropriate to look at impacts averaged across industries, as this may mask significant effects in individual industries. Instead, EPA must show that there is no industry where the rule would have significant impacts on a substantial number of small entities. Advocacy recommends that EPA demonstrate the number of affected entities in each industry relative to the number of significantly affected small entities in each industry.<sup>17</sup>

Advocacy is also concerned about EPA’s estimated impacts for small government entities. EPA estimates 77% of small government entities will have costs less than \$1,000. It seems that if

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<sup>13</sup> U.S. Small Business Administration, Office of Advocacy, A Guide for Government Agencies, How to Comply with the Regulatory Flexibility Act, at 11, (Aug. 2017), [How to Comply with the Regulatory Flexibility Act, Updated August 2017 \(sba.gov\)](https://www.sba.gov/advocacy/regulatory-flexibility-act).

<sup>14</sup> *Id.*

<sup>15</sup> 5 U.S.C. § 611(a).

<sup>16</sup> See *Northport Health Servs. of Ark., LLC v. United States HHS*, 14 F.4th 856 (8th Cir. 2021), [Certification must be published in the Federal Register "along with a statement providing the factual basis for such certification"].

<sup>17</sup> U.S. Small Business Administration, Office of Advocacy, A Guide for Government Agencies, How to Comply with the Regulatory Flexibility Act, at 22, (Aug. 2017), [How to Comply with the Regulatory Flexibility Act, Updated August 2017 \(sba.gov\)](https://www.sba.gov/advocacy/regulatory-flexibility-act).

small government entities had any cost beyond rule familiarization, they would likely exceed \$1,000 in costs. Advocacy recommends that the agency explicitly state which provisions apply to small government entities. More specifically, Advocacy recommends that the agency provide the provisions that are the basis for the cost estimates for each category: 77 percent that incur costs of less than \$1,000, 17 percent costs ranging from \$1,000 to \$2,000, 3 percent costs ranging from \$2,000 to \$3,000, and one incurring costs of more than \$10,000.

## **2. EPA Must Address Missing and Underestimated Costs for Small Entities**

The agency must also account for missing and underestimated costs, discussed below, in its small entity impact analysis. Advocacy is concerned that proposed provisions characterized as amplifications of existing requirements will have costs that are not included. This includes the requirement to provide written justifications for declining relevant recommendations for the natural hazard, power loss, and chemical siting provisions. EPA also proposes to include justifications for declined recommendations and findings for other proposed provisions but does not provide a cost associated with this documentation requirement. Another example of a missing cost includes a gap analysis and documentation associated with EPA's proposal to include an analysis of the most recent recognized and generally accepted good engineering practices related to the facility's design, maintenance, and operation. These missing costs must be included in the small entity impact analysis to support EPA's factual basis.

EPA should also include costs of employee training in the RFA analysis. There is no estimate for the cost to small entities of training employees on employee participation or on implementation of any other provisions of the rule. While the training may be incorporated in existing training programs, time that was devoted to other activities will need to be allocated to developing, administering, and receiving training.

Costs of information availability also do not appear to be fully estimated or supported in the analysis. For instance, it is not clear what EPA's basis is for assuming that 50% of facilities would receive a request in a given year. EPA should address the possibility of a high volume of requests in the analysis given that there is not a limit on the frequency. There should also be an estimate of the cost of translating and providing information in the requested languages and the cost to verify whether the requestor is within the six-mile boundary.

Advocacy strongly urges the agency to include these costs as part of its calculation of the economic impact on small entities as part of its factual basis to support its RFA certification.

## **C. EPA's Requirements Should Not Be Inconsistent, Duplicative of or Overlap with Other Federal Requirements.**

### **1. EPA Must Ensure That its Requirements are Not Inconsistent, Duplicative of or Overlap with OSHA's Requirements.**

Advocacy is concerned that the agency may be adding duplicative or overlapping regulatory burdens on facilities by adding the employee participation provision to the RMP regulations. Small business representatives expressed concerns that these requirements may mimic OSHA's requirements for worker protections and are also included in OSHA's Process Safety

Management (PSM) standard.<sup>18</sup> Advocacy urges the agency to not finalize any requirements that are currently part of OSHA's requirements or those that can be addressed by OSHA in improving worker safety.

**2. EPA's Requirements Must Not Be Inconsistent, Duplicative of or Overlap with the Agency's Requirements Under EPCRA.**

Advocacy is concerned that the proposed information availability requirements may be inconsistent, duplicative, and overlap with the Emergency Planning and Community Right-to-Know Act (EPCRA) requirements. The agency should not impose multiple duplicative requirements on the same regulated facilities through different programs. For instance, if facilities are required to provide information to the public under EPCRA, the same information should not be required to also be issued under the RMP regulations.

In addition, as part of the emergency response provisions, EPA is proposing to incorporate text from EPCRA<sup>19</sup> regarding required provisions of community response plans into the RMP regulatory text. EPCRA requires LEPCs to develop such community response plans.<sup>20</sup> Advocacy is concerned that EPA's proposal will task non-responding facilities with developing community response plans. EPA makes this obligation explicit by stating that it will consider actions against a facility for relying on an LEPC plan if that plan is determined to be deficient under EPCRA requirements. EPA's incorporation into the RMP regulatory text of EPCRA requirements for a community emergency response program that is meant to be implemented by LEPCs is inconsistent and overlaps with EPCRA. Advocacy strongly recommends that the agency avoid requiring compliance with another statute as part of its RMP program.

**3. EPA Must Ensure That Any Finalized Modifications are Consistent with DOT Requirements.**

Advocacy is also concerned about the agency's proposal to apply a 48-hour time frame to "storage incident to transportation." This addition will specify the number hours a transportation container may be disconnected from the motive power that delivered it to the site before it can be subject to regulation under RMP. According to EPA, this is based on the Department of Transportation's (DOT) regulations<sup>21</sup> that indicate rail carriers must forward each shipment of hazardous materials promptly within 48 hours after acceptance or receipt. Small businesses are concerned that this amendment to the definition for "storage incident to transportation" in RMP regulations may be inconsistent with DOT regulations. Therefore, Advocacy recommends that the agency consult and coordinate with DOT on any proposed changes to this definition.

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<sup>18</sup> 29 C.F.R. 1910.119.

<sup>19</sup> 42 U.S.C. § 11003.

<sup>20</sup> *Id.*

<sup>21</sup> Pipeline and Hazardous Materials Safety Administration, Carriage by Rail Regulations, 49 CFR 174.14(a).

### III. Conclusion

To address the concerns raised above, Advocacy recommends that EPA withdraw this proposal and expend its resources on compliance assistance with and enforcement of the existing RMP regulations instead of imposing additional requirements. If the agency intends to finalize the rule, EPA must improve its small entity impact analysis to support the factual basis for its RFA certification by providing a more granular analysis and address underestimated and missing costs. EPA should also ensure that the proposed regulations do not impose duplicative, overlapping, or inconsistent requirements on regulated entities.

We look forward to working with you to reduce the regulatory burden on the impacted small entities. If you have any questions or require additional information, please contact me or Assistant Chief Counsel Tayyaba Zeb at (202) 798-7405 or by email at [tayyaba.zeb@sba.gov](mailto:tayyaba.zeb@sba.gov).

Sincerely,

/s/

Major L. Clark, III  
Deputy Chief Counsel  
Office of Advocacy  
U.S. Small Business Administration

/s/

Tayyaba Zeb  
Assistant Chief Counsel  
Office of Advocacy  
U.S. Small Business Administration

Copy to: Sabeel A. Rahman, Associate Administrator  
Office of Information and Regulatory Affairs  
Office of Management and Budget

**Appendix D U.S. Government Accountability Office, GAO-22-104494. Chemical Accident Prevention: EPA Should Ensure Regulated Facilities Consider Risks from Climate Change (February 2022)**



February 2022

# CHEMICAL ACCIDENT PREVENTION

## EPA Should Ensure Regulated Facilities Consider Risks from Climate Change

# GAO Highlights

Highlights of [GAO-22-104494](#), a report to congressional requestors

## Why GAO Did This Study

Over 11,000 RMP facilities across the nation have extremely hazardous chemicals in amounts that could harm people, property, or the environment if accidentally released. Risks to these facilities include those posed by natural hazards, which may damage the facilities and potentially release the chemicals into surrounding communities. Climate change may make some natural hazards more frequent or intense, according to the Fourth National Climate Assessment.

GAO was asked to review climate change risks at RMP facilities. This report examines, among other things, (1) what available federal data indicate about RMP facilities in areas with natural hazards that may be exacerbated by climate change; and (2) challenges RMP facilities face in managing risks from natural hazards and climate change, and opportunities for EPA to address these challenges. GAO analyzed federal data on RMP facilities and four natural hazards that may be exacerbated by climate change, reviewed agency documents, and interviewed agency officials and stakeholders, such as industry representatives.

## What GAO Recommends

GAO is making six recommendations, including that EPA issue regulations, guidance, or both to clarify requirements and provide direction to facilities on incorporating natural hazards and climate change into risk management programs. EPA agreed with our recommendations.

View [GAO-22-104494](#). For more information, contact J. Alfredo Gómez at (202) 512-3841 or [gomezj@gao.gov](mailto:gomezj@gao.gov).

February 2022

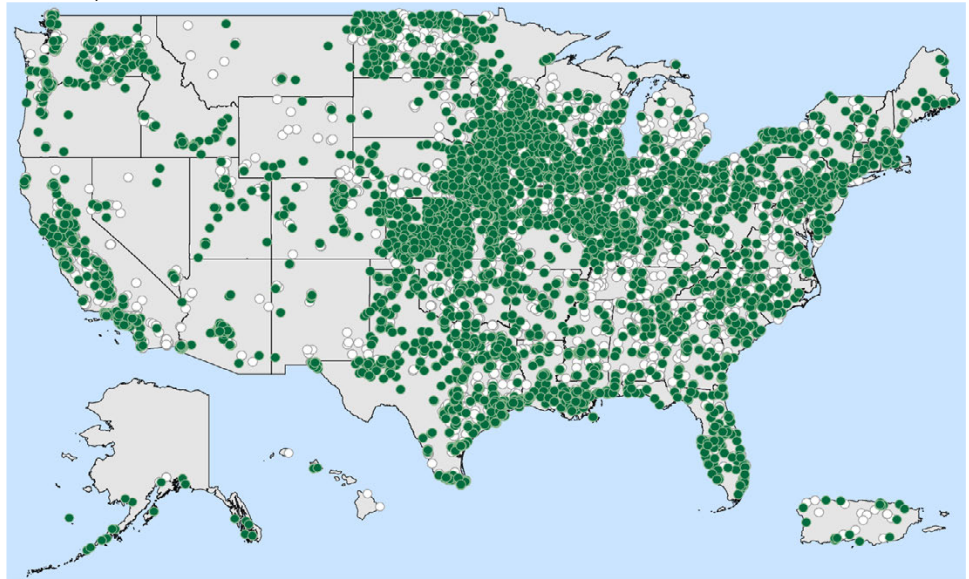
## CHEMICAL ACCIDENT PREVENTION

### EPA Should Ensure Regulated Facilities Consider Risks from Climate Change

## What GAO Found

The Environmental Protection Agency's Risk Management Plan (RMP) Rule requires certain facilities that make, use, handle, or store hazardous substances (chemicals) to develop and implement a risk management program to detect and prevent or minimize the consequences of an accidental release. These facilities, known as RMP facilities, include chemical manufacturers and water treatment plants. Federal data on flooding, storm surge, wildfire, and sea level rise—natural hazards that may be exacerbated by climate change—indicate that over 3,200 of the 10,420 facilities we analyzed, or about 31 percent, are located in areas with these natural hazards (see figure). View the full results of GAO's analysis [here](#).

### RMP Facilities Located in Areas That May Be Impacted by Flooding, Storm Surge, Wildfire, or Sea Level Rise



Risk Management Plan (RMP) facilities that GAO analyzed (10,420)

- Located in an area with one or more of these natural hazards (3,219)
- Located in an area without one or more of these natural hazards or where hazards are unknown (7,201)

Sources: GAO analysis of Environmental Protection Agency, Federal Emergency Management Agency, National Oceanic and Atmospheric Administration, and U.S. Forest Service data; U.S. Census Bureau (map). | GAO-22-104494

Notes: This map does not include one RMP facility in each of Guam and the U.S. Virgin Islands, Storm surge data are not available for the West Coast and Pacific islands other than Hawaii, and sea level rise data are not available for Alaska.

RMP facilities face several challenges, including insufficient information and direction, in managing risks from natural hazards and climate change, according to some EPA officials and stakeholders. By issuing regulations, guidance, or both to clarify requirements and provide direction on how to incorporate these risks into risk management programs, EPA can better ensure that facilities are managing risks from all relevant hazards. When developing any such regulation, EPA should, pursuant to relevant executive orders, conduct a cost-benefit analysis.

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### Abbreviations

CalARP	California Accidental Release Prevention Program
Chemical Safety Board	U.S. Chemical Safety and Hazard Investigation Board
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
LEPC	Local Emergency Planning Committee
Natech	Natural Hazards Triggering Technological Accidents
NCA	Fourth National Climate Assessment
NOAA	National Oceanic and Atmospheric Administration
OECA	Office of Enforcement and Compliance
OECD	Organization for Economic Co-Operation and Development
OLEM	Office of Land and Emergency Management
OSHA	Occupational Safety and Health Administration
RAGAGEP	recognized and generally accepted good engineering practices
RMP	Risk Management Plan

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February 28, 2022

The Honorable Tom Carper  
Chairman  
Committee on Environment and Public Works  
United States Senate

The Honorable Cory A. Booker  
United States Senate

Over 11,000 facilities across the nation make, use, or store extremely hazardous chemicals in amounts that could harm people, the environment, or property if accidentally released. These facilities are in industry sectors such as chemical manufacturing, energy, and water and wastewater treatment. Accidental chemical releases at these facilities can result in fatalities and serious injuries, evacuations, and other harm to humans, according to the Environmental Protection Agency (EPA). Natural hazards such as flooding and hurricanes—which may become more frequent and intense due to climate change, according to the Fourth National Climate Assessment (NCA)<sup>1</sup>—are among the hazards that may lead to such accidental releases, according to the U.S. Chemical Safety and Hazard Investigation Board (Chemical Safety Board) and the Center for Chemical Process Safety.<sup>2</sup> Socially vulnerable individuals, such as those living in poverty, are less able than others to adapt to or recover

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<sup>1</sup>U.S. Global Change Research Program, *Climate Science Special Report, Fourth National Climate Assessment*, vol. I (Washington, D.C.: 2017). The Global Change Research Act of 1990 requires the Committee on Earth and Environmental Sciences of the Federal Coordinating Council on Science, Engineering, and Technology to prepare and submit a scientific assessment at least every 4 years. Pub. L. No. 101-606, §106, 104 Stat. 3096, 3101 (*codified at* 15 U.S.C. § 2936). The U.S. Global Change Research Program—which coordinates and integrates the activities of 13 participating federal departments and agencies that carry out research and support the nation's response to global change—conducts this national assessment, known as the National Climate Assessment.

<sup>2</sup>The Chemical Safety Board is an independent, non-regulatory federal agency responsible for investigating accidental release of regulated or extremely hazardous substances; recommending measures to reduce the likelihood or the consequences of accidental releases; and proposing corrective steps to make chemical production, processing, handling, and storage as safe and free from risk of injury as is possible. The Center for Chemical Process Safety is a not-for-profit, corporate membership organization within the American Institute of Chemical Engineers that works on issues of process safety for facilities handling, storing, using or processing, and transporting hazardous materials.

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from natural disasters and climate change, according to the NCA. They are also more likely to live in proximity to these facilities, and are, therefore, also at greater risk from chemical releases than other populations, according to EPA.

Pursuant to the Clean Air Act, the Risk Management Plan (RMP) Rule seeks to prevent the accidental release of certain hazardous substances (chemicals) from certain facilities and to minimize the consequences of such releases.<sup>3</sup> The RMP Rule applies to stationary sources (facilities) where certain hazardous chemicals above a threshold quantity are present in a process.<sup>4</sup> We refer to facilities subject to the RMP Rule as RMP facilities. A process is defined by EPA regulations as being any activity, including manufacturing, use, storage, or handling, involving a

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<sup>3</sup>In 1996, EPA issued a final rule for risk management programs under Clean Air Act section 112(r)(7). We refer to this rule as amended as the RMP Rule. The rule was amended several times, most recently in 2017 and 2019. In January 2017, EPA issued a final rule amending the RMP Rule (2017 Amendments Rule) that, according to EPA, made changes to the accident prevention program requirements, enhanced emergency response requirements, and improved public availability of chemical hazard information, among other things. 82 Fed. Reg. 4594 (Jan. 13, 2017). Before the 2017 Amendments Rule went into effect, EPA published a final rule delaying the effective date and subsequently published additional rules further delaying the effective date. 82 Fed. Reg. 8499, 8500 (Jan. 26, 2017); 82 Fed. Reg. 13968 (Mar. 16, 2017); 82 Fed. Reg. 16146 (Apr. 3, 2017); 82 Fed. Reg. 27133 (June 14, 2017). The 2017 Amendments Rule went into effect in September 2018 pursuant to a court order. *Air All. Houston v. Env't. Protect. Agency*, 906 F.3d 1049 (D.C. Cir. Aug. 17, 2018) (vacating the final rule promulgated on June 14, 2017 the delayed the effective date of the 2017 Amendments Rule). *Air All. Houston v. Env't. Protect. Agency*, No. 17-1155 (D.C. Cir. Sept. 21, 2018). In December 2019, EPA promulgated a new final RMP Rule (2019 Reconsideration Rule) that repealed several provisions of the 2017 Amendments Rule and retained other provisions with modifications. 84 Fed. Reg. 69834 (Dec. 19, 2019). Several environmental organizations filed a lawsuit in the Court of Appeals for the D.C. Circuit challenging the 2019 Reconsideration Rule. *Air All. Houston v. Env't. Protect. Agency*, No. 19-1260 (D.C. Cir. Dec. 19, 2019). The court has held the case in abeyance since May 2020.

<sup>4</sup>In addition to the RMP Rule, the General Duty Clause of the Clean Air Act (section 112(r)(1)) imposes on owners and operators of stationary sources producing, processing, handling, or storing substances regulated under section 112(r) or any other extremely hazardous substance a general duty to (1) identify hazards which may result from accidental release, (2) design and maintain a safe facility taking such steps as are necessary to prevent release, and (3) minimize the consequences of accidental releases. Although the General Duty Clause is not a regulation, EPA may conduct inspections of all stationary sources and assess penalties for non-compliance with this statutory requirement. This report focuses on facilities subject to the RMP Rule, not facilities that are subject only to the General Duty Clause.

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hazardous chemical that EPA regulates under the Clean Air Act's prevention of accidental releases provision.<sup>5</sup>

The RMP Rule requires that each RMP facility develop and implement a risk management program to detect and prevent or minimize accidental releases. The facility must then submit an RMP describing its risk management program to EPA.<sup>6</sup> According to EPA, the RMP Rule builds upon existing industry codes and standards. For example, the regulation requires RMP facilities to document that equipment complies with recognized and generally accepted good engineering practices (RAGAGEP).<sup>7</sup> In addition, requirements for some RMP facilities are the requirements of the Occupational Safety and Health Administration (OSHA) Process Safety Management standard.<sup>8</sup> The RMP Rule does not specify exactly what a facility must do to develop and implement a risk management program; instead, it provides the facility with flexibility to develop a facility-appropriate approach, according to EPA.

The RMP Rule divides covered processes into three program levels with different requirements that reflect the processes' relative potential for public impacts and the level of effort needed to prevent accidents,

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<sup>5</sup>The Clean Air Act prevention of accidental release provision is section 112(r)(7) and the regulations implementing it, including the RMP Rule, are in 40 C.F.R. pt. 68. The substances regulated under section 112(r)(7) of the Clean Air Act include 77 toxic substances, such as anhydrous ammonia and chlorine, and 63 flammable substances, such as butane and propane. For the purposes of this report, we refer to all of these regulated substances as "hazardous chemicals." Facilities may have multiple processes involving hazardous chemicals but each process is evaluated and classified separately.

<sup>6</sup>A facility must revise and resubmit its RMP every 5 years or when certain events occur, such as when a new regulated chemical is first present in an already-covered process above a threshold quantity.

<sup>7</sup>According to EPA, RAGAGEP may include regulations, codes, standards, guidelines, engineering documents, and safety data sheets. According to OSHA, RAGAGEP may also include consensus standards that have been widely adopted by federal, state, or municipal jurisdictions. Examples include the *National Fire Protection Association 70 National Electric Code*; consensus documents developed by organizations based on certain standards, such as those set by the American Society of Mechanical Engineers in *Essential Requirements: Due Process Requirements for American National Standards*; certain non-consensus documents developed by industries, such as pamphlets on safety from the Chlorine Institute; manufacturers' recommendations; and some internal standards developed by facilities.

<sup>8</sup>OSHA's Process Safety Management of Highly Hazardous Chemicals (Process Safety Management) Standard (29 C.F.R. § 1910.119) contains requirements for the management of hazards associated with processes using highly hazardous chemicals that will protect worker health and safety.

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according to EPA guidance. Facilities with Program 1 processes—those that would not affect the public in a worst-case release—have the fewest requirements under the RMP Rule. Facilities with Program 2 processes have more requirements, and facilities with Program 3 processes have the most requirements. A single facility may have multiple processes and, therefore, multiple program levels. As of December 2020, there were 11,444 current and active RMP facilities nationwide. Of these facilities, 648 facilities have only Program 1 processes. At 3,882 facilities, Program 2 processes are the highest level process at the facility, and at 6,914 facilities, Program 3 processes are the highest level process.<sup>9</sup>

EPA's Office of Emergency Management, within the agency's Office of Land and Emergency Management (OLEM), manages the implementation of the RMP Rule. The Office of Emergency Management and Office of Enforcement and Compliance Assurance (OECA) at both the headquarters and regional levels provide compliance assistance to RMP facilities, such as outreach and technical assistance. EPA also supports federal, state, and local government and non-governmental accident prevention and emergency planning, according to EPA. Credentialed inspectors based in EPA regional offices, along with inspectors in the nine states and four counties to which EPA has delegated authority to implement and enforce the RMP Rule, conduct facility inspections to determine facility compliance with the RMP Rule.<sup>10</sup>

Accidental releases of hazardous chemicals caused by natural hazards have been rare at RMP facilities, according to EPA and the Chemical Safety Board. However, recent natural disasters have demonstrated the potential for natural hazards to trigger fires, explosions, and releases of

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<sup>9</sup>For the purposes of this report, "current and active facilities" are those facilities that submitted an RMP to EPA within 5 years of December 2020 and that have not been closed or deregistered through EPA's online database system.

<sup>10</sup>States may be delegated complete or partial authority to implement and enforce accidental release prevention programs (40 C.F.R. pt. 68), including the RMP Rule. As of November 2021, states with delegated authority are Delaware, Florida, Georgia, Mississippi, New Jersey, North Carolina, North Dakota, Ohio, and South Carolina. Additionally, states have further delegated authority to the following local jurisdictions: Jefferson County, Kentucky; and Forsyth, Buncombe, and Mecklenburg Counties, North Carolina. Florida has a partial delegation (everything but propane facilities), and North Dakota has a partial delegation (only agricultural ammonia facilities). For the purposes of this report, we focus on the activities of EPA RMP inspectors.

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toxic chemicals at facilities.<sup>11</sup> In some parts of the U.S., climate change is increasing the severity and frequency of current natural hazards, such as flooding, hurricanes, and wildfires, as well as accelerating the impacts of sea level rise, according to the NCA. The Chemical Safety Board has reported that as the rate of such natural disasters increases, the frequency of accidents at chemical facilities affected by those natural hazards might also rise unless appropriate actions are taken to strengthen the resilience of the facilities.

You asked us to review climate change risks at RMP facilities. This report examines 1) what available federal data indicate about the number and types of RMP facilities that are located in areas with selected natural hazards that may be exacerbated by climate change; 2) challenges RMP facilities face in managing risks to human health and the environment from natural hazards and climate change, and opportunities for EPA to address these challenges; and 3) the extent to which EPA assesses how RMP facilities manage risks from natural hazards and climate change, and challenges EPA faces in doing so.

To determine what available federal data indicate about the number and type of RMP facilities that are located in areas with selected natural hazards that may be exacerbated by climate change, we reviewed the NCA, federal data on natural hazards, and our prior work on chemical facilities and climate change. We identified and obtained national-level federal data sets on four hazards that the NCA reported will be exacerbated by climate change in some areas of the country: flooding (Federal Emergency Management Agency (FEMA)), storm surge from hurricanes (National Oceanic and Atmospheric Administration (NOAA)), wildfires (U.S. Forest Service), and sea level rise (NOAA). These data are based on current and past conditions. We refer to these four hazards as selected natural hazards throughout this report. (See app. I for more detail on steps we took to assess the reliability of the data, and see app. II for more detail on the scope and types of natural hazard data used in this report.)

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<sup>11</sup>According to the Federal Emergency Management Agency (FEMA), natural hazards and natural disasters are related but are not the same. A natural hazard is the threat of an event that will likely have a negative impact. A natural disaster is the negative impact following an actual occurrence of natural hazard in the event that it significantly harms a community.

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We obtained data from EPA's RMP database on the location and characteristics of RMP facilities identified in the database as current and active and as having Program 2 or 3 processes.<sup>12</sup> We analyzed these data using mapping software to identify RMP facilities located in areas that may be impacted by the selected natural hazards. To assess the reliability of the data used for our analysis, we, among other things, assessed the accuracy of the data and found the data to be sufficiently reliable for our analysis.<sup>13</sup>

To identify challenges that RMP facilities face in managing risks to human health and the environment from natural hazards and climate change and opportunities for EPA to address those challenges, we reviewed documents from EPA, OSHA, and the Chemical Safety Board. We also interviewed EPA, OSHA, and Chemical Safety Board officials as well as representatives of 11 selected stakeholder groups—such as industry associations and local emergency response organizations—to obtain their views. We also interviewed representatives of three RMP facilities to obtain illustrative examples of how RMP facilities manage risks from natural hazards and climate change and any challenges they face in doing so.

To determine the extent to which EPA assesses how RMP facilities manage these risks and challenges that EPA faces in doing so, we reviewed regulations; guidance, outreach, and training materials from EPA; *Federal Register* notices and EPA responses to public comments on proposed revisions to the RMP regulation; reports from the Chemical Safety Board; and documents from other organizations, such as the Center for Chemical Process Safety. We also interviewed EPA officials from headquarters and at all 10 regional offices, officials from OSHA and the Chemical Safety Board, and representatives of the stakeholder groups and three RMP facilities identified above. Appendix I describes our objectives, scope, and methodology in more detail.

We conducted this performance audit from August 2020 to February 2022 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain

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<sup>12</sup>We identified 11,444 current and active RMP facilities. We excluded RMP facilities with Program 1 processes from our analysis (648 facilities). We also excluded RMP facilities whose location information we assessed to be insufficiently reliable (376 facilities).

<sup>13</sup>Our analysis estimated the number of RMP facilities located in areas with selected natural hazards that may be exacerbated by climate change without site-specific information. Our analysis is not intended to provide estimates of actual risk.

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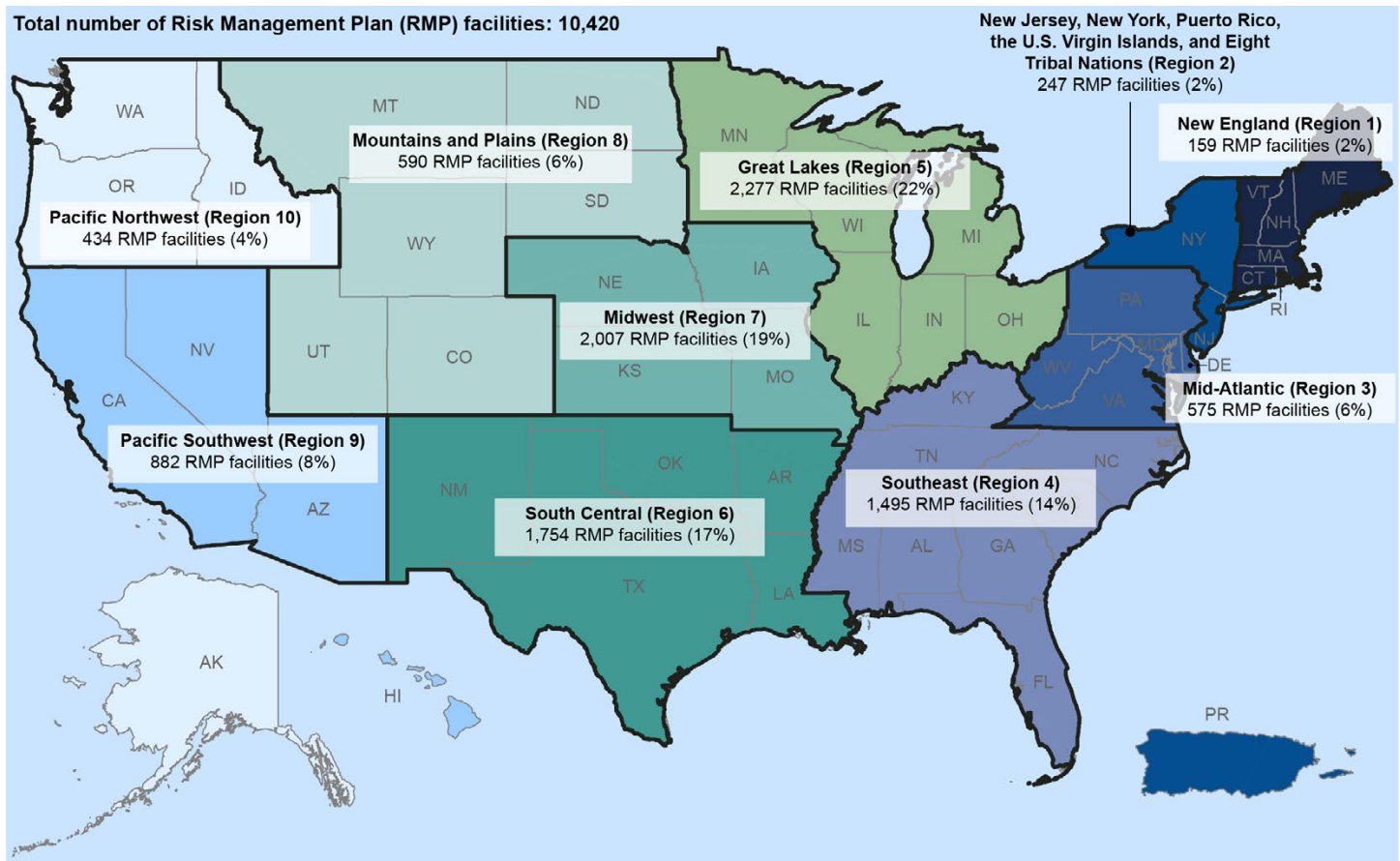
sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

## Background

### Number and Characteristics of RMP Facilities and Surrounding Communities

As of December 2020, there were over 11,000 current and active RMP facilities in EPA's RMP database. These facilities are located in communities across the country, with about 40 percent of the facilities with at least one Program 2 and 3 Process located in the Great Lakes and Midwest regions (see fig. 1).

**Figure 1: Number and Percent of RMP Facilities with at least one Program 2 and 3 Process per Environmental Protection Agency Region (December 2020)**

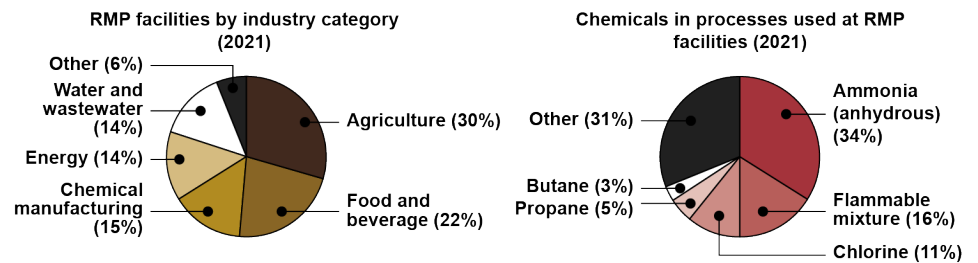


Sources: GAO analysis of Environmental Protection Agency (EPA) data and Map Resources. | GAO-21-104494

Note: This map includes current and active RMP facilities that have hazardous chemicals in processes on site that could potentially affect the public in the event of an accidental release (categorized by EPA as Program 2 and 3 processes). Current and active facilities are those facilities that submitted an RMP to EPA within 5 years of December 2020 and that have not been closed or deregistered through EPA's online database system. This map does not include one RMP facility in each of Guam and the U.S. Virgin Islands, although we include them in the counts above.

These facilities represent a range of industries and have covered processes that use a variety of toxic and flammable hazardous chemicals (see fig. 2). For example, more than a third of RMP facilities have covered processes involving anhydrous ammonia, which is used as a refrigerant and applied to land as a fertilizer. Anhydrous ammonia can irritate skin, eyes, throat, and lungs; exposure at very high concentrations can lead to lung damage and death. (See fig. 3 for an example of how an RMP facility that uses anhydrous ammonia is managing risks from natural hazards.)

**Figure 2: Characteristics of Risk Management Plan (RMP) Facilities**



Source: GAO analysis of Environmental Protection Agency data. | GAO-22-104494

**Figure 3: Kettle Cuisine, a Risk Management Plan (RMP) Facility in Massachusetts**

**Overview**

Kettle Cuisine produces soups at a facility in Lynn, Massachusetts, on the edge of Nahant Bay. Kettle Cuisine refrigerates and chills its soups using anhydrous ammonia. According to company representatives, the facility is surrounded by a mix of industrial and residential buildings, including a new 500-unit apartment building directly next door. Kettle Cuisine's facility is located in a census tract with relatively high social vulnerability, according to our analysis of the Federal Emergency Management Agency's National Risk Index.

Due to the amount of anhydrous ammonia on site, Kettle Cuisine is subject to the RMP Rule. An accidental release of anhydrous ammonia could pose risks to employees and the surrounding community. Inhaling the chemical can cause effects ranging from irritation, severe respiratory injuries, and death at high concentrations, according to the Environmental Protection Agency (EPA).

**Preparing for Natural Hazards**

According to representatives of Kettle Cuisine, some pipes and equipment containing anhydrous ammonia are located on the roof of the facility (see photo). Here, they are safe from flooding but may be vulnerable to high winds.



According to representatives, without appropriate safeguards, high winds could cause a pipe to rupture and release anhydrous ammonia. Kettle Cuisine complies with multiple industry standards and codes to safeguard equipment from accidents, including design and operations standards set by the International Institute of Ammonia Refrigeration, according to facility representatives. The exterior equipment at the facility is designed to withstand 128-mile-per-hour winds, in alignment with American Society of Mechanical Engineers standard, for instance. To further address risks from natural hazards, Kettle Cuisine had a local meteorologist conduct an analysis of the potential effects of climate change on the facility and had a structural engineer look at whether piping on the facility's roof could be vulnerable to hurricanes.

**Working with Stakeholders**

The company works closely with local stakeholders to manage risks from natural hazards. For example, Kettle Cuisine invited local emergency response officials, such as members of the fire department, and regional EPA officials to visit the facility to familiarize themselves with the layout and identify potential areas of risk. In addition, the company held a community tabletop exercise that modeled a natural disaster in the region. EPA officials, 45 officials from the local emergency response planning committee, and representatives of other local facilities participated in the exercise and identified response capabilities and deficiencies. According to a Kettle Cuisine representative, representatives of other local facilities have used this experience to improve their management of natural hazards and build relationships with local stakeholders.

Sources: GAO analysis of information from Kettle Cuisine; Kettle Cuisine (photo). | GAO-22-104494

Based on an analysis of RMP facility location data and other studies, EPA concluded in 2018 that risks from RMP facilities affect minority and low-income populations to a greater degree than these risks affect other populations. In its analysis, EPA found that communities living within a 1-mile radius of RMP facilities had 10 percent more low-income populations and 11 percent more minority populations compared to U.S. averages. Further, according to our own analysis of facility location data from EPA's RMP\*Info database and FEMA's National Risk Index's Social Vulnerability Index, 16 percent of EPA's RMP facilities are located in census tracts with communities that have high or very high social

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vulnerability.<sup>14</sup> FEMA broadly defines social vulnerability as the susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood.

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## Causes of Accidental Chemical Releases and Potential Risks from Climate Change

Accidental releases at RMP facilities can be caused by a variety of events, including equipment failure, such as a piece of equipment not functioning as designed; human error, such as a person performing an operation improperly; or a natural hazard, such as flooding. As of December 2021, RMP facilities had reported an average of approximately 190 accidental releases per year from 2010 through 2019 from all causes, according to data from EPA. The 5-year accident histories RMP facilities submit in their RMPs show a reduction on average in the frequency of accidents since the RMP Rule was finalized in 1996, according to EPA, but there continue to be serious chemical releases. For example, in 2014, a release of highly toxic methyl mercaptan occurred at an insecticide production unit at the DuPont chemical facility in La Porte, Texas, leading to the death of four workers. In 2016, incompatible chemicals were inadvertently mixed at the MGPI Processing Plant in Atchison, Kansas, resulting in a release of chlorine gas and other compounds that sent 140 individuals to area hospitals and resulted in shelter-in-place and evacuation orders for thousands of residents.

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<sup>14</sup>FEMA's National Risk Index includes a modified version of the University of South Carolina's Hazards and Vulnerability Research Institute Social Vulnerability Index that ranks communities based on 29 socioeconomic variables, such as percent of persons living in poverty, median age, and percent of the population who identify as Native American. According to FEMA, the index of social vulnerability considers the social, economic, demographic, and housing characteristics of a community that influence its ability to prepare for, respond to, cope with, recover from, and adapt to environmental hazards.

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### Accidental Chemical Release

A plume of chlorine gas and other compounds was released from the MGPI Processing Plant in Atchison, Kansas in 2019 when two incompatible chemicals were accidentally combined.



Source: U.S. Chemical Safety and Hazard Investigation Board. | GAO-22-104494

Natural hazards, including those exacerbated by climate change, may lead to accidental releases in a variety of ways. For example, flooding may inundate tanks and pipelines, leading to corrosion, severance of pipe connections, and rupture, according to FEMA. Wildfires or the threat of wildfires may lead to power outages, which could affect the safe operations of RMP facilities, according to EPA officials from one region and a stakeholder group.

Facilities face a unique challenge in managing risks of an accidental release caused by a natural hazard because such a release may occur simultaneously with the damage and disruption caused by a natural disaster.<sup>15</sup> Natural hazards can lead to disasters that cause multiple and simultaneous releases over extended areas, potentially overwhelming both on- and off-site response capabilities. For example, a facility needs to assume that emergency response resources, such as hazmat teams or firefighters, may be scarce during a natural disaster. In addition, a facility needs to take into account that blocked roads may limit access to the facility, which may also prevent community members from evacuating. Utilities may also be disrupted, leading to a loss of power needed for safeguards or safe shut-down procedures at facilities.

According to EPA officials, few accidental releases from RMP facilities have been caused by natural hazards. The agency conducted an analysis of accidents reported by RMP facilities during Hurricanes Harvey, Katrina, and Rita; the agency found two examples of accidental releases from RMP facilities, neither of which led to significant impacts, according to EPA.<sup>16</sup> EPA officials from eight regional offices could recall three accidental releases that involved natural hazards, one caused by lightning, one by extreme cold, and one by flooding.<sup>17</sup> According to information on nearly 1,500 accidents reported by RMP facilities that

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<sup>15</sup>Such events are sometimes called Natech events (Natural Hazards Triggering Technological Accidents); in this case, the technological accident is a chemical release.

<sup>16</sup>In order to be reported by a facility in its 5-year accident history, an accidental release from a covered process must result in either (1) on-site deaths, injuries, or significant property damage; or (2) known offsite deaths, injuries, property damage, environmental damage, evacuations, or sheltering in place. Based on its analysis, EPA reported that the Mississippi Phosphates plant in Pascagoula, Mississippi, experienced an ammonia release in 2005 during Hurricane Rita, but it reported no impacts from the accident. In addition, the Chevron Phillips plant in Sweeny, Texas, reported an accidental release in 2017 during Hurricane Harvey that resulted in onsite property damage.

<sup>17</sup>Officials from the other two regional offices did not provide us with this information.

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submitted RMPs to EPA in the last 5 years, a natural hazard was the initiating event in 2 percent of reportable accidental chemical releases.<sup>18</sup> In addition, facilities cited unusual weather conditions being present at the time of the accidental release in 3 percent of reported instances.

However, climate change is altering the characteristics of many extreme weather events, according to the NCA. Some of these events have already become more frequent, intense, widespread, or of longer duration; many are expected to continue to worsen, according to the NCA. In the U.S., high temperature extremes, heavy precipitation events, high-tide flooding events along the coastline, and forest fires in the western U.S. and Alaska have been and are all projected to continue increasing due to climate change, according to the NCA. According to NOAA, calendar year 2020 was the sixth consecutive year in which the U.S. experienced 10 or more weather and climate disaster events that each cost more than \$1 billion in overall damages.<sup>19</sup> From 2016 to 2020, the cost of such disasters in the U.S. averaged \$128 billion each year. (See fig. 4 for an example of how one RMP facility is working with local stakeholders to manage risks from natural disasters.)

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<sup>18</sup>Facilities reported equipment failure as the initiating event in 57 percent of accidental chemical releases, human error in 37 percent of releases, and other factors in 4 percent of releases.

<sup>19</sup>National Oceanic and Atmospheric Administration, National Centers for Environmental Information, *U.S. Billion-Dollar Weather and Climate Disasters*, accessed Sept. 9, 2021, <https://www.ncdc.noaa.gov/billions/>.

**Figure 4: Covestro, a Risk Management Plan (RMP) Facility in Texas**

**Overview**

Covestro is a chemical manufacturing facility located outside Houston in Baytown, Texas (see photo). The facility produces polymers, such as polyurethane and polycarbonate, which are used in products such as adhesives, insulation, footwear, and mattresses. Over 1,000 employees work at the facility, which is surrounded by other chemical and industrial facilities.

According to the RMP Covestro submitted to EPA in 2019, the facility uses 11 chemicals regulated under the Clean Air Act's prevention of accidental releases provision in quantities above the threshold amount. One of those chemicals is anhydrous hydrogen chloride (used to make hydrochloric acid). According to EPA, hydrochloric acid may cause eye, nose, and respiratory tract irritation and inflammation as well as pulmonary edema in humans.

**Preparing for Natural Hazards**

In recent years, Houston has experienced a number of destructive storms, including Tropical Storm Beta and Hurricane Laura in 2020 and Hurricane Harvey in 2017. Covestro representatives identified storm surge and winds from hurricanes as natural hazards that may impact the facility. According to our analysis of federal data, the Covestro facility is located in an area that currently may be impacted by storm surge from a Category 5 hurricane.

Prior to each hurricane season, Covestro creates detailed hurricane response plans for hurricanes which, for example, cover topics such as planning how the company will stage resources for emergency response and ensuring appropriately trained staff are available during and after a storm to safeguard against accidents. Covestro uses the

National Institute Management System emergency response training as well as fire response training from Texas A&M University.

**Working with Stakeholders**

According to Covestro representatives, the company works with other facilities to ensure all facilities in the region are prepared for natural hazards. For example, Covestro is a member of the East Harris County Manufacturers Association, an organization of more than 130 companies in the region. Members share best practices in areas such as crisis communication and safety processes, according to company representatives. Seventeen of the member companies, including Covestro, produced a hurricane preparedness guide that the association sends out to all member companies and plant managers in the region prior to hurricane season. In addition, the association operates an online resource that provides information to the community on incidents at chemical facilities and whether any action is required by local residents.

Covestro also works with the Greater Houston Local Emergency Planning Committee—an entity appointed by the state of Texas pursuant to the federal Emergency Planning and Community Right-to-Know Act that consists of government, business, and community members—to prepare for potential accidental releases. The committee provides information about chemicals to the community and, in the case of an accidental release, sends alerts and evacuation information to local residents. The committee also meets monthly with community and facility leaders to discuss potential concerns, including those regarding risks from extreme weather. In addition, the committee helps facilities develop emergency response plans, review these plans annually, and provide information about chemicals to the community.

Sources: GAO analysis of information from Covestro and the Greater Houston Local Emergency Planning Committee. | GAO-22-104494

Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*, states that it is the policy of the administration to deploy the full capacity of federal agencies to combat the climate crisis to implement a government-wide approach that increases resilience to the impacts of climate change, among other things.<sup>20</sup> The Executive Order also directed agencies to develop action plans with steps each agency can take to bolster adaptation and increase resilience to the impacts of climate change. In October 2021, EPA released its 2021 Climate Adaptation Action Plan.<sup>21</sup> The plan states that EPA will ensure its programs, policies, rules, enforcement, and compliance assurance activities consider current

<sup>20</sup>86 Fed. Reg. 7619, 7622 (Feb. 1, 2021).

<sup>21</sup>Environmental Protection Agency, *Climate Adaptation Action Plan* (Washington, D.C.: Oct. 2021).

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and future impacts of climate change and how those impacts will disproportionately affect certain communities. In addition, EPA's draft Strategic Plan for fiscal years 2022 to 2026 includes an objective to accelerate resilience and adaptation to climate change impacts.<sup>22</sup>

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## RMP Rule Requirements

Facilities subject to the RMP Rule must develop and implement a risk management program that includes, among other things, a prevention program and an emergency response program.<sup>23</sup> The requirements for prevention programs differ for each of the three program processes. Facilities with Program 1 processes must certify that no additional measures are necessary to prevent offsite impacts from accidental releases. For Program 2 processes, facilities must include a hazard review that identifies the hazards associated with the processes and regulated substances. It must also include the safeguards used or needed to control the hazards or prevent equipment malfunction or human error, among other things. According to a *Federal Register* notice, EPA expects that for many Program 2 processes, a facility can comply with the prevention program requirements by complying with other federal regulations, state laws, industry standards, and good engineering practices. For Program 3 processes, facilities' prevention program must include, among other things, a process hazard analysis that identifies, evaluates, and controls the hazards involved in the process. According to EPA, the Program 3 prevention program requirements are the requirements of the OSHA Process Safety Management standard, so compliance with that standard will constitute compliance with the RMP Rule.

The requirements for emergency response program requirements differ for each of the three program processes.<sup>24</sup> For Program 1 processes, facilities must coordinate emergency responses with local responders.

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<sup>22</sup>Environmental Protection Agency, *FY 2022-2026 EPA Strategic Plan Draft* (Washington, D.C.: Oct. 1, 2021).

<sup>23</sup>OLEM officials conduct periodic reviews to identify facilities that have hazardous chemicals above the threshold quantity but that have failed to file an RMP with EPA, according to OLEM officials. OLEM officials compare facilities that have filed an RMP with other federal data on chemical facilities. In addition, officials may also identify such facilities through citizen complaints and tips or while conducting inspections for other EPA regulations.

<sup>24</sup>Facilities with Program 2 and 3 processes whose employees will not respond to accidental releases do not need an emergency response program in certain circumstances, but these facilities must conduct emergency response coordination activities and exercises. 40 C.F.R. § 68.90(b).

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For Program 2 and 3 processes, facilities must coordinate response needs with local emergency planning and response organizations and exercises, and they must develop and implement an emergency response exercise program. According to EPA guidance, local emergency planning committees can be valuable resources in conducting this planning. (See app. III for examples of nonfederal entities acting to manage risks from natural hazards and climate change.)

A facility's risk management program must be described in an RMP submitted to EPA via the agency's RMP\* eSubmit system or on paper, and the RMP must include all covered processes at the facility. A facility must revise and resubmit its RMP every 5 years or when certain events occur, such as when a new regulated chemical is first present in an already-covered process above a threshold quantity.

In May 2021, in response to President Biden's Executive Order 13990 *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*, EPA announced that it was developing a regulatory proposal to revise its RMP Rule. EPA said this effort would address administration priorities outlined in the executive order, including bolstering resilience to the impacts of climate change and environmental justice. EPA plans to issue a new final rule by August 2023.<sup>25</sup>

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## Incorporating Risks from Natural Hazards and Climate Change into Risk Management Programs

An RMP facility may incorporate risks from natural hazards, including natural hazards that may be exacerbated by climate change, throughout its risk management program, according to EPA and OSHA guidance.

According to EPA and OSHA, an RMP facility should consider external hazards, such as natural hazards, as part of the hazard review or process hazard analysis conducted for its prevention program. Specifically, EPA guidance for RMP facilities with Program 2 processes recommends facilities consider "reasonably anticipated external events" as part of their hazard reviews. For example, if the facility is in an area subject to hurricanes or flooding, EPA recommends that the facility examine whether its covered processes would survive these external events without releasing a hazardous chemical. OSHA guidance used by

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<sup>25</sup>EPA rulemaking is subject to Executive Order 12866, as supplemented by Executive Order 13563, which direct federal agencies to assess both the costs and the benefits of the intended regulation and propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs. Executive Order 12866, 58 Fed. Reg. 51735 (Sept. 30, 1993); Executive Order 13563, 76 Fed. Reg. 3821 (Jan. 18, 2011).

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facilities with Program 3 processes for conducting a process hazard analysis recommends that facilities analyze “external factors” that might pose a risk to the covered processes. In addition, any changes in risks from natural hazards, including those due to climate change, should be taken into consideration when an RMP facility updates its hazard review or process hazard analysis at least once every 5 years, according to OECA officials. However, the RMP Rule does not explicitly require a facility to consider natural hazards or climate change as part of its risk management program.

Once an RMP facility has identified a natural hazard in its hazard review or process hazard analysis, it must identify actions to safeguard against risks from the hazard in order to prevent accidental releases. Safeguards may include aspects of equipment design, maintenance, operations, and training, according to EPA guidance. Facilities rely on federal, state, and local requirements and industry RAGAGEP to determine how to safeguard against hazards. For example, facilities may rely on the National Fire Protection Association Hazardous Materials Code 400, which contains safeguards for protecting hazardous materials containers and container foundations in areas subject to natural hazards such as flooding, wind, and fire, according to EPA.

Hazards identified by a facility during its hazard review or process hazard analysis, including natural hazards, should inform and focus the facility’s emergency response planning, according to EPA guidance. EPA guidance states that facilities should consider all possible causes of emergencies—including those from the surrounding environment such as flooding, temperature extremes, hurricanes, and power failures—in developing emergency response plans.

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## EPA’s Implementation of the RMP Rule

In implementing the RMP Rule, EPA provides compliance assistance to facilities, conducts inspections of facility risk management programs, and takes enforcement actions.

**Compliance assistance.** Compliance assistance for facilities may include guidance, webinars, tools, policy statements, manuals, and technical assistance. For example, EPA issued alerts for facilities highlighting the importance of taking certain safety measures and held training for agricultural ammonia facilities.

**Inspections.** EPA regional offices, as well as states and counties with delegated authority, evaluate compliance with the RMP Rule through facility inspections. In 2019, EPA employed 43 credentialed RMP

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inspectors, including both EPA employees and contractors, and it inspected approximately 2 percent (284) of RMP facilities.<sup>26</sup> EPA credentials these inspectors, offers on-going training, and provides guidance on conducting inspections.<sup>27</sup>

Inspections generally consist of both a site visit to inspect the facility and an offsite review of documents relevant to the risk management program and RMP. Among other actions, EPA instructs inspectors to determine if the facility has used an appropriate methodology to identify major hazards, if the facility emergency response plan includes specific actions to be taken in response to an accidental release, and if employees have been appropriately trained. According to OLEM, if a facility has identified a specific hazard, the inspector would look for physical evidence that the facility has appropriate safeguards in place, such as new equipment or documentation of updated emergency response plans. Inspectors determine compliance with the RMP Rule based in part on a facility's compliance with state and local codes and industry RAGAGEP, according to EPA officials. (See app. III for an example of how Florida, a state with delegated authority, implements its RMP Rule.)

**Enforcement.** Inspections may result in a variety of enforcement actions and penalties if violations are found, and EPA may require a facility to revise its RMP and correct deficiencies in its underlying risk management program. Once EPA finds that an RMP facility has violated the RMP Rule, the agency may take administrative action, such as issuing a compliance order, notice of noncompliance, or administrative penalty orders; it may also refer the matter to the Department of Justice for further action.<sup>28</sup>

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<sup>26</sup>While data are available for 2020, we did not include the data here due to the disruptions to standard inspection practices caused by Coronavirus Disease 2019 in 2020, including delaying inspections and conducting virtual inspections.

<sup>27</sup>To be credentialed as an RMP inspector, individuals must, among other things, complete a 5-day training course and online training pertaining to applicable regulations, as well as on-the-job training such as on conducting inspections at petroleum refineries and reviewing process hazards analyses. Sector- and element-specific training are also available for inspectors. EPA has also developed general guidance for RMP inspectors on conducting inspections.

<sup>28</sup>For example, in November 2021, EPA announced it would collect a penalty from a fertilizer distributor in Postville, Iowa, to resolve alleged violations of the RMP Rule, such as failure to update its hazard review and maintain operating procedures. The company stores 457,000 pounds of anhydrous ammonia on site.

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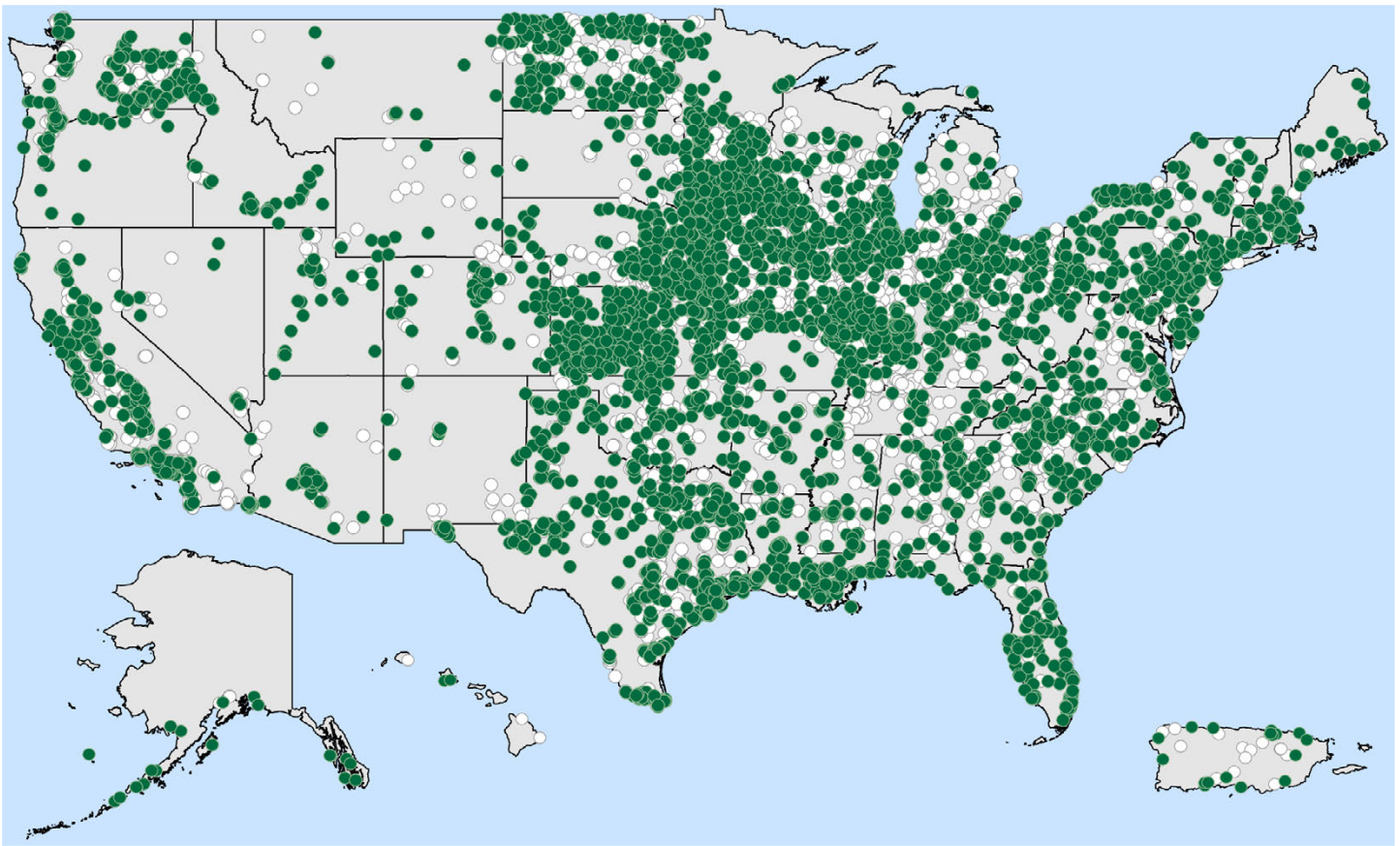
## More than 3,200 RMP Facilities of Various Types Are Located in Areas with Selected Natural Hazards That May Be Exacerbated by Climate Change

Available federal data suggest that 3,219 of 10,420 RMP facilities with at least one program 2 or 3 process, or about 31 percent, are located in areas with one or more selected natural hazards that may be exacerbated by climate change: flooding, storm surge, wildfire, and sea level rise.<sup>29</sup> The locations of these facilities are shown in figure 5; the full results of our analysis and additional information about these facilities are available in an interactive map and downloadable data file, which can be viewed at <https://www.gao.gov/products/gao-22-104494>.

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<sup>29</sup>When we refer to RMP facilities in this analysis, we are referring to current and active facilities with at least one Program 2 or 3 process whose location information we assessed to be sufficiently reliable. We excluded RMP facilities with only Program 1 processes (648 facilities) from our analysis because, by definition, a worst-case release of hazardous chemicals from these facilities would not affect the public. In addition, we excluded RMP facilities whose location information we assessed to be insufficiently reliable (376). The count includes facilities located in areas with at least one or more of the following natural hazards: 0.2 percent or higher annual chance of flooding or other flood hazards, storm surge from Category 4 or 5 hurricanes, high and very high wildfire hazard potential, and 3 feet sea level rise.

**Figure 5: More than 3,200 RMP Facilities Are Located in Areas That May Be Impacted by Flooding, Storm Surge, Wildfire, or Sea Level Rise**



**Risk Management Plan (RMP) facilities that we analyzed (10,420)**

- Located in an area with one or more of these natural hazards (3,219)
- Located in an area without one or more of these natural hazards or where hazards are unknown (7,201)

Sources: GAO analysis of Environmental Protection Agency (EPA), Federal Emergency Management Agency (FEMA), National Oceanic and Atmospheric Administration (NOAA), and U.S. Forest Service data; U.S. Census Bureau (map). | GAO-22-104494

Notes: We analyzed RMP facilities that EPA classified as current and active and that have at least one Program 2 or 3 process. These processes use hazardous chemicals that could potentially affect the public in the event of an accidental release. We excluded RMP facilities whose location information we assessed to be insufficiently reliable. We approximated the boundaries of RMP facilities with a 0.094-mile radius around the primary geographic coordinate of each facility. Depending on the actual facility boundaries, the results of our analysis may not accurately reflect the number of RMP facilities located in areas with these selected natural hazards. This map does not include one RMP facility in each of Guam and the U.S. Virgin Islands, although we include them in the counts above. The full results of our analysis, which include additional information about these RMP facilities, are available in an interactive map and downloadable data file, and can be viewed at <https://www.gao.gov/products/gao-22-104494>. This analysis is based on the most recently available data from EPA, FEMA, NOAA, and the U.S. Forest Service, as of December 2020.

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These data, however, may not fully account for the number of RMP facilities that may be impacted by these hazards for several reasons. First, data are not available for some areas. For example, NOAA's storm surge data is unavailable for the West Coast and Pacific Islands other than Hawaii and sea level rise data are not available for Alaska. Second, some facilities may be indirectly impacted by natural hazards even if they are located outside areas with these hazards, according to interviews with EPA officials, state and local emergency management officials, and officials from an RMP facility. For example, a facility may be indirectly impacted by a wildfire due to loss of power even if the facility is located outside an area that U.S. Forest Service data indicate has high or very high wildfire hazard potential. Third, we approximated the boundaries of RMP facilities with a 0.094-mile radius around their primary geographic coordinates, which may not accurately reflect their area (i.e., they may be larger or smaller). Fourth, we did not analyze site-specific information for these RMP facilities that may mitigate risks from natural hazards, such as steps specific facilities have taken to manage potential risks from selected natural hazards.

Furthermore, while our analysis identifies facilities that are located in areas with natural hazards that may be exacerbated by climate change, our analysis does not reflect when, how, or at what rate conditions in these areas may change as the climate changes. The federal data sets we used in our analysis on flooding, storm surge, and wildfire are based on current or past conditions. Further, the NCA has reported that climate change may exacerbate flooding, storm surge, wildfire, and sea level rise differentially in certain regions of the U.S. Moreover, other climate change effects may also impact RMP facilities, such as potential increases in salt water intrusion (the movement of saline water into freshwater aquifers), drought, hurricane winds, and average and extreme temperatures, according to the NCA, EPA documents, and previous GAO reports. We did not analyze these other potential effects because we did not identify relevant national-level federal data sets for these effects that fit the criteria for our analysis, such as compatibility with our mapping software or being national or near national in scope. (For more information about available federal data on these selected natural hazards, see app. II.)

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## Approximately 2,900 RMP Facilities across the Country Are Located in Areas that May Be Impacted by Flooding

We identified 2,893 RMP facilities—approximately 28 percent of RMP facilities we analyzed—located in areas that FEMA identified as having at least 0.2 percent annual chance of flooding, which FEMA considers moderate flood hazard, or other flood hazards, as of October 2020.<sup>30</sup> Of those, we identified 2,441 facilities—approximately 23 percent of RMP facilities we analyzed—located in areas that have 1 percent or higher annual chance of flooding, which FEMA considers high flood hazard. According to the NCA, heavy rainfall is increasing in intensity and frequency across the United States and is expected to continue to increase, which may lead to an increase in flooding in the future.

According to industry officials we interviewed, flooding can damage facilities—for example, rising water can dislodge tanks or lead to a loss of power—and potentially cause accidental releases of hazardous chemicals. The full results of our analysis—which include information on the RMP facilities in areas that have 1 percent or higher annual chance of flooding, 0.2 percent or higher annual chance of flooding or other flood hazards, unknown flood hazard or no data, and minimal flood hazard—are available in our interactive map, which can be viewed [here](#).

The facilities that we identified as having a 0.2 percent or higher annual chance of flooding or other flood hazards are located across the country, and they include facilities from a range of industries. In Florida, 132 of 237 RMP facilities—approximately 56 percent—are located in areas with moderate or high flood hazard, whereas in Indiana, 91 of 394 RMP facilities—approximately 23 percent—are located in such areas. We found that nearly half of facilities with the North American Industry Classification System code for “Water, Sewage, and Other Systems” are located in areas that may be impacted by moderate or high flood hazard. These types of facilities commonly use chlorine—which can cause headaches and inflame the lungs and could be deadly at higher doses if inhaled—to treat water.

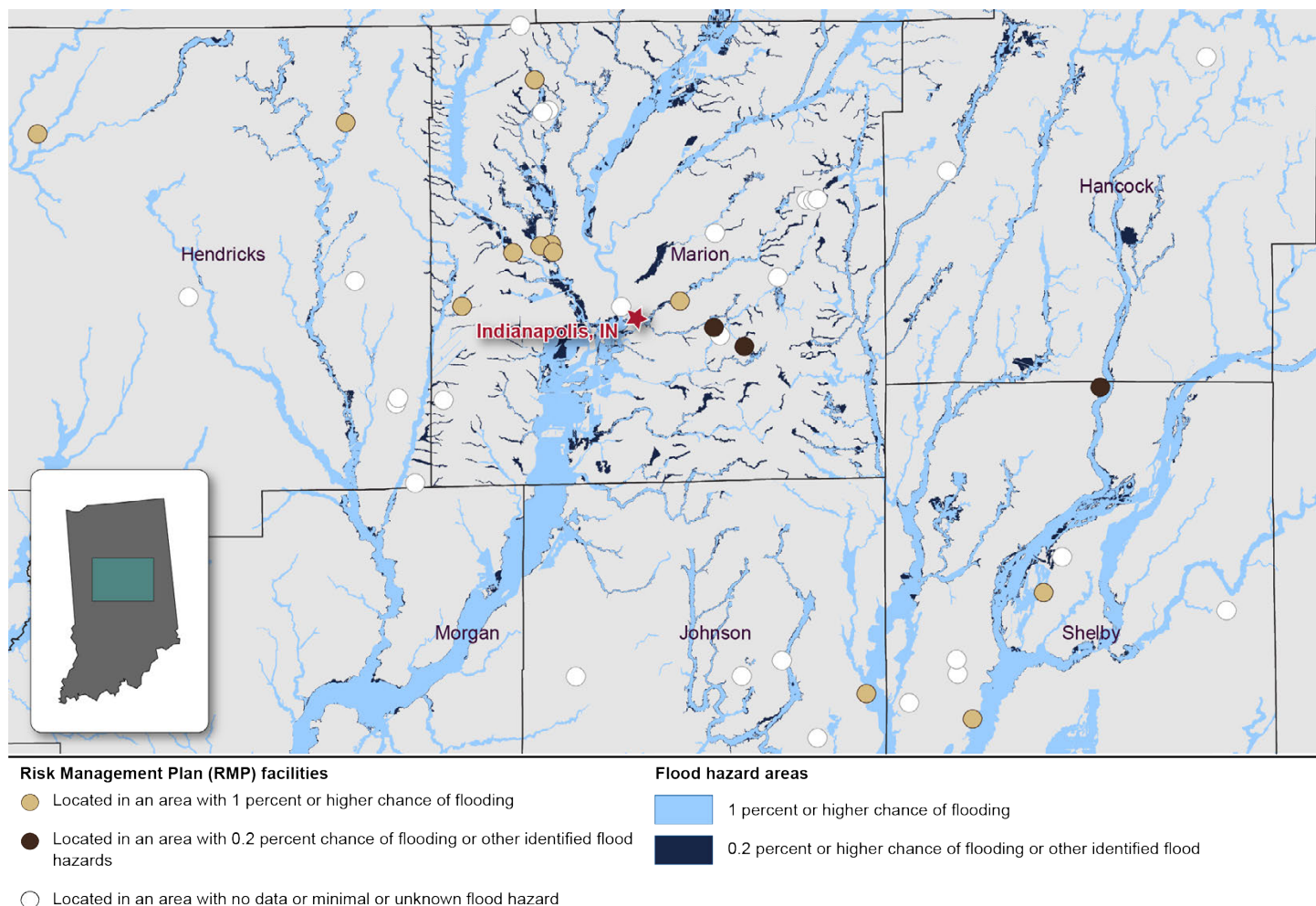
Historic flooding in the U.S. Midwest in March 2019 impacted numerous cities and towns, becoming one of the costliest U.S. inland flooding events on record, with damages estimated at over \$11 billion, according

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<sup>30</sup>Areas having other flood hazards include areas with reduced risk because of levees as well as areas with flood hazard based on future conditions, such as the future implementation of land-use plans. FEMA considers areas with at least 0.2 percent annual chance of flooding as having moderate flood hazard and those with 1 percent or higher annual chance of flooding to be Special Flood Hazard Areas (i.e., those with the highest chance of flooding).

to NOAA. RMP facilities located in areas that may be impacted by flooding in central Indiana can be seen in figure 6.

**Figure 6: Risk Management Plan (RMP) Facilities Located in Areas that May Be Impacted by Flooding in Central Indiana**



Sources: GAO analysis of Environmental Protection Agency (EPA), Federal Emergency Management Agency (FEMA) data; U.S. Census Bureau (map). | GAO-22-104494

Notes: We analyzed chemical facilities subject to EPA's RMP Rule that EPA classified as current and active and that have at least one Program 2 or 3 process whose location information were assessed to be sufficiently reliable. These processes use hazardous chemicals that could potentially affect the public in the event of an accidental release. We approximated the boundaries of these RMP facilities with a 0.094-mile radius around the primary geographic coordinate of each RMP facility. Depending on the actual facility boundaries, the results of our analysis may not accurately reflect the number of RMP facilities located in these areas. This analysis is based on EPA and FEMA data as of December 2020 and October 2020, respectively.

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Nationwide, there may be additional RMP facilities located in areas that may be impacted by flooding. This is because nearly 1,900 RMP facilities are located in areas that FEMA has not assessed for flood hazards or that we did not analyze because the data were not available in a form we could use with our mapping software.<sup>31</sup>

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### Approximately 750 RMP Facilities, Mostly in Gulf Coast States, Are Located in Areas that May Be Inundated by Storm Surge

We identified 746 RMP facilities—7 percent of RMP facilities we analyzed—in areas that may be inundated by storm surge corresponding to Category 4 or 5 hurricanes, the highest categories, based on NOAA's storm surge model that uses data as of March 2020.<sup>32</sup> Of these RMP facilities, 264 are located in areas that may be inundated by a storm surge corresponding to Category 1 hurricanes. We analyzed areas that may be inundated by storm surge corresponding to the highest possible category because, according to the NCA, a projected increase in the intensity of hurricanes in the North Atlantic could increase the probability of inundation by storm surge along most of the Atlantic and Gulf Coast states, beyond what would be projected based solely on relative sea level rise.<sup>33</sup> The full results of our analysis, which include information on the number of RMP facilities in areas that may be inundated by storm surge from Category 1 and from Category 4 or 5 hurricanes, are available in our interactive map, which can be viewed [here](#). (For an example of a facility that may be impacted by storm surge, see fig. 7 below.)

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<sup>31</sup>The distribution of RMP facilities located in areas that have not been assessed for flood hazards—or that we did not analyze because the data were not available in a form we could use with our mapping software—is not uniform across the U.S. For example, 303 of the 1,099 RMP facilities located in Texas—nearly 28 percent—are located in areas that FEMA has designated as unmapped or not updated, or they were not available in a form we could use with our mapping software. Eight of the 737 RMP facilities located in California—about 1 percent—are located in such areas. See app. I for additional information.

<sup>32</sup>According to a NOAA website, the model does not account for future conditions, such as erosion, subsidence (i.e., the sinking of an area of land), construction, or sea level rise.

<sup>33</sup>The NCA also stated that there is uncertainty in the projected increase in frequency or intensity of Atlantic hurricanes, and other factors may affect the potential for flooding from storm surge, such as changes in overall storm frequency or tracks.

**Figure 7: South Cross Bayou Advanced Water Reclamation Facility, a Risk Management Plan (RMP) Facility in Florida**

**Overview**

The South Cross Bayou Advanced Water Reclamation Facility is the largest wastewater treatment facility in Pinellas County, near Tampa Bay, Florida (see photo). The facility treats an average of 23 million gallons of wastewater a day and serves over 220,000 residential and commercial customers. The community surrounding the facility is residential and located in a census tract with relatively high social vulnerability, according to our analysis of data from the Federal Emergency Management Agency’s National Risk Index.



The facility uses chlorine and sulfur dioxide, in quantities above the threshold amount listed in the RMP Rule, to treat wastewater. The chemicals are stored in large cylinders on site. According to Environmental Protection Agency (EPA), the effects of exposure to chlorine gas can include bronchitis, asthma, swelling of the lungs, headaches, heart disease, and meningitis. Acute exposure can cause death. Also according to EPA, short-term exposure to sulfur dioxide can harm the respiratory system and make breathing difficult.

EPA has delegated implementation and enforcement of the RMP Rule to the state of Florida, with the Florida Division of Emergency Management overseeing the implementation.

**Preparing for Natural Hazards**

Representatives from the South Cross Bayou facility told us that several natural hazards may impact their facility, including high winds and storm

surge from hurricanes. According to our analysis of federal data, the South Cross Bayou facility is located in an area that currently may be impacted by storm surge from a Category 1 to 5 hurricane and sea level rise of 0, 1, or 3 feet.

Chemical storage areas at the facility are surrounded by a reinforced concrete structure capable of withstanding hurricane force winds, according to facility representatives. With enough warning, the facility can prepare the chemical storage cylinders, so even structural damage would not cause a significant release.

**Working with Stakeholders**

The South Cross Bayou facility uses training, data analysis, and coordination with local emergency management to manage risks from natural hazards, among other activities. For example, the facility relies on emergency response plans developed by the County Emergency Response Coordinator that include training for responding to potential hurricane scenarios. The facility works with state and local entities that use data from National Oceanic and Atmospheric Administration and the National Hurricane Center to model storm surge risks and reevaluates flooding data every five years.

The facility also coordinates with the Tampa Bay Local Emergency Planning Committee (LEPC). The LEPC created a disaster planning guide for facilities that provides guidance on preparing for hazards, including hurricanes and floods. The LEPC also conducts worst-case scenario planning with facilities to prepare for accidental releases. In addition, LEPC is organizing a resiliency planning program to identify and manage risks related to sea level rise and climate change.

According to officials, Pinellas County is beginning to identify changes in floodplains in the region with the goal of providing information to facilities, so they can manage risks.

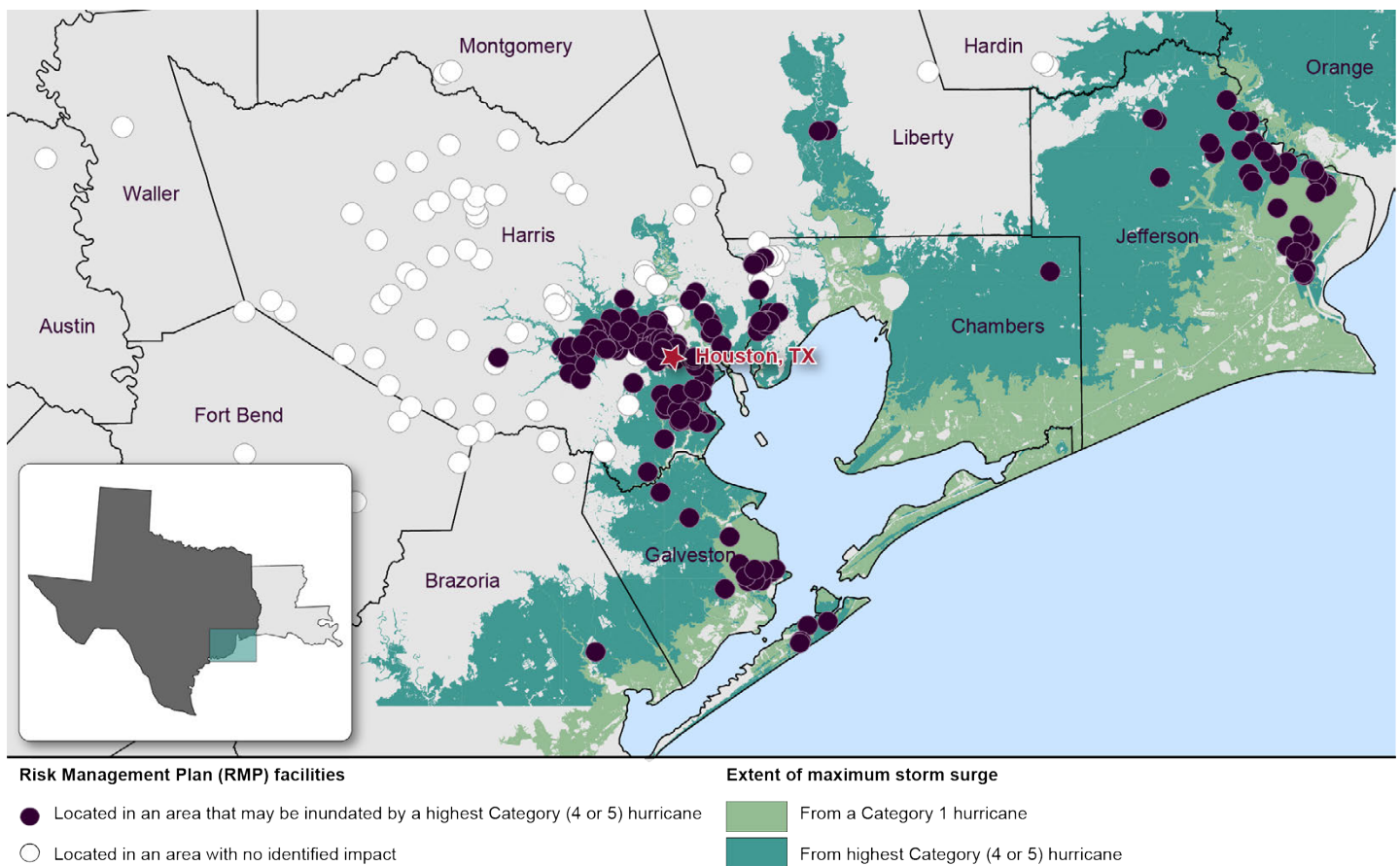
Sources: GAO analysis of information from the South Cross Bayou Advanced Water Reclamation Facility and the Tampa Bay Local Emergency Planning Committee; Pinellas County Government (photo). | GAO-22-104494

The facilities that we identified in areas that may be inundated by storm surge corresponding to Category 4 or 5 hurricanes are concentrated along the Gulf Coast, and they include facilities from a range of industries. Over 70 percent of RMP facilities that are located in areas that may be inundated by storm surge corresponding to Category 4 or 5 hurricanes—555 of 746—are located in Texas, Louisiana, Florida, and Mississippi, with the majority located in Texas. Nearly 25 percent of RMP facilities with North American Industry Classification System code designations for “Petroleum and Coal Products Manufacturing” or “Basic Chemical Manufacturing” are located in areas that may be inundated by storm surge corresponding to Category 4 or 5 hurricanes. Of the 213 facilities with these two North American Industry Classification System code designations located in areas that may be inundated by storm surge

corresponding to Category 4 or 5 hurricanes, approximately 55 percent (118) are located in Texas.

Several recent hurricanes have impacted states along the Gulf Coast. For example, in 2020, Hurricane Laura made landfall in Louisiana, costing an estimated \$19 billion, according to NOAA. In 2017, Hurricane Harvey produced approximately 19 trillion gallons of rain over Texas, according to EPA, resulting in damage to several drinking water and wastewater facilities. Figure 8 shows RMP facilities near Houston, Texas, that are located in areas that may be inundated by storm surge.

**Figure 8: RMP Facilities Located in Areas That May Be Inundated by Storm Surge near Houston, Texas**



Sources: GAO analysis of Environmental Protection Agency (EPA), National Oceanic and Atmospheric Administration (NOAA), and U.S. Forest Service data; U.S. Census Bureau (map). | GAO-22-104494

Note: We analyzed chemical facilities subject to EPA's RMP Rule that EPA classified as current and active and that have at least one Program 2 or 3 process whose location information we assessed to be sufficiently reliable. These processes use hazardous chemicals that could potentially affect the public in the event of an accidental release. We approximated the boundaries of these RMP facilities

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with a 0.094-mile radius around the primary geographic coordinate of each RMP facility. Depending on the actual facility boundaries, the results of our analysis may not accurately reflect the number of RMP facilities located in these areas. This analysis is based on EPA and NOAA data as of December 2020.

Nationwide, the number of RMP facilities in areas that may be impacted by storm surge may be higher because, as of December 2020, NOAA has not modeled areas along the West Coast or Pacific islands other than Hawaii.<sup>34</sup> Further, our analysis did not include other potential impacts from hurricanes, such as rainfall.

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### Approximately 350 RMP Facilities Are Located in Areas That May Be Impacted by Wildfire

We identified 357 RMP facilities—approximately 3 percent of RMP facilities we analyzed—located in areas with high or very high wildfire hazard potential, based on a U.S. Forest Service model as of December 2020.<sup>35</sup> Areas with higher wildfire hazard potential are more likely to burn with a higher intensity, according to the U.S. Forest Service. The full results of our analysis on the number of RMP facilities in areas with high or very high wildfire hazard potential are available in our interactive map, which can be viewed [here](#).

While approximately 30 percent of facilities located in areas with high or very high wildfire hazard potential are located in Florida, Georgia, and South Carolina, approximately 17 percent of facilities in these areas are located in the western U.S., where the NCA anticipates increased frequency and intensity of wildfire. According to the NCA, the incidence of large forest fires in the western U.S. and Alaska has increased since the early 1980s and is projected to further increase in these regions as the climate changes. In addition, according to the NCA, modeling studies suggest that the southeastern U.S. will experience increased fire risk and a longer fire season. Although projections vary by state and region, on average, the annual area burned by lightning-ignited wildfire is expected to increase by at least 30 percent by 2060. However, the NCA noted that analyses regarding the effect of climate change on the incidence of

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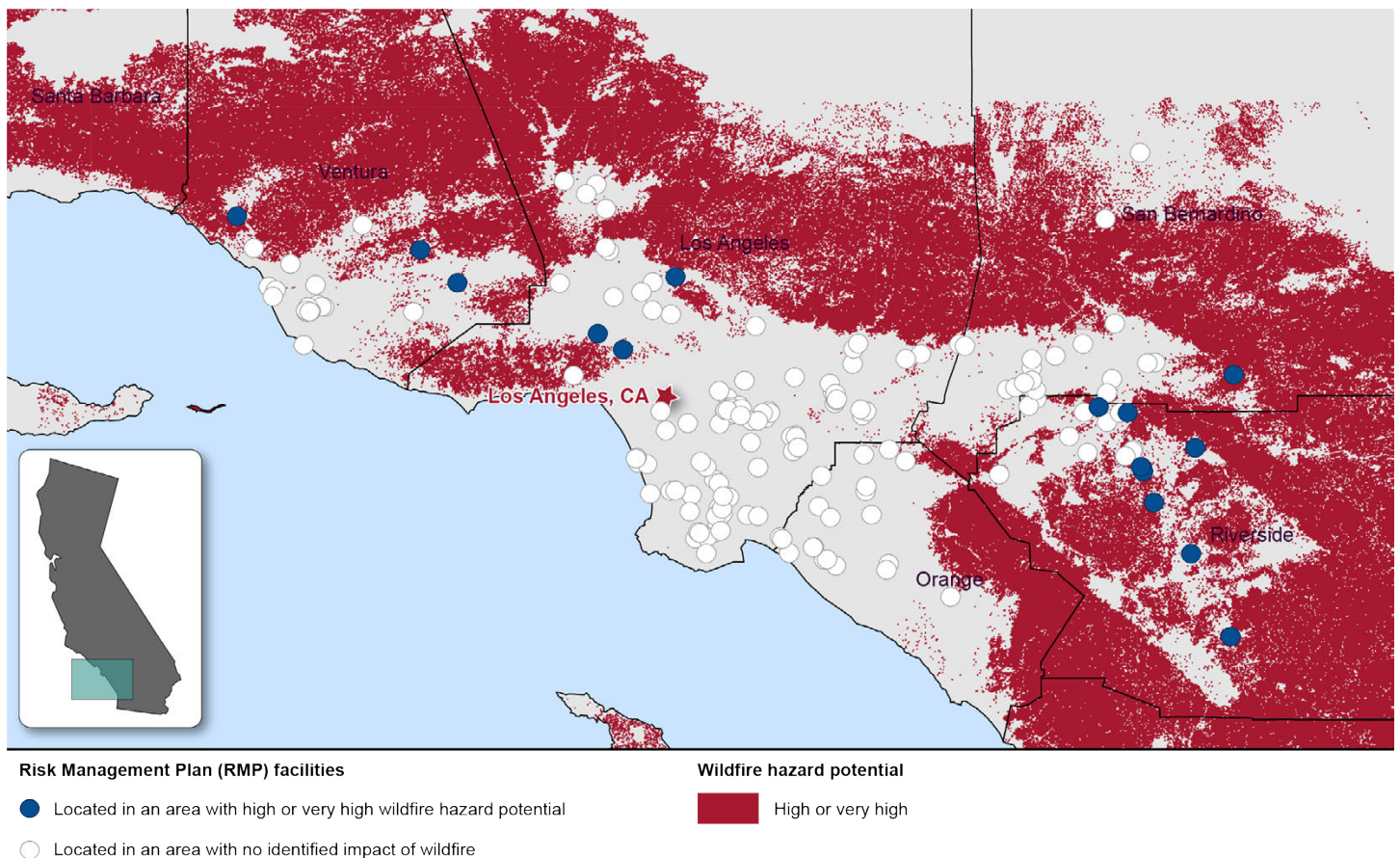
<sup>34</sup>Our analysis may not accurately account for storm surge hazards in areas that are protected by levees. NOAA officials told us that storm surge in these areas is difficult to model.

<sup>35</sup>For this analysis, we combined the high and very high wildfire hazard potential categories; we did not identify the number of facilities in each of these categories separately. We did not analyze areas that have moderate or lower wildfire hazard potential. Those with moderate or lower wildfire hazard potential are less likely to experience high-intensity wildfire, and the extent to which wildfire hazard potential may change in the future is unknown. However, U.S. Forest Service officials stated that areas of moderate or lower wildfire hazard potential can experience impacts from wildfire under certain conditions.

wildfire in other parts of the U.S. are not readily available, so it is unknown how climate change will affect the number of RMP facilities in areas with high or very high wildfire hazard potential nationwide.

In 2018, the California Camp Fire, which at that time was the most destructive and deadly wildfire on record in California, burned approximately 153,000 acres, caused 85 fatalities, and destroyed approximately 18,800 structures in northern California, according to the U.S. Forest Service. We identified 61 RMP facilities in California located in areas with high or very high wildfire hazard potential. Figure 9 shows such facilities in the Los Angeles area.

**Figure 9: RMP Facilities Located in Areas That May Be Impacted by Wildfire near Los Angeles, California**



Source: GAO analysis of Environmental Protection Agency (EPA) and U.S. Forest Service data; U.S. Census Bureau (map). | GAO-22-104494

Notes: We analyzed chemical facilities subject to EPA’s RMP Rule that EPA classified as current and active and that have at least one Program 2 or 3 process whose location information were assessed to be sufficiently reliable. These processes use hazardous chemicals that could potentially affect the

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public in the event of an accidental release. We approximated the boundaries of these RMP facilities with a 0.094-mile radius around the primary geographic coordinate of each RMP facility. Depending on the actual facility boundaries, the results of our analysis may not accurately reflect the number of RMP facilities located in these areas. This analysis is based on EPA and U.S. Forest Service data as of December 2020.

Nationwide, the number of RMP facilities in areas that have high or very high wildfire hazard potential may be higher than 357 because wildfire hazard data are not available in some areas of the U.S. (i.e., there are no data for Pacific islands other than Hawaii, Puerto Rico, or the U.S. Virgin Islands). In addition, according to EPA Region 9 officials and state and county officials in California, facilities not directly impacted by wildfire can be indirectly impacted by smoke and loss of power from nearby wildfire. For example, state and county officials in California said that facilities in California can lose power due to destruction of infrastructure from a nearby wildfire or because power is purposefully shut down in the area to slow the spread of a wildfire. (See app. III for information about the California Accident Release Prevention Program, a state-level program required by state law that inspects and provides compliance assistance to facilities in the state of California.)

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### More than 150 RMP Facilities, Mostly in Gulf Coast States, Are Located in Areas that May Be Inundated By 1 Foot of Sea Level Rise

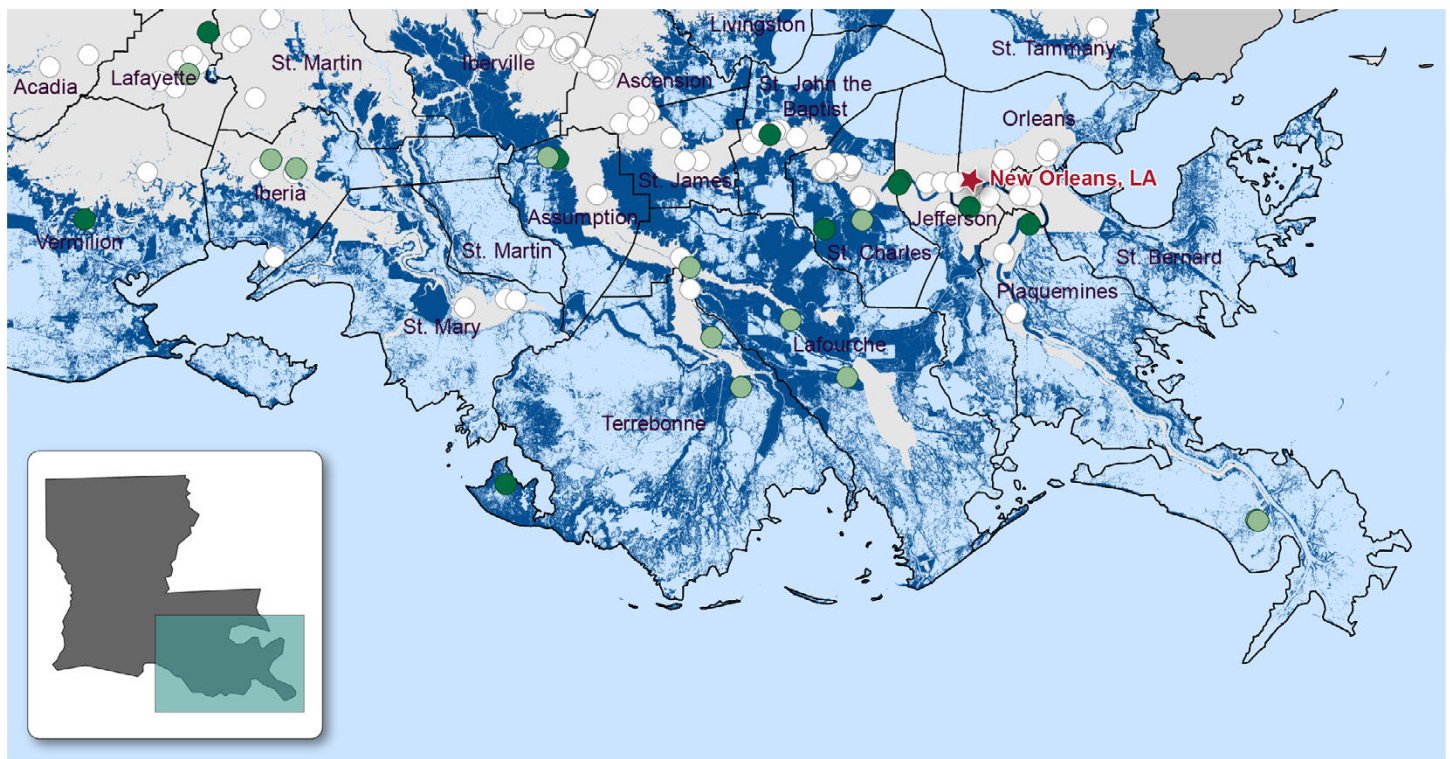
We identified 155 RMP facilities—less than 2 percent of RMP facilities we analyzed—located in areas that may be inundated if sea levels rose by 1 foot, based on our analysis of NOAA sea level rise data from July 2020. Of those facilities, 133 are located in areas that may currently be inundated at a typical high tide.<sup>36</sup> Our analysis shows that if sea levels rose by a total of 3 feet, 208 RMP facilities may be inundated, which includes the 155 RMP facilities located in areas that may be inundated if sea levels rose by 1 foot. According to the NCA, global average sea levels are very likely to continue to rise by at least several inches in the next 13 years and by 1.0 to 4.3 feet by 2100. In addition, over the next two to three decades, storm surges and high tides could combine with sea level rise and land subsidence to further increase inundation, according to the NCA. The full results of our analysis, which include information on the number of RMP facilities in areas that may already be inundated at high tide and that would be inundated if sea levels rise by 1 foot and 3 feet, are available in our interactive map, which can be viewed at [here](#).

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<sup>36</sup>These RMP facilities are located in areas at 0-foot sea level rise, which is equivalent to the water level at the average of the highest of the two daily tides from 1983 to 2001, according to NOAA.

Approximately 41 percent of RMP facilities that would be inundated by a sea level rise of 1 foot are located in Texas, Louisiana, Florida, and Mississippi. Parts of this region have already experienced land loss because of sea level rise and coastal flooding, according to the NCA. The locations of facilities near New Orleans, Louisiana, a region that is experiencing sea level rise, are shown in figure 10.

**Figure 10: RMP Facilities Located in Areas That May Be Inundated by Sea Level Rise near New Orleans, Louisiana**



**Risk Management Plan (RMP) facilities**

- Located in an area inundated at 0 foot (ft.) of sea level rise<sup>a</sup>
- Located in an area inundated at 1 ft. to 3 ft. of sea level rise
- Located in an area with no identified impact up to 3 ft. of sea level rise

**Extent of sea level rise**

- 0 ft.
- 1 ft. to 3 ft.

Sources: GAO analysis of Environmental Protection Agency (EPA) and National Oceanic and Atmospheric Administration (NOAA) data; U.S. Census Bureau (map). | GAO-22-104494

Notes: We analyzed chemical facilities subject to EPA’s RMP Rule that EPA classified as current and active and that have at least one Program 2 or 3 process whose location information were assessed to be sufficiently reliable. These processes use hazardous chemicals that could potentially affect the public in the event of an accidental release. We approximated the boundaries of these RMP facilities with a 0.094-mile radius around the primary geographic coordinate of each RMP facility. Depending on the actual facility boundaries, the results of our analysis may not accurately reflect the number of RMP facilities located in these areas. This analysis is based on EPA and NOAA data as of December 2020 and July 2020, respectively.

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<sup>a</sup>A 0 ft. sea level rise means an area may already be inundated at high tide.

Nationally, the number of RMP facilities that may be inundated by various heights of sea level rise may vary from the results of our analysis because different parts of the U.S. may experience higher or lower sea level rise than the global average. For example, the NCA states that sea level rise will be higher than the global average on the East and Gulf Coasts of the U.S. and lower than the global average in most of the Pacific Northwest and in Alaska.

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## RMP Facilities Face Various Challenges in Managing Risks from Natural Hazards and Climate Change, and EPA Has Opportunities to Address These Challenges

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### RMP Facilities Face Challenges Such as Insufficient Information and Direction Regarding Risks

EPA, OSHA, and Chemical Safety Board officials and representatives of stakeholder groups we interviewed identified a variety of challenges that RMP facilities face in managing risks from natural hazards and climate change through their risk management programs. These challenges include insufficient information about risks from natural hazards and climate change, insufficient direction on how to incorporate risks from natural hazards and climate change into risk management programs, and the cost of managing these risks. These challenges are particularly difficult for smaller facilities.

**Insufficient information about risks.** One challenge RMP facilities face in managing risks from natural hazards and climate change is that they may not have sufficient information about the risks they face, according to some officials and stakeholder groups. There are a variety of reasons why RMP facilities may not have sufficient information. For example, according to officials and stakeholder groups with whom we spoke, the information may not exist or be out of date, facilities may be unaware the

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information exists, or facilities may be unable to understand the information. Relevant models may not exist on how risks from natural hazards may be increasing due to climate change, for instance, according to a stakeholder group. A facility may be unaware of FEMA's flood maps, according to EPA officials in one region. Because climate change is increasing the frequency and severity of extreme precipitation events in some parts of the country, FEMA's 100- and 500-year flood zone maps may not represent current and future flood hazards, presenting a challenge to facilities in managing these risks, according to OSHA officials, EPA officials from one region, and a stakeholder group.

We reported on similar challenges with climate information in prior work. In November 2015, we reported that decision makers may be unaware that climate information exists or be unable to use what is available. Most decision makers need a basic set of information to understand and make choices about how to adapt to climate change, according to a 2010 National Research Council report on making informed decisions about climate change and our October 2009 report on climate adaptation.<sup>37</sup> This includes information about observed climate conditions, impacts, and vulnerabilities; and projections of what climate change may mean for local areas. We found that existing federal efforts do not fully meet the climate information needs of federal, state, local, and private decision makers.<sup>38</sup>

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<sup>37</sup>National Research Council, *America's Climate Choices: Panel on Informing Effective Decisions and Actions Related to Climate Change, Informing an Effective Response to Climate Change* (Washington, D.C.: 2010); and GAO, *Climate Change Adaptation: Strategic Federal Planning Could Help Government Officials Make More Informed Decisions*, [GAO-10-113](#) (Washington, D.C.: Oct. 7, 2009).

<sup>38</sup>In November 2015, we recommended that the Executive Office of the President designate a federal entity to develop a set of authoritative climate change projections and observations and create a national climate information system with defined roles for federal and nonfederal entities. As of December 2020, the Executive Office of the President had not taken action in response to this recommendation. GAO, *Climate Information: A National System Could Help Federal, State, Local, and Private Sector Decision Makers Use Climate Information*, [GAO-16-37](#) (Washington, D.C.: Nov. 23, 2015).

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### Managing Flood Risks: The Chemical Safety Board Report on the 2017 Arkema Fire

In May 2018, the Chemical Safety Board reported on its investigation of a fire at the Arkema plant in Crosby, Texas. In 2017, flooding from Hurricane Harvey caused the plant to lose power, backup power, and critical organic peroxide refrigeration systems, leading the organic peroxide to decompose and burn. Officials established a 1.5-mile evacuation zone around the facility. Although there were two chemicals regulated under the Clean Air Act's prevention of accidental releases provision on site, these chemicals were not released in the incident, according to the Board and Arkema representatives.

During its investigation, the Board found that there is a lack of robust flood risk guidance available to help prepare facilities for extreme weather events. Federal safety regulations also lack specific requirements or detailed guidance on how facilities should evaluate and address such events.

In response to a recommendation from the Chemical Safety Board, in 2019, the Center for Chemical Process Safety released guidance, titled *Assessment and Planning for Natural Disasters*, to help facilities assess risks from potential extreme weather events. The guidance does not mention climate change.

Sources: Chemical Safety Board, *Organic Peroxide Decomposition, Release, and Fire at Arkema Crosby Following Hurricane Harvey Flooding 2017-01-1-TX*, (Washington, D.C.: May 2018); Center for Chemical Process Safety, *CCPS Monograph: Assessment of and Planning for Natural Hazards* (2019). | GAO-22-104494

**Insufficient direction on incorporating risks.** Another challenge facilities face is insufficient direction on how to incorporate increasing risks from natural hazards and climate change into their risk management programs, according to EPA officials from four regions, Chemical Safety Board, and four stakeholder groups. For example, according to one stakeholder group, there is no information for facilities on how to prepare for events that have never been experienced before, such as those caused by climate change. In 2018, the Chemical Safety Board found that chemical facilities lacked sufficient industry guidance to effectively prepare for natural hazards such as flooding. Based on our review of EPA documents, we found no evidence that EPA has developed direction for RMP facilities on incorporating risks from climate change into facility risk management programs. Moreover, we found no EPA guidance materials for regulated facilities that mentioned climate change.

The RMP Rule does not explicitly require a facility to consider natural hazards or climate change as part of its risk management program. However, EPA guidance says that an RMP facility should consider external hazards, such as natural hazards, as part of the hazards review or process hazard analysis conducted for its prevention program. In addition, according to EPA officials, risks from climate change are implicitly included in RAGAGEP among external risks that may impact facilities, even if climate change is not mentioned explicitly. Some industry association technical committees that develop and update RAGAGEP are currently strengthening relevant areas of codes that deal with natural hazards, for example, even if they do not mention climate change, according to these officials. When there is new information on risks from natural hazards, such as if flood risks have already increased due to climate change, industry associations will update the RAGAGEP, EPA officials told us. EPA officials from some regional offices told us that RAGAGEP include information on managing risks from extreme weather, but EPA officials from seven regional offices told us that they were unaware of any industry RAGAGEP that discuss climate change.<sup>39</sup> Officials from one region told us that industry associations are slow to change standards and codes and often only update them following events such as floods and fires. Without industry standards on these increasing risks, even if a facility is aware of the risks, the facility may not take steps to prepare for them, officials from one region told us.

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<sup>39</sup>Three EPA regional offices did not respond to our question about whether RAGAGEP include information on risks from climate change.

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**Cost of managing risks.** Another challenge for facilities in managing risks from natural hazards and climate change is the cost of managing these risks, according to some EPA officials and stakeholder groups. EPA officials from two regions and two stakeholder groups told us that assessing risks from natural hazards and climate change can be costly. Officials from one EPA region said that obtaining the information needed to better assess the risks requires money and resources. Addressing the risks may also be expensive, according to EPA officials from headquarters and a regional office and four stakeholder groups. Retrofitting or changing facility operations to safeguard against increasing risks from natural hazards can require significant funding, according to EPA officials from one region. The extent to which a facility addresses risks may come down to the resources the facility has on hand, according to EPA officials from one region, and facilities may lack the resources they need to address the hazards they identify in their hazard review.

**Challenges facing smaller facilities.** The challenges described above are particularly difficult for smaller facilities, according to officials from OSHA and seven EPA regions and three stakeholder groups. According to EPA officials from one region, smaller facilities may not have the resources required to join industry groups, which can provide information on risks to their members, or hire a third party to conduct a process hazard analysis, according to a stakeholder group. According to officials from another EPA region, smaller facilities also tend not to be aware of information resources the EPA regional office provides to facilities.

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**EPA Has Opportunities to Address Challenges Faced by RMP Facilities, Such as Providing Additional Compliance Assistance and Clarifying Requirements**

We identified a number of opportunities for EPA to help address the challenges facilities face in managing risks from natural hazards and climate change through a review of documents and interviews with EPA, OSHA, and Chemical Safety Board officials; representatives of stakeholder groups; and our own analysis. These opportunities include providing additional compliance assistance to facilities and clarifying requirements, including providing direction to RMP facilities, on how to incorporate risks from natural hazards and climate change into risk management programs.

**Additional compliance assistance.** One opportunity for EPA to support RMP facilities in managing risks from natural hazards and climate change would be to provide facilities with additional compliance assistance related to risks from natural hazards and climate change, according to officials from OSHA and four EPA regions and five stakeholder groups.

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EPA has provided some compliance assistance to facilities that highlights risks from natural hazards and available information on incorporating natural hazards into risk management programs. For example, in 2018, EPA Region 2 gave a presentation to facilities on preparing for and responding to natural disasters, and in 2020, the region shared a safety alert and related video on preparing for extreme weather events that was developed by the Chemical Safety Board.<sup>40</sup> However, we found that EPA compliance assistance to RMP facilities generally did not include information related to risks from natural hazards, and none included information on climate change.

Some officials and stakeholder groups identified opportunities for EPA to provide additional compliance assistance to facilities. A stakeholder group suggested that EPA regional offices provide facilities with mapping data on natural hazards. Officials from an EPA region suggested that EPA officials in the region provide facilities with information about risks from climate change through presentations or pamphlets. Officials from three EPA regions and one stakeholder group said that EPA could provide additional training for facilities, including on how to assess and react to these risks. (See app. IV for examples of how some nonfederal entities are providing compliance assistance to RMP facilities.)

Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*, states that it is the policy of the administration to deploy the full capacity of federal agencies to combat the climate crisis to implement a government-wide approach that increases resilience to the impacts of climate change, among other things. According to GAO's Disaster Resilience Framework, one way federal entities can facilitate and promote resilience to natural disasters is by sharing information with decision makers to help them manage risks from natural hazards and climate change.<sup>41</sup> Relevant information regarding natural hazards and climate change may be available from a variety of sources, including federal

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<sup>40</sup>U.S. Chemical Safety and Hazard Investigation Board, *Extreme Weather Safety Message* (June 23, 2020); and *2020 Hurricane Season: Guidance for Chemical Plants During Extreme Weather Events* (Washington, D.C.: June 23, 2020).

<sup>41</sup>In October 2019, we issued a Disaster Resilience Framework to serve as a guide for analysis of federal action to facilitate and promote resilience to natural disasters. The principles in this framework can help identify opportunities to enhance such federal efforts. GAO, *Disaster Resilience Framework: Principles for Analyzing Federal Efforts to Facilitate and Promote Resilience to Natural Disasters*, [GAO-20-100SP](#) (Washington, D.C.: Oct. 2019).

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agencies, industry associations, local governments, and academic institutions.<sup>42</sup>

EPA's 2021 Climate Adaptation Action Plan states that the agency will support businesses, as well as other entities, by producing and delivering the training, tools, technical support, data, and information they need to adapt and increase resilience to climate change. The Office of Policy and EPA's Senior Climate Change Adaptation Official is responsible for the execution of this Plan. The Office of Research and Development is the agency lead in identifying and addressing the science needs of program and regional offices, including information on climate change risks, vulnerabilities, and the latest data, models, and tools. By providing compliance assistance related to risks from natural hazards and climate change to RMP facilities, EPA could be better assured that facilities have the information they need to appropriately manage these risks. Such assistance may be particularly useful to smaller RMP facilities that may not have the resources needed to identify and access this information on their own.

Based on our analysis, we found that EPA has an opportunity to tailor its compliance assistance for RMP facilities to ensure that facilities have the specific information they need. We found that EPA headquarters does not have information on common deficiencies found by RMP inspectors during inspections of RMP facilities. According to EPA officials, EPA's enforcement and compliance database includes information on facilities' violations and enforcement actions, but it does not capture details on specific deficiencies, such as whether a facility did not consider risks from natural hazards in its process hazard analysis. However, two regions

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<sup>42</sup>Potential relevant sources of information on natural hazards may include NOAA's Hurricane Center and sea level rise data, FEMA flood maps, American Society for Civil Engineers wind prediction maps, consultants, and insurance companies, according to the Center for Chemical Process Safety. NOAA's Heat Stress Index and the U.S. Geological Survey's National Water Information System are other potential federal sources of information, for example. Officials from Region 9 told us that facilities may also use county or city flood maps or guidance to identify hazards. EPA guidance documents also point to education institutions as a source of information. For example, the University of Washington Climate Impacts Group and Department of Atmospheric Sciences developed a regional climate model to project future flooding in King County rivers with funding from King County Flood Control District and the Department of Homeland Security, among others. Texas A&M University is in the process of modeling and analyzing the vulnerability of petrochemical facilities along Galveston Bay to flood-induced chemical spills and releases, with funding from the National Academy of Sciences, Engineering, and Medicine.

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informally identified common deficiencies and found that some facilities were not appropriately identifying natural hazards. One region then highlighted this fact in a webinar for facilities.

According to GAO internal controls, management should design an information system to meet information requirements and respond to the entity's objectives and risks. The objective of the RMP Rule is to prevent or minimize the consequences of accidental releases of hazardous chemicals. By designing an information system to track common deficiencies found during inspections, including any related to natural hazards and climate change, EPA could more effectively target compliance assistance to ensure that facilities have the information they need to meet the RMP Rule's objective.<sup>43</sup>

**Direction on incorporating risks from natural hazards and climate change.** EPA officials from OECA and four regional offices, OSHA officials, and seven stakeholder groups suggested that EPA could provide direction to facilities on how to incorporate natural hazards and climate change into risk management programs. For example, one official said that EPA could develop new guidance to describe how to include climate change in hazard reviews and process hazard analysis. EPA officials from another region suggested that EPA create guidance on developing appropriate emergency response plans. A stakeholder group said that EPA could clarify how preparing for climate change fits in the current regulation. Representatives of the Center for Chemical Process Safety suggested that EPA could build on the Center's guidance with additional practical guidance and training for facilities. In addition, OSHA officials suggested that relevant case studies on natural hazards and climate change would be beneficial to facilities in risk management planning.

Some stakeholder groups have suggested that EPA should explicitly require facilities to incorporate natural hazards and climate change into their risk management programs. For example, one stakeholder group recommended that the RMP Rule require facilities to assess their risks of an accidental release caused by a natural hazard, including the vulnerability of emergency response resources to these events. Another

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<sup>43</sup>According to EPA's draft strategic plan for fiscal years 2022 to 2026, effective compliance monitoring and enforcement increasingly depends on effective use of data management and data science capabilities. The draft plan states that the agency will improve its collection and management of compliance monitoring information through modernization of existing data systems and creation of new tools to streamline the compliance monitoring process.

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stakeholder group stated that the RMP Rule should require facilities to consider climate change when developing process hazard analyses, RMPs, and natural disaster preparedness protocols.

According to the Chemical Safety Board, rigorous advance planning for extreme weather is critical for facilities to react successfully to emergencies. This requires equipment and process design as well as training and routine practice. The European Commission Joint Research Centre reports that companies fare better during extreme weather events if they have implemented risk reduction measures and if they design specifically for extreme weather.

EPA's 2021 Climate Adaptation Action Plan states that EPA will ensure its programs, policies, rules, enforcement and compliance assurance activities, and operations consider current and future impacts of climate change. To build resilience to natural disasters, GAO's Disaster Resilience Framework recommends that the federal government assist decision makers by sharing information that would help them understand their disaster risk and by conducting analysis and planning to help them take resilience actions.<sup>44</sup> The framework also recommends coordinating across government programs and leveraging the expertise of nonfederal partners to make consistent policies and procedures. By issuing regulations, guidance, or both, as appropriate, to clarify requirements and provide RMP facilities with direction on how to incorporate these risks into their risk management programs, EPA could better ensure that RMP facilities are managing risks from all relevant hazards, including natural hazards and climate change. When developing any such regulation, EPA should, pursuant to relevant executive orders, conduct a cost-benefit analysis. When developing such direction, EPA would benefit from leveraging the expertise of stakeholders, including OSHA, industry officials, and state and local emergency response organizations, as appropriate.

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<sup>44</sup>[GAO-20-100SP](#).

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## EPA Does Not Consistently Assess Management of Risks from Natural Hazards and Climate Change, and Faces Challenges Such as Insufficient Guidance

EPA's RMP inspectors vary in the extent to which they assess how facilities manage risks from natural hazards and climate change in their risk management programs. Inspectors face several challenges, including insufficient guidance, which make it difficult to consistently assess how facilities are managing these risks. Officials and stakeholders have identified opportunities to address some of these challenges. EPA can only assess how facilities are managing risks at the facilities that it inspects; however, we found that EPA does not consider natural hazards or climate change, or the relative social vulnerability of surrounding communities, when it selects facilities for inspection.

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## RMP Inspectors Vary in the Extent to Which They Assess How Facilities Manage Risks from Natural Hazards and Climate Change

RMP inspectors in EPA regional offices vary in the extent to which they assess whether facilities have identified natural hazards. EPA officials from headquarters and four regions told us that generally, the onus is on a facility to identify natural hazards in the facility's location. For example, EPA officials from one region said that inspectors determine whether a facility has identified any hazards and then whether it has safeguarded against those hazards; however, they do not verify that the facility has identified all hazards.

Inspectors in some EPA regions take a more active role in determining what natural hazards a facility may be facing. For example, EPA officials in one region told us that prior to an inspection, inspectors determine whether a facility is located in a FEMA flood hazard area. If so, the inspectors assess whether the facility has appropriately identified and addressed this hazard based on RAGAGEP. Inspectors will cite a facility if the facility fails to identify a relevant hazard to a covered process, according to EPA officials from one region.

Inspectors rely on their own experience and knowledge of the local area to identify which natural hazards a facility should include in its risk management program, according to EPA officials from headquarters and three regional offices. For example, after Hurricane Sandy, inspectors in Region 2 began routinely asking whether facilities were preparing for extreme weather. According to EPA officials from another region, they would discuss with a facility whether it was addressing a particular hazard only if a facility experienced an accident caused by that hazard or inspectors were made aware of the hazard by local emergency response officials after an incident.

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Regarding increasing risks from climate change, EPA officials from OECA and five regional offices told us that inspectors do not assess whether facilities incorporate these risks in their risk management programs. EPA officials in one region said that it would be difficult for an inspector to call out a missing hazard in a process hazard analysis if the hazard is outside the norm of current hazards or past incidents. This would also be the case with natural hazards that may be exacerbated by climate change in the future. However, EPA officials from another region told us that inspectors would assess how a facility incorporates climate change risk into its risk management program if the facility itself identified increasing risks from climate change as a hazard. Officials from one region told us that inspectors discuss with facilities the fact that events that previously might occur once in a lifetime may now be occurring more frequently.

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### RMP Inspectors Face Challenges, Including a Lack of Guidance, in Assessing How Facilities Manage Risks from Natural Hazards and Climate Change

EPA and OSHA officials and stakeholder groups identified several challenges that RMP inspectors face in assessing how RMP facilities manage risks from natural hazards and climate change, including insufficient guidance and training for inspectors on how to do so. Two of the challenges that facilities face—insufficient information on natural hazards and climate change and insufficient direction on how to incorporate these risks into risk management programs—also present challenges for inspectors. Some EPA officials told us that EPA does not have sufficient credentialed inspectors available to conduct inspections. Officials and stakeholders identified opportunities for EPA to address some of these challenges.

**Insufficient guidance and training for RMP inspectors.** RMP inspectors have insufficient guidance and training on how to assess whether facilities are managing risks from natural hazards and climate change, according to EPA officials from three regions and representatives of two stakeholder groups. Some EPA officials and stakeholders we interviewed said that one opportunity to address this challenge would be for EPA to issue guidance for inspectors on how to assess the extent to which RMP facilities are managing these risks and to develop related training. In its 2021 Climate Adaptation Action Plan, EPA states that it will develop, update, and expand existing climate adaptation training modules for its staff to, in part, (1) encourage all EPA staff to consider the changing climate in the normal course of business, and (2) introduce its staff to specific methods and tools for integrating climate adaptation into decision making processes.

However, EPA cannot develop such guidance and training for inspectors until it develops a method for inspectors to use in assessing how facilities

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manage risks from natural hazards and climate change. According to OLEM officials, EPA has not developed a method for inspectors to use to validate that risk management programs comprehensively address these risks. OECA officials suggested that EPA could work with industry associations to develop such a method. By (1) developing a method for inspectors to assess the sufficiency of RMP facilities' incorporation of risks from natural hazards and climate change into risk management programs and (2) providing related guidance and training to RMP inspectors, EPA could ensure that inspectors consistently assess how facilities manage these risks.

**Insufficient information and direction for facilities.** Two of the challenges facing facilities—insufficient information on natural hazards and climate change and insufficient direction on how to incorporate these risks into risk management programs—also pose challenges for RMP inspectors. For example, inspectors need information on risks from natural hazards and climate change, such as maps, to assess whether facilities are correctly identifying these risks, according to EPA officials from one region.<sup>45</sup> Officials from another region told us that inspectors need such information to justify why a facility should consider risks from climate change.

According to officials from OSHA and three EPA regional offices and a stakeholder group, inspectors may also find it challenging to assess how facilities are managing risks from natural hazards and climate change because there is insufficient direction for facilities against which inspectors can assess a facility's risk management program. For example, EPA officials from one region told us that it is difficult to make the case that a facility is not appropriately managing these risks when facilities do not have sufficient guidance on how to do so. We discussed opportunities for EPA to address these challenges in the prior section.

**Insufficient number of credentialed RMP inspectors.** Another challenge EPA faces in assessing how facilities manage risks is a shortage of credentialed RMP inspectors, according to EPA officials at headquarters and some regional offices and two stakeholder groups. In

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<sup>45</sup>Insufficient information may be problematic if inspectors are relying on their own experience to determine whether a facility has identified relevant natural hazards. For example, the Chemical Safety Board reported that relying on the experience of individuals is insufficient to determine the risk of flooding. This may be particularly true when floods from extreme rainfall events have increased and are projected to continue to increase in many parts of the U.S., according to the NCA.

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2020, the number of credentialed inspectors, including contractors, reached its lowest level (35 inspectors) in a decade, according to data from EPA regional offices. Officials from two regions told us that they had lost experienced inspectors, and they have found it challenging to recruit new inspectors to fill vacancies. The number of RMP facilities that EPA inspects each year has declined since 2012, from 625 per year (5 percent of facilities) in 2012 to 284 per year (2 percent of facilities) in 2019, according to EPA.

Officials in one region told us that a number of factors contributed to the decrease in the number of inspections, including constraints on resources, shifting priorities, and a reduction in the number of contracted employees, which included inspectors. Regional officials told us that they are in the process of credentialing or hiring an additional 15 inspectors across multiple regions. However, according to a stakeholder group, new inspectors may not have the experience necessary to conduct effective inspections. According to EPA officials in one region, by providing additional compliance assistance to facilities as discussed above, EPA could help ensure facilities are managing risks while facing the inspector shortage.

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### EPA Does Not Consider Natural Hazards or Climate Change, or the Relative Social Vulnerability of Surrounding Communities, When Selecting Facilities for Inspection

EPA can only assess how RMP facilities are managing risks at the facilities that it inspects. However, based on our interviews with EPA headquarters officials and regional officials, we found that EPA does not consider natural hazards or climate change, or the relative social vulnerability of surrounding communities to these hazards, when selecting facilities for inspection. EPA has focused on a variety of other risk-based criteria in selecting facilities to inspect. EPA policy requires regional offices to prioritize inspections at “high-risk” facilities: facilities with a large residential population within the facility’s worst-case scenario vulnerable zone, facilities with a history of significant accidental releases, and facilities with very large quantities of hazardous chemicals held on site (or with multiple hazardous chemicals held above a threshold quantity). According to EPA headquarters officials, there are currently approximately 1,800 high-risk facilities. EPA officials at regional offices also consider other factors in selecting facilities for inspection, including length of time since the last inspection and referrals from other agencies such as OSHA.

According to the Center for Chemical Process Safety, natural disasters such as Hurricanes Katrina and Harvey, Superstorm Sandy, and various river flooding events have made it clear to the refining and chemical industries that planning for such natural hazards is very important.

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According to the NCA, more frequent and intense extreme weather and climate-related events are expected to continue to damage infrastructure. EPA's climate action plan states that the agency will ensure its enforcement and compliance assurance activities consider current and future impacts of climate change. According to EPA guidance, inspectors may select facilities for inspection based on factors such as geographic location and specific facility hazards. By including vulnerability to natural hazards and climate change as criteria in selecting facilities for inspection, EPA could better ensure that such facilities are appropriately managing these risks to prevent and minimize the consequences of an accidental release.

Many RMP facilities are located in socially vulnerable communities, according to EPA. Individuals in these communities face disproportionately high impacts from accidental releases caused by natural hazards. These same communities may also be less able to prepare for, respond to, and recover from a natural disaster, according to the NCA.

In its Environmental Justice 2020 Action Agenda, EPA set a goal to deepen environmental justice practice within EPA programs to improve the health and environment of overburdened communities, such as by ensuring environmental justice is appropriately analyzed, considered, and addressed in EPA rules with potential environmental justice concerns. EPA's 2022-2026 draft strategic plan states that EPA will increase inspections at facilities where an accident would potentially affect communities with environmental justice concerns. According to EPA guidance for inspectors, inspectors may consider proximity to minority or low-income residential areas as a factor in selecting facilities for inspection, although we did not identify any regions that currently do so. Executive Order 14008, issued in January 2021, directs the Administrator of EPA to strengthen enforcement of environmental violations with disproportionate impact on underserved communities. By incorporating the relative social vulnerability of surrounding communities as criteria when selecting facilities for inspection, EPA could better ensure that such facilities are appropriately managing risks to prevent and minimize the consequences of an accidental release on these communities.

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## Conclusions

Climate change may exacerbate natural hazards, such as flooding, storm surge, and wildfires, which could potentially lead to accidental releases of hazardous chemicals at RMP facilities. EPA has the opportunity to reduce the risk of accidental releases and minimize the consequences of such

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releases by ensuring that RMP facilities are managing risks from natural hazards and climate change.

However, facilities and EPA face several challenges in doing so. For example, RMP facilities do not always have sufficient information on risks from natural hazards and climate change. EPA could be better assured that facilities have the information they need to manage these risks by providing facilities with additional compliance assistance—such as data, tools, and technical support—related to these risks. Such compliance assistance would be especially useful for smaller facilities with limited resources. Moreover, by designing an information system to track common deficiencies found during inspections, including any related to natural hazards and climate change, EPA could more effectively target compliance assistance.

In addition, RMP facilities have insufficient direction on incorporating natural hazards and climate change into risk management programs. By issuing regulations, guidance, or both, as appropriate, to clarify requirements and provide RMP facilities with direction on how to incorporate these risks into their risk management programs, EPA could better ensure that RMP facilities are managing risks from all relevant hazards, including natural hazards and climate change. When developing any such regulation, EPA should, pursuant to relevant executive orders, conduct a cost-benefit analysis. When developing such direction, EPA would benefit from leveraging the expertise of stakeholders, including OSHA, state and local emergency response committees, and industry officials, as appropriate.

One challenge RMP inspectors face in assessing how facilities manage risks from natural hazards and climate change is insufficient guidance on how to do so. EPA has an opportunity to address this challenge by providing guidance and related training for inspectors. However, EPA must first develop a method for inspectors to use in assessing how facilities manage these risks. By developing a method for inspectors to assess the sufficiency of RMP facilities' incorporation of risks from natural hazards and climate change into risk management programs and then providing related guidance and training to RMP inspectors, EPA could ensure that inspectors consistently assess how facilities manage these risks.

EPA can only assess how RMP facilities are managing risks at the facilities it inspects. Currently, however, when selecting facilities for inspection, the agency does not consider facilities' vulnerability to natural

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hazards and climate change or the relative social vulnerability of surrounding communities. By broadening the criteria it uses to select facilities for inspection to include these potential vulnerabilities, EPA can ensure that vulnerable facilities are appropriately managing risks and positioned to prevent and minimize the consequences of accidental chemical releases in socially vulnerable communities.

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## Recommendations for Executive Action

We are making the following six recommendations to EPA:

The Assistant Administrator of the Office of Enforcement and Compliance Assurance and Director of the Office of Emergency Management, together with EPA officials at regional offices, should provide additional compliance assistance to RMP facilities related to risks from natural hazards and climate change. (Recommendation 1)

The Assistant Administrator of the Office of Enforcement and Compliance Assurance should design an information system to track common deficiencies found during inspections, including any related to natural hazards and climate change, and use this information to target compliance assistance. (Recommendation 2)

The Director of the Office of Emergency Management should issue regulations, guidance, or both, as appropriate, to clarify requirements and provide direction for RMP facilities on how to incorporate risks from natural hazards and climate change into their risk management programs. (Recommendation 3)

The Assistant Administrator of the Office of Enforcement and Compliance Assurance and Director of the Office of Emergency Management should develop a method for inspectors to assess the sufficiency of RMP facilities' incorporation of risks from natural hazards and climate change into risk management programs and provide related guidance and training to inspectors. (Recommendation 4)

The Assistant Administrator of the Office of Enforcement and Compliance Assurance, working with officials at regional offices, should incorporate vulnerability of RMP facilities to natural hazards and climate change as criteria when selecting facilities for inspection. (Recommendation 5)

The Assistant Administrator of the Office of Enforcement and Compliance Assurance, working with EPA officials at regional offices, should incorporate the relative social vulnerability of communities that could be

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impacted by an accidental release when selecting RMP facilities for inspection. (Recommendation 6)

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## Agency Comments

We provided a draft of this report to EPA for review and comments. In its comments, reproduced in appendix IV, EPA agreed with our assessment that many facilities regulated under the RMP Rule are located in areas that are susceptible to natural hazards from climate change. EPA also agreed with our recommendations and described steps it plans to take to implement them.

EPA noted that it had two significant comments. First, EPA said that the ongoing RMP rulemaking process will affect its timeline for implementing our recommendations. EPA stated that the agency plans to develop materials and products on risks from natural hazards and climate change, such as compliance assistance and guidance, as appropriate, based on the provisions in the final rule, which is scheduled to be published in 2023. We recognize that the rulemaking may affect the timing and approach for implementing some of our recommendations. However, we do believe that it is important for EPA to implement these recommendations and that EPA can begin implementing those unaffected by the current rulemaking.

Second, in response to our recommendation regarding the design of an information system to track common deficiencies found during inspections and the use of this information to target compliance assistance, EPA stated that it does not view the development of a “sophisticated electronic database” as necessary to achieve the intent of this recommendation. EPA said that it plans to develop a written business process to periodically collate and review inspection findings and to use this process to target compliance assistance efforts. Any process that consistently and effectively tracks common deficiencies and leads to the agency targeting compliance assistance could meet the intent of this recommendation.

EPA also provided technical comments that we incorporated as appropriate.

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We are sending copies of this report to the appropriate congressional committees, the Administrator of the Environmental Protection Agency, and other interested parties. In addition, the report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-3841 or [gomezj@gao.gov](mailto:gomezj@gao.gov). Contact points for our Offices

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of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix V.

A handwritten signature in black ink that reads "Alfredo Gómez". The signature is written in a cursive style with a large, stylized 'G'.

J. Alfredo Gómez  
Director, Natural Resources and Environment

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# Appendix I: Objectives, Scope, and Methodology

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This report examines (1) what available federal data indicate about the number and types of RMP facilities that are located in areas with selected natural hazards that may be exacerbated by climate change; (2) challenges RMP facilities face in managing risks to human health and the environment from natural hazards and climate change, and opportunities for EPA to address these challenges; and (3) the extent to which EPA assesses how RMP facilities manage risks from natural hazards and climate change, and challenges EPA faces in doing so.

To determine what available federal data indicate about the number and type of Risk Management Plan (RMP) facilities that are located in areas with selected natural hazards that may be exacerbated by climate change, we reviewed the Fourth National Climate Assessment (NCA), Environmental Protection Agency (EPA) documents (such as EPA's climate change adaptation implementation plan), other relevant documents (such as European Union reports), our prior work on climate change, and federal data on these selected natural hazards.<sup>1</sup>

Based on our review, we identified the following natural hazards that may be exacerbated due to climate change: sea level rise, which may lead to increased frequency and extent of extreme flooding from coastal storms; greater frequency and magnitude of drought; increased intensity and frequency of heavy precipitation events, which may lead to increased local flooding; salt water intrusion; increased incidence of large wildfires; increased frequency and intensity of extreme high temperatures and sustained increases in average temperatures; decreased permafrost; and increased intensity—including higher wind speeds and precipitation rates—and frequency of very intense hurricanes and typhoons. We reviewed the NCA, prior GAO reports, EPA documents (such as EPA's climate change adaptation implementation plan) and other relevant

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<sup>1</sup>U.S. Global Change Research Program, *Climate Science Special Report*; and *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment*, vol. II (Washington, D.C.: 2018). For prior GAO reports, see, for example, GAO, *Chemical Security: DHS Could Use Available Data to Better Plan Outreach to Facilities Excluded from Anti-Terrorism Standards*, [GAO-20-722](#) (Washington, D.C.: Sept. 29, 2020); *Superfund and Climate Change: EPA Should Take Additional Actions to Manage Risks from Climate Change*, [GAO-20-73](#) (Washington, D.C.: Oct. 18, 2018); *Climate Change: Better Management of Exposure to Potential Future Losses Is Needed for Federal Flood and Crop Insurance*, [GAO-15-28](#) (Washington, D.C.: Oct. 29, 2014); and *FEMA Flood Maps: Some Standards and Processes in Place to Promote Map Accuracy and Outreach, but Opportunities Exist to Address Implementation Challenges*, [GAO-11-17](#) (Washington, D.C.: Dec. 2, 2010).

documents (such as European Union reports) to identify potential natural hazards that may RMP facilities.

In addition, we interviewed officials from EPA headquarters, all 10 EPA regional offices, the Occupational Safety and Health Administration (OSHA), and the U.S. Chemical Safety and Hazard Investigation Board (Chemical Safety Board). We also interviewed selected stakeholders to obtain their perspective on potential risks from natural hazards, including representatives of a labor union, representatives from three industry associations, officials of two local emergency planning committees, an official from an association of state, tribal, and local emergency response commission and committee officials, representatives from a non-governmental standard-setting organization, officials at a state division of emergency management with delegated authority to implement the RMP Rule, and county officials implementing California's accidental release prevention program. We identified these stakeholders through recommendations from federal officials; available relevant documents, such as public comments on the RMP Rule; and recommendations from other interviewees.

Through a review of federal agencies' documents and databases and our previous work, we identified available national federal data sets on four natural hazards: flooding, storm surge, wildfires, and sea level rise from the Federal Emergency Management Agency (FEMA), the National Oceanic and Atmospheric Administration (NOAA), and the U.S. Forest Service. In this report, we refer to these four hazards as selected natural hazards that may be exacerbated by climate change. (See app. II for further discussion of these data sources.) We used the most recently available data for each of these natural hazards. To the extent that data were available, we analyzed a range of these potential natural hazards, reflecting different levels of intensity. For example, we used the maximum extent of storm surge from Category 1 hurricanes as well as from Category 4 or 5 hurricanes, the highest possible categories, as modeled by NOAA.

The range of the potential effects of selected natural hazards we provide in our report is as follows:

- For flooding, we used data from FEMA’s National Flood Hazard Layer as of October 2020.<sup>2</sup> FEMA identifies a variety of flood hazards, and for reporting purposes, we grouped flood hazards into four categories: (1) 1 percent or higher annual chance of flooding,<sup>3</sup> (2) 0.2 percent or higher annual chance of flooding or other flood hazards,<sup>4</sup> (3) unknown flood hazards,<sup>5</sup> and (4) minimal flood hazard.
- For storm surge, we used data from NOAA’s model on Sea, Lake, and Overland Surges from Hurricanes as of December 2020 for Category 1 and Category 4 or 5 hurricanes.
- For wildfire, we used data from the U.S. Forest Service’s 2020 wildfire hazard potential map, which the U.S. Forest Service released in December 2020. We included areas with high or very high wildfire hazard potential in our analysis. The U.S. Forest Service based the 2020 map on wildfire likelihood and intensity data from 2020, spatial fuels and vegetation data from 2014, and point locations of past fire occurrence from 1992 to 2015.
- For sea level rise, we used NOAA data, last updated in July 2020. We used inundation data on 0, 1, and 3 feet of sea level rise and “not mapped” areas. Zero feet of sea level rise means that the area may already be inundated during a typical high tide, according to NOAA officials.

We obtained data from EPA’s database containing information on the location and other characteristics of current and active RMP facilities as of December 2020. The descriptive data in EPA’s RMP database, such as location, types of chemicals onsite, and accident history, is self-reported by the RMP facilities as part of their RMP submission. We excluded RMP facilities with Program 1 processes (648 facilities) from our analysis because a worst-case release of chemicals from these facilities would not affect the public. We also excluded 376 RMP facilities whose

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<sup>2</sup>FEMA updates the mapping data every 2 weeks, at minimum, according to FEMA officials.

<sup>3</sup>This category includes zones A, A99, AE, AH, AO, V, VE, and Open Water.

<sup>4</sup>This category includes hazards FEMA categorizes in zone X (excluding minimal flood hazard).

<sup>5</sup>This category includes zones D, NP, missing values, area not included, and no data. In addition, we included data that we could not analyze using our mapping software, such as those available in paper-based maps, as being part of this category.

location information we assessed to be insufficiently reliable.<sup>6</sup> In addition, we downloaded data on the relative social vulnerability of people living in the census tracts from FEMA's National Risk Index. The National Risk Index's Social Vulnerability Index uses 29 socioeconomic variables, such as percent of persons living in poverty, median age, and percent of the population who identify as Native American, to classify areas as high, relatively high, moderate, relatively low, or low social vulnerability.

In our analysis, we used an approximate 500-foot radius, or 0.094 mile, around the primary geographic coordinate point of each RMP facility to estimate the size of each facility, which may not accurately represent their actual areas because the facilities vary in size and shape. To analyze whether RMP facilities are located in areas that may be impacted by flooding, we used ArcGIS mapping software to overlap the area of a 0.094 mile radius around the primary coordinate of each facility with the categories we defined from the National Flood Hazard Layer. To analyze whether RMP facilities are located in areas that may be impacted by storm surge, wildfires, and sea level rise, we used MapInfo mapping software to overlap the area of a 0.094-mile radius around the primary coordinates of facilities with each of these layers. Overlap indicates that a facility is located in an area that may be impacted. We consulted with EPA when developing this approach.

To assess the reliability of FEMA's National Flood Hazard Layer, NOAA's data on Sea, Lake, and Overland Surges from Hurricanes, U.S. Forest Service's wildfire hazard potential data, and NOAA's data on sea level rise, we reviewed our prior report that used the data for similar purposes, such as mapping and overlapping locations of sites with selected natural hazards.<sup>7</sup> In addition, we interviewed agency officials regarding the appropriateness of using these data for the purposes of this report. To further assess the reliability of FEMA's National Flood Hazard Layer, we reviewed FEMA's methodology for the data. We also interviewed FEMA

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<sup>6</sup>To assess the reliability of RMP location data, we mapped the data using address and XY coordinates provided by each facility. We randomly selected a sample of facilities to review using satellite imagery. We determined that the street address location was generally closer to the selected facility locations in satellite imagery than were XY coordinates. About 79 percent of facilities could be located using address data. For the remaining facilities, we used XY coordinate data to locate facilities unless the XY coordinate was in a different zip code than the address provided by the facility. We excluded facilities whose XY coordinates are in a different zip code than the zip code contained in the address provided by the facility.

<sup>7</sup>GAO, Superfund: EPA Should Take Additional Actions to Manage Risks from Climate Change, [GAO-20-73](#) (Washington, D.C.: Oct 2019).

officials to assess the accuracy of the data. To further assess the reliability of NOAA's data on Sea, Lake, and Overland Surges from Hurricanes, we reviewed NOAA's methodology for developing the model; interviewed NOAA officials to assess the accuracy of the data; and reviewed internal controls. To further assess the reliability of the U.S. Forest Service's wildfire hazard potential data, we reviewed the agency's documentation of the methodology used to develop the data. We also interviewed U.S. Forest Service officials to assess the accuracy of the data. To further assess the reliability of NOAA's data on sea level rise, we reviewed the methodology NOAA used for developing the model, and we interviewed NOAA officials to assess the accuracy of the data. In addition, to assess the reliability of FEMA's National Risk Index, we reviewed the methodology used to develop the model and agency documentation on how to use the model. In addition, we reviewed our prior report that used the data for similar purposes.<sup>8</sup>

To assess the reliability of EPA's data on RMP facilities, we reviewed agency manuals to understand data elements, interviewed EPA officials to assess the timeliness and accuracy of the data, and conducted data testing.<sup>9</sup> In addition, we reviewed our prior report that used the data for similar purposes.<sup>10</sup> As a result of the steps described above, we found the data from EPA, FEMA, NOAA, and the U.S. Forest Service to be sufficiently reliable for our purposes.

To identify challenges that RMP facilities face in managing risks from natural hazards and climate change and opportunities for EPA to address those challenges, we interviewed EPA officials at headquarters and all 10 regional offices and officials from OSHA and the Chemical Safety Board. We also interviewed selected stakeholders as described above. Two analysts reviewed records of interviews to record the challenges that officials and stakeholders identified. We then categorized the challenges for reporting purposes. The views of stakeholders we interviewed are illustrative and not generalizable to all stakeholders.

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<sup>8</sup>GAO, *FEMA Flood Maps: Better Planning and Analysis Needed to Address Current and Future Flood Hazards*, [GAO-22-104079](#) (Washington, D.C.: Oct. 25, 2021).

<sup>9</sup>Agency manuals and websites included those related to EPA's Central Database Exchange and information on RMP's data quality, including the RMP Download Dataset User Guide and the RMP\*Info Data Quality Information webpage.

<sup>10</sup>[GAO-20-722](#).

We selected three RMP facilities as illustrative examples of how RMP facilities manage risks from natural hazards and climate change and any challenges they face in doing so. The three facilities we selected are (1) Kettle Cuisine in Lynn, Massachusetts; (2) South Cross Bayou Water Reclamation Facility in St. Petersburg, Florida; and (3) Covestro in Baytown, Texas. To select these facilities, we asked for recommendations from EPA officials and stakeholders we interviewed. We selected facilities in three different EPA regions and in a variety of industries. To gather information about these facilities, we reviewed the most recent RMPs they submitted to EPA and interviewed representatives of the facilities. We also interviewed representatives of local stakeholder groups as relevant, including state officials and representatives of local emergency planning committees. The results from these illustrative examples are not generalizable to RMP facilities that we did not select.

To determine the extent to which EPA assesses how RMP facilities manage risks from natural hazards and climate change, challenges it faces in doing so, and opportunities to address these challenges, we reviewed the RMP Rule; guidance, outreach, and training materials from EPA; *Federal Register* notices and EPA responses to public comments on proposed revisions to the RMP Rule; reports from the Chemical Safety Board; and documents from other organizations, such as the Center for Chemical Process Safety. We identified these documents by (1) conducting a search of websites of relevant agencies, including EPA, OSHA, and the Chemical Safety Board; and (2) requesting documents from EPA officials. We also interviewed EPA officials from OLEM and OECA and at all 10 regional, officials from OSHA and the Chemical Safety Board, and representatives of the stakeholder groups and three facilities identified above. Two analysts reviewed the challenges that we identified in these interviews and reached consensus on categorizing the challenges for reporting purposes.

We conducted this performance audit from August 2020 to February 2022 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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# Appendix II: Available Federal Data on Flooding, Storm Surge, Wildfire, Sea Level Rise, and Social Vulnerability

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Various federal agencies provide data on flooding, storm surge from hurricanes, wildfires, sea level rise, and social vulnerability. Specifically, the Federal Emergency Management Agency (FEMA) provides data on flood hazard and risk, the National Oceanic and Atmospheric Administration (NOAA) provides data on hurricane storm surge, and the U.S. Forest Service provides data on wildfire hazard potential. Data on flooding, storm surge, and wildfires are generally based on current or past conditions. NOAA also models the extent of inundation for various heights of sea level rise compared to the most recently available data on average high tide. In addition, FEMA's National Risk Index—which includes Social Vulnerability scores based on the Social Vulnerability Index developed by University of South Carolina's Hazards and Vulnerability Research Institute—provides information on the relative social vulnerability of communities by census tract.

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## FEMA Flood Hazard Data

FEMA provides flood hazard and risk information to communities nationwide. Among other information, FEMA provides data on coastal and riverine flooding in the National Flood Hazard Layer,<sup>1</sup> a database that contains the most current flood hazard data.<sup>2</sup> Federal law requires FEMA to assess the need to revise and update the nation's flood maps once every 5 years or more often as the FEMA Administrator determines necessary.<sup>3</sup> Among other uses, the flood hazard data are used for flood insurance ratings and floodplain management.

The National Flood Hazard Layer identifies areas at the highest risk of flooding, which are those that have a 1 percent or higher annual chance of flooding.<sup>4</sup> In some locations, the National Flood Hazard Layer also identifies areas with 0.2 percent or higher annual chance of flooding,

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<sup>1</sup>Riverine flooding is flooding related to or caused by a river, stream, or tributary overflowing its banks because of excessive rainfall, snowmelt, or ice.

<sup>2</sup>FEMA provides a tool for viewing, downloading, and printing flood maps for specific locations. FEMA's flood hazard maps are available at <https://www.fema.gov/flood-maps/national-flood-hazard-layer>.

<sup>3</sup>42 U.S.C. § 4101(e).

<sup>4</sup>These areas are known as Special Flood Hazard Areas. Under federal law, in communities that participate in the National Flood Insurance Program, homeowners are required to purchase flood insurance for properties located in Special Flood Hazard Areas that are secured by mortgages from federally regulated lenders. 42 U.S.C. § 4012a(b)(1).

which FEMA considers to be a moderate flood hazard,<sup>5</sup> as well as other flood hazards.<sup>6</sup> The National Flood Hazard Layer also identifies areas with minimal flood hazard, including those with less than 0.2 percent annual chance of flooding, and unknown flood hazard, including areas FEMA has not assessed for flood hazards.<sup>7</sup>

In 2018, the Technical Mapping Advisory Council noted that FEMA has produced modernized data (i.e., digital maps) for areas of the U.S. where 98 percent of the population resides, but has not determined the flood hazard for 40 percent of streams.<sup>8</sup> In general, flood hazards are based on existing conditions in the watershed and floodplains. However, in certain cases, FEMA may include flood hazard information that is based on future conditions, such as changes in zoning laws, according to FEMA regulations.<sup>9</sup>

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## NOAA Storm Surge Hazard Data

NOAA provides estimates of hurricane storm surge using a model called Sea, Lake, and Overland Surges from Hurricanes.<sup>10</sup> Estimates are available for eastern U.S. coastal areas from Texas through Maine and other areas affected by storm surge, including Hawaii, Puerto Rico, and

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<sup>5</sup>According to the Fourth National Climate Assessment, the magnitude and intensity of riverine flooding is projected to increase in the future, so areas with moderate flood hazard may have increased flood hazard in the future.

<sup>6</sup>Other flood hazards include areas with reduced risk because of levees as well as areas with flood hazard based on future conditions, for example, if land use plans were implemented. FEMA considers areas with at least 0.2 percent annual chance of flooding as having moderate flood hazard and those with 1 percent or higher annual chance of flooding to be Special Flood Hazard Areas (i.e., those with the highest chance of flooding).

<sup>7</sup>We also considered areas where flood data are not available in a form compatible with our mapping software, such as those only available in paper maps, as unknown flood hazard.

<sup>8</sup>The Technical Mapping Advisory Council is a federal advisory committee established to review and make recommendations to FEMA on matters related to the national flood mapping program.

<sup>9</sup>Future conditions refer to the flood discharges associated with projected land-use conditions based on zoning and/or comprehensive land use plans. See 44 C.F.R. § 59.1. For example, as planned buildings and parking lots are constructed, the amount of impervious land within the watershed increases, which can increase the amount of direct runoff. In our analysis, we categorized these areas as other flood hazards.

<sup>10</sup>According to a NOAA document, storm surge is an abnormal rise of water generated by a storm, over and above the predicted tides. Storm surge is produced by water being pushed toward the shore by the force of the storm's winds. NOAA's storm surge hazard maps are available at <https://www.nhc.noaa.gov/nationalsurge/>.

the U.S. Virgin Islands. As of January 2022, NOAA had not modeled storm surge for the West Coast of the U.S. or for Pacific islands other than Hawaii. The model takes into account a specific location's shoreline, incorporating bay and river configurations, water depths, bridges, roads, levees, and other physical features. It estimates the maximum extent of storm surge at high tide by modeling hypothetical hurricanes under different storm conditions, such as landfall location, storm trajectory, and forward speed.

NOAA models storm surge from Category 1 through Category 5 hurricanes for the Atlantic coast south of the North Carolina–Virginia border, the Gulf of Mexico, Puerto Rico, and the U.S. Virgin Islands; and Category 1 through Category 4 hurricanes for the Atlantic coast north of the North Carolina–Virginia border and Hawaii.<sup>11</sup> As we previously reported, the model is to be used for educational purposes and for awareness of the storm surge hazard at a city or community level. According to NOAA's website, the agency updates the model for portions of the shoreline each year to account for, among other changes, new data and the addition of flood protection devices, such as levees. The model does not account for future conditions such as erosion, subsidence (i.e., the sinking of an area of land), construction, or sea level rise.

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## U.S. Forest Service Wildfire Hazard Potential Data

The U.S. Forest Service maps wildfire hazard potential based on landscape conditions and other observations.<sup>12</sup> We previously reported that the primary intended use of the wildfire hazard potential map is to identify priority areas for hazardous fuels treatments from a broad, national- to regional-scale perspective.

The U.S. Forest Service maps an index of wildfire hazard potential for the contiguous U.S., based on, among other factors, annual burn probabilities and potential intensity of large fires. The U.S. Forest Service categorizes the wildfire hazard potential index into five classes: very low, low, moderate, high, and very high. The U.S. Forest Service designates as

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<sup>11</sup>We previously reported that NOAA does not estimate storm surge for Category 5 hurricanes in areas where such hurricanes have not historically made landfall, such as areas north of the North Carolina–Virginia border.

<sup>12</sup>According to the U.S. Forest Service, the objective of the wildfire hazard potential map is to depict the relative potential for wildfire that would be difficult for suppression resources to contain. For the 2020 map, the U.S. Forest Service used spatial data sets of wildfire likelihood and intensity from 2020, spatial fuels and vegetation data from 2013 and 2014, and point locations of past fire occurrence from 1992 through 2015. The U.S. Forest Service's wildfire hazard potential map is available at <https://www.firelab.org/project/wildfire-hazard-potential>.

“high” those areas with wildfire hazard potential index from the 85th to the 95th percentile, and as “very high” those areas above the 95th percentile. The U.S. Forest Service also categorizes areas as nonburnable (including agricultural and developed lands) and water.

According to the U.S. Forest Service, areas with higher levels of wildfire hazard potential have fuels that are more likely to burn with high intensity under certain weather conditions. However, areas with moderate, low, and very low wildfire hazard potential may still experience wildfire, particularly if they are near areas that have higher wildfire hazard potential. Wildfire hazard potential is not a forecast or wildfire outlook for any particular season, as it does not include any information on current or forecasted weather or fuel moisture conditions.<sup>13</sup>

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## NOAA Sea Level Rise Viewer Data

NOAA models the extent of inundations from various heights of sea level rise (up to 10 feet above average high tides) for the contiguous U.S., Hawaii, other Pacific islands, Puerto Rico, and the U.S. Virgin Islands. It provides the results in a web mapping tool called the Sea Level Rise Viewer.<sup>14</sup> According to NOAA, the sea level rise data can be used for planning and education, but it cannot be used for site-specific analysis.

NOAA’s guidance on the Sea Level Rise Viewer states that data are not available for Alaska. In addition, NOAA labels areas as not mapped if elevation data of sufficient quality for the areas are not available. NOAA does not model natural processes, such as erosion, subsidence, or future construction. It also does not forecast how much sea level is likely to rise in a given area. Rather, for various heights of local sea level rise, NOAA determines extent of inundation based on the elevation of an area and the potential for water to flow between areas.

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## FEMA National Risk Index

FEMA provides social vulnerability data by census tract for the U.S. as part of its National Risk Index. FEMA defines social vulnerability as the susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood. Social vulnerability considers the social, economic, demographic, and housing characteristics of a community that influence its ability to prepare

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<sup>13</sup>According to a U.S. Forest Service official, the wildfire hazard potential data are not meant to substitute for local data, which may more accurately capture the potential for wildfire in particular areas.

<sup>14</sup>NOAA’s Sea Level Rise Viewer is available at <https://coast.noaa.gov/digitalcoast/tools/slr.html>.

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**Appendix II: Available Federal Data on  
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for, respond to, cope with, recover from, and adapt to environmental hazards. According to FEMA, the National Risk Index can be used to support prioritizing resilience efforts, such as updating emergency operations plans and enhancing hazard mitigation plans, by providing an at-a-glance overview of multiple risk factors, such as social vulnerability.

The Social Vulnerability Index that FEMA uses was originally developed by the University of South Carolina's Hazards and Vulnerability Research Institute and uses 29 socioeconomic variables, such as percentage of persons living in poverty and median age. FEMA transformed this data into a 0.01-100 scale for census tracts.<sup>15</sup> FEMA then separated the data into categories of social vulnerability: very high, relatively high, relatively moderate, relatively low, and very low.

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<sup>15</sup>According to FEMA, 292 census tracts that have no population do not have social vulnerability scores.

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# Appendix III: Examples of Nonfederal Approaches to Managing Risks from Natural Hazards and Climate Change

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The following entities take a variety of roles and approaches to ensure facilities with hazardous chemicals manage risks from natural hazards and climate change, including by providing compliance assistance and direction to facilities.

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## Florida's Division of Emergency Management Implements and Enforces the Risk Management Plan (RMP) Rule in the State

EPA has delegated the authority to implement and enforce the RMP Rule except at propane facilities to the state of Florida since 1999, according to EPA. The delegated RMP program is housed within the Florida Division of Emergency Management. Florida RMP officials inspect RMP facilities and provide compliance assistance to chemical facilities. Florida's four credentialed inspectors conduct an average of 33 inspections per year, out of a total of 267 RMP facilities in the state, according to Florida Division of Emergency Management. The State Emergency Response Committee selects facilities for inspection using criteria such as the number of accidents at the facility, the date the facility was last inspected, whether the facility is on the federal list of high-risk facilities or a similar state list, and whether a facility needs additional compliance assistance.

According to Florida Division of Emergency Management officials, they provide compliance assistance related to risks from natural hazards to RMP facilities in a variety of ways. Florida Division of Emergency Management works with facilities and local emergency planning committees to develop facility hazardous materials response plans. Florida RMP inspectors then use these plans, in addition to mapping tools and National Hurricane Center modeling tools, to assist facilities with managing risks from natural hazards. Florida RMP inspectors also offer information to facilities on best practices in areas related to emergency preparedness and risk management. For example, according to Florida Division of Emergency Management officials, if inspectors see a particularly effective approach to mitigation at a facility, they share those approaches with other Florida RMP facilities.

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## The California Accidental Release Prevention Program (CalARP) Places Additional Requirements on RMP Facilities in California

CalARP includes the federal chemical accident prevention regulations with certain additions to implement state law. For example, according to officials from the state of California, the CalARP program regulates substances that are not regulated under the Clean Air Act's prevention of accidental release provision and has lower threshold quantities for some chemicals subject to regulation under the Clean Air Act's prevention of accidental release provision. According to the California Department of Toxic Substances Control, the purpose of the CalARP program is to prevent accidental releases of regulated substances (chemicals) that can cause serious harm to the public and the environment, to minimize the damage if releases do occur, and to satisfy community right-to-know laws. According to state officials we interviewed, the county governments in California administer the majority of the program. This includes determining whether a facility must submit an RMP in certain circumstances, reviewing the RMPs, conducting facility inspections, and providing public access to information about regulated facilities. The state government provides guidance and training for county officials.

Contra Costa county, one of the counties that implements the CalARP program, has 42 facilities subject to the program, according to officials of Contra Coasta county. The county has seven inspectors and aims to inspect all facilities every 2 years. It may take 4 or 5 weeks to inspect the most complex chemical facilities in Contra Costa county, while it may take only 1 to 2 days to complete a more basic inspection. Contra Costa county officials identified several natural hazards that may impact the regulated facilities in the county, including sea level rise and wildfires. In addition, these officials noted that even if wildfires are not burning in the county itself, the fires could impact chemical facilities through increased air pollution or loss of power. In addition, Contra Costa county developed a checklist for regulated facilities to help them identify, assess, and prepare for external events, including extreme weather.

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## Governments and International Bodies Have Developed International Regulations, Guidance, and Compliance Assistance

Globally, international bodies and governments have undertaken initiatives to regulate, research, and develop guidance on the management of risks from natural hazards at chemical facilities.

For example, the European Union's Seveso III Directive explicitly requires that certain establishments in member states where dangerous substances are present in significant quantities identify and analyze the risk of a possible scenario of a major accident from natural hazards, such as floods. At the country level, Germany has issued a Technical Rule for Installation Safety, which requires certain procedures to protect facilities against accidents due to flood and heavy rainfall, according to the Organization for Economic Co-Operation and Development (OECD). The rule also requires that facilities apply a climate-adaptation factor to intensities of flood and precipitation events in their risk assessments to take into account the expected effects of climate change up to 2050, according to OECD.

For example, since 2008, a joint effort of the OECD, United Nations, and European Union groups and offices has researched and reported on prevention, preparedness, and response to Natural Hazards Triggering Technological Accidents (Natech) events. The group issued a record of good practices and examples of Natech risk management across countries and stakeholders, and it plans to release guidance on Natech risk management in 2024. Moreover, as a result of this joint effort, the OECD added a Natech Addendum to its Guiding Principles for Chemical Accident Prevention, Preparedness, and Response. The Addendum provides specific recommendations for government and industry on drafting regulations, rules and standards, their enforcement and implementation, and other activities in support of effective Natech risk management. U.S. officials participated in both drafting and reviewing the principles.

# Appendix IV: Comments from the U.S. Environmental Protection Agency



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

Mr. Alfredo Gomez  
Director  
Natural Resources and Environment  
U.S. Government Accountability Office  
Washington, D.C. 20548

Dear Mr. Gomez:

Thank you for the opportunity to review and comment on the GAO's draft report, *Chemical Accident Prevention – EPA Should Ensure Regulated Facilities Consider Risks from Climate Change* (GAO-22-104494). This letter provides the U.S. Environmental Protection Agency's response to the draft report's findings, conclusions, and recommendation(s).

The Agency agrees with the GAO's assessment that many facilities regulated under the Clean Air Act (CAA) section 112(r)(7) (i.e., the Risk Management Program) are located in areas that are susceptible to natural hazards from climate change. The GAO's report includes several recommendations on how EPA can better ensure that such facilities are managing risks from natural hazards and climate change. However, EPA has two significant comments.

First, while EPA generally agrees with the recommendations, the timing to implement the recommendations will depend on the Agency's ongoing Risk Management Plan (RMP) rulemaking. EPA's Office of Emergency Management is actively working on a proposal to revise the RMP regulations. The proposal will consider how to address the Administration's priorities, including bolstering resilience to the impacts of climate change and prioritizing environmental justice. The proposed rule is scheduled for publication in the Federal Register in September 2022 and the final rule in August 2023 (see the Fall 2021 Regulatory Agenda; [RIN 2050-AH22](#)). EPA expects to develop materials and products on risks from natural hazards and climate change, such as compliance assistance, guidance, training, inspection methods, targeting metrics, and an information system, as appropriate, based on the provisions in the final rule. Given the current rulemaking, implementing the recommendations will take multiple years. The Agency will provide additional information and/or a timeline following the GAO final report. Second, the Agency has some concerns about the development and implementation of an information system to track common deficiencies found during inspections. These concerns are discussed in more detail below in EPA's response to Recommendation 2.

Enclosed with this letter is a list of recommended, minor corrections to the report. EPA's responses to specific recommendations are captured below.

**GAO Recommendation 1:**

The Assistant Administrator of the Office of Enforcement and Compliance Assurance and Director of the Office of Emergency Management, together with EPA officials at regional offices, should provide

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additional compliance assistance to RMP facilities related to risks from natural hazards and climate change.

**EPA Response:**

The Agency agrees with the recommendation to develop compliance assistance materials related to risks from natural hazards and climate change. EPA will develop materials, such as a fact sheet, which will compile resources on climate change-related impacts to RMP facilities. As noted above, the Agency is currently revising the RMP regulations using the notice-and-comment rulemaking process and expects to complete these revisions by August 2023. In addition, after publishing the final rule, EPA will develop additional materials to assist regulated entities in complying with the updated RMP regulations, as appropriate, if any new requirements relating to addressing risks from natural hazards and climate change are finalized.

**GAO Recommendation 2:**

The Assistant Administrator of the Office of Enforcement and Compliance Assurance should design an information system to track common deficiencies found during inspections, including any related to natural hazards and climate change, and use this information to target compliance assistance.

**EPA Response:**

The Agency agrees with the goal of this recommendation to use inspection data to target compliance assistance efforts. However, EPA does not view development of a sophisticated electronic database as necessary to achieve this goal. EPA believes that it can use other methods to target compliance assistance, such as periodic consultation with Regional inspectors on a sector-specific basis to share information and findings. EPA has already identified priority sectors for increased focus as part of the current Chemical Accident Risk Reduction National Compliance Initiative, such as ammonia refrigeration, fertilizer distribution, and gas processing. Regular consultation with inspectors would allow EPA to identify common problems and develop targeted compliance assistance. EPA can also leverage information that the Agency already collects in EPA's ICIS and ECHO databases. With this in mind, EPA concurs with the intent of this recommendation and intends on developing a written business process to periodically collate and review inspection findings to identify common deficiencies and to use this process to target compliance assistance efforts.

**GAO Recommendation 3:**

The Director of the Office of Emergency Management should issue regulations, guidance, or both, as appropriate, to clarify requirements and provide direction for RMP facilities on how to incorporate risks from natural hazards and climate change into their risk management programs.

**EPA Response:**

The Agency agrees with this recommendation. As indicated above, EPA's Office of Emergency Management is actively working on a proposal to revise the RMP regulations. EPA is reviewing the RMP rule in accordance with Executive Order 13990: Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis, which directs federal agencies to review existing regulations and take action to address the Administration's priorities, including bolstering resilience to the impacts of climate change and prioritizing environmental justice. The proposed rule is scheduled for publication in the Federal Register in September 2022 and the final rule in August 2023 (see the Fall 2021 Regulatory Agenda; [RIN 2050-AH22](#)). If needed, the Office of Emergency Management will develop compliance guidance or update existing guidance for regulated facilities after the final rulemaking is completed.

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**GAO Recommendation 4:**

The Assistant Administrator of the Office of Enforcement and Compliance Assurance and Director of the Office of Emergency Management should develop a method for inspectors to assess the sufficiency of RMP facilities' incorporation of risks from natural hazards and climate change into risk management programs and provide related guidance and training to inspectors.

**EPA Response:**

EPA agrees with this recommendation and intends to incorporate methods and/or materials into the Agency's RMP inspector training course. EPA Order 3500.1, which specifies training requirements for EPA inspectors and investigators, requires RMP inspectors to, among other things, complete the 40-hour Risk Management Program Inspector Training course to be a credentialed inspector. To meet the goal of Recommendation 4, the Agency will incorporate new methods and/or materials into that training course after the final rule is published.

**GAO Recommendation 5:**

The Assistant Administrator of the Office of Enforcement and Compliance Assurance, working with officials at regional offices, should incorporate vulnerability of RMP facilities to natural hazards and climate change as criteria when selecting facilities for inspection.

**EPA Response:**

The Agency agrees with this recommendation. The Office of Enforcement and Compliance Assurance established the Chemical Accident Risk Reduction National Compliance Initiative, which includes enforcement and compliance goals for chemical accident risk reduction. The Agency set a target of inspecting three percent of RMP facilities annually in FY 2023-2024, where at least 36% of inspections are at "high-risk" facilities. The Agency will incorporate risks from climate change into the NCI goals and inspection selection criteria.

**GAO Recommendation 6:**

The Assistant Administrator of the Office of Enforcement and Compliance Assurance, working with EPA officials at regional offices, should incorporate the relative social vulnerability of communities that would be impacted by an accidental release when selecting RMP facilities for inspection.

**EPA Response:**

EPA agrees with this recommendation. Under the Office of Enforcement and Compliance Assurance's National Program Guidance for the CAA 112(r) Chemical Accident Prevention Program, the Agency will "work collectively to address serious situations of non-compliance, with a focus on protecting vulnerable populations, many of which are in low income or minority communities, from the risks posed by those facilities." EPA has already begun incorporating environmental justice indicators into inspection targeting and will further refine this process in future years. The current list of high-risk facilities subject to RMP requirements already incorporates information concerning environmental justice indicators, and EPA is currently increasing its work to protect vulnerable populations Agency-wide. In a memo issued on April 30, 2021, the Agency committed to increase the number of facility inspections in overburdened communities. [\*Strengthening Enforcement in Communities with Environmental Justice Concerns\*](#) (Starfield, 2021). As this effort moves forward, the Agency will incorporate any new guidance and directives into our 112(r) work. Additionally, the Agency intends to update the NCI with new inspection targeting goals involving RMP facilities located in communities with environmental justice concerns.

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**Appendix IV: Comments from the U.S  
Environmental Protection Agency**

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EPA appreciates the work done by the GAO on the report, *Chemical Accident Prevention – EPA Should Ensure Regulated Facilities Consider Risks from Climate Change*, and generally agrees with the recommendations. If the GAO has questions on EPA’s response or needs further information, please contact Loan Nguyen at [nguyen.loan@epa.gov](mailto:nguyen.loan@epa.gov) or Kecia Thornton at [thornton.kecia@epa.gov](mailto:thornton.kecia@epa.gov) from EPA’s Office of Enforcement and Compliance Assurance and Office of Land and Emergency Management, respectively.

Sincerely,

**LAWRENCE  
STARFIELD** Digitally signed by  
LAWRENCE STARFIELD  
Date: 2022.02.01  
16:22:03 -05'00'

Lawrence E. Starfield  
Acting Assistant Administrator  
Office of Enforcement and Compliance Assurance

**BARRY  
BREEN** Digitally signed by  
BARRY BREEN  
Date: 2022.02.02  
08:16:37 -05'00'

Barry N. Breen  
Acting Assistant Administrator  
Office of Land and Emergency Management

Enclosure

cc: Carlton Waterhouse, EPA OLEM  
Rosemarie Kelley, EPA OECA  
Kathleen Salyer, EPA OLEM  
EPA GAO Liaison Team

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# Appendix V: GAO Contact and Staff Acknowledgments

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## GAO Contact

J. Alfredo Gómez at (202) 512-3841 or [gomezj@gao.gov](mailto:gomezj@gao.gov)

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## Staff Acknowledgments

In addition to the contact named above, Barbara Patterson (Assistant Director), Krista Mantsch (Analyst-in-Charge), Breanne Cave, Ellen Fried, Skip McClinton, John Mingus, Gabriel Nelson, Jeanette Soares, and Sara Sullivan made key contributions to this report.

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# Related GAO Products

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*FEMA Flood Maps: Better Planning and Analysis Needed to Address Current and Future Flood Hazards.* [GAO-22-104079](#). (Washington, D.C.: Oct. 25, 2021).

*Climate Resilience: Options to Enhance the Resilience of Federally Funded Roads and Reduce Fiscal Exposure.* [GAO-21-436](#). (Washington, D.C.: Sept. 22, 2021).

*Electricity Grid Resilience: Climate Change Is Expected to Have Far-reaching Effects and DOE and FERC Should Take Actions.* [GAO-21-346](#). (Washington, D.C.: Mar. 5, 2021).

*Chemical Security: Overlapping Programs Could Better Collaborate to Share Information and Identify Potential Security Gaps.* [GAO-21-12](#). (Washington, D.C.: Jan. 21, 2021).

*Water Infrastructure: Technical Assistance and Climate Resilience Planning Could Help Utilities Prepare for Potential Climate Change Impacts.* [GAO-20-24](#). (Washington, D.C.: Jan. 16, 2020).

*Disaster Resilience Framework: Principles for Analyzing Federal Efforts to Facilitate and Promote Resilience to Natural Disasters.* [GAO-20-100SP](#). (Washington, D.C.: Oct. 23, 2019).

*Superfund: EPA Should Take Additional Actions to Manage Risks from Climate Change.* [GAO-20-73](#). (Washington, D.C.: Oct. 18, 2019).

*Chemical Innovation: Technologies to Make Processes and Products More Sustainable.* [GAO-18-307](#). (Washington, D.C.: Feb. 8, 2018).

*Climate Change: Improved Federal Coordination Could Facilitate Use of Forward-Looking Climate Information in Design Standards, Building Codes, and Certifications.* [GAO-17-3](#). (Washington, D.C.: Nov. 30, 2016).

*Climate Information: A National System Could Help Federal, State, Local, and Private Sector Decision Makers Use Climate Information.* [GAO-16-37](#). (Washington, D.C.: Nov. 23, 2015).

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**Appendix E National Association of SARA Title III Program Officials (NASTTPO), 2016 Local  
Emergency Planning Committee (LEPC) Survey: Final Report (May 23, 2016)**

National Association of SARA Title III

Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

# 2016 Local Emergency Planning Committee (LEPC) Survey

Final Report



May 23, 2016

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

Listed below is a list of organizations who are responsible for the successful planning and execution of this survey:

LEPCs that participated in the Survey

State of Oklahoma Department of Environmental Quality

EPA Headquarters

NASTTPO Board of Directors

Members of the LEPC Forum Committee:

John Wisner, Chair - Arizona

David Irwin – Delaware

Don McDonald – Ohio

Lori Blatter – Missouri

Nicole Gwinnett – Florida

Matt Marshal – Florida

Leslie Cedeno – Seminole Tribe

Tonya Ngotel - Nebraska

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

## Background and Introduction

The Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986, was enacted as Title III of the Superfund Amendments and Reauthorization Act (SARA), was passed in the wake of the Bhopal disaster in India. Since that time, many communities across the world have experienced chemical releases that have caused injuries, death, damage, and economic impacts. In order to prevent similar occurrences in the United States, EPCRA established a framework to mobilize local government officials, communities, businesses, and other citizens to plan for potential chemical accidents within their communities and required each state to create a State Emergency Response Commission (SERC).

SERCs were charged with establishing Local Emergency Planning Committees (LEPCs), which provide a forum for first responders, State and local officials, emergency managers, industry representatives, hospital and public health officials, the news media, and the general community to work together and achieve local solutions. Under EPCRA, LEPCs are charged to work to identify community chemical hazards, develop and maintain emergency plans in case of an accidental release, and encourage continuous attention to chemical safety, risk reduction, and accident prevention. This becomes the mission of the LEPCs to foster a valuable dialogue within the community to prevent and prepare for accidental or intentional releases of hazardous chemicals.

In both 1999 and 2008, Environmental Protection Agency (EPA) Office of Emergency Management (OEM) decided to “check the pulse” of LEPCs across the nation. This was accomplished by conducting Nationwide LEPC Surveys. This too was the reason that the officers of NASTTPO wanted to conduct a survey in 2016. NASTTPO’s newly formed LEPC Forum Committee was given the charge to find the strengths and weaknesses of the nationwide LEPCs.

Since the 2008 survey, local emergency planning overall has seen the decrease in funding/sources, personnel and time. This has decreased the amount of resources available to assist LEPCs in preparing for and preventing chemical emergencies.

The goals of this survey were to:

1. Identify current LEPC practices and compliance regarding EPCRA related elements;
2. Track the progress of LEPCs by assessing their current activity;
3. Identify EPCRA compliance areas of improvement needed to help the LEPC to improve;
4. Identify the strengths of LEPCs that can be helpful to other LEPCs.

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

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# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

## Methodology and Approach

### *Survey Design*

This survey started with the use of pertinent EPCRA questions or information requested from all of the EPA surveys. Additional questions were created reviewed edited and approved by the committee. The questions were then sent to the NASTTPO Officers for review and up-date. The end result, after several reviews, comments and edits, was the development of this survey which was provided to the LEPCs across the country. The purpose for all of surveys was to gather important information, gauge the levels of compliance, activities of the LEPCs, minimal knowledge of their performance, and to identify the areas needed for improvement.

It should be noted that no grant funding or third party contractor was used in the planning, conducting or evaluation the results of this survey.

### *Data Collection*

The 2016 LEPC Survey was administered electronically in an attempt to reduce the burden on respondents, increase efficiency, and improve data quality. This Survey was conducted by the use of the electronic survey software Survey Monkey. Surrey Monkey program was licensed and administered for this use by the Oklahoma Department of Environmental Quality (DEQ). A representative of Oklahoma DEQ provided up-dates from the survey at regular intervals, to the chairman of the committee.

At the October NASTTPO Workshop, the committee chair reported to the membership that the survey was expected to be live around January 1<sup>st</sup> 2016. The LEPCs were notified through the NASTTPO Board of Directors just prior to the activation on the survey just before the January 1<sup>st</sup> date. Members of the Board of Directors communicated with the LEPCs nationwide to visit and complete this survey. The committee was hoping that this survey would have been important to the almost 3,000 known LEPCs across the country.

The 2016 LEPC Survey was open until April 17<sup>th</sup> 2016 to allow LEPCs to complete the submission of Tier II Reports by the chemical industry. Status emails were sent to the committee members and the NASTTPO President approximately one month from closure of the survey. At the close of the survey, 198 of the 2,670 EPA known LEPCs had responded, yielding a response rate of .08%.

Although a total of 198 LEPC representatives took the survey, the number of people who answered each question varied. Individuals were not required to answer every question and were able to skip questions. Finally, individuals who responded in either the affirmative or negative for certain questions were routed past other questions. Furthermore, for some questions, respondents were able to “select all that apply.” Some questions were open-ended in that they required a narrative from the person instead of clicking on a particular answer.

Results for each of the questions can be found further back in this report.

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

### ***Data Analysis***

The NASTTPO Committee is responsible for the analyzation of the data from the survey. A report of the data collected has been presented to the Board of Directors of NASTTPO. Certain answers were recoded for consistency purposes. Aggregate data tables created by Survey Monkey contain response frequencies and results for each survey question are included at the end of this report.

The final survey questions were open-ended, allowing LEPCs to provide a written response to the questions and additional comments, including best practices. Answers to these open-ended questions were reviewed and compiled thematically. Important findings from comments provided are included throughout this report and at the end of this report.

### ***Maintaining the LEPC Survey***

Interested parties may review the findings of this report on the NASTTPO website: [www.nasttpo.org](http://www.nasttpo.org).

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

## Executive Summary — What Was Learned

### Overview

LEPCs serve as the fundamental link between citizens, industry, responders, and government in emergency preparedness for communities. As the central point around which emergency management agencies, first responders, industry, transportation, environmental agencies, and the community work together to enhance emergency preparedness, LEPCs are improving chemical safety and protecting human health and the environment in communities across this country.

The purpose of the NASTTPO's LEPC Forum Committee to conduct the 2016 survey was to gather important information, gauge the levels of compliance, identify positive activities of the LEPCs, obtain minimal knowledge of their performance, and to identify the areas needed for improvement. The officers of NASTTPO, for the future, want to help improve the practices of the LEPCs to maintain and increase the level of prevention, compliance and preparedness for the potential release of chemical with our communities. Keeping in mind why the U. S. Congress adopted EPCRA in 1986, 30 years ago.

NASTTPO took a different approach than what EPA did in the years they conducted similar surveys. Mailing information that EPA used for their surveys were not available for use by the LEPC Committee, nor was there was a funding source to accommodate the mailing costs. Committee members and NASTTPO Board Members notified the states, encouraging many of the states to contact LEPCs within their responsibility or oversight to complete the survey.

The committee launched the Web-based survey on about January 1, 2016. The survey electronic access was e-mailed to the Committee Members, the NASTTPO Board Members and was passed onto the LEPCs across the country. One hundred and ninety-eight LEPC representatives took the survey, yielding a response rate of .08% of the 2,670 EPA known LEPCs. A list of the number of LEPCs and their states are listed in Appendix C of this report.

The 198 LEPCs who completed the survey represented a total of twenty-four states. Each EPA region had a minimum of two states that had an LEPC response, except for Region two, that region had no LEPC responses.

The majority of LEPCs responding to the 2016 survey serve primarily rural or mixed rural/suburban residential populations under 500,000 or 87.88%.

Survey results indicate that membership has fallen off due to complacency, time interest and funding. In the 2008 survey, this was a strong element to the success of the LEPCs nationwide. Comparison of data between the 2008 survey and this survey is difficult as this survey had many different questions from any of the EPA surveys completed.

### Other Key Findings

- More than 56% of 190 responses, indicate that the LEPC Chairperson is a governmental employee;
- 68% of 189 responses indicate that the emergency management director is responsible for the LEPC activities and compliance items;
- 76% of the 184 responses indicate that less than 40 hours are spent on LEPC projects, activities and requirements;

# National Association of SARA Title III

## Program Officials

### *Concerned with the Emergency Planning and Community Right-to-Know Act*

- 51% of the 195 LEPC responses reflect having Quarterly meetings;
- 57.5% of the 193 responses indicate they do not have a free-standing emergency response Plan;
- Almost 54% of 192 responses indicate their emergency response plan has been reviewed and up-dated within the last 12 months;
- Almost 81% of 193 responses are involved in all-hazards planning;
- 87% of 181 responses have participated in exercises involving their emergency response plan;
- 68% or 122 LEPCs of 179 responses have a very and close relationship with local responders;
- Almost 42.5% of 179 responses have had 1 to 5 releases from fixed facilities;
- 40.5% of 180 responses have had 1 to 5 releases from transportation incidents;
- 70.5% of 177 responses indicate they use CAMEO;
- 63% or 110 LEPCs of 174 responses do NOT have a website;
- 54.7% or 93 of 170 responses have not had any requests from the LEPC;
- Direct funding received (162 responses\*)
  1. Federal Funding – 41.3% or 67 LEPCs
  2. State funding from EPCRA Submissions – 30.2% or 49 LEPCs
  3. Other State Funding – 25.3% or 41 LEPCs
  4. Local fees for EPCRA submissions – 16.6% or 27 LEPCs
  5. Other means of funding – 16.6% or 27 LEPCs
- Federal direct support in past 5 years (154 responses\*):
  1. No direct assistance or support – 35% or 54 LEPCs
  2. EPA – 31.8% or 49 LEPCs
  3. FEMA – 21.4% or 33 LEPCs
  4. US DOT PHMSA – 20.9% or 32 LEPCs
  5. DHS (non-FEMA) – 16.8 % or 26 LEPCs
- Areas needing assistance (167 responses\*):
  1. Funding and/or grants – 67.7% or 113 LEPCs
  2. Outreach & Public Communications – 48.5% or 81 LEPCs
  3. Identification & compliance assistance for non-reporting facilities – 37.7% or 63 LEPCs
  4. Drills & Exercises – 35.3% or 59 LEPCs
  5. Identifying Training opportunities/resources – 31.1% or 52 LEPCs
- Areas where assistance can be provided (132 responses\*):
  1. Conducting Drills/Exercises – 50.7% or 67 LEPCs
  2. Coordination with local, state and federal agencies – 40.1% or 53 LEPCs
  3. Developing/reviewing emergency plans – 31.7% or 49 LEPCs
  4. Outreach & Public Communications – 33.3% or 44 LEPCs
  5. Determine level of risk – 27.2% or 36 LEPCs

\*Answered all that apply

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

### Survey questions and answers

1. Information regarding your Local Emergency Planning Committee (LEPC):

Answered: 197 Skipped: 6

	Responses	
LEPC Name/Jurisdiction	99.49%	196
State	99.49%	196
LEPC position/role for the person completing the survey	100.00%	197

2. What size population does your LEPC serve?

Answered: 198 Skipped: 5

Answer Choices	Responses	
Fewer than 50,000	48.99%	97
50,001 to 100,000	12.63%	25
100,001 to 500,000	26.26%	52
500,001 to 1,000,000	6.57%	13
More than 1,000,000	5.56%	11
<b>Total</b>		<b>198</b>

3. How would you best describe your LEPC's service area?

Answered: 197 Skipped: 6

Answer Choices	Responses	
Predominantly or entirely rural	33.50%	66
Mixed rural/suburban	49.24%	97
Predominantly suburban	3.05%	6
Mixed suburban/urban	12.18%	24
Predominantly or entirely urban	2.03%	4
<b>Total</b>		<b>197</b>

# National Association of SARA Title III

## Program Officials

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### 4. What types of hazardous material infrastructures exist within your jurisdiction? (Select all that apply)

Answered: 198 Skipped: 5

Answer Choices	Responses	
Fixed Facilities-manufacturing hazardous chemicals	51.52%	102
Fixed Facilities-using hazardous chemicals	94.95%	188
Highways-designated for hazmat transportation	85.35%	169
Oil and Gas Production	51.52%	102
Pipelines-Interstate	77.27%	153
Pipelines-Local Distribution	76.26%	151
Pipelines-Oil and Gas Gathering	50.51%	100
Rail lines	82.83%	164
Waterways-used for hazmat transportation	21.21%	42
Airport with cargo service	35.86%	71
Airport with scheduled passenger service	34.34%	68
<b>Total Respondents: 198</b>		

### 5. Please answer the following questions below. (If unsure, please indicate with Don't Know instead of 0)

Answered: 184 Skipped: 19

Answer Choices	Responses	
How many EPCRA Tier II reporting facilities do you have?	97.28%	179
How many TRI reporting facilities do you have?	82.07%	151
How many CAA RMP Reporting facilities do you have?	85.33%	157

# National Association of SARA Title III

## Program Officials

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### 6. Of the EPCRA listed community representatives, which and how many are represented on your LEPC?

Answered: 186 Skipped: 17

How Many?	None	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Broadcast/Print Media	38.55% 64	42.17% 70	10.24% 17	5.42% 9	1.20% 2	0.60% 1	1.20% 2	0.00% 0	0.00% 0	0.00% 0	0.60% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	
Community Groups	20.23% 35	27.17% 47	20.81% 36	12.72% 22	4.62% 8	5.78% 10	1.73% 3	0.58% 1	0.58% 1	0.00% 0	2.89% 5	0.00% 0	0.58% 1	0.00% 0	0.58% 1	1.16% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
Federal Officials	69.33% 113	14.11% 23	4.29% 7	2.45% 4	1.84% 3	3.07% 5	2.45% 4	0.00% 0	0.61% 1	0.00% 0	1.23% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
State Officials	40.72% 68	23.35% 39	17.96% 30	5.39% 9	4.79% 8	2.40% 4	2.40% 4	0.00% 0	1.20% 2	0.00% 0	1.20% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.60% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
Local Officials	11.18% 19	23.53% 40	14.71% 25	10.59% 18	10.00% 17	4.12% 7	7.06% 12	0.59% 1	4.71% 8	0.59% 1	3.53% 6	0.59% 1	1.18% 2	1.18% 2	0.59% 1	2.35% 4	0.00% 0	0.00% 0	1.18% 2	0.00% 0	0.00% 0	0.00% 0
Emergency Management	0.00% 0	25.54% 47	21.20% 39	17.93% 33	12.50% 23	5.43% 10	5.43% 10	2.72% 5	4.35% 8	0.54% 1	1.63% 3	0.54% 1	0.54% 1	0.54% 1	0.54% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
EPCRA Facility Owners/Operators	14.88% 25	11.90% 20	14.88% 25	7.74% 13	11.90% 20	7.14% 12	4.76% 8	1.79% 3	2.38% 4	1.79% 3	5.95% 10	0.00% 0	3.57% 6	0.60% 1	0.60% 1	0.00% 0	0.60% 1	0.00% 0	0.60% 1	0.00% 0	0.00% 0	1.79% 3
Firefighting	2.76% 5	20.99% 38	19.34% 35	13.81% 25	10.50% 19	6.63% 12	4.42% 8	4.42% 8	4.42% 8	2.21% 4	4.42% 8	0.00% 0	1.66% 3	1.10% 2	0.00% 0	1.10% 2	0.55% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.55% 1
First Aid/EMS	14.29% 25	33.71% 59	26.86% 47	11.43% 20	6.29% 11	2.86% 5	2.29% 4	1.14% 2	0.00% 0	0.00% 0	0.57% 1	0.57% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
Health	7.43% 13	41.14% 72	26.29% 46	9.71% 17	8.57% 15	2.86% 5	1.14% 2	1.14% 2	0.00% 0	0.00% 0	1.14% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.57% 1	0.00% 0	0.00% 0	0.00% 0
Hospital/Healthcare	13.29% 23	38.73% 67	28.90% 50	9.25% 16	5.20% 9	2.89% 5	1.16% 2	0.00% 0	0.00% 0	0.00% 0	0.58% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
Law Enforcement	8.99% 16	32.02% 57	29.21% 52	12.92% 23	5.62% 10	3.37% 6	0.56% 1	1.69% 3	2.25% 4	1.12% 2	1.69% 3	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
Local Environmental	27.11% 45	42.17% 70	18.07% 30	6.02% 10	3.01% 5	2.41% 4	0.60% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
Public	39.76% 66	18.07% 30	16.87% 28	8.43% 14	5.42% 9	5.42% 9	1.81% 3	1.20% 2	0.60% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.60% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0
Transportation Industry	42.68% 70	28.05% 46	12.20% 20	4.88% 8	6.71% 11	3.66% 6	1.22% 2	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0

### 7. Is your LEPC Membership been approved by your State Emergency Response Commission (SERC)?

Answered: 181 Skipped: 22

Answer Choices	Responses
Yes	80.66% 146
No	19.34% 35
<b>Total</b>	<b>181</b>

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

### 8. How is your chairperson chosen?

Answered: 194 Skipped: 9

Answer Choices	Responses	
Appointed by State Emergency Response Commission (SERC)	1.03%	2
Elected by LEPC members	80.93%	157
Have chairperson but do not know how he/she was chosen	4.12%	8
Rotating basis	0.52%	1
No chairperson	2.58%	5
Other	10.82%	21
<b>Total</b>		<b>194</b>

### 9. If you have a chairperson are they:

Answered: 190 Skipped: 13

Answer Choices	Responses	
Local Government Employee	55.26%	105
Regulated Facility Employee	10.00%	19
Volunteer member of the Public	15.79%	30
Other	18.95%	36
<b>Total</b>		<b>190</b>

### 10. Does your LEPC Have Bylaws?

Answered: 194 Skipped: 9

Answer Choices	Responses	
Yes	87.11%	169
No	9.79%	19
Don't Know	3.09%	6
<b>Total</b>		<b>194</b>

### 11. In your LEPC, what position is responsible to see that EPCRA activities and requirements are being met? (Select all that apply)

Answered: 189 Skipped: 14

Answer Choices	Responses	
Emergency Management Director	68.78%	130
LEPC Coordinator/Local Government Official	26.46%	50
LEPC Chairman/Membership	44.44%	84
Other	8.47%	16
<b>Total Respondents: 189</b>		

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

12. What is the average amount of time per month the person completing this survey spends working on LEPC projects, activities, and requirements?

Answered: 194 Skipped: 9

Answer Choices	Responses	
Less than 0 hours	76.29%	148
40 to 80 hours	13.40%	26
80 to 120 hours	2.06%	4
120 to 180 hours	1.55%	3
More than 180 hours	1.55%	3
Do not know	5.15%	10
<b>Total</b>		<b>194</b>

13. How often does your LEPC meet?

Answered: 195 Skipped: 8

Answer Choices	Responses	
Weekly	0.00%	0
Monthly	12.82%	25
Bi-Monthly (every other month)	24.62%	48
Quarterly	51.28%	100
Yearly	4.10%	8
As needed	4.10%	8
Hasn't met in the past 12 months	3.08%	6
<b>Total</b>		<b>195</b>

14. What is the average amount of time per month the person completing this survey spends working on LEPC projects, activities, and requirements?

Answered: 27 Skipped: 176

Answer Choices	Responses	
No interest from members	11.11%	3
Insufficient resources (meeting location, time, funding)	3.70%	1
LEPC activities covered at other meetings	14.81%	4
No community/local government support	7.41%	2
Other	77.78%	21
<b>Total Respondents: 27</b>		

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

15. Does your LEPC prepare a freestanding emergency response plan separate from the County or Municipal all-hazards emergency response plan?

Answered: 193 Skipped: 10

Answer Choices	Responses	
Yes	35.75%	69
No	57.51%	111
Don't Know	6.74%	13
<b>Total</b>		<b>193</b>

16. When did your LEPC last review and update its emergency response plan?

Answered: 192 Skipped: 11

Answer Choices	Responses	
Within the past 12 months	53.65%	103
1 - 2 years ago	7.29%	14
Over 2 years ago	9.90%	19
Plan has not yet been reviewed or updated	1.04%	2
We have a plan, but do not know when it was last reviewed and updated	6.77%	13
Do not have a plan	21.35%	41
<b>Total</b>		<b>192</b>

17. Who was the primary author of your LEPC's emergency response plan?

Answered: 164 Skipped: 39

Answer Choices	Responses	
One LEPC member	18.90%	31
More than one LEPC member	32.93%	54
Both LEPC members and outside sources	39.63%	65
Consultant or other outside party	8.54%	14
<b>Total</b>		<b>164</b>

18. When did the State Emergency Response Commission (SERC) last review your emergency response plan?

Answered: 184 Skipped: 19

Answer Choices	Responses	
Within the past 12 months	37.50%	69
1 - 2 years ago	5.98%	11
Over 2 years ago	5.98%	11
Plan has not been reviewed	9.78%	18
Unknown	40.76%	75
<b>Total</b>		<b>184</b>

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

19. As an alternative to preparation of a freestanding emergency response plan by the LEPC, does the LEPC participate in the county or municipal all-hazards planning process?

Answered: 193 Skipped: 10

Answer Choices	Responses	
Yes	80.83%	156
No	8.81%	17
Don't Know	10.36%	20
<b>Total</b>		<b>193</b>

20. How familiar are the majority of your LEPC members with either your freestanding emergency response plan or the county/municipal all-hazards emergency response plan?

Answered: 195 Skipped: 8

Answer Choices	Responses	
Very Familiar	13.85%	27
Familiar	31.79%	62
Somewhat Familiar	32.31%	63
Slightly Familiar	13.33%	26
Not at All Familiar	8.72%	17
<b>Total</b>		<b>195</b>

21. Has your LEPC organized or participated in exercises of either freestanding or county/municipal emergency response plan?

Answered: 181 Skipped: 22

Answer Choices	Responses	
Yes	87.29%	158
No	9.94%	18
Don't Know	2.76%	5
<b>Total</b>		<b>181</b>

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

22. If you answered yes to question 21, please select any/all of the following types of participation that apply.

Answered: 166 Skipped: 37

Answer Choices	Responses	
Actual response	37.35%	62
Drill	60.24%	100
First responder training	43.37%	72
Full-scale exercise	54.22%	90
Public briefing	16.27%	27
Table-top exercise	78.92%	131
Answer was no	5.42%	9
Other	7.23%	12
<b>Total Respondents: 166</b>		

23. When did your LEPC last organize or participate in exercises of either a freestanding or county/municipal emergency response?

Answered: 180 Skipped: 23

Answer Choices	Responses	
Within the past 12 months	67.22%	121
1 - 2 years ago	12.22%	22
Over 2 years ago	5.00%	9
Exercised plan, date unknown	0.56%	1
Never	6.67%	12
Don't Know	8.33%	15
<b>Total</b>		<b>180</b>

24. Has your LEPC engaged in efforts to share hazardous chemical information from either Tier II reports or RMP reports with first responders in your area?

Answered: 176 Skipped: 27

Answer Choices	Responses	
Yes, Tier II Data	94.89%	167
Yes, RMP Data	14.77%	26
None	5.11%	9
<b>Total Respondents: 176</b>		

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

25. Does your LEPC engage in efforts to provide training for the first responders in your area, on hazardous materials, Tier II data and/or other topics addressed in EPCRA?

Answered: 179 Skipped: 24

Answer Choices	Responses	
Yes	83.24%	149
No	16.76%	30
<b>Total</b>		<b>179</b>

26. Are the first responders in your jurisdiction members of the LEPC?

Answered: 180 Skipped: 23

Answer Choices	Responses	
Yes	91.11%	164
No	8.89%	16
<b>Total</b>		<b>180</b>

27. How close is the relationship between the First Responders community and the LEPC?

Answered: 179 Skipped: 24

Answer Choices	Responses	
Very Close	38.55%	69
Close	29.61%	53
As needed	22.35%	40
Very Limited	6.70%	12
Not at all	1.68%	3
Other	1.12%	2
<b>Total</b>		<b>179</b>

28. In the past five years, approximately how many fixed hazardous chemical accidents, created off-site consequences or requiring emergency response from community resources, have occurred in your LEPC's service area?

Answered: 179 Skipped: 24

Answer Choices	Responses	
None	21.23%	38
1 to 5	42.46%	76
6 to 10	12.29%	22
11 to 15	2.23%	4
15 or more	6.70%	12
Don't Know	15.08%	27
<b>Total</b>		<b>179</b>

# National Association of SARA Title III

## Program Officials

### *Concerned with the Emergency Planning and Community Right-to-Know Act*

29. In the past five years approximately how many transportation related hazardous chemical accidents, creating off-site consequences or requiring emergency response from community resources, have occurred in your LEPC's service area?

Answered: 180 Skipped: 23

Answer Choices	Responses	
None	13.33%	24
1 to 5	40.56%	73
6 to 10	6.67%	12
11 to 15	3.89%	7
More than 15	17.22%	31
Don't Know	18.33%	33
<b>Total</b>		<b>180</b>

30. If chemical accidents have occurred within your LEPC's jurisdiction, how did they impact the operations of the LEPC? (Select all that apply)

Answered: 152 Skipped: 51

Answer Choices	Responses	
Change the way information is made available to the public	9.21%	14
Improve coordination efforts with industry/facilities	50.66%	77
Increased frequency of LEPC meetings	1.97%	3
Increased LEPC membership	17.11%	26
Revised emergency plan based on lessons-learned	44.74%	68
Other	22.37%	34
<b>Total Respondents: 152</b>		

31. How do you primarily receive EPCRA Tier I and II data? (Select all that apply)

Answered: 176 Skipped: 27

Answer Choices	Responses	
Direct access to State or locally maintained internet-based electronic reporting system	39.77%	70
Electronic submissions via Tier2Submit	37.50%	66
From the SERC or other State agency in electronic form	27.27%	48
Paper reports from facilities	36.93%	65
Other	8.52%	15
<b>Total Respondents: 176</b>		

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

### 32. Does your LEPC use CAMEO? (Computer-Aided Management of Emergency Operations)

Answered: 177 Skipped: 26

Answer Choices	Responses	
Yes	70.62%	125
No	29.38%	52
<b>Total</b>		<b>177</b>

### 33. If you answered Yes to #32, for which LEPC function do you utilize CAMEO? (Select all that apply)

Answered: 136 Skipped: 67

Answer Choices	Responses	
Access chemical information	72.06%	98
Manage Tier II data	47.79%	65
Drills, training, and exercises	49.26%	67
GIS Mapping (e.g., plotting local infrastructure, hydrants, districts, shelters, floodplain administration, damage assessments, etc.)	50.00%	68
Managing area resources for local emergencies	25.74%	35
Storage and retrieval of emergency plans (e.g., facility site diagrams, transportation routes, screening and contingency plans)	30.88%	42
General Planning activities for all-hazards emergency management	44.85%	61
Evaluating scenarios for chemical spills/incidents	42.65%	58
Incident management/mapping during actual emergencies	41.91%	57
Respond to public inquires	29.41%	40
Other	11.03%	15
<b>Total Respondents: 136</b>		

### 34. How does your LPEC manage EPCRA Tier I and II data? (Select all that apply)

Answered: 172 Skipped: 31

Answer Choices	Responses	
CAMEO/Tier II Submit	51.74%	89
Database created by LEPC	15.70%	27
Other state or local database	29.07%	50
Paper files	40.12%	69
Web-based database	13.37%	23
Other	9.88%	17
<b>Total Respondents: 172</b>		

### 35. Does your LEPC have a website?

Answered: 174 Skipped: 29

Answer Choices	Responses	
Yes	37.36%	65
No	63.22%	110
<b>Total Respondents: 174</b>		

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

36. How does your LEPC notify the public that its emergency plan and chemical hazard information is available? (Select all that apply)

Answered: 171 Skipped: 32

Answer Choices	Responses	
Brochures	18.13%	31
Community Outreach Activities	40.35%	69
LEPC Web site	28.07%	48
Newspaper	35.67%	61
Public Meetings	42.69%	73
Radio/TV	7.02%	12
Social Media	25.73%	44
Other	12.87%	22
<b>Total Respondents: 171</b>		

37. How many public inquiries has your LEPC received and responded to during the past 12 months?

Answered: 170 Skipped: 33

Answer Choices	Responses	
1 to 5 inquires	37.06%	63
6 to 10 inquires	4.12%	7
10 to 20 inquires	1.76%	3
21 or more	2.35%	4
None	54.71%	93
<b>Total</b>		<b>170</b>

38. How does your LEPC interact with Tier II facilities within your area of service? (Select all that apply)

Answered: 166 Skipped: 37

Answer Choices	Responses	
Collecting reports/fees	31.33%	52
Community outreach programs	36.14%	60
Compliance audits/inspections	11.45%	19
Conducting exercises	49.40%	82
Meeting	64.46%	107
Training courses	31.93%	53
Visits to the facilities	55.42%	92
Other	10.24%	17
<b>Total Respondents: 166</b>		

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

39. Please indicate the agencies/organizations from which your LEPC receives direct funding. (Select all that apply)

Answered: 162 Skipped: 41

Answer Choices	Responses	
Donations (hard or soft) and gifts	15.43%	25
Federal funding - e.g., Hazmat Emergency Preparedness (HMEP) Grants	41.36%	67
Local fees from EPCRA report submissions	16.67%	27
Other local government funding	14.20%	23
Other state government funding	25.31%	41
Private industry	7.41%	12
State fees from Emergency Planning & Community Right-to-Know Act (EPCRA) submissions	30.25%	49
Other	16.67%	27
<b>Total Respondents: 162</b>		

40. In the past five years, from which of the following federal agencies did your LEPC receive direct support, as opposed to information from these agencies being indirectly provided through the SERC or other State agency, technical assistance or guidance? (Select all that apply)

Answered: 154 Skipped: 49

Answer Choices	Responses	
Department of Homeland Security (other than FEMA)	16.88%	26
Federal Emergency Management Agency (FEMA)	21.43%	33
Federal Railroad Association (FRA)	6.49%	10
National Oceanic and Atmospheric Administration (NOAA)	11.69%	18
Occupational Safety & Health Administration (OSHA)	2.60%	4
U.S. Bureau of Alcohol, Tobacco and Firearms (BATF)	0.65%	1
U.S. Coast Guard/National Response Center (USCG/NRC)	5.84%	9
U.S. Department of Defense (DOD) - all branches	1.95%	3
U.S. Department of Energy (DOE)	3.90%	6
U.S. Department of Justice (DOJ)	0.65%	1
U.S. Department of Transportation (USDOT)	7.14%	11
U.S. Department of Transportation (USDOT) HMEP funding	20.78%	32
U.S. Environmental Protection Agency (EPA)	31.82%	49
Received no direct assistance or guidance	35.06%	54
Other	12.34%	19
<b>Total Respondents: 154</b>		

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

41. Which of the following areas could your LEPC use assistance with? (Select all that apply)

Answered: 167 Skipped: 36

Answer Choices	Responses	
Conducting drills and exercises	35.33%	59
Coordination with local, state and federal agencies	21.56%	36
Data management	23.35%	39
Determine the level of risk in your jurisdiction	27.54%	46
Developing/reviewing local emergency response plans	21.56%	36
Funding and/or grants	67.66%	113
Identification and compliance assistance for non-reporting facilities	37.72%	63
Identify training opportunities/resources	31.14%	52
Knowledge of EPCRA	28.14%	47
More interaction from federal agencies	14.97%	25
Outreach and communicating with the public	48.50%	81
Other	9.58%	16
<b>Total Respondents: 167</b>		

42. Which of the following areas do you feel your LEPC does well or could offer assistance to other LEPCs? (Select all that apply)

Answered: 132 Skipped: 71

Answer Choices	Responses	
Conducting drills and exercises	50.76%	67
Coordination with local, state and federal agencies	40.15%	53
Data management	21.97%	29
Determine the level of risk in your jurisdiction	27.27%	36
Developing/reviewing local emergency response plans	37.12%	49
Identification and compliance assistance for non-reporting facilities	9.09%	12
Identify training opportunities/resources	25.76%	34
Knowledge of EPCRA	19.70%	26
More interaction from federal agencies	3.79%	5
Outreach and communicating with the public	33.33%	44
Funding and/or grants	6.06%	8
Other	15.15%	20
<b>Total Respondents: 132</b>		

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

### **Question #43 - Major LEPC Issues**

Public Perception

Participation – Complacency

Membership – lack of interest

Funding – Not enough for outreach, Hazmat equipment & training

Lack of industry interest/involvement

Different needs – Rural vs Urban vs Suburban

Emerging threats

Training – Members, volunteers, first responders

Organization restructuring

Time constraints

Increasing bureaucracy – Local, state & federal

Unable to meet due to lack of interest

Keeping up with required data

No interaction with the Public

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

### **Question #44 – LEPC Successes**

Address safety & compliance issues at seminar

EPA SPI Program was a good tool to build relationship with industry & learn of local threats

Good exercises & training

Membership recruitment

Use of Public activities for communications

The chairperson does everything

Good structured meetings with training and exercises

Healthy membership and interaction

Yearly digital billboard campaign

Good coordination, organizations and integration

Host an annual preparedness expo – well received by the Public

Growth and organization

Functioning sub-committees

Quarterly visits to industrial plants

Positive relationships

Good relevant training opportunities

Three sub-committees working well together: Hazard analysis, Public Outreach & Training

Public outreach video created from an exercise

LEPC does not require hierarchy of committees

Allowing each member, a voice

Work well with county EM and local officials

Move meeting to different locations each month

Local health fairs and Fire Safety Days

Had four town hall meetings and three large exercises in one year

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

Annual conference on LEPC topics

Strong OEM role

Strong local leadership and support for the programs

Helped to create a regional HazMat Team

LEPC coordinate with non-profits to expand preparedness partnerships

### ***Question #45 – LEPC Training Opportunities***

Funding is used to send people to hazmat conferences

Coordinate with agencies for training opportunities & exercises

NIMS and emergency training

State assisted training

Exercise and training offered thru agencies within the region

Work with OSU-FST

OSU Fire Safety Training

Several training opportunities offered by emergency management

Annual OSHA, HazCom & GHS, OSHA 40 and OSHA 10

Training is reviewed each meeting

Training opportunities come from HMEP Grant

We provide funding for annual Texas A & M Fire School and Hot Zone

To work within the community

State training from fire and other organizations

Our LEPC is trying to obtain different video training opportunities to develop a library for first responders to check out for in-house training

Annual EPA Workshops

HazMat Awareness for all first responders

We use LEPC funds to support sending people for training

CAMEO

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

Regular annual training: operations, awareness, lessons learned, hazwoper refresher, safety officer, Incident Command, and TT/FSE/FS exercises

We have been able to obtain any training we need through state programs and partnerships with industry

LEPC Training Subcommittee has doubled the training over the past year – 4<sup>th</sup> annual HazMat Symposium held in Daytona Beach

Tabletop and practical exercises

We attempt to have training at each meeting

We share any and all training that becomes available to responders and industry

HAMMER Training ChloRep Training

Unsure

Transcaer, Southern Nevada Caer association, NOAA, DOE, Hospital Training, and emergency first responder training

We try to do a tabletop exercise at each meeting

Trained 400+ people last year on hazmat related topics, also had 100+ people attend the EPCRA ow to Comply” training

Most members take on-line courses with FEMA

Hazmat Technician, HazMat FRO refresher, healthcare coalition, NIMS, CERT

Meter Reading, Hazcom, general equipment

Pipeline Awareness, Railroad training

All are involved in community exercises and public training

State offers LEPC Training during annual EM Conference

Hazmat awareness, operation and technician

LEPC and HMEP Funds provide limited dollars in which to conduct training of public sector first responders...funds are divided between six counties

Hazmat Operations and refreshers in 9 county LEPCs

All training with LEPC is generally provided by Indiana Dept. Homeland Security, ie. NIMS, etc.

State, Federal and professional group seminars, exercises, courses, and meetings that pertain to emergency response and planning...webinars, distance-learning, and conference calls.

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

Coordinate with other first responders

Colorado LEPC Conference

1) How to be a LEPC Member, 2) Case studies/examples of exercise authority

MINS, MERRETT

Poor

We host hazmat exercises annually

Tabletop, Full scale, Functional training is available through State Hazmat Instructors and State Training

We have state funding...we meet with members to determine training needs...match funding against needs.

On-line, local and state emergency management courses

Bi-annual Training session with guest speakers on various topics

We have offered CAMEO, Hazmat Awareness and Operations Training

Pipeline safety, Oil Field Safety awareness, hazmat awareness, Operations and Technician

Our training program for LEPC members is out of date. Have VHS Tape orientation for new members

Shared resources and training opportunities

### ***Question #46 – Biggest LEPC Obstacles***

Interest in participating

Public doesn't see a need or buy-in – complacency

Time – Public, industry, first responders, local & state government

Funding – lack of funds and grants

Education & Knowledge

Lack of personnel

Meetings need to be worth attending

Lack of incentives

EPA Guidance

Lack of incidents or releases

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

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# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

### ***LEPCs who contributed to the survey:***

South East, Nebraska	Jefferson County LEPC, Colorado
City of Westminster, Colorado	Cass County LEPC, Nebraska
Noble County LEPC, Indiana	Racine County, Wisconsin
Boulder, Boulder County, Colorado	Seward/York, Nebraska
Saline County LEPC/Saline County, Missouri	Choctaw County LEPC, Oklahoma
City of Corpus Christie-Nueces County LEPC, Texas	Jasper County LEPC, Iowa
Kawaunee County LEPC, Wisconsin	Warren County LEPC, Indiana
Calumet County LEPC/Calumet County, Wisconsin	Clark County, Indiana
Gibson County LEPC, Indiana	Sedgwick County LEPC, Colorado
Marshall County LEPC, Iowa	Monroe County LEPC, Indiana
Ripley County LEPC, Indiana	Hendricks County LEPC, Indiana
Southern Iowa Regional Emergency Planning Committee, Iowa	Whatcom United LEPC, Washington
DeKalb County, Indiana	Jackson County LEPC, Wisconsin
Central Florida LEPC, Florida	Grady County LEPC, Oklahoma
Marathon County LEPC, Wisconsin	St. Croix County LEPC, Wisconsin
Ottawa County LEPC, Oklahoma	Yuma County LEPC, Arizona
Leflore County LEPC, Oklahoma	Sarpy County LEPC, Oklahoma
Adams County LEPC, Colorado	Otero County LEPC, Colorado
Kay County LEPC, Oklahoma	Atoka County LEPC, Oklahoma
Black Hawk County LEPC, Iowa	Hamilton County LEPC, Ohio
Manon County LEPC, Iowa	Lincoln County LEPC, Colorado
North Central Florida LEPC, Florida	Prowers County LEPC, Colorado
Osage County LEPC, Oklahoma	Oklahoma County LEPC, Oklahoma
Latimer County LEPC, Oklahoma	La Crosse County LEPC, Wisconsin
Scott County Emergency Planning Committee, Kentucky	Payne County LEPC, Oklahoma

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

Boulder LEPC, Colorado	Miami County LEPC, Indiana
Santa Cruz County LEPC, Arizona	LaPorte County LEPC, Indiana
Tulsa LEPC, Oklahoma	Dodge County LEPC, Wisconsin
Southwest Florida LEPC, Florida	Town of Ocean City LEPC, Maryland
Floyd County LEPC, Indiana	McLean County LEPC, Kentucky
Chelan/Douglas LEPC-Chelan/Douglas County, Washington	Lee County LEPC, Florida
Apalachee LEPC, Florida	Kenosha County LEPC, Wisconsin
Trigg County LEPC, Kentucky	Tampa Bay LEPC, Florida
Fayette LEPC, Kentucky	Region 6 LEPC, Iowa
Wayne County LEPC, Indiana	Ripley County LEPC, Indiana
Spencer County LEPC, Indiana	Richland County LEPC, Wisconsin
Northern Kentucky LEPC, Kentucky	Pacific County LEPC, Washington
Fayette County LEPC, Kentucky	Northern Kentucky LEPC, Kentucky
Muhlenberg County LEPC, Kentucky	Ohio County LEPC, Indiana
Eagle County LEPC, Colorado	Winneshiek County LEPC, Iowa
Johnson County LEPC, Iowa	Shelby County LEPC, Iowa
Des Moines County LEPC, Iowa	San Luis Valley LEPC, Colorado
Hickory County LEPC, Missouri	Morrow County LEPC, Oregon
Clatsop County LEPC, Oregon	Washington County LEPC, Oklahoma
Southwest Florida LEPC, Florida	Skamania County LEPC, Washington
Chelan-Douglas Counties LEPC, Washington	Kent County LEPC, Washington
Grays Harbor County LEPC, Washington	Adams County LEPC, Washington
Franklin County LEPC, Washington	Douglas County LEPC, Nebraska
Southeastern New Hampshire REPC, New Hampshire	Cowlitz County LEPC, Washington
Washington County LEPC 4, Rhode Island	Douglas County LEPC, Washington
Kiowa County LEPC, Colorado	Floyd County LEPC, Indiana

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

Washington County LEPC, Wisconsin	Storey County LEPC, Nevada
Clark County LEPC, Nevada	Northeast Florida LEPC, Florida
Douglas County LEPC, Nebraska	Mesa County LEPC, Colorado
Dewey County LEPC, Oklahoma	Churchill County LEPC, Nevada
Douglas County LEPC, Nevada	Washoe LEPC, Nevada
Nye County LEPC, Oklahoma	Okmulgee County LEPC, Nebraska
Douglas County LEPC, Oklahoma	Blaine County LEPC, Kentucky
Lexington-Fayette County LEPC, Oklahoma	Greer County LEPC, Indiana
Ripley County LEPC, Oklahoma	Tulsa County LEPC, Oklahoma
Okfuskee County LEPC, Oklahoma	Pottawatomie County LEPC, Oklahoma
Pontotoc County LEPC, Oklahoma	Kay County LEPC, Oklahoma
Murray County LEPC, Oklahoma	Oklahoma County LEPC, Oklahoma
Custer County LEPC, Oklahoma	Cotton County LEPC, Oklahoma
Blaine County LEPC, Oklahoma	McCurtain County LEPC, Oklahoma
Barnstable County Regional Emergency Planning Committee, Massachusetts	
Southwest Florida LEPC, Florida	Pueblo LEPC, California
SWFRPC, Florida	Southwest Florida LEPC, Florida
District 9 Southwest Florida LEPC, Florida	Tillman County LEPC, Oklahoma
Maynes County LEPC, Oklahoma	Stephens County LEPC, Oklahoma
Grant County LEPC, Oklahoma	CADDO County LEPC, Oklahoma
McClain County LEPC, Oklahoma	LEPC Region V, California
Bexar County LEPC, Texas	Southwest Florida LEPC, Florida
Jefferson County LEPC, Texas	South Plain Public Health District, Texas
Okanogan County LEPC, Washington	Alfalfa County LEPC, Oklahoma
Larimer County LEPC, Colorado	Lincoln County LEPC, Oklahoma
Brazos County LEPC, Texas	LEPC Region VI, California

# National Association of SARA Title III

## Program Officials

*Concerned with the Emergency Planning and Community Right-to-Know Act*

El Paso County LEPC, Texas

San Angelo/Tom Green County LEPC, Texas

City of Corpus Christie LEPC, Texas

Lubbock County LEPC, Texas

La Porte, Morgan's Point & Shore Acres LEPC, Texas

Carter County LEPC, Oklahoma

Pima County LEPC, Arizona

Marshall County LEPC, Oklahoma

Garvin County LEPC, Oklahoma

McIntosh County LEPC, Oklahoma

Johnston County LEPC, Oklahoma

Jackson County LEPC, Oklahoma

Comanche County LEPC, Oklahoma

Beckham County LEPC, Oklahoma

Pottawatomie County LEPC, Oklahoma

Gallatin County LEPC, Montana

Dauphin County LEPC, Pennsylvania

Rogers County LEPC, Oklahoma

Pushmataha County LEPC, Oklahoma

Galena Park LEPC, Texas

Brazoria County LEPC, Texas

Leon County LEPC, Texas

Kendall County LEPC, Texas

Garfield County LEPC, Oklahoma

Texas County LEPC, Oklahoma

Beaver County LEPC, Oklahoma

Cleveland County LEPC, Oklahoma

Alfalfa County LEPC, Oklahoma

Payne County LEPC, Oklahoma

McClain County LEPC, Oklahoma

Grady County LEPC, Oklahoma

Canadian County LEPC, Oklahoma

St Charles Parish LEPC, Louisiana

Major County LEPC, Oklahoma

Cherokee County LEPC, Oklahoma

Orange County LEPC, Oklahoma

Beaver County LEPC, Oklahoma

Kiowa County LEPC, Oklahoma

**Appendix F AWWA letter March 9, 2012 to EPA RE: Planned Release of non-OCA data via the Internet**



March 9, 2012

The Honorable Lisa P. Jackson  
Administrator  
U.S. Environmental Protection Agency  
Ariel Rios Building  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20460

**RE: Planned Release of Non-OCA data via the Internet**

Dear Mrs. Jackson:

As representatives of the Nation's drinking water and wastewater community, we were very disturbed to learn of EPA's plan to re-establish Internet access to the non-Off-site Consequence Analysis (OCA) sections of Risk Management Plans. This announcement from the Office of Emergency Management (OEM), dated December 7, 2011, cites the burden of complying with Freedom of Information Act (FOIA) requests and a need for the FBI and others to have greater access to non-OCA data as the principle reasons the Agency is proposing this change in data handling.

We find it ironic that in an April 2000 report from EPA and the Department of Justice (DOJ)<sup>1</sup> the agencies noted that the release of such information via the Internet can help advance terrorist ends in an environment that provides complete anonymity. We do not believe that this interest, intent, or capability to leverage the Internet to support malevolent acts has waned in the ensuing years. In addition, the report notes that "many terrorist organizations are Internet savvy", and that savvy has only increased with technology advances over the past 12 years. Given this acknowledgement in 2000 and the continued and ongoing threat from terrorist organizations per Department of Homeland Security notices, we are highly skeptical of EPA's plan. We believe a thorough review and consideration of the post-

---

<sup>1</sup> EPA and DOJ. 2000. Assessment of the increased risk of Terrorist of Other Criminal Activity Associated with Posting of Off-Site Consequence Analysis Information on the Internet. April 18, 2000.

9/11 threat environment will show that releasing this sensitive information would constitute a threat to National security.

Equally important is the inclusion of facility safety measures in the non-OCA dataset, specifically, the section on preventative programs. It is not clear how this information came to be reclassified as non-OCA, since the 2000 report by EPA-DOJ labels this information as “data that would be salient to a terrorist for purposes of causing a chemical release”. This data indexes the active and passive mitigation measures installed at a facility. We believe that anonymous and open sharing of such information via the Internet as proposed will serve to further enable those seeking to cause harm. This data could be used to prioritize targets based on the type of mitigation measures and thereby inform perpetrators of the actions necessary to thwart designed protection measures.

In terms of the claim that the FBI and others need access to this information, we would remind the Agency that this is already required under several sections of the following:

- Clean Air Act §112(r) requires entities to provide all Risk Management Plan information to local first responders and response planners;
- Emergency Planning and Community Right-to-Know Act §301-303 requires certain entities to coordinate emergency response plans with state and local emergency planning commissions; and,
- P.L. 109-295 §550(c) provides for sharing of sensitive chemical facility security information with law enforcement officials and first responders.

We do not believe that satisfying information needs of other government entities supports putting such sensitive information on full view to the world. Surely technological advances have enabled the government to make the information available on a secure platform available only to personnel with a need to know.

Finally, in terms of the FOIA burden, we point back to the 2000 analysis which notes that the “more personal contact that is required to obtain information, the less likely it is that someone seeking to misuse the information will attempt to obtain it.” The Internet provides anonymity that undermines the intent of protecting this information from being openly disseminated. We support the current approach for managing access to both OCA and non-OCA which allows an appropriate level of transparency.

Letter to the Honorable Lisa P. Jackson

Page 3

We strongly discourage the Agency from proceeding with this planned release of sensitive data and would welcome the opportunity to meet with you to discuss our concerns.

Best regards,

Thomas W. Curtis  
Deputy Executive Director  
American Water Works Association

Jeff Eger  
Executive Director  
Water Environment Federation

Rob Johnson  
Chief Executive Officer  
National Rural Water Association

Michael Deane  
Executive Director  
National Association of Water Companies

Ken Kirk  
Executive Director  
National Association of Clean Water  
Agencies

Timothy Quinn  
Executive Director  
Association of California Water Agencies

cc: Robert Perciasepe – EPA  
Mathy Stanislaus – EPA/OSWER  
Larry Stanton – EPA/OSWER/OEM  
Nancy Stoner – EPA/OW  
Cynthia Dougherty – EPA/OGWDW  
David Travers – EPA/OGWDW/WSD  
Rand Beers – DHS/NPPD  
William Flynn – DHS/NPPD/IP

**Appendix G EPA & DOJ, Assessment of the Increased Risk of Terrorist of Other Criminal Activity Associated with Posting of Off-Site Consequence Analysis Information on the Internet (April 18, 2000)**

**DEPARTMENT OF JUSTICE  
ASSESSMENT OF THE INCREASED RISK OF TERRORIST OR  
OTHER CRIMINAL ACTIVITY ASSOCIATED WITH  
POSTING OFF-SITE CONSEQUENCE ANALYSIS INFORMATION  
ON THE INTERNET**



April 18, 2000

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**DEPARTMENT OF JUSTICE  
ASSESSMENT OF THE INCREASED RISK OF TERRORIST OR  
OTHER CRIMINAL ACTIVITY ASSOCIATED WITH  
POSTING OFF-SITE CONSEQUENCE ANALYSIS INFORMATION  
ON THE INTERNET**

**EXECUTIVE SUMMARY**

On August 5, 1999 the President signed into law the Chemical Safety Information, Site Security and Fuels Regulatory Relief Act (CSISSFRRRA). This legislation requires the President to promulgate on or before August 5, 2000, regulations to address public access to information describing the worst possible impact that a release of toxic or flammable chemicals from a facility could have on the nearby populace and environment. This data, called off-site consequence analysis (OCA) information, is contained in documents known as Risk Management Plans (RMPs). Approximately 15,000 chemical facilities throughout the United States have submitted RMPs to the EPA.

The statute requires that the regulations be based on an assessment of whether release of OCA information over the Internet would increase the risk of terrorism or other criminal acts directed at the chemical facilities submitting such data, and an assessment of whether such release of OCA information would reduce the risk of accidental releases of chemicals from the facilities. The statute further requires that the regulations balance, to the extent possible, the potential risks and the potential benefits, thereby minimizing the overall risk to public health. On January 27, 2000 the President delegated the drafting of the assessments to the Environmental Protection Agency (EPA) (to describe the benefits of release of the OCA data) and to the Department of Justice (DOJ) (to describe the risks associated with the release of such information). The President also delegated jointly to EPA and DOJ the task of drafting the regulation.

For purposes of this risk assessment, we posed three questions: (1) what is the likelihood that a terrorist or other criminal would attempt to use an industrial chemical release as a weapon for purposes of causing casualties among the public and/or damaging property and the environment; (2) what effect would the public release of OCA data have on the possibility of a terrorist or other criminal attempting to cause such a chemical release; and (3) how would release of OCA data specifically over the Internet affect the likelihood of such a chemical release being attempted by a terrorist or other criminal. Our analysis concludes that posting most pieces of OCA information on the Internet would increase the risk of a chemical release caused by a terrorist or other criminal.

## I. The Likelihood that a Terrorist or Other Criminal Would Attempt to Use an Industrial Chemical Release as a Weapon

Based upon our analysis of trends in international and domestic terrorism and upon the burgeoning interest in weapons of mass destruction (WMD) among criminals and other terrorists, we have concluded that the risk of terrorists attempting in the foreseeable future to cause an industrial chemical release is both real and credible. Increasingly, terrorists engineer their attacks to cause mass casualties to the populace and/or large-scale damage to property. Terrorists or other criminals are likely to view the potential of a chemical release from an industrial facility as a relatively attractive means of achieving these goals. In recent years, criminals have with increasing frequency attempted to obtain or produce WMD precisely because such weapons are engineered to cause wide-scale damage to life and property. However, traditional means of creating or obtaining WMD are generally difficult to execute. In contrast, breaching a containment vessel of an industrial facility with an explosive or otherwise causing a chemical release may appear relatively simple to such a terrorist. Therefore, someone seeking to cause the damage associated with WMD may instead seek to cause a chemical release from an industrial facility.

It is particularly noteworthy that there have been successful efforts by foreign militaries and certain terrorist groups indigenous to other countries to cause releases from industrial facilities using bombs. These efforts have in effect converted the facilities into makeshift WMD. Some of these releases have inflicted damage on surrounding communities. Moreover, the evacuations that were triggered by the attempted and successful releases of industrial chemicals produced panic and disruption among the targeted population. These are precisely the goals of a terrorist.

It is also important to recognize that certain types of facilities that are required to submit OCA information are preferred terrorist targets. For example, international and domestic terrorists have most frequently attacked U.S. military, federal and infrastructure facilities in the U.S. and abroad. Consequently, releasing information that could be used for targeting purposes about such facilities may render them more attractive to a terrorist. While security at some of these sites may ameliorate the concern that they will be targeted, no security is foolproof and not everyone intent on terrorist activity—especially those motivated by religious or ideological zealotry—will be dissuaded by security measures. The ubiquitousness of industrial facilities possessing toxic chemicals and their proximity to population centers also make them attractive targets for those interested in causing mass casualties or large scale property damage. Many industrial facilities that are required to submit OCA information are located in high-population areas and, therefore, are likely targets for terrorist activity. Of the nearly 15,000 facilities that have submitted OCA data, almost half report that over 1,000 people live in zones that could be affected by the release of toxic chemicals from those facilities. While not all of the individuals who live in such zones would likely be killed or injured by a chemical release, one of the worst terrorist incidents that the U.S. has experienced could result if even a fraction of them were; by comparison, 168 people were killed and 500 injured in the Oklahoma City bombing.

Our analysis recognizes the fact that the United States has in recent years become the prime target for international terrorists. In 1998, forty percent of all terrorist attacks that occurred

throughout the world were directed against the United States. During the past decade, international terrorists have not been content to attack U.S. interests abroad. The 1993 World Trade Center bombing, the subsequent conspiracy to bomb New York landmarks and transit ways, and the December 1999 interception of bombmaking material being carried across the Canadian border into the United States are vivid reminders that international terrorists are active on United States soil.

The concerns about the exploitation of OCA data for illicit purposes are further compounded by the prospect that domestic terrorists will use the data with disastrous consequences. The 1995 bombing of the Alfred P. Murrah Federal Building in Oklahoma City illustrated with tragic clarity that the threat from domestic terrorists seeking to cause widespread damage and casualties cannot be discounted. Moreover, in regard specifically to attacks on industrial facilities, in the last two years alone there have been two incidents involving domestic terrorist groups planning to cause industrial chemical releases for terroristic purposes. In both cases, law enforcement intervened before the plans were implemented. Although such events are not common—and in years past may not even have been contemplated—we cannot discount the possibility that they may continue to occur, and perhaps occur with greater frequency than in the past.

Contemporaneous with the contemplated release of OCA data are the ongoing efforts by the federal, state and local governments to implement extensive and costly efforts to plan for, prevent, and respond to criminal, terrorist and WMD incidents. In recent years Congress has appropriated billions of dollars to guard against terrorist activities targeting United States citizens and interests. This Administration has also directed extensive and intense efforts in this area and to protect United States' interests against the increasing globalization of crime. The President has issued Presidential Decision Directives 62 and 63, focusing specifically on international crimes and the nation's infrastructure facilities, committing the government to protect such facilities because their disruption could cripple a city or an entire region of the country. Notably, infrastructure facilities comprise approximately 15% of the total number of facilities for which OCA data may be released. In the face of all of these and other efforts to protect against the threats posed by the modern era of crime, an unintended consequence of releasing OCA data may be to undermine the counter-terrorism measures being funded by Congress and being implemented at great cost and effort by federal agencies.

## II. The Risk Associated with Public Dissemination of OCA Data

Having determined that there is a legitimate terrorist threat related to the use of industrial chemical releases as weapons, we have also concluded that public dissemination of certain portions of OCA data would create an increased risk that terrorists or other criminals will attempt to cause an industrial chemical release. OCA data would be helpful to someone seeking to cause such a chemical release because OCA data would provide "one-stop shopping" for refined targeting information, allowing terrorists or other criminals to select the best targets from among the 15,000 chemical facilities that have submitted OCA data. Such perpetrators would be able to assess the relative attractiveness of targeting particular facilities for attack based upon OCA data elements that would provide salient information. The distance that a toxic cloud of chemicals might travel, the numbers of people who might be harmed, and the environmental or public receptors (such as national parks, hospitals and schools) that could be affected are precisely the types of factors that a terrorist weighs when planning an attack.

We do not conclude that the release of all pieces of OCA data creates an increased risk. Rather, we find that the release of different OCA data elements pose varying degrees of risk. The release of OCA data pertaining to the distance to endpoint, the population within the distance to endpoint, the public and environmental receptors within the distance to endpoint, and the optional map or graphic illustrating a worst case or alternative release scenario (category one information) poses the greatest risk, because those data elements provide information that could be construed to estimate the precise body count and environmental harm that would be caused by a chemical release. Such information is increasingly central to the planning of terrorist attacks. The release of OCA data pertaining to the scenario information, the release rate and duration of release, the amount of chemical involved, and the endpoint for flammables (category two information) poses less risk than the data elements in category 1, but would nonetheless pose a risk because these data elements would be helpful to planning an industrial release. They would provide a rough sketch of the elements of a large-scale industrial release, like a worst case or alternative release scenario. Information about a facility's active and passive mitigation systems (category three information) would be of limited use to planning an industrial release but would likely be exploited by only relatively sophisticated terrorists. Lastly, the remaining pieces of OCA information pose practically no risk, because they are apt to be of no assistance to planning a chemical release.

Some of the pieces of OCA information identified above as helpful to planning a chemical release are already publicly available. For example, the information in category three is comparable to information that is available in portions of the RMPs that have been publicly released. Moreover, certain pieces of information in category two are also publicly available. However, none of the pieces of information in category one, which are the data elements that would be the most helpful for purposes of targeting or maximizing the potential harm of a chemical release, are currently available in as readily accessible and user-friendly form as OCA data. The information that is publicly available could only be assembled into comparable targeting information by someone possessing at least some degree of technical proficiency and background in the meaning and use of such information. Furthermore, the following category two data elements are not currently publicly available: the amount of chemical involved, scenario information, the release rate and duration of release for alternative release scenarios, and the endpoint for flammables for alternative scenarios.

### III. Public Dissemination of OCA Data via the Internet

The method of dissemination and the degree to which OCA data are disseminated are of paramount concern to evaluating the risk posed by the release of OCA data. We conclude that among the methods of providing access to OCA data, Internet access poses the greatest risk that OCA data will be used in relation to an attempted industrial chemical release. The degree of risk varies depending upon which pieces of OCA data would be posted. If the OCA data that fall within category one, which represent refined targeting information, were posted on the Internet, it would be accessible to anyone anywhere in the world who has access to the Internet, including agents of hostile foreign countries. Such unmonitored dissemination of this data in a manner that permits users to obtain it anonymously greatly increases the risk of its misuse.

Providing OCA data in a manner that does not permit anonymity would reduce the risk that individuals interested in obtaining OCA data for illicit purposes would attempt to do so. However,

the Internet is incompatible with monitored dissemination. Various technological devices permit users of the Internet to browse the World Wide Web anonymously or under a pseudonym.

To the extent that posting OCA information on the Internet poses an increased risk of chemical releases caused by terrorists or other criminals, dissemination of OCA information in a manner that would permit it to be easily converted into an electronic format for posting on the Internet would raise similar concerns. Paper copies of OCA data could easily be converted into electronic format, possibly using a scanner and optical character recognition software, both of which are widely available and quite affordable. OCA information could then be easily posted on the Internet, where it would pose the risk discussed above.

## I. BACKGROUND

We begin this assessment by providing an overview of the statute and regulations governing the development of RMPs and the dissemination of OCA data. Next, we present a discussion of national security and law enforcement issues, including the general vulnerability of the United States to terrorist attack. Third, we describe the potential dangers associated with a chemical release, and discuss the likelihood of such a release by a criminal or terrorist. Fourth, we analyze the ways in which criminals, terrorists and hostile governments have in past instances obtained and misused publicly available information. Fifth, we evaluate the risks of making OCA data available, including assessing what information is already publicly available and attempting to identify to what extent release of OCA data would increase the risk of criminal or terrorist activity toward chemical facilities. In short, this assessment evaluates the motive that criminals and terrorists would have to commit the crime; the means by which they could commit the crime (using a combination of publicly available data and, if available, OCA data), and the potential consequences of the crime. Given the motive and the means, we conclude that the risk will generally increase if OCA data are released, and will increase sharply if OCA data are released over the Internet.

### A. The Chemical Safety Information, Site Security and Fuels Regulatory Relief Act

The 1990 amendments to the Clean Air Act (CAA) directed EPA to promulgate regulations that would require facilities possessing and handling more than a threshold amount of toxic chemicals and other regulated substances implement a Risk Management Program to reduce the likelihood and severity of chemical releases. The Risk Management Program is intended to reach the most hazardous toxic industrial chemicals and flammable substances. As part of the Risk Management Program, facilities are required to provide the EPA, states and local emergency planners with a risk management plan (RMP).

The RMPs that are mandated under EPA regulations must include the following information:

- an executive summary outlining the facility's RMP;
- identifying information about the facility, including its location, address and contact information;
- information about the chemical accidents that have occurred at the facility in the last five years;
- an accident prevention program;
- an emergency response plan; and
- an off-site consequence analysis (OCA).

OCA data consists of projections about hypothetical circumstances in which the most hazardous regulated toxic and flammable substances on premises are accidentally released into the

environment. In short, these data described the worst possible impact that a chemical release could have on the public and the environment around each facility. (OCA data are discussed more completely infra at 8.)

The CAA required that RMPs, including OCA data contained therein, be made publicly available. Furthermore, the Freedom of Information Act (FOIA) required that RMPs be made available in electronic format, if a citizen requested the OCA data in that form.<sup>1</sup> In 1997, the prospect of the OCA data being released to the public raised concerns among members of the national security community since OCA data could be used by terrorists or criminals to identify facilities from which to cause a chemical release that would result in the most harm to humans, property, and the environment. In response to such concerns, proponents of releasing the OCA data emphasized the benefits that would inure to the public from the release of OCA data. For example, EPA asserted that public release of information about chemical releases has prompted industry to adopt safer and more efficient practices.

Different segments of the federal government and various parties involved in the regulation of chemical facilities disagreed about the dissemination of OCA data. Some believed that posting OCA data on the Internet was the appropriate way to afford the widest possible public dissemination. Others objected to posting OCA data on the Internet because of concern that such unfettered dissemination would increase the risk of terrorists or saboteurs misusing OCA data.

Initially, the OCA data were to be made publicly available in June 1999. However, in early 1999, Congress held hearings on the issue and subsequently passed the Chemical Safety Information, Site Security and Fuels Regulatory Relief Act (CSISSFRRRA). Among other things, this statute exempted OCA data from FOIA for one year, thereby forestalling the public release of OCA data for a year from the date of enactment.<sup>2</sup> The President signed CSISSFRRRA into law on August 5, 1999.

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<sup>1</sup> Availability of the information in electronic format was required by the Electronic Freedom of Information Act of 1996, codified as amended in various sections of 5 U.S.C. §552(f).

<sup>2</sup> The amendment to the CAA also restricted dissemination of OCA data to only enumerated categories of individuals and limited their dissemination of OCA data. Currently, pursuant to CSISSFRRRA “covered persons” may obtain “OCA information” for “official use.” Covered persons include federal government officers and employees and their contractors; state government officers and employees and their contractors; local government officers and employees and their contractors; SERC and LEPC members and their contractors; police; paid and volunteer firefighters; and other emergency responders. In addition, CSISSFRRRA will require that “qualified researchers” also obtain access to the OCA information. Furthermore, members of the public will also receive access to paper copies of OCA information.

The statute requires that the President, during the year following enactment of CSISSFRRA assess the increased risk of terrorism and other criminal activity associated with posting OCA data on the Internet, as well as the incentives created for the reduction in the risk of accidental releases by public disclosure of OCA data. By the end of that year (*i.e.*, by August 5, 2000), the President must promulgate regulations governing the distribution of OCA data that to the extent possible minimize the risk of terrorism and other criminal activity while also achieving the benefits of reducing the likelihood of accidental chemical releases. Arriving at an appropriate balance of the risks and benefits associated with release of OCA data are the central goal of the regulations. If the regulations are promulgated within the one year period, OCA data will continue to remain exempt from disclosure under FOIA. Otherwise the OCA data must be disclosed in electronic form upon request and will likely end up posted on the Internet.

On January 27, 2000, the President delegated to the Attorney General the task of assessing the increased risk of terrorist and other criminal activity associated with posting OCA data on the Internet, and to the Administrator of the EPA the task of assessing the incentives created by public disclosure of OCA data. The President also delegated to the Attorney General and to the Administrator jointly the drafting of the regulations based on those assessments.

#### B. RMPs and OCA Data

Facilities handling more than a certain threshold of regulated toxic and flammable substances must submit an RMP to outline the facility's compliance with CAA regulations and to summarize the facility's hazard assessment, prevention program, and emergency response program. The RMP must include enough data to allow the EPA to determine through review of the RMP whether the source is in compliance with the CAA.

An RMP is comprised of nine parts. The first part is registration information for the facility that provides identification information such as the facility's location, the name of its owner, its parent company, and the regulated substances that are on site. Parts two through five of the RMP consist of OCA data, the substance of which is discussed below. Part six of the RMP is the facility's five-year accident history. Parts seven and eight contain descriptions of the facility's accident prevention program. Lastly, part nine has information on the facility's emergency response program.

The format of the RMP submission forms was designed to gather basic data from the facilities without requiring detailed documentation. Almost all responses on the RMP submission form are in the form of check-off boxes, "yes" or "no" answers, or numerical entries. The format was intended in part to enable the data to be assembled and easily downloaded or searched. EPA originally anticipated that States, communities, trade associations and public interest groups, among others, would have access to all RMP submissions, including OCA data, in searchable format.

OCA data, which comprise parts two through five of the RMP, consist of two categories of information, worst-case and alternative release scenario information. In addition, facilities must provide worst case and alternative release scenario information for two classes of substances, toxic chemicals and flammable substances. The worst-case scenario describes the results of a catastrophic release of the largest quantity of a regulated substance on site as a result of a vessel or process piping

failure. The worst-case scenario assumes that all active mitigation systems (such as sprinklers, scrubbers, and emergency shutdown systems) fail and only passive mitigation systems (such as dikes, berms, drains, sumps and enclosures) work to contain the release. Based upon such a scenario and a statistical model, the facility calculates the probable effects of such a release. These calculations reflect the size of the area and the number of people who would potentially be affected by a chemical release. They are also used to determine whether certain public buildings and/or environmental sites are within the affected area. It is generally agreed that the worst-case scenario is an unrealistic situation that is highly unlikely to occur, because some of the conditions assumed by the statistical model cannot occur.<sup>3</sup> Nevertheless, even damage far less than that projected by the worst case and alternative scenarios could be severe.

In contrast, the alternative release scenario represents a more realistic situation related to a chemical release. Under the alternative release scenario, the facility is allowed to take into account more likely circumstances that may arise during a chemical release. The alternative release scenario, by most accounts, represents a far more realistic assessment of the results of a chemical release.

Facilities must provide worst-case and alternative release scenario information for two classes of substances, toxic chemicals and flammable substances. In general, OCA data for flammable substances will not produce consequences that are as far reaching as those for toxic substances, since a plume of flammable substances will typically disperse to safe levels before traveling beyond the site of release. However, a flammable substance release may produce an explosion or fire that could cause extensive localized damage, although such explosions are reportedly rare.

The information that must be provided for the OCA portion of the RMP related to a toxic chemical worst-case scenario is as follows:

- the chemical involved in the worst-case scenario and the concentration of that chemical;
- the physical state (gas or liquid) of the chemical;
- the model used for the worst-case scenario projection;
- the scenario that produces the worst-case scenario (gas release or liquid spill and vaporization);
- the projected quantity of chemical released in the worst-case scenario, the release rate, and the duration of the release;

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<sup>3</sup> For example, the area identified as potentially affected (the distance to endpoint) is based upon the assumption that the chemical plume would radiate equally in all directions at once. This is virtually impossible because of meteorological factors.

- the atmospheric stability during the worst-case scenario;<sup>4</sup>
- the topography of the surrounding area (urban or rural);<sup>5</sup>
- distance to end-point, or the distance that the chemical release will extend;
- the residential population within the affected area;
- the types of public receptors within the affected area (schools, residences, hospitals, prison/correctional facilities, recreation areas, or commercial/industrial areas);
- the types of environmental receptors within the affected area (national or state parks, forests, or monuments; officially designated wildlife sanctuaries, preserves, or refuges; federal wilderness area); and
- the types of passive mitigation systems considered.

The worst-case scenario differs slightly for flammable substances: it only includes one scenario describing the release and includes a flammable endpoint data element, which describes the type of damage that would result. The required alternative release scenario information for toxic and flammable substances also varies from the worst-case scenario information, principally in that it includes consideration of active mitigation systems as well as passive mitigation systems (sprinkler systems, deluge systems, water curtain, neutralization, excess flow valve, flares, scrubbers, and emergency shutdown systems), and the facilities have the option of altering the assumptions surrounding the alternative release.

Because the EPA believed that the RMPs should also provide the public with comprehensible information that would encourage discussion about issues related to accident prevention and preparedness, the RMP also includes an executive summary in plain-text that is intended to provide information to the public in a format that is more easily understood than the raw RMP data. EPA instructs facilities submitting RMP data to include a discussion of OCA data in its executive summary. However, EPA does not specify what elements of OCA data or the amount of detail that should be provided in the executive summary. A random search of fifty RMP submissions suggests

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<sup>4</sup> This data element concerns atmospheric conditions that affect the distance that a chemical plume will travel without dispersing. The greater the atmospheric stability the further the plume will carry with a high concentration.

<sup>5</sup> Note that "urban" and "rural" are not used here as they are typically understood. They refer to whether there are any outcroppings in the surrounding topography. If there are objects such as buildings, structures, or trees in the surrounding area, the area is deemed "urban." In contrast, a flat, unobstructed landscape is considered to be "rural." This information is collected because the shape of the topography will affect the dispersion rate of a gaseous chemical.

that there is substantial variance in the amount of OCA information that is provided in the executive summaries that have been submitted to EPA. (See infra at 44).

In addition, CSISSFRRRA requires that EPA make OCA information available to "covered persons" for official use and to "qualified researchers." However, these individuals are expressly restricted by CSISSFRRRA from disseminating OCA data to the public except as provided by the statute. OCA data has been available to "covered persons" since the enactment of the statute. However, access by "qualified researchers" has not been permitted pending a determination by EPA as to the process by which such access should be permitted.

### C. EPA's Current Internet Website

To date, nearly 15,000 RMPs have been submitted. EPA estimates that these 15,000 RMPs may constitute about 80 percent of the expected submissions.<sup>6</sup> Registration and identification information for each facility, the facility's five-year accident history, the facility's accident prevention program, its emergency response program, and the executive summaries, which include OCA data, are currently posted on the EPA website. That information is available to the public and fully searchable by various data elements, including location of the facility, regulated chemicals on site, and the five-year accident history. However, none of the OCA portions of the RMPs are currently posted. As discussed more fully infra at 47, the General Accounting Office (GAO) recently issued a report raising concerns about the vulnerability of EPA's computer network, including its website, to cyber-terrorism and other hacker attacks.

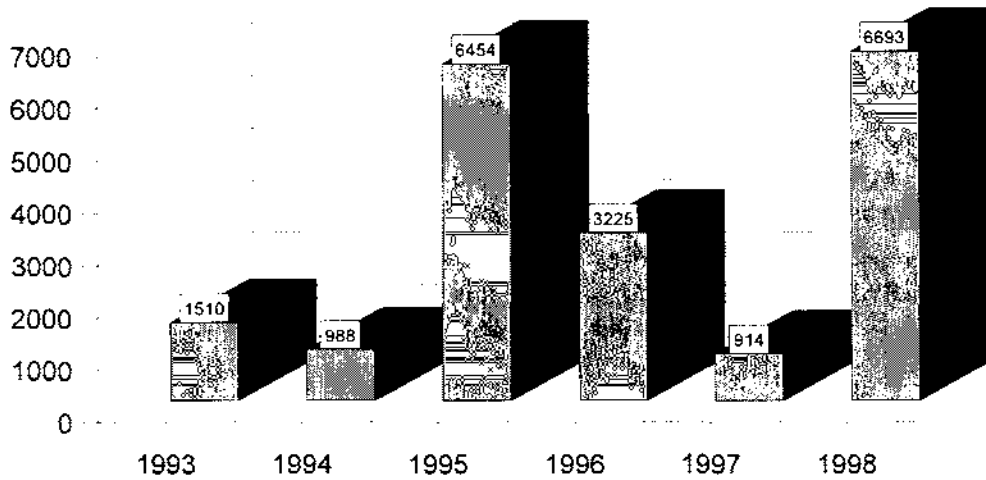
## II. NATIONAL SECURITY ISSUES

An assessment of the increased risk of terrorist activity associated with disseminating OCA data must take into account the general vulnerability of the United States to terrorist attack. The concern about terrorism being directed against the United States or the United States' interests has escalated during the last several years. Even as the number of terrorist acts have declined in the world, the lethality of terrorist attacks has escalated. The State Department reports that the number of international terrorist attacks have generally declined since 1991. However, during the same period, the number of casualties from those attacks each year has fluctuated, peaking in 1998. Over a longer span of time, the trend in greater lethality is evident. According to a chronology of terrorist events compiled by the RAND Corporation and the University of St. Andrews, at least one person was killed in 29 percent of terrorist incidents in 1995. By comparison, only 17 percent and just 19 percent of terrorist incidents resulted in a single death during the 1970's and 1980's respectively.

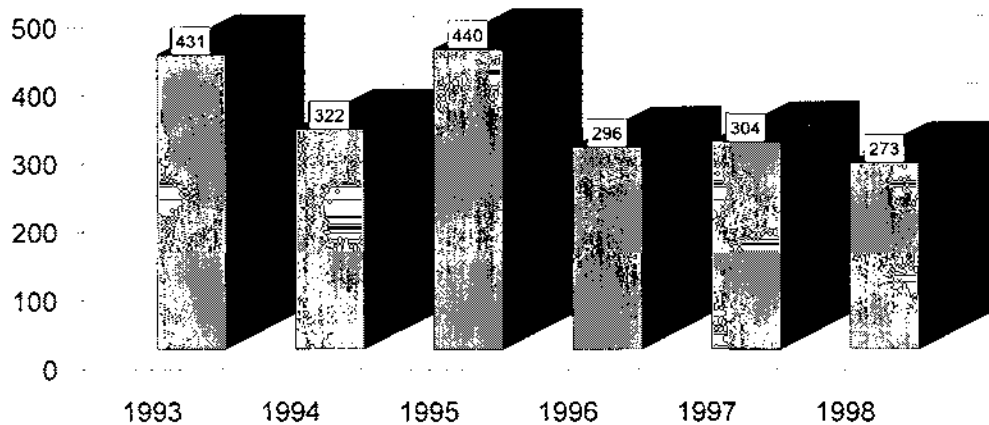
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<sup>6</sup> Initially, the EPA estimated that approximately 30,000 RMPs would be filed. However, subsequent examination suggests that the original estimates may have been too high. EPA's discussions with its regional offices suggest that some facilities that would have been required to submit RMPs have opted instead to reduce the amount of regulated chemicals that they keep on site so that they no longer were subject to the CAA.

## Casualties in International Terrorist Attacks, 1993-98



## Terrorist Attacks, 1993-98



Terrorism experts attribute the increase in the lethality of terrorism to various factors. They include the terrorist's increased quest for attention, developments in terrorist weaponry, and the dramatic proliferation of terrorist groups motivated by religious zealotry.<sup>7</sup> Unfortunately, experts believe that the threat of terrorism is likely to increase in the foreseeable future. A report released in September 1999 by a federal advisory commission headed by former Senators Gary Hart and Warren B.

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<sup>7</sup> See, e.g., Hoffman, Bruce, *Inside Terrorism*, Columbia University Press, 1999.

Rudman found that the threats from terrorism in the next 25 years is likely to increase and that the country "will be vulnerable to an increasing range of threats against American forces and citizens overseas, as well as at home."

It is also necessary to put the potentially catastrophic nature of a chemical release in perspective with terrorist attacks. As illustrated by the chart on page 29, almost half of the worst case scenarios for toxic chemicals (over 7,000) project that over 1,000 people live within the distance to endpoint. The potential consequences of the more conservative estimates based upon the alternative release scenarios still indicate that over a tenth of the submitted RMP facilities (1,669) project populations of over 1,000 people within the distance to endpoint. While not everyone within the distance to endpoint would be killed, injured, or even affected by a worst case or alternative release, injury to even a small proportion of those individuals would constitute one of the worst terrorist incidents in U.S. history. In contrast, the bombing of the Murray building in Oklahoma City killed 168 people and injured 500.

In the context of terrorist attacks that could be executed with the intent of causing maximum harm, the United States must be wary of making information available to terrorists or other criminals that would provide them with an increased ability to consummate their criminal intentions. Public dissemination of OCA information for the 15,000 chemical facilities located throughout the United States that have submitted RMPs could enable terrorists and other criminals to focus their efforts on specific U.S. targets and hone their destructive intent to maximum effect. Thus, in crafting any regulation permitting public disclosure, we must carefully assess the extent to which the potential risk of harm weighs against the benefits to be derived from providing this information.

#### A. The Threat from International Terrorism

In the post-Cold war era, the United States' unique position on the world stage as a military and economic leader has increasingly made it a primary target of international terrorists. In 1998 alone, forty percent of all terrorist attacks (111 attacks) throughout the world were directed against the United States.<sup>8</sup> The FBI's International Terrorism Operations Section currently tracks an average of ten threats per week against U.S. interests emanating from abroad.

A chilling reminder of the depth and intensity of terrorists' animosity toward the United States appeared only recently in the "fatwa" or Muslim religious decree that the terrorist Usama bin Laden and allied groups issued on February 23, 1998 (and reaffirmed in May 1998) calling for all Muslims to wage a holy war on U.S. citizens and interests.<sup>9</sup> The threat of attack represented by this

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<sup>8</sup> Patterns, page 1.

<sup>9</sup> The fatwa was signed by such terrorist groups as al-Jihad and al-Gama' at al-Islamiyya. Several militant groups have also vowed revenge against the U.S. for the missile strikes on terrorist training camps in Afghanistan. 1998 Patterns of Global Terrorism, United States Department of State, page 10 (hereinafter "Patterns").

"fatwa" is real, as recent events show. Based on the fatwa, bin Laden's agents committed simultaneous bombings of U.S. embassies located in Kenya and Tanzania in August 1998, resulting in over 300 fatalities and over 5,000 injured. In the wake of the embassy bombings, the United States launched the most extensive overseas criminal investigation in U.S. history, and, as a result, indicted Usama bin Laden and 14 of his associates. Currently, Usama bin Laden remains free, under the shelter of the Taliban regime in Afghanistan. The threat posed by UBL to the United States is particularly relevant to this assessment given his reported attempts to obtain chemical and biological weapons for use in his "jihad," or holy war, against the United States.

Acts of terrorism perpetrated by international terrorist groups have also taken place in the United States. In February 1993, international terrorists demonstrated their ability to reach inside United States borders when they bombed the World Trade Center office building in New York City, killing five people and injuring more than 600. Investigation revealed that these bombings were only one piece of the war of urban terrorism against the United States that Sheik Omar Abdel Rahman and his co-conspirators were plotting to wage in 1993. These terrorists had also taken steps to plan and carry out the bombing of numerous other New York City landmarks and public facilities, including the U.N. building, the Holland and Lincoln tunnels, and a Manhattan bridge. Only the arrests of the conspirators prevented the scores of additional casualties and widespread destruction that would have resulted from their plans. Law enforcement intervention also prevented bombings in July 1997 that would have targeted the subway system in Brooklyn, New York. Two Palestinian men were arrested in an explosives-laden apartment. They were believed to have been planning to bomb the busy Atlantic Avenue transit station, which adjoins a Long Island Rail Road terminal in Brooklyn.

More recently, just before the past New Years, an individual with links to terrorist organizations was intercepted by U.S. Border Control entering the U.S. with materials that could be used to construct a large bomb. He was charged in federal court with commission of an act of terrorism transcending national boundaries.

As we enter the next millennium, the United States and other countries face a new era of increased globalization and technological advances. Already these advances have strengthened our connection with other countries through transnational agreements and international travel; at the same time, they have exposed the United States to unprecedented vulnerabilities. Moreover, the extensive U.S. cultural, political, economic and military presence abroad, in conjunction with opposition by certain foreign groups and governments to United States policies and actions, continues to make U.S. citizens and interests prime targets for international terrorists.

## B. The Threat from Domestic Terrorism

The threat posed by domestic terrorists against the United States government's interests and citizens is comparable to that posed by international terrorism. On average, the FBI responds to five threats each week emanating from domestic terrorists, or two hundred and sixty per year. During fiscal year 1998, FBI investigative actions successfully thwarted twelve full plots involving the commission of terrorist attacks within the United States.

The April 1995 bombing of the Alfred P. Murrah Federal Building in Oklahoma City—the most deadly act of terrorism in U.S. history—revealed the United States' vulnerability to attack from domestic terrorists. Equally as disturbing as the destructive force of the Murrah building attack was its indiscriminate nature. The 168 killed and over 500 injured included not just members of the military and other government workers, but also scores of children in the daycare center located at the site. The realization that such vast destructiveness could be caused merely by the actions of one or two individuals, acting alone, with relatively rudimentary bombing tools at their disposal was disquieting.

Subsequent bombings, such as the 1996 bombing at the Atlanta Summer Olympics, numerous abortion clinic bombings, and the 1997 planned bombing attack by North American Militia members on federal buildings and a highway interchange have also thrust a spotlight on terrorism perpetrated by the home grown terrorist. These troubling events are hardly anomalous. Numerous other attacks have been perpetrated by domestic terrorists against government facilities in recent years. For example, in December 1995, in Reno, Nevada, two construction workers attempted to bomb the Reno, Nevada, office of the Internal Revenue Service (IRS) using a bomb made of about 100 pounds of fertilizer and kerosene. Fortunately, the triggering mechanism failed and the bomb did not ignite. According to authorities on the scene, many deaths and injuries would have occurred had it gone off. A year later, in January 1996, a bomb exploded outside of a U.S. Forest Service headquarters in Espanola, New Mexico; causing \$25,000 damage to the offices but no injuries. A Forest Service employee in Nevada has been targeted twice. Further, in August 1996, in Austin, Texas, a defendant was sentenced to more than 20 years in prison for plotting to bomb the office of the IRS in Austin. The defendant was convicted on six counts of explosives and firearms violations. Evidence presented at the trial showed that he had planned to plant more than a thousand pounds of explosives in the IRS service center.

The organizations and other terrorist interests responsible for these bombings or similar bombings and attempted bombings have demonstrated an interest in obtaining chemical and biological agents. For instance, in March 1995, two members of the anti-tax Minnesota militia known as the Patriots Council, were convicted of making an illegal batch of ricin, a toxic derivative of the castor bean. The evidence at the trial showed that they planned to use the ricin against law-enforcement officers who had served legal papers on members of the group. In August 1989 indictments were returned against two additional alleged conspirators. According to trial testimony, members of the group planned to poison U.S. agents by placing ricin on doorknobs of their building and to blow up a federal building.

Domestic terrorist groups have also sought to attack the U.S. infrastructure. In December 1999, federal agents in Florida and Georgia arrested two men in connection with a plan to steal explosives from National Guard armories and blow up energy facilities in the Southeast. One of the defendants was the leader of a state militia group located in the Southeast, formed to launch "violent acts of retaliation" against government facilities and personnel.

### C. Trends in Terrorism involving Weapons of Mass Destruction

In addition to the generally elevated level of the terrorist threat confronting the United States, as the Oklahoma City and African Embassy bombings so grimly demonstrated, there is an increased willingness of terrorists to carry out more large-scale incidents designed for maximum destruction."<sup>10</sup> That willingness is evidenced by the increased interest of terrorist groups, both domestically and abroad, in acquiring chemical, biological and nuclear WMD.<sup>11</sup>

Intelligence agencies have predicted that terrorist use of chemical or biological materials will increase over the next decade.<sup>12</sup> FBI Director Louis Freeh has stated that "the most potentially devastating threat facing the United States as we enter the next century is the terrorist use of weapons of mass destruction (large conventional explosive, chemical, biological, radiological or nuclear devices)."<sup>13</sup>

WMD are particularly attractive to terrorist organizations.<sup>14</sup> WMD's ability to harm a significant number of individuals and create panic renders their use, or mere threatened use, by terrorists ideal for purposes of intimidating, influencing, or coercing a government or civilian population.

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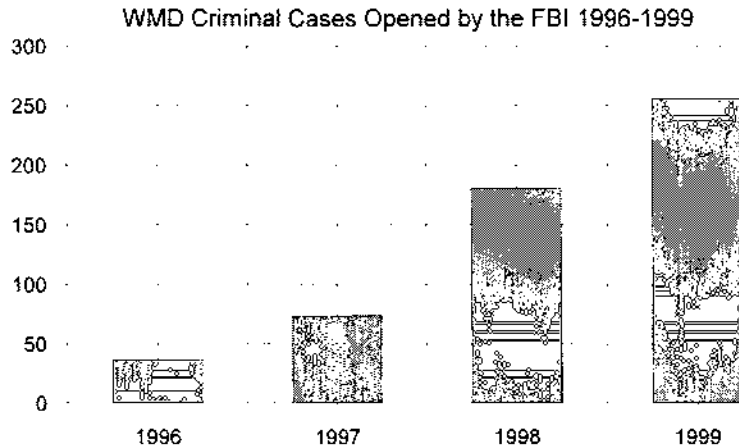
<sup>10</sup> Statement for the record of Louis J. Freeh, Director, Federal Bureau of Investigation, before the United States Committee on Appropriations, Subcommittee for the Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies, February 4, 1999, (hereinafter "Freeh Congressional Statement, Feb. 4, 1999), page 6.

<sup>11</sup> Federal law and the Department of Justice define a WMD as any destructive device as defined in 18 U.S.C. 921, which includes, *inter alia*, explosive, incendiary, or gas devices; any weapon that is designed or intended to cause death or serious bodily injury through the release, dissemination, or impact of toxic or poisonous chemicals, or their precursors; any weapon involving a disease organism; or any weapons that is designed to release radiation or radioactivity at a level dangerous to human life.

<sup>12</sup> GAO Report, "Combating Terrorism: Need for Comprehensive Threat and Risk Assessments Focused on Chemical and Biological Attacks," (GAO/NSIAD-99-163, September 7, 1999)(hereinafter "GAO Report on Terrorism"), page 17.

<sup>13</sup> Freeh Congressional Testimony, Feb. 4, 1999, page 18.

<sup>14</sup> While there is no universally accepted definition of "terrorism," federal law and the FBI define "terrorism" as "the unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives." In the same vein, the FBI defines "domestic terrorism" as the unlawful use, or threatened use, of force or violence by a group or individual based and operating entirely within the United States or Puerto Rico without foreign direction and whose acts are directed at elements of the U.S. Government or its population, in furtherance of political or social goals.



Domestically, the FBI has seen a marked increase in the number of cases involving WMD, primarily in cases involving the threatened use or procurement of chemical and biological materials with intent to harm. Internationally, as the State Department notes, terrorist groups are "known to be interested in utilizing (or in some cases have actually employed) chemical, biological, radiological or nuclear materials in their anti-U.S. operations for the specific purpose of creating mass casualties and inflicting long-term damage."<sup>15</sup> Since Aum Shinrikyo, a Japanese doomsday cult, released sarin nerve gas on the Tokyo subway in March 1995, killing 12 people, terrorist incidents involving chemical or biological agents have increased. Before the late 1990s, the FBI investigated roughly a dozen cases per year involving chemical, biological, radiologic, or nuclear materials. In contrast, the FBI opened 74 such investigations in 1997 and 181 in 1998. The trend continued in 1999, during which the FBI investigated over 280 such cases. Although 80 percent of the incidents in 1997 and 1998 were hoaxes involving only the threatened use of such agents, some of remaining incidents were in fact unsuccessful attacks. In any event, the use of toxic chemical and biological agents in criminal incidents is on the rise. Intelligence agencies believe that the possibility that terrorists will use chemical or biological materials may increase over the next decade. The CIA also asserts that interest among non-state actors, including terrorists, in both biological and chemical materials is real and growing.

The FBI has ranked groups of agents according to the likelihood that they would be used. Currently, the FBI assesses chemical and biological threats as follows:

1. Biological Toxins: Any substance of natural origin produced by an animal or plant.

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<sup>15</sup> Letter dated November 12, 1999 of Ambassador Michael Sheehan, Coordinator for Counterterrorism, Department of State.

2. Toxic Industrial Chemicals:<sup>16</sup> Chemicals developed or manufactured for use in industrial operations such as manufacturing solvents, pesticides, and dyes.
3. Biological pathogens: Any organism such as a bacteria or virus capable of causing serious injury or death.
4. Chemical agents:<sup>17</sup> A chemical substance that is intended for use in military operations to kill, seriously injure, or incapacitate people.

According to a recent General Accounting Office report, Combatting Terrorism: Need for Comprehensive Threat and Risk Assessment of Chemical and Biological Attacks, GAONSIAD-99-163 (September 1996), toxic industrial chemicals are considered by experts from the scientific, intelligence, and law enforcement communities to be an attractive instrument for those who would seek intentionally to do considerable harm to the public. In contrast to many chemical or biological agents, industrial chemicals can cause mass casualties while requiring little if any expertise or sophisticated methods to obtain and adapt to terrorist use, in contrast to many chemical or biological agents. In regard to the threat of chemical and biological terrorism, Henry L. Hinton, Assistant Comptroller General, National Security and International Affairs Division, provided the following testimony to Congress in regard to GAO's report:

According to the experts we consulted, in most cases terrorists would have to overcome significant technical and operational challenges to successfully make and release chemical or biological agents of sufficient quality and quantity to kill or injure large numbers of people without substantial assistance from a state sponsor. With the exception of toxic industrial chemicals such as chlorine, specialized knowledge is required in the manufacturing process and in improvising an effective delivery device for most chemical and nearly all biological agents that could be used in terrorist attacks.

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Some chemical agents are commercially available and require little sophistication or expertise to obtain or use, but other chemical agents are technically more challenging to make and deliver. Toxic industrial chemicals such as chlorine, phosgene, and

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<sup>16</sup> An "industrial chemical" is a chemical developed and manufactured for use in industrial operations or research by industry, government, or academia. Industrial chemicals are not manufactured for the specific purpose of producing human casualties or rendering equipment, facilities, or areas dangerous for use by humans.

<sup>17</sup> The term "chemical agent" means a chemical substance that is intended for use in military operations to kill, seriously injure, or incapacitate people through its physiological effects.

hydrogen cyanide are used in commercial manufacturing and could easily be acquired and adapted as terrorist weapons. (Emphasis added)

Testimony of Henry L. Hinton, Jr., October 20, 1999 before the Subcommittee on National Security, Veterans Affairs, and International Relations, Committee on Government Reform, House of Representatives.

Some industrial chemicals, like chlorine and phosgene, are considered by chemical, intelligence, and law enforcement experts to be particularly dangerous because they are "choking agents" similar to ones used in modern chemical warfare.<sup>18</sup> Some choking agents are readily available because they are commonly used in manufacturing processes, making them convenient components of a makeshift WMD. Chlorine was the second most reported chemical in the RMPs that have thus far been received by EPA. Over 5,000 facilities reported that they used it. Further, chlorine was the second most mentioned chemical in relation to worst-case scenarios, accounting for 30% of the total worst case scenarios.

#### D. The Growth of the Internet and Threats to Our National Security

The far-reaching and ever more rapid advances in computer and software technology over the last ten years have combined with the explosive growth of the Internet to dramatically alter the manner in which we communicate and interact. As the Attorney General recently noted, "[w]ith breathtaking speed the Internet has nearly doubled in size every year since 1990. By 2003, the number of Internet users worldwide is projected to be five hundred and two million people."<sup>19</sup> The Attorney General also observed that although the Internet has brought us "splendid tools of wonder," it has also brought a dark side, including the vulnerability of our nation's infrastructure to cyber-terrorism: "Our nation's infrastructure, including the banking system, the stock market, the electricity and water supply, telecommunications network, and critical government services such as emergency and national defense services, all rely on computer networks."<sup>20</sup> Today, our national policy on how best to protect our national security from threats via the Internet (e.g., attacks on our critical infrastructures), is still evolving.

During the last several years, the threat against these critical infrastructures has become increasingly apparent. For example, in December 1999, the FBI arrested a militia leader plotting to

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<sup>18</sup> A "choking agent" is a substance that causes physical injury to the lungs. Exposure is through inhalation. In extreme cases, membranes swell and lungs become filled with liquid. Death results from lack of oxygen; hence, the victim is "choked."

<sup>19</sup> Remarks of the Honorable Janet Reno, Attorney General of the United States, to the National Association of the Attorneys General, Jan. 10, 2000 (hereinafter "NAAG Speech, , Jan. 10, 2000") pages 1-2.

<sup>20</sup> Id.

destroy a power installation in Florida using explosives stolen from National Guard armories. Other efforts by domestic terrorists have also targeted infrastructure facilities.

As discussed more fully at pages 29 *infra*, approximately 15 percent of the infrastructure facilities across the country are among the group submitting OCA data, including water supply and irrigation facilities; military installations; utility companies; natural gas distribution, and facilities related to the generation, transmission or control of electrical power. Disruption of even one of these facilities could wreak havoc on an entire region or locality. But the risk to national security is greatly heightened by the nature of the chemicals at use in the facilities that submit RMPs—not only could a criminal or terrorist accomplish the kind of disruption of a region or locality usually feared in the case of attacks on critical infrastructure, but he or she could also potentially compound the terroristic effect by causing the deaths of and injuries to people in the surrounding area.

#### E. The United States' Response to These Threats

The increased vulnerability of the United States to terrorist attacks in the post-Cold War era has prompted extraordinary efforts by the federal government to prepare for and prevent such attacks. The federal government's efforts to address the vulnerability of the nation's infrastructures intensified in 1995 under Presidential Decision Directive (PDD) 39, when the Attorney General chaired a Cabinet Committee to assess and recommend measures to protect these infrastructures. Based on this Committee's recommendations, the President's Commission on Critical Infrastructure Protection also known as the Marsh Commission, working under the direction of the Steering Group chaired by the Attorney General, addressed this issue. On May 22, 1998, following the Marsh Commission report, the President announced the signing of PDD 62 and 63 on combating terrorism and protecting critical infrastructure. These provisions built upon U.S. counter-terrorism policy and measures outlined in PDD 39. PDD-62 created a new and more systematic approach to fighting the terrorist threat of the next century by reinforcing the mission of the many U.S. agencies charged with roles in defeating terrorism; it also codified and clarified their activities in the wide range of U.S. counter-terrorism programs, from apprehension and prosecution of terrorists to increasing transportation security, enhancing response capabilities and protecting the computer-based systems that lie at the heart of America's economy.

PDD-63 generated an unprecedented effort to protect our nation's critical infrastructure. This included the establishment in 1998 of the inter-agency National Infrastructure Protection Center (NIPC) at the FBI and the creation of specially-trained computer squads in 16 field offices, as well as a host of other FBI teams dedicated to the counter-terrorism effort. Moreover, each of the 97 U.S. Attorneys Offices around the country are staffed with specially trained "Computer and Telecommunications Coordinators" (CTCs), as well as specially trained "Crisis Management Coordinators" (CMCs) to respond to cyber and terrorism attacks. These federal efforts are augmented by similarly extensive efforts in other federal agencies, and by state and local agencies and departments.

The magnitude of the federal, state, and local government's effort to prevent and prepare for terrorist attacks, including those that use chemical weapons, is illustrated by the number and breadth of initiatives undertaken for that purpose, including: the ongoing development in 120 cities of rapid

terrorism response teams for WMD incidents; the development by the Department of Health and Human Services (HHS) of Metropolitan Medical Response Systems (MMRS) in local jurisdictions across the United States; the development by the Federal Emergency Management Agency (FEMA) and the Office of Justice Programs (OJP) of training programs for emergency first responders to WMD incidents; the establishment of national training centers for emergency responders; and the creation of the National Domestic Preparedness Office (NDPO) to coordinate the numerous federal programs providing weapons of mass destruction-related domestic preparedness assistance to state and local jurisdictions.

As even the partial listing of the above-described WMD initiatives indicates, the federal government has expended billions of dollars in recent years on efforts to prepare for the possibility of terrorist attacks in the areas of weapons of mass destruction and on critical infrastructure protection. GAO figures indicate that the President has proposed \$10 billion for counter-terrorism programs for fiscal year 2000, an increase of more than \$3 billion over the \$6.7 billion requested for fiscal year 1999. Of the \$10 billion, \$8.6 billion is for combating terrorism, including defending against WMD, and \$1.4 billion is for critical infrastructure protection.<sup>21</sup> Moreover, for fiscal year 2001, the Justice Department has again requested budget increases to augment its fight against terrorism and to address hostile intelligence activities.

The federal government has been no less active in its efforts to address the potential increase in crime that may arise from the advent of the Internet. Through efforts like the creation of the FBI's NIPC and the interagency efforts of law enforcement agencies, the Department of Defense, the Intelligence Community, and federal agencies with infrastructure-focused responsibility such as the Departments of Energy and Transportation, there has been a consolidated effort to protect the nation's infrastructure from the potential perils of cybercrime.

These efforts are reflected in the Department's budget priorities. In fiscal year 2000, Congress is providing a total of \$106 million in funding for cybercrime efforts underway in the Department's Criminal Division, the FBI, DEA, U.S. Attorneys Offices, and the Office of Justice Programs. The Department has sought an increase for fiscal year 2001 of an additional \$37 million to continue the fight against cybercrime. These enhancements will increase the Department of Justice's funding base for computer crime by 28 percent, for a total of \$138 million.

To put it simply, the government's counter-terrorism policy initiatives and extensive efforts to protect itself from the threat of terrorism and cybercrime could be seriously undermined by the dissemination of OCA data over the Internet. Given the terrorist threat facing the United States both here and abroad, the U.S. should exercise extreme caution in releasing information that would assist those with terrorist intent. Similar concerns prompted Congress to enact legislation in 1999 that

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<sup>21</sup> GAO Report on Terrorism, page 1. For the FBI alone, the annual funding for the Counterterrorism program has increased from \$78.5 million in 1993 to \$301.2 million in 1999. Freeh Congressional Testimony, Feb. 4, 1999, page 1.

would render it illegal for someone to provide information on the manufacture of destructive devices or WMD with the intent to further a crime.

### **III. THE POTENTIAL DANGERS AND THE LIKELIHOOD OF A CHEMICAL RELEASE CAUSED BY A CRIMINAL OR TERRORIST**

Both the EPA and the Department of Justice agree that a release of toxic industrial chemicals—whether as a result of accidental or criminal activity—could have dire consequences. The intentional release of methyl isocyanate gas from a chemical plant in Bhopal, India, in 1984 was reportedly responsible for nearly 2,500 deaths and thousands of injuries. The explosion of a storage tank in Qingdao City, China, in 1997 released a cloud of chlorine gas that injured over 1,000 workers. While there has been no chemical release in the United States that has resulted in comparable injury to life or property, smaller incidents have occurred that have resulted in fatalities and have underscored the dangers of industrial chemical accidents and toxic releases: in 1990, an explosion at a chemical plant in Texas killed 17 people; in 1998, an explosion at a chemical plant in Reno, Nevada, killed four and injured six; and in July 1999, an explosion at a chemical plant near New Orleans injured 15 workers.

While there has been no confirmed terrorist or criminal act responsible for such loss of life, an intentional act that targets a facility and results in a chemical release could prove catastrophic.<sup>20</sup> The fact that chemical releases have occurred with deadly results because of accident or negligence affirms that such consequences could possibly result from intentional criminal acts. We believe that it is possible that large chemical releases could be triggered by criminal activity. Further, we found that an attempt to cause an industrial chemical release would be consistent with both the tactics and the goals of terrorist organizations.

#### **A. The Likelihood that Someone Could Cause a Toxic Industrial Chemical Release**

##### **1. Terrorists and Other Criminals Have Considered Using Chemical Releases from Industrial Facilities as Weapons**

Although unlikely to deter someone from actually attempting to use an industrial chemical release as a weapon, we recognize that there are several factors that may undercut the effectiveness of using a chemical release as a weapon. Some chemicals will ignite if released by an explosion; some burning chemicals are robbed of their lethality. In fact, igniting toxic chemicals escaping from a container, like a tank car or a holding tank, is a method of containment called "vent and burn" used

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<sup>20</sup> We are not including in our assessment one incident that resulted in a terrorist claim of credit. On July 5, 1990, 17 workers were killed during an explosion at the ARCO chemical plant in Texas. The fatalities were the result of a tank containing waste water materials that exploded, causing physical devastation in a one block area. Initially, an Islamic extremist group claimed responsibility for the explosion. However, the ensuing investigation was inconclusive as to the cause of the explosion.

by emergency responders to stanch a leak of hazardous chemicals. Further, some containment containers have safety features intended to prevent accidental releases. Moreover, directing an industrial chemical release toward a particular site that is not in close proximity to the emitting facility would be difficult, if not impossible; there are multiple uncontrollable variables that would affect the dispersal of a toxic plume, such as wind and humidity.

Our conclusion that such disincentives do not sufficiently deter is born out by the fact that individuals have indeed attempted to use chemical releases from industrial facilities as makeshift WMD both domestically and abroad. Some of these events have involved countries or factions hostile to the United States.

Internationally, there have been several incidents involving the attempted release of toxic industrial chemicals. During the recent war in Croatia, Serbian forces attempted to use releases from chemical facilities in conjunction with "ethnic cleansing" efforts. One of the most noteworthy examples was the repeated attacks by Serbian forces on the Petrochemia plant in the town of Kutina, located in the western Slavonia sector of Croatia. The Petrochemia plant produced fertilizer, carbon black, and light fraction petroleum products. Hazardous substances produced or stored at the plant included ammonia; sulfur; nitric, sulfuric, and phosphoric acids; heavy oil; and formaldehyde. The town of Kutina was less than 1 kilometer from the plant and atmospheric contaminant modeling conducted by the Croatian government indicated that a massive fire at Petrochemia would pose a danger to public health across a 100-kilometer radius, extending into Bosnia, Hungary, Slovenia, and Italy. Serbian forces attacked the plant on six occasions during 1993-1995. In response to the attacks on the chemical plant, Petrochemia prepared a detailed report to the United Nations Security Council recommending that the definition of chemical warfare be changed to include attacks on chemical industries. On another occasion, a natural gas refinery in the city of Ivanic, in eastern Slavonia, which produces ethane, propane, and butane and was located 1 kilometer from the center of the city was attacked with rockets containing cluster bombs. Attacks were also launched against pesticide plants in Croatia's industrial center at Sisak and a pharmaceutical factory that used ammonia, chlorine, and other hazardous chemicals located in Zagreb, the capital of Croatia. Again, these facilities were in close proximity to population centers and appeared to have been chosen for that reason. In yet another incident, according to 1995 press accounts, terrorists linked to Chechen rebels had planned to blow up the Polymer Material Works in Budennovsk, Russia, to cause an ecological disaster in the region.

In the United States, we have been fortunate not to have suffered any casualties from the intentional release of industrial chemicals for purposes of causing mass casualties. However, it is indisputable that individuals bent on causing large scale damage have considered using chemical releases from industrial facilities. There have been two instances in just the past two years in which individuals have plotted to use industrial releases from facilities to cause widespread harm. Most recently, in Sacramento, California, the FBI Joint Terrorism Task Force arrested two anti-government militia members in an alleged plot to blow up a large propane storage facility. The facility stored approximately 24 million gallons of liquefied propane fuel and was located about a

mile from a residential subdivision. Had the defendants' plan been implemented, it could have resulted in extensive damage and loss of life.

In a separate event that took place in early 1997, three men and a woman conspired to blow up a gas refinery in Bridgeport, Texas, releasing what they thought would be a lethal cloud of hydrogen sulfide gas in an effort to kill police officers who would come to investigate a telephone bomb threat. During the commotion caused by the chemical release, they hoped to rob an armored car in the nearby town of Chico of \$2 million and use the money to finance other terrorist activities. Fortunately, an informant provided the authorities with information about the group and they were arrested before acting on their plan.

The difficulty inherent in predicting the path of a chemical release may hinder its use as a weapon. However, such considerations may only limit the purpose for which a chemical release is caused rather than dissuading someone altogether from using a chemical release for malevolent purposes. For example, an industrial chemical release is not likely to be used as a means of attacking a particular site, unless that site were in close enough proximity to the facility to assure that it would be affected by the release. It is more probable that a chemical release would be used for the broader terroristic purposes of indiscriminately killing, harming, or threatening people in the surrounding community and damaging their property (*i.e.*, a chemical release is more likely to be used as a blunt tool rather than as a surgical instrument). Moreover, the fact that industrial facilities are numerous may compensate for the difficulty of directing a chemical plume in a particular direction. The number of facilities from which a terrorist or criminal may choose to cause a release of toxic chemicals or flammable substances provides for numerous sites of release.

Even if not ultimately lethal, a chemical release would still cause widespread disruption, panic, and fear. Eliciting fear among the general public is exactly the type of assault on the public psyche that is consistent with terrorism. This may offset a terrorist's concerns over limitations related to the inability to direct a chemical release. As the Advisory Panel to Assess the Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction recently stated in its first report to Congress:

Terrorism, in essence, is a form of psychological warfare. The ultimate objective is to destroy the structural supports that give society its strength by both showing that the government is unable to fulfill its primary security function and, thereby, eliminating solidarity, cooperation, and interdependence on which social cohesion and functioning depend. Viewed in this context, even a "limited" terrorist attack involving [WMD] would have disproportionately large psychological consequences, generating unprecedented fear and alarm throughout society. (Footnotes omitted)

First Annual Report to the President and the Congress of the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, at p. 22 (December 1999).

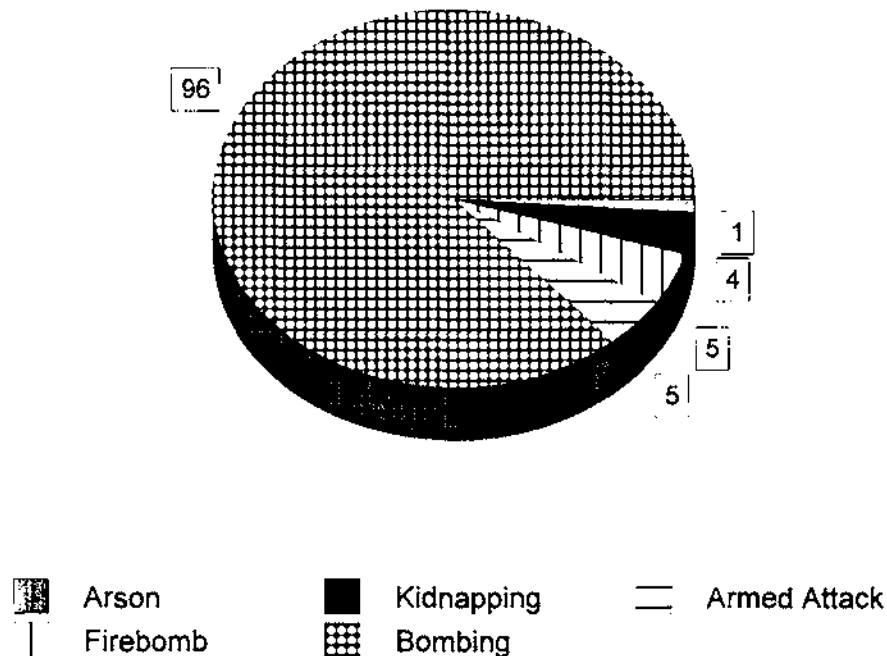
2. The Feasibility of a Criminal or Terrorist Causing a Release of Toxic or Flammable Industrial Chemicals<sup>21</sup>

Our discussions with experts in container breaches have suggested that breaching a hazardous material container using conventional explosives is feasible. While there are multiple methods of possibly breaching a containment vessel (one scenario considered by EPA in a 1995 study involved a plane crashing into a tank), explosives are the most likely means to be employed by terrorists. Among terrorist attacks committed in 1998 against U.S. citizens or facilities, explosives were by far the preferred method of attack. It is also one of the most obvious means of attempting to rupture a large metal vessel. Furthermore, use of a conventional explosive for purposes of causing an industrial release that would harm the public would be a force-multiplier—the scale of the damage and the amount of disruption that could be caused by an explosive that causes a chemical release in a public place could surpass the effects of the same conventional explosive alone.

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<sup>21</sup> This assessment does not limit itself to considering whether a criminal or terrorist attack produces a chemical release identical to that projected by the worst case or alternative release scenarios. The likelihood of human casualties on a par with the projected population within the distance to endpoint in the worst case or alternative scenario projections is slim. Those figures are based upon the total number of individuals who live within the distance to endpoint rather than a projection of the number who would be affected by a chemical release. EPA has suggested that approximately one-sixth to one-tenth of the area within the distance to endpoint would likely be affected by a chemical plume projected under the worst-case or alternative release scenarios. Nonetheless, even if a fraction of those who live or work in a distance to endpoint were affected, that discounted figure could constitute a terrorist event of unprecedented scale in the United States. As noted above, almost half of the RMP facilities reported that over 1,000 people live within their distance to endpoints. This assessment also takes into consideration the collateral disruption and long term damage that could be caused by a chemical leak. Such leaks may trigger large scale evacuation that would provoke exactly the sort of panic and fear intended by terrorists. Further, release of some chemicals could have long-term health and environmental ramifications.

## Type of Terrorist Attacks in 1998



It is noteworthy that chemical tanks have been intentionally ruptured during attacks involving explosives and have resulted in chemical releases, some of which have produced grave damage. Serbian attacks on some industrial facilities attacks did result in the release of toxic chemicals. Fortunately, large evacuations took place in advance. An attack upon a chemical plant in Jovan resulted in the release of 72 tons of anhydrous ammonia. Thankfully, that plant was located 30 km from the town and local public safety officials had time to evacuate its 32,000 residents.<sup>22</sup> Successful chemical releases have also occurred in other countries. In December 1995, members of the Revolutionary Armed Force of Colombia (FARC), Colombia's largest guerrilla group, blew up a pesticides warehouse in Une, Colombia, resulting in large volumes of toxic materials being released into the air. Approximately 9,000 people living in the vicinity of the warehouse were evacuated in order to prevent mass poisoning from the toxic emissions. It is noteworthy that FARC has sympathizers in the United States and the FARC in Colombia has threatened U.S. air carriers.

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<sup>22</sup> Examples of the Serbian military's efforts to create chemical releases are particularly troubling because terrorist organizations sympathetic to Serbian causes are currently operating in the United States.

Components of the U.S. government have also considered the possibility of a release of toxic chemicals from an industrial facility to be a credible threat in U.S. interests. In 1995, EPA and an LEPC (Local Emergency Planning Committee) recognized the potential dangers of chemical releases resulting from terrorist activity and factored the possibility of a terrorist threat into their assessment of safety at facilities storing anhydrous ammonia in the Tampa Bay area.<sup>23</sup> In addition, the Agency for Toxic Substances and Disease Registry (ATSDR), a branch of the Centers for Disease Control and Prevention, has recognized the threat posed by attacks on chemical facilities and, in response, devised a ten-step procedure for analyzing, mitigating, and preventing public health hazards resulting from terrorism involving industrial chemicals. It is noteworthy that among the "soft targets" that the ATSDR identified as potential terrorist sites were chemical manufacturing plants (chlorine, peroxides, other industrial gases, plastics, and pesticides); compressed gases in tanks, pipelines, and pumping stations; and pesticide manufacturing and supply distributors. OCA data contains information about many such "soft targets." For example, there are 68 pesticide and other agricultural chemical manufacturing facilities that have submitted RMPs.

There has yet to be a toxic chemical release from a facility in the U.S. as a result of terrorist or criminal activity. The predictive value of this fact is limited, however. First, in contrast to the lack of terrorist incidents aimed at industrial chemical releases during the entire history of the United States, in the last two years alone law enforcement thwarted two attempts to cause such a chemical release. These recent events suggest that there may be a change in trends relating to such crimes and that the past may not be the most reliable barometer of future events in regard to criminal and terrorist efforts to cause mass damage and casualties through means that may include toxic industrial chemical releases.

#### B. Industrial Facilities Are Attractive Targets to Terrorists and Criminals

Industrial facilities such as those that have submitted RMPs may be attractive targets for criminal and terrorists intent on causing massive damage. First, many such facilities exist in well-populated areas, where a chemical release could result in mass casualties and would result in widespread disruption. Many of the facilities that submitted RMPs reported significant populations living within their distance to endpoints, *i.e.*, the zone that would be affected by a chemical release under the worst case or alternative case scenarios.

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<sup>23</sup> In 1995, EPA conducted a study of storage facilities for anhydrous ammonia in the Tampa Bay area. The study was prompted by concerns about the huge ammonia facilities located in the Tampa Bay area situated in close proximity to the approximately half a million people who live there. The study took into consideration the possible results of several scenarios in which ammonia was released. Among the scenarios under consideration was an "absolute worst case scenario" resulting in the release of ammonia from a tank, perhaps as the result of a plane crash, and a "nightmare scenario" resulting from the simultaneous release of the contents of all storage tanks, perhaps by earthquake or terrorist action. Ultimately, the report raised concerns about the lack of security at the Tampa Bay facilities.

Number of facilities reporting populations within the area that might be affected by a worst case or alternative release scenario					
	Population within Area that Might be Affected by Worst Case and Alternative Case Scenarios				# of facilities
	0-199	200-499	500-999	1000 and up	
Toxic Worst Case	2604	1543	1356	7308	12,811
Toxic Alternative Release	8489	1443	906	1669	12,507
Flammable Worst Case	1928	308	173	279	2688
Flammable Alternative Release	2153	69	37	37	2296

The RMP data above illustrates that over 7,000 facilities, or nearly half of the total number of facilities, have over 1,000 people within the distance to endpoint.

Second, as illustrated in the chart below, most facilities reported that there was more than one public or environmental receptor within the distance to endpoint. Accordingly, a chemical release at an industrial facility might prove attractive because it would both harm a large number of people and public and environmental receptors (for instance, a national park or landmark).

Number of facilities reporting OCA data affecting 1 or more public or environmental receptor					
	1 Public Receptor	Multiple Public Receptors	1 Enviro Receptor	Multiple Enviro Receptors	Total Facilities
Toxic Worst Case	1648	10,842	2055	750	12,811
Toxic Alternative Release	4450	6483	873	102	12,507
Flammable Worst Case	798	1386	198	18	2688
Flammable Alternative Release	950	561	104	5	2296

Third, many facilities submitting RMP data are also the types of facilities that terrorists are apt to target. Military installations, federal facilities, and utility companies are among the facilities that are required to submit RMP data. Such facilities have been the preferred targets of terrorist attacks. Terrorists often select a target because of its symbolic value both to the terrorist and to the victims. International targets of terrorism include entities that represent United States interests abroad, such as the military. The bombings in Riyadh, Beirut, and at Khobar Towers are vivid examples of the targeting of the military by international terrorists that produced devastating results. There are an estimated 80 Defense Department facilities included among the RMP submissions. Among these submissions is one for Fort George G. Meade, where an intelligence agency is located. Moreover, federal facilities have been prime targets among domestic terrorists. The rationale for such attacks have varied. For example, individuals aligned with militia organizations often attack IRS offices because of the IRS' role in collecting funds from citizens of the United States, which some view as an unlawful act. Forest Service facilities have been bombed by those who believe in the absolute sovereignty of the states or in a divine right to unregulated ownership of property. These individuals assert that the federal government has illegitimately usurped states' or individual property owners' rights.

Infrastructure facilities have also been targeted by terrorists. The U.S. infrastructure consists of a broad array of components: telecommunications systems, electrical power systems, gas and oil storage and transportation facilities, banking and finance institutions, transportation facilities, water supply systems, emergency services, and continuity of government entities. Approximately 15 percent of infrastructure facilities across the country are required to submit RMP data. For example, 1,903 of the facilities that submitted RMPs are water supply and irrigation facilities across the country; 56 facilities are involved in the generation, transmission, or control of electrical power; and

14 are involved in natural gas distribution. Infrastructure facilities are apt to be targeted because their disruption can cripple a city or an entire region of the country. For these reasons, hostile countries would be particularly interested in damaging or disrupting such facilities if hostilities broke out between the U.S. and those countries. These underlying concerns are exactly what prompted the extensive efforts and expenditures under PDDs 62 and 63.

In regard especially to military and infrastructure facilities, it is important to recognize that an attempted release of toxic chemicals may be directed at on-site consequences, as well as off-site consequences. A chemical release would be particularly effective at disrupting the operations of strategic sites, even if no off-site consequences resulted. A chemical release may be more effective than a bomb in causing such disruption, since a leak of toxic chemicals may necessitate large-scale evacuation.

Lastly, RMP facilities may also be choice targets because security at many industrial facilities is generally not as substantial as the security at other comparable potential terrorist targets that could cause a harmful release. For example, the security at nuclear facilities is tested and assessed by a Nuclear Regulatory Commission anti-terrorism unit that identifies security weaknesses at commercial nuclear power plants. No comparable effort exists industry-wide for chemical manufacturers.<sup>24</sup>

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<sup>24</sup> CSISSFRRA states that the Department of Justice shall, in consultation with relevant federal, state and local agencies, as well as members of the industry and the public, submit to Congress a report examining issues relating to site security at RMP facilities and to security of transportation of regulated substances.

Category of Facilities Submitting RMPs	Examples of Regulated Entities within these Categories of Facilities
Chemical Manufacturers	Industrial organics and inorganics, paints, pharmaceuticals, adhesives, sealants, fibers
Petrochemical	Refineries, industrial gases, plastics and resins, synthetic rubber
Other Manufacturing	Electronics, semiconductors, paper, fabricated metals, industrial machinery, furniture, textiles
Public Sources	Drinking and waste water treatment works
Utilities	Electric and gas utilities
Others	Food and cold storage, propane retail, warehousing and wholesalers
Federal Sources	Military and energy installations

#### IV. EXPLOITATION OF PUBLICLY AVAILABLE INFORMATION BY TERRORISTS, CRIMINALS, AND HOSTILE GOVERNMENTS

It is practically axiomatic that increased availability of information creates an increase in the risk that such information will be misused.<sup>25</sup> As a dean of the School of Criminal Justice at Rutgers has state in connection with the circulation of a book providing instructions, *inter alia*, on committing murder, "Research has found that if you show people how to commit a crime, they are more likely to do it ... Spreading the knowledge is spreading the opportunity for crime."<sup>26</sup> There are numerous examples of publicly available information being misused for criminal purposes. Such examples relate to information that is made public in a variety of forms: books, other publicly disseminated documents, and Internet postings.

The examples below demonstrate that when information that could be used for criminal purposes is publicly circulated, some members of the public will exploit it for illicit purposes. Some of the following examples also underscore the fact that terrorist groups, both domestic and

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<sup>25</sup> We recognize that it is also axiomatic that increased access to information has attendant benefits. However, this assessment focuses, as required by CSISSFERRA, only upon risk of terrorist or other criminal activity.

<sup>26</sup> "Terror by Mail: Books and Products with Violent Content," Good Housekeeping, 1/1/97, at 76.

international, are exploiting the Internet, both to communicate with each other and, more to the point, to collect information for purposes of committing crimes.

#### A. Publicly Available Information Used in Criminal Acts

Domestic terrorist groups share information within their respective communities obtained from a variety of sources. Some of that information is used for the commission of crimes. For example, the Turner Diaries is a popular book among Christian Identity adherents. It describes a racist revolutionary movement within the United States that eventually leads to the overthrow of the government and the execution of minorities and government officials. The book also describes, in detail, an attack against the FBI Headquarters in Washington, D.C. The Turner Diaries was considered the "blue print" for Timothy McVeigh's bombing of the Alfred Murrah Building in Oklahoma City, Oklahoma, in April 1993.

The Army of God Manual is another document that has been in circulation among members of the radical fringe. It has been re-printed and updated several times by an anonymous author. The Army of God Manual contains advice on how to disrupt operations at clinics where abortions are performed and includes advice on how to build and deploy bombs. These bombmaking instructions were derived from information that was available through other sources, such as the Anarchist Cookbook. The Army of God Manual also includes instructions on the use of isobutyric acid, a caustic, noxious smelling chemical with an odor so pervasive that when it is introduced into a wall of a building, the wall often will have to be demolished and removed.

The Army of God Manual has been tied to several anti-abortion terrorists. Rachelle Shannon, who was convicted of burning eight clinics, conducting two isobutyric acid attacks, and shooting a doctor in Kansas, was tied to the Army of God Manual. Shannon committed several isobutyric acid attacks using the instructions provided in the manual. Similar attacks involving isobutyric acid have continued to occur across the United States following Shannon's incarceration. Clinic arsons have also been committed using the modus operandi outlined in the Army of God Manual. The Army of God Manual has continued to circulate underground.

The Anarchist Cookbook is another example of a published book that has been used by readers for purposes of committing crimes. The Anarchist Cookbook is a collection of information about "revolutionary activities," such as bombmaking. It has been linked to the manufacture of explosive devices and the illegal possession of weapons in several FBI investigations. In one instance, an individual who possessed the book was also found in possession of black powder, fertilizer, detonation cord, caps and pipes. Most recently, a copy was found in the possession of an individual who was indicted by a federal grand jury in November 1999, on charges of threatening to injure a woman and sending a threatening letter to a Court of Appeals Judge. Reportedly, that individual claimed in his letter that he could kill 10,000 people with a chemical called ricin. He had a makeshift lab containing material that could be used to manufacture a deadly biological poison. One of two individuals who were arrested in connection with the November 1999 plot to detonate storage tanks at a northern California propane facility was also found in possession of the

Anarchist's Cookbook, as well as a book entitled The Poor Man's James Bond, which also provides tips on bombmaking activities.

Obviously, the information in the Army of God Manual, the Anarchist Cookbook, and the Poor Man's James Bond are distinct from OCA data, which have primarily legitimate purposes. Nonetheless, these examples illustrate that when information that is susceptible to misuse is made publicly available, it is sought by individuals who would use it to cause harm. It also demonstrates that there are networks of potentially violent criminals who obtain information that is susceptible to being exploited for bad purposes and who circulate it within their communities. In such circles, it is only a matter of time before someone uses that information to do harm.

#### B. Public Information Disseminated Through the Internet Used in Criminal Acts

The Internet is a tremendous source of information. While it is primarily being used by law-abiding individuals every day, it is also being exploited by individuals who use it to assist in criminal activity. The last two years have produced a precipitous rise in Internet usage in households. But violent extremist groups are also part of the burgeoning use of the Internet. The Southern Poverty Law Center reported in 1999 that there was a 60 percent increase in hate group and extremist web sites in 1998; the number of such sites grew from 163 in 1997 to 254 in 1998. There can be little doubt that terrorists are Internet-savvy.

In many regards, the characteristics that make the Internet attractive to the average user also attract extremist groups to its use. The relative ease of access, the amount of content that is available, and the breadth of its use by members of the public make the Internet a valuable new tool. However, the additional fact that information can be obtained from the Internet with virtual anonymity also makes it attractive to those who would use that information for illicit purposes.

The growth of the Internet -- in particular, the explosion of cyber-crime just in the past year alone -- has introduced a new variable into the assessment of the risk involved in making OCA data publicly available. The Internet has been used for two purposes by individuals intent on causing harm: 1) to obtain information that facilitates criminal acts, and 2) to disseminate information to others for purposes of committing criminal acts. In regard to gathering information, there have been many instances in which information gathered online was used in the commission of a crime. The Army of God Manual, discussed above, has been passed via the Internet. In addition, there are numerous examples of bombmaking information that was gathered on the Internet being used during the commission of crimes. In 1997, the Department of Justice released a report discussing use of the Internet to find bombmaking instructions that could be used to commit crimes. That report found that, according to statistics from the Bureau of Alcohol, Tobacco, and Firearms, between 1985 and 1996, the investigations of at least 30 bombings and four attempted bombings resulted in the recovery of bombmaking literature that the suspects had obtained from the Internet. Furthermore, there have been numerous instances of individuals, usually minors, building explosive devices using

instructions that were found on the Internet.

Furthermore, the Animal Liberation Front (ALF), an extremist animal rights organization, has a website providing information on the construction of explosive devices and the names and locations of ALF enemies. One instance under investigation by the FBI entails information that was downloaded from the ALF website and used as an operational hit list.

Crimes committed in the past would likely have been aided by information posted on the Internet. For example, in 1974 the "Alphabet Bomber" was arrested for numerous crimes, including threatening to unleash nerve agents upon populated areas. Upon searching his apartment, local police found live pipe bombs, explosive materials, two gas masks that were stamped "U.S. Army," catalogues for purchasing chemicals and laboratory equipment, and several newly declassified military manuals about poisons and WMD. The Alphabet Bomber had collected a broad array of information about chemical warfare agents from publicly available books from the library and other sources. What took the Alphabet Bomber considerable time and effort to obtain through the library and other sources could have been obtained in a matter of hours on the Internet.

## **V. EVALUATING THE RISKS OF MAKING OCA DATA AVAILABLE TO THE PUBLIC**

Having concluded that there is a legitimate threat that a terrorist or other criminal might seek to use an industrial chemical release as a weapon, we next evaluate whether OCA data would assist someone seeking to cause a chemical release. Further, we also examine whether there is already publicly available information similar to OCA data that reduces concern over the release of OCA data.

### **A. OCA Data that Provides Information Important to Causing, Targeting, or Maximizing the Effects of an Industrial Chemical Release**

OCA data do not include all of the information that would be helpful to someone seeking deliberately to trigger a chemical release. For example, the OCA information does not include information about the site staffing, physical security arrangements, or the layout of the plant. However, certain OCA data represents information that would provide a would-be perpetrator with refined targeting information, making it possible for him or her to select a facility from which a chemical release would cause the greatest damage, both to humans and to the surrounding environment and community.

Not all of the pieces of OCA data pose a risk. As discussed supra at 10-11, OCA data consist of the following constitutive data elements:

- the name of the chemical involved;
- the concentration of the chemical involved;
- the physical state (gas or liquid) of the chemical involved;
- the statistical model used;
- the scenario that produces the worst-case scenario;
- the projected quantity of chemical released;
- the release rate;
- the duration of the release;
- the atmospheric stability;
- wind speed;
- the topography of the surrounding area;
- distance to end-point or the distance that the chemical release will extend;
- the endpoint for flammables;
- the residential population within the affected area;
- the public receptors within the affected area;
- environmental receptors within the affected area;
- passive mitigation systems considered in the worst-case scenario and the active and passive mitigation systems considered in the alternative release scenario; and
- map or other graphic that illustrates a worst case or alternative release scenario.

While it is difficult precisely to predict the pieces of information that would be critical to a terrorist, saboteur, or other criminal seeking to cause an industrial chemical release, we have concluded that the following subset of OCA data would assist a would-be perpetrator in planning a chemical release:

- the name of the chemical involved;
- the scenario that produces the worst-case scenario;
- the projected quantity of chemical released;
- the release rate;
- the duration of the release;
- distance to end-point or the distance that the chemical release will extend;
- the endpoint for flammables;
- the residential population within the affected area;
- the public receptors within the affected area;
- environmental receptors within the affected area;
- active mitigation measures;
- passive mitigation measures; and
- map or other graphic that illustrates a worst case or alternative release scenario.

We believe that the pieces of OCA data that do not fall into the list above would not be particularly helpful to someone seeking to cause a chemical release.

The pieces of OCA data whose public release poses some degree of risk can be placed into three categories. The first category provides a general account of the consequences of a chemical

release in terms of the damage that it might inflict on the community. It consists of the distance to endpoint, residential population within the distance to endpoint, the public receptors, the environmental receptors, and the map or graphic of the worst case or alternative release scenario. These pieces of OCA data would allow someone to compare the relative damage that could be caused by chemical releases from different sites and decide the best target from which to attempt to cause a release. In this regard, the terrorist would use the OCA data in much the same way that it is intended to be used by the public for purposes of assessing the relative risk posed by various facilities. Terrorists' mounting interest in causing the maximum damage would make this information highly valuable to a terrorist seeking to maximize the consequences of a release. We believe that this category of OCA data would be of the greatest value to a terrorist.

The second category of OCA data that would be potentially useful to a terrorist consists of information about the elements of a large scale chemical release and basic information about how to cause a release. The pieces of OCA data that fall within this category are: the name of the chemical involved in the worst or alternative case scenario; the projected quantity of chemical released, the release rate, and the duration of the chemical release; the endpoint for flammables, and the scenario that results in the chemical release. Since different chemicals have different degrees of lethality, knowing just the distance to endpoint may not be enough for purposes of planning a release. It would also be important to know exactly what chemical will be released before assessing a chemical release's potential for harm. In addition, OCA data about the amount of chemical released and the interval of release provides some basic notion of the type of release that would have to be achieved to bring about something approaching the worst or alternative case scenarios. The endpoint for flammables supplies information about the type of damage (radiant heat or a blast wave) that would result from a release of flammable chemicals. Lastly, the scenario information in the RMPs provides rudimentary information about how to cause a release. For example, in regard to scenario information, the facility must identify whether the alternative scenario that is projected by the facility resulted from a transfer hose failure, a pipe leak, a vessel leak, overfilling, rupture disk/relief valve failure, or excess flow device failure. While neither the OCA data nor the RMP provides information about the location of the particular pipe or vessel that would have to be ruptured to cause the alternative release scenario, the means of causing a release have been winnowed down for a would-be perpetrator, providing him or her with a broad notion of where, for example, to place a bomb. All of this information together provides a rough sketch of the elements involved in triggering a serious release from the RMP facilities. This information is less sensitive than the first category of information above, but would nonetheless provide valuable assistance for purposes of planning a chemical release. Further, as discussed *infra* at 44, some of this information is already publicly available.

The third category, which is the least likely to be exploited by a terrorist but would nonetheless be relevant to an attempt to cause a chemical release, concerns the facilities' safety measures. An ambitious perpetrator could also use OCA data to prioritize the best targets on the basis of their lack of mitigation measures that might thwart or hamper a chemical release. This category is reflected by the OCA data about passive and active mitigation measures. Of the three

categories of information, we assess this to be the least important to a terrorist. In addition, this information is already publicly available, as discussed *infra* at 44.’

OCA DATA THAT WOULD BE SALIENT TO A TERRORIST FOR PURPOSES OF CAUSING A CHEMICAL RELEASE	
Category 1: OCA data about the consequences of a chemical release	<ul style="list-style-type: none"> <li>- distance to endpoint</li> <li>- residential population within the distance to endpoint</li> <li>- public receptors</li> <li>- environmental receptors</li> <li>- optional map or graphic of the worst case or alternative release scenario</li> </ul>
Category 2: OCA data providing the elements of a large scale chemical release and basic information about how to cause a release	<ul style="list-style-type: none"> <li>- name of chemical involved</li> <li>- projected quantity of chemical released</li> <li>- the release rate</li> <li>- duration of the chemical release</li> <li>- endpoint for flammables</li> <li>- scenario that results in the chemical release<sup>27</sup></li> </ul>
Category 3: OCA data on facility safety measures	<ul style="list-style-type: none"> <li>- active mitigation measures</li> <li>- passive mitigation measures</li> </ul>

We compared our analysis of pieces of OCA data that would be helpful to a terrorist to a model derived from the intelligence and operations planning/targeting criteria used by the Defense Department's U.S. Special Operations Command (USSOC). That military force's approach to target selection is reportedly similar to that used by a terrorist organization or similar entity. The USSOC-based model included nine pieces of information that it deemed critical to someone seeking to cause an industrial chemical release. The nine pieces of information were identified as:

- 1) knowledge that the facility existed;
- 2) knowledge of which chemicals were present at the facility;
- 3) knowledge that there were offsite consequences to a chemical release from the facility;

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<sup>27</sup> Although we would normally include information like the scenario data element, which is a description of the worst case or alternative release scenarios, in category one, our concern about this information is somewhat diminished because the scenario information in the RMP forms is general and summary in nature. It provides only in broad terms the conditions under which the worst case or alternative case release is presumed to occur (*e.g.*, transfer hose failure or overfilling of tank).

- 4) knowledge of security at the facility;
- 5) knowledge of the facility layout;
- 6) knowledge of where the chemicals were stored;
- 7) knowledge of the mitigation measures to be employed to limit damage used by the site;
- 8) knowledge of the facility's emergency response plan; and
- 9) knowledge of the community emergency response plan.

Seven of the pieces of OCA data that we identify as important to a terrorist (the name of the chemical involved, the distance to endpoint, the residential population within the distance to endpoint, the public receptors, the environmental receptors, the active mitigation measures, and the passive mitigation measures) correspond to the salient items that a terrorist would seek to learn according to the USSOC-derived rubric.

#### B. Pieces of OCA Data that Would Be Salient to a Terrorist Attack that Are Currently Publicly Available

The risk inherent in releasing OCA data may be reduced to the extent that the pieces of OCA data that we have identified as helpful to planning a chemical release are already publicly available in a comparable form. We find that some of the pieces of OCA data that are cause for concern are indeed currently publicly available in a comparable form. However, we have determined that the data that are the most useful to a terrorist are not, or would otherwise require technical proficiency to assemble.

##### 1. Information Currently Disseminated by EPA

Consistent with its regulatory mission, EPA collects and disseminates a wide variety of information concerning chemicals used and stored at facilities across the country.<sup>28</sup> EPA collects and disseminates information concerning the release and transfer of chemicals and compounds pursuant to Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA). Furthermore, facilities that manufacture, process, or use a designated toxic chemical must annually report information to the EPA regarding any chemical releases at the facility. If no reported release

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<sup>28</sup> Our assessment focuses primarily upon publicly available information that is provided by the government. We focus upon such information because there is a qualitative difference between information collected by a member of the public or a non-governmental organization and information that is collected by the government pursuant to federal regulations. The latter information, which has the government's imprimatur, carries a greater presumption of accuracy and is more likely to be considered credible and reliable.

of a chemical has occurred at a site, no report is made to the EPA. Other sources of information provide data about the dangers of potentially hazardous chemicals that are used by manufacturers. Such sources are intended to be used for purposes of worker safety.

In addition to these sources, there are various software programs available through EPA that chart information about potential or actual environmental contamination obtained from certain EPA databases onto a map. Another program takes information from various databases containing environmental information and displays it in a geographic format. Yet another program provides dispersion models that allow users to estimate the dispersion of chemical vapors based on characteristics of a released chemical.

Pursuant to CSISSFRRRA, EPA has released the executive summaries of all the RMPs, many of which contain some OCA data. According to EPA guidance, each executive summary had to mention worst case scenario and alternative release scenario information. However, as the chart infra at 44 demonstrates, while the executive summaries contain some OCA data, they do not contain all OCA information. Furthermore, many do not include the most sensitive OCA data.

## 2. Analysis of the Current Availability of OCA-Type Data

The public availability of OCA data in the three categories of information identified supra at 40 varies greatly. Some of those pieces of OCA data are posted on the Internet, while others are available through programs that must be downloaded and installed on a computer. In other instances, SERCs (State Emergency Response Committee) and LEPCs make such information available, which means it is available mostly on a local level and on a limited scale. Other pieces of the OCA data that poses national security and law enforcement concerns are only available if someone with sufficient expertise compiled information from disparate sources and analyzed it. Lastly, some pieces of OCA data are not available at all.

The four pieces of information in category 1 related to the consequences of industrial chemical releases at facilities (i.e., distance to endpoint, residential population within the distance to endpoint, environmental receptors, and public receptors) are not generally available. We judge this category of information to be vital to many of the potential perpetrators who would seek to cause a chemical release, since maximizing the death toll or damage from a release would be one of the principal goals of a terrorist. Its release poses the greatest national security and law enforcement risk.

Certain websites supply information concerning the consequences of toxic emissions from facilities; however, information from those websites is far less complete than OCA information. For example, there currently are maps posted on some websites annotated with radiating circles to indicate the zone that would be affected by a chemical release from a particular facility. But there

are only a handful of such websites and maps, and the information they contain pertains only to several cities in the country. Moreover, because these websites use data that is not as accurate as the data the federal government gathered through the RMPs, their calculations of consequences are less precise than those represented by OCA data.

Other information about off-site consequences of chemical releases is also currently inaccessible. Neither the numerical estimates of the residential populations, nor the public and environmental receptors that would be affected by chemical releases from facilities is currently available through any public source. This information could be calculated using information available from several different public sources. However, it would take time, familiarity with those sources, and an understanding of how to manipulate them to arrive at figures for the population and receptors that would be affected by a chemical release; a limited pool of people possess all three.

The publicly available information that is most comparable to the distance to endpoint, residential population within the distance to endpoint, and environmental and public receptor data are available through the RMP executive summaries that have been released on the Internet. The EPA's guidelines for submission of RMP data require that the executive summaries include OCA information. However, the guidelines do not specify how detailed the information in the executive summaries should be.<sup>29</sup> Indeed, based upon a random sample of a geographically diverse selection of 50 executive summaries, it appears that they vary greatly in the amount of OCA data they contain, as the chart below indicates. While over half of the sample of executive summaries provided the the distance to endpoint, few gave the residential population within the distance to endpoint. Further, while almost half identified that public or environmental receptors would be affected, only seven identified exactly what receptors would be affected. Such information is provided in the complete OCA data.

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<sup>29</sup> It is noteworthy that we believe the fact that some OCA data has been released in RMP executive summaries poses law enforcement and national security concerns. We recommend that EPA change its guidelines so that OCA data that raises such concerns not be included in the executive summaries in the future.

Worst Case Scenario Data Contained in a Random Sample of 50 Executive Summaries			
Environmental Receptors	Public Receptors	Distance to Endpoint	Residential Population w/in Endpoint
20/50	22/50	35/50	12/50

In sum, the data likely to be used for purposes of targeting a facility from which to cause an industrial chemical release—which falls within our category 1—are not currently available to the public in a format that would be easily used by someone lacking technical sophistication and familiarity with environmental issues.

In regard to the information in category 2, (i.e., OCA data providing the elements of a large scale chemical release and basic information about how to cause a release) portions of these pieces of information are available to the public and are fixed values. The duration of release for the worst case scenarios (Section 2.7) is a fixed numbers selected by EPA. The fixed values are readily accessible in documents that define the worst case scenario. Similarly, the endpoint used for flammables in the worst case scenario (Section 4.5 of the RMP) is also a set value that is readily accessible in the documents that define the worst case scenario. For this reason, we have less concern about the release of these data elements. The alternative release scenario duration of release and endpoint of flammables data elements are not fixed and not generally available. Consequently, their release poses the same degree of risk as the rest of the category 2 data elements.

Lastly, the information in category 3 (OCA data on facility safety measures) is generally currently available in the released portions of the RMPs. Section eight of the RMPs provides information about the facility’s prevention program. As part of the information provided in that section, the mitigation measures at each facility are discussed.

In sum, the information in category 1, which is the information that poses the greatest law enforcement and national security concerns, is the information that is currently least available to the public in a form that is comparable to the OCA data. Further, while some portions of category 2 information have been released to the public, others have not. Specifically, the duration of release and the flammables endpoint for the worst case scenario are fixed values that are publicly available. Lastly, all of the category 3 information is currently available to the public. Based upon this analysis, dissemination of category 1 information will increase the risk of a chemical release being used by a terrorist, because it will disclose heretofore unavailable information that would be useful to a terrorist for purposes of maximizing a chemical release. In addition, release of the following pieces of information that we rank as category 2 information would also have the effect of increasing risk of a chemical release caused by criminal activity, because such information would be helpful to planning a release and is not currently available to the public: the name of the chemical involved,

the projected quantity of chemical released, the scenario, the release rate, the duration of the chemical release for the alternative release scenario, and the endpoint for flammables for the alternative release scenario. Lastly, the information in category three has already been released to the public in the RMPs and, therefore, its release would only negligibly increase the national security or law enforcement risk.

C. Public Dissemination of OCA Data Consistent with National Security and Law Enforcement Concerns

CSISSFRRA requires that the government make all OCA data available in some form to any member of the general public, as well as to covered persons and qualified researchers. Consequently, the only vehicle by which national security or law enforcement concerns described above can be taken into account is in the manner of providing access to the OCA data. From a national security perspective it seems apparent that if all OCA data— including the data elements that pose the greatest risk to national security—must be released to the general public, significant steps must be taken to ensure that the manner in which the data is released poses the least risk to national security. This is particularly true of the information in categories 1 and 2, as enumerated supra at 38, that pose the greatest law enforcement and national security concern.

Not all information that is released to the public is equally accessible. For example, information posted on a website is generally more accessible than information obtained through the mail, which in turn is typically more accessible than information provided in a reading room. Nevertheless, dissemination of information through each of these methods is considered public dissemination. The more personal contact that is required to obtain information, the less likely it is that someone seeking to misuse the information will attempt to obtain it.<sup>30</sup>

1. Security of Data Disseminated Using the Internet

The Internet has revolutionized and will continue to revolutionize how we obtain and share information. The Internet has grown from 65 million users in 1998 to over 100 million users in the U.S. in 1999, or half the country's adult population; the number of Internet users in the U.S. is projected to reach 177 million by the end of 2003; and the number of Internet users worldwide is estimated to reach 502 million by 2003. The Internet, like most new technologies, is an inherently value-neutral tool: It can be used in ways that are socially beneficial or socially harmful. Individuals who wish to use a computer as a tool to facilitate criminal activity may find the Internet as appealing,

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<sup>30</sup> We recognize that the corollary concern is that methods that require more effort might also be a disincentive to individuals who would make appropriate use of the information would also be less likely to obtain it.

if not more so, as they did the telephone decades ago or the telegraph before that. Similar to the technologies that have preceded it, the Internet provides a new tool for wrongdoers to commit crimes.

There is little doubt that terrorist organizations spanning the ideological spectrum are aware of and using the Internet for a variety of purposes. The Liberation Tigers of Tamil Eelam, a separatist group banned by the government of Sri Lanka, and Peru's Shining Path each have websites. In fact, at least 12 of the 30 groups on the State Department's list of designated terrorist organizations maintain web sites. Most use the Internet to advance their political or ideological agenda. Terrorist groups in Latin America have used websites to spread propaganda and Islamic militant organizations have provided their charters through Internet posting. Some reportedly even field press inquiries through electronic mail. Regardless of their purpose, it is clear that many terrorist organizations are Internet-savvy.

We have yet to appreciate all of the ways in which data made available on the Internet may be subject to interception or unauthorized access. Just in February 2000, Internet security experts have identified a "potentially huge" and heretofore unnoticed problem that would allow someone to inject malicious scripts into Internet pages that are generated dynamically by Web servers.<sup>31</sup> A host of data security issues are presented by computers that are linked to the Internet. An Internet security expert at AT&T Labs Research was recently quoted saying that despite a substantial effort by security experts to secure computers, "the attackers have the edge."<sup>32</sup>

One obvious way in which a computer can be involved in unlawful conduct is when the confidentiality, integrity, or availability of a computer's information or services is attacked. This form of crime targets a computer system, generally to acquire information stored on that computer system without authorization (i.e., "hacking" into it). A recent survey of Fortune 500 companies conducted by the FBI and the Computer Security Institute found that 62 percent of respondents had computer security breaches in the last year. There are apparently a variety of methods for obtaining information off of the hard drive of a computer connected to the Internet. For example, it is possible to create a program attached to a piece of e-mail that will read all of the information off of a hard drive and send it to someone as e-mail or post it to a news group.

Offenses involving theft of information may take a variety of forms, depending on the nature of the system attacked. Sensitive information stored on law enforcement and military computers

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<sup>31</sup> This problem, called "cross-site scripting," is being addressed by computer security officials who are providing detailed information to the public about how it works in a concerted effort to inform and ultimately rid the Internet of the problem.

<sup>32</sup> "PC's Vulnerable to Security Breaches, Experts Say," N.Y. Times, 2/04/00.

offers a tempting target to many parties, including subjects of criminal investigations, terrorist organizations, and foreign intelligence operatives.

In regard to the OCA data, we have reservations about making the sensitive pieces of such data available via the Internet because of the difficulty safeguarding Internet-available information from unauthorized access. These concerns are increased given the difficulty that government agencies, including the EPA, have experienced protecting their computer systems to computer attack.

A General Accounting Office (GAO) report entitled "Information Security: Fundamental Weaknesses Place EPA Data and Operations at Risk" prepared in anticipation of a February 17, 2000 hearing before the Subcommittee on Oversight and Investigations, House Committee on Commerce, found that EPA suffered "serious and pervasive problems that essentially render EPA's agency-wide information security program ineffective." The report concluded that "EPA's computer systems and the operations that rely on these systems are highly vulnerable to tampering, disruption, and misuse." The GAO findings related specifically to the computer systems through which EPA makes information, like OCA data, available to the public via its website. The report further claimed that GAO identified two dozen instances during 1998 and 1999 in which EPA's systems were in fact compromised or misused and that "EPA[']s computer system] was the subject of repeated systematic probes from a variety of domestic and foreign sources." (Emphasis added.)

EPA has reportedly taken steps to remedy the problems cited in the GAO report. Nevertheless, making the sensitive pieces of OCA data available to the public via its Internet website, or any website, raises data security concerns.

## 2. Problems with the Breadth of Access of Internet Information

Setting aside the issue of vulnerability to unauthorized access of OCA data, the potential availability of OCA data to the general public—which includes terrorists, as well as law abiding citizens—obviously poses potential hazards, depending on precisely what portions of OCA data are made available. If the sort of targeting information we have identified as posing the greatest security risk among all the OCA data were made available through a website, anyone would have unfettered use of that data. While members of the public with legitimate reasons for seeking such information would have access to such information, individuals with sinister motives would as well.

The risks attendant in disseminating OCA information on the Internet also relate to the likelihood that groups hostile to the United States will seek such information for purposes inimical to U.S. interests. In light of intelligence and other information regarding the extensive use of computers and the Internet by terrorist groups, it should be assumed that in making the OCA data available on the Internet, international terrorist groups will seek, scrutinize, and use that information to the extent it advances their ends. Such ends could include causing chemical releases.

Not surprisingly, in recent years terrorist groups have proven to be as adept as legitimate organizations in taking advantage of and incorporating high technology into their operations and activities. Classified information indicates that a terrorist group which had used chemical agents as a terrorist weapon in the past had also used computer techniques to produce nerve gas and acquired computer-controlled precision machine tools for its abortive effort to produce a nuclear weapon.

Intelligence indicates that, as a general matter, terrorist organizations are increasingly using computers and the Internet for support activities such as recruitment, fundraising, propaganda and communications.<sup>33</sup> Even more significantly for purposes of this assessment, there is intelligence reporting that terrorists have used computer applications, such as the Internet, CD-ROM-based databases, or engineering and research programs, in order to research and analyze target vulnerabilities.

The Internet affords a user access to information virtually anonymously in an unmonitored environment. Even though certain electronic "footprints" may be left by a user, these can be easily disguised through the use of "anonymizers," which are Internet websites that strips all identifying information from a user's Internet transactions, allowing anonymous e-mailing, Web browsing, and newsgroup posting.

### 3. Access to Paper Copies of OCA Data and the Internet

An offshoot of the concern about the risks inherent in providing OCA data to the public via the Internet is the issue of how to effectuate the requirement under CSISSFRRA that members of the public receive "access to paper copies" of OCA data. The core consideration from a risk point of view is that the dissemination to the public of OCA data in paper form will significantly increase the risk that OCA data will ultimately be posted on the Internet. Technological advances have had a great impact upon document handling. Improvements in optical character recognition software programs and affordable computer scanners have vastly simplified the task of converting data contained on paper into electronic data. Creating a reliable and accurate electronic version of a paper document is practically as simple as making a photocopy. Further, these technological advances have vastly simplified the task of converting large quantities of paper documents into electronic data. Once in electronic format, uploading it and posting such information on the Internet is simple.

Accordingly, if paper copies were distributed to members of the public as a means of giving the public access to OCA information, there is a substantial chance that the security interests would be undermined. A coordinated effort of a handful of individuals could fairly easily assemble a large

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<sup>33</sup> Hizballah, for example, maintains several Web sites and claims to have recorded some 65,000 views or "hits" since January 1997.

quantity of submissions regarding different facilities. Depending upon the number of stationary facilities about which someone was entitled to receive OCA data, a group of individuals could possibly even amass OCA data for the entire database. If someone were intent on posting this information on the Internet, little, if anything, could be done to prevent them from accomplishing this objective once the paper copies were in his or her possession. In light of the fact that certain organizations have already taken the OCA Executive Summaries and made them more accessible by posting them on the Internet, it is likely that individuals or organizations will embark on a similar effort with regard to OCA data. Thus, to minimize the risk to national security and law enforcement interests, we recommend that in light of the concerns about certain portions of OCA data being posted on the Internet, the public should be provided access to paper copies of OCA data in the means that will least likely result in members of the public posting OCA data on the Internet.

**Appendix H    Joint Association letter Sept 7, 2022 to EPA RE: Comment Period Extension**



September 7, 2022

***SUBMITTED VIA E-MAIL***

Mr. Michael S. Regan  
Administrator  
Environmental Protection Agency  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20460

**RE: Proposed Rule - Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act; Safer Communities by Chemical Accident Prevention (EPA-HQ-OLEM-2022-0174)**

Administrator Regan:

The American Water Works Association, Association of Metropolitan Water Agencies, National Rural Water Association, National Association of Water Companies, National Association of Clean Water Agencies, and the Water Environment Federation respectfully request that the comment period for the above referenced rulemaking be extended by 60 days. EPA has requested comment on a number of important issues relating to the implementation of the Risk Management Program, and considerations for new provisions. We believe that a 120-day comment period is necessary to provide a reasonable opportunity for public review and comment.

Absent sufficient time to review the Agency plans to revise the RMP program, it may be difficult to assess the effect this proposed federal action may have on the regulated entities. A significant number of drinking water and wastewater systems covered by the RMP rule are classified as small entities and we would appreciate the opportunity to fully review and understand

the rule, including the Regulatory Impact Assessment that the Agency has prepared to support the proposal.

We would appreciate a response to this request as soon as possible. Should you have questions or would like to discuss this matter, please contact Kevin Morley ([kmorley@awwa.org](mailto:kmorley@awwa.org)), Brian Redder ([redder@amwa.net](mailto:redder@amwa.net)), Mike Keegan ([keegan@ruralwater.org](mailto:keegan@ruralwater.org)), Rik Hull ([Rik@nawc.com](mailto:Rik@nawc.com)), Cynthia Finley ([CFinley@nacwa.org](mailto:CFinley@nacwa.org)), or Lisa McFadden ([lmcfadden@wef.org](mailto:lmcfadden@wef.org)).

Sincerely,

**G. Tracy Mehan, III**

Executive Director of Government Affairs  
American Water Works Association

**Adam Krantz**

Chief Executive Officer  
National Association of Clean Water Agencies

**Tom Dobbins**

Chief Executive Officer  
Association of Metropolitan Water Agencies

**Matthew Holmes**

Chief Executive Officer  
National Rural Water Association

**Robert Powelson**

Chief Executive Officer  
National Association of Water Companies

**Walter T. Marlowe, P.E., CAE**

Executive Director  
Water Environment Federation

cc: Barry Breen – OLEM  
Carlton Waterhouse - OLEM  
Radika Fox – OW

**Appendix I EPA letter Oct 26, 2022 to AWWA RE: Denial of Comment Period Extension**



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

October 25, 2022

OFFICE OF  
LAND AND EMERGENCY  
MANAGEMENT

Dr. Kevin M. Morley  
Manager, Federal Relations  
American Water Works Association  
1300 Eye Street, NW  
Washington, D.C. 20005

Dear Dr. Morley:

Thank you for your letter of September 7, 2022, to the U.S. Environmental Protection Agency (EPA), requesting an extension of the comment period for the Risk Management Program (RMP) Safer Communities by Chemical Accident Prevention proposed rule. After considering your request, the agency is unable to grant your request to extend the comment period beyond the current deadline of October 31, 2022.


The EPA was tasked to review the RMP rule by Executive Order 13990: *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*. As part of this review, the agency held public listening sessions on June 16 and July 8, 2021, as well as an open comment period from May 28 to July 31, 2021. During the development of the proposed rule, the EPA met with a broad range of stakeholders, including those in the regulated community. The rulemaking process includes analyzing impacts to a variety of stakeholders, including small businesses, and state and local governments. The EPA considered all this input, and any additional comments received through official correspondence, prior to publishing the proposed rule.

In addition to the proposed rule's 60-day public comment period, the EPA made a prepublication version available on our website on August 19, 2022, nearly two weeks before publication in the *Federal Register* on August 31, 2022. We also made critical supporting documents available on our website, including the regulatory impact analysis and the technical background document. Additionally, the prepublication version of the proposed rule contained numerous footnote references to supporting documents that are otherwise available, including reports of the Chemical Safety Board, EPA accident investigation reports, technical reports, and journal articles. After the proposed rule was made available, the EPA continued to have outreach meetings with various stakeholder groups to discuss the proposed provisions and listen to comments. The agency also held three public hearings during the public comment period on September 26, 27, and 28, 2022.

Considering the significant outreach efforts described above, as well as the substantial amount of supporting material in the public domain prior to publication of the proposed rule, the EPA believes that the comment period's current closing date is sufficient. We feel that no extension of the comment period is necessary to provide the public with a meaningful opportunity to comment.

Again, thank you for your letter. We look forward to receiving your comments on the proposal and the continued collaboration with you and other stakeholders on this important effort. If you have further questions, please contact Deanne Grant on my staff at [grant.deanne@epa.gov](mailto:grant.deanne@epa.gov) or at (202) 564-1096.

Sincerely,

A handwritten signature in black ink, appearing to read "B. N. Breen", followed by a horizontal line extending to the right.

Barry N. Breen  
Acting Assistant Administrator



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

October 25, 2022

OFFICE OF  
LAND AND EMERGENCY  
MANAGEMENT

Mr. Tom Dobbins  
Chief Executive Officer  
Association of Metropolitan Water Agencies  
1620 I Street, NW  
Washington, D.C. 20006

Dear Mr. Dobbins:

Thank you for your letter of September 7, 2022, to the U.S. Environmental Protection Agency (EPA), requesting an extension of the comment period for the Risk Management Program (RMP) Safer Communities by Chemical Accident Prevention proposed rule. After considering your request, the agency is unable to grant your request to extend the comment period beyond the current deadline of October 31, 2022.


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Barry N. Breen  
Acting Assistant Administrator



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

October 25, 2022

OFFICE OF  
LAND AND EMERGENCY  
MANAGEMENT

Dr. Cynthia Finley  
Director of Regulatory Affairs  
National Association of Clean Water Agencies  
1816 Jefferson Place, NW  
Washington, D.C. 20036

Dear Dr. Finley:

Thank you for your letter of September 7, 2022, to the U.S. Environmental Protection Agency (EPA), requesting an extension of the comment period for the Risk Management Program (RMP) Safer Communities by Chemical Accident Prevention proposed rule. After considering your request, the agency is unable to grant your request to extend the comment period beyond the current deadline of October 31, 2022.


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Barry N. Breen  
Acting Assistant Administrator



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

October 25, 2022

OFFICE OF  
LAND AND EMERGENCY  
MANAGEMENT

Mr. Matthew Holmes  
Chief Executive Officer  
National Rural Water Association  
2915 South 13th Street  
Duncan, Oklahoma 73533

Dear Mr. Holmes:

Thank you for your letter of September 7, 2022, to the U.S. Environmental Protection Agency (EPA), requesting an extension of the comment period for the Risk Management Program (RMP) Safer Communities by Chemical Accident Prevention proposed rule. After considering your request, the agency is unable to grant your request to extend the comment period beyond the current deadline of October 31, 2022.


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Barry N. Breen  
Acting Assistant Administrator



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

October 25, 2022

OFFICE OF  
LAND AND EMERGENCY  
MANAGEMENT

Mr. Rik Hull  
Executive Vice President of Strategy & External Affairs  
National Association of Water Companies  
50 South 16th Street  
Philadelphia, Pennsylvania 19102

Dear Mr. Hull:

Thank you for your letter of September 7, 2022, to the U.S. Environmental Protection Agency (EPA), requesting an extension of the comment period for the Risk Management Program (RMP) Safer Communities by Chemical Accident Prevention proposed rule. After considering your request, the agency is unable to grant your request to extend the comment period beyond the current deadline of October 31, 2022.


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Again, thank you for your letter. We look forward to receiving your comments on the proposal and the continued collaboration with you and other stakeholders on this important effort. If you have further questions, please contact Deanne Grant on my staff at [grant.deanne@epa.gov](mailto:grant.deanne@epa.gov) or at (202) 564-1096.

Sincerely,

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Barry N. Breen  
Acting Assistant Administrator



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

October 25, 2022

OFFICE OF  
LAND AND EMERGENCY  
MANAGEMENT

Mr. Mike Keegan  
Regulatory Analyst  
National Rural Water Association  
101 Constitution Avenue, NW  
Washington, D.C. 20001

Dear Mr. Keegan:

Thank you for your letter of September 7, 2022, to the U.S. Environmental Protection Agency (EPA), requesting an extension of the comment period for the Risk Management Program (RMP) Safer Communities by Chemical Accident Prevention proposed rule. After considering your request, the agency is unable to grant your request to extend the comment period beyond the current deadline of October 31, 2022.


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Acting Assistant Administrator



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

October 25, 2022

OFFICE OF  
LAND AND EMERGENCY  
MANAGEMENT

Mr. Adam Krantz  
Chief Executive Officer  
National Association of Clean Water Agencies  
1130 Connecticut Avenue, NW  
Washington, D.C. 20036-2505

Dear Mr. Krantz:

Thank you for your letter of September 7, 2022, to the U.S. Environmental Protection Agency (EPA), requesting an extension of the comment period for the Risk Management Program (RMP) Safer Communities by Chemical Accident Prevention proposed rule. After considering your request, the agency is unable to grant your request to extend the comment period beyond the current deadline of October 31, 2022.


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Acting Assistant Administrator



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

October 25, 2022

OFFICE OF  
LAND AND EMERGENCY  
MANAGEMENT

Mr. Walter T. Marlowe  
Executive Director  
Water Environment Federation  
601 Wythe Street  
Alexandria, Virginia 22314

Dear Mr. Marlowe:

Thank you for your letter of September 7, 2022, to the U.S. Environmental Protection Agency (EPA), requesting an extension of the comment period for the Risk Management Program (RMP) Safer Communities by Chemical Accident Prevention proposed rule. After considering your request, the agency is unable to grant your request to extend the comment period beyond the current deadline of October 31, 2022.


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Acting Assistant Administrator



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

October 25, 2022

OFFICE OF  
LAND AND EMERGENCY  
MANAGEMENT

Ms. Lisa McFadden  
Director of Integrated Technical Programs  
Water Environment Federation  
601 Wythe Street  
Alexandria, Virginia 22314

Dear Ms. McFadden:

Thank you for your letter of September 7, 2022, to the U.S. Environmental Protection Agency (EPA), requesting an extension of the comment period for the Risk Management Program (RMP) Safer Communities by Chemical Accident Prevention proposed rule. After considering your request, the agency is unable to grant your request to extend the comment period beyond the current deadline of October 31, 2022.


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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

October 25, 2022

OFFICE OF  
LAND AND EMERGENCY  
MANAGEMENT

Mr. G. Tracy Mehan, III  
Executive Director of Government Affairs  
American Water Works Association  
1300 Eye Street, NW  
Washington, D.C. 20005-3314

Dear Mr. Mehan:

Thank you for your letter of September 7, 2022, to the U.S. Environmental Protection Agency (EPA), requesting an extension of the comment period for the Risk Management Program (RMP) Safer Communities by Chemical Accident Prevention proposed rule. After considering your request, the agency is unable to grant your request to extend the comment period beyond the current deadline of October 31, 2022.


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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

October 25, 2022

OFFICE OF  
LAND AND EMERGENCY  
MANAGEMENT

Mr. Robert F. Powelson  
Chief Executive Officer  
National Association of Water Companies  
50 South 16th Street  
Philadelphia, Pennsylvania 19102

Dear Mr. Powelson:

Thank you for your letter of September 7, 2022, to the U.S. Environmental Protection Agency (EPA), requesting an extension of the comment period for the Risk Management Program (RMP) Safer Communities by Chemical Accident Prevention proposed rule. After considering your request, the agency is unable to grant your request to extend the comment period beyond the current deadline of October 31, 2022.


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Acting Assistant Administrator



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

October 25, 2022

OFFICE OF  
LAND AND EMERGENCY  
MANAGEMENT

Mr. Brian Redder  
Manager, Regulatory and Scientific Affairs  
Association of Metropolitan Water Agencies  
1620 I Street, NW  
Washington, D.C. 20006

Dear Mr. Redder:

Thank you for your letter of September 7, 2022, to the U.S. Environmental Protection Agency (EPA), requesting an extension of the comment period for the Risk Management Program (RMP) Safer Communities by Chemical Accident Prevention proposed rule. After considering your request, the agency is unable to grant your request to extend the comment period beyond the current deadline of October 31, 2022.

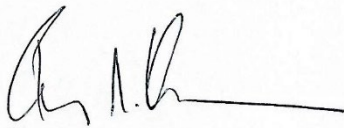
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