

# **Regulatory Impact Analysis**

Reconsideration of the 2017 Amendments to the  
Accidental Release Prevention Requirements:  
Risk Management Programs  
Under the Clean Air Act, Section 112(r)(7)

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November 18, 2019

# ACRONYMS

<b>Acronym</b>	<b>Definition</b>
AAH	Air Alliance Houston
CFR	Code of Federal Regulations
CSAG	Chemical Safety Advocacy Group
CSB	Chemical Safety Board
DHS	Department of Homeland Security
EO	Executive Order
EPCRA	Emergency Planning and Community Right to Know Act
FR	Federal Register
FTE	Full Time Equivalent
IST	Inherently Safer Technology
LEPC	Local Emergency Planning Committee
NAICS	North American Industrial Classification System
NPRM	Notice of Proposed Rulemaking
OCA	Offsite Consequence Analysis
OSHA	Occupational Safety and Health Administration
P1	Program Level 1
P2	Program Level 2
P3	Program Level 3
PHA	Process Hazard Analysis
PSM	Process Safety Management
RFI	Request for Information
RIA	Regulatory Impact Analysis
RMP	Risk Management Plan
SDS	Safety Data Sheets
SERC	State Emergency Response Commission
STAA	Safer Technology and Alternatives Analysis
TQ	Threshold Quantity

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# EXECUTIVE SUMMARY

## Introduction

In response to catastrophic chemical facility incidents in the United States, President Obama issued Executive Order (EO) 13650, “Improving Chemical Facility Safety and Security,” on August 1, 2013. The EO established the Chemical Facility Safety and Security Working Group (Working Group), co-chaired by the Secretary of Homeland Security, the Administrator of EPA, and the Secretary of Labor or their designated representatives at the Assistant Secretary level or higher, and comprised of senior representatives of other Federal departments, agencies, and offices.<sup>1</sup> The EO required the Working Group to carry out a number of tasks whose overall goal was to prevent chemical incidents, such as the explosion that occurred at the West Fertilizer facility in West, Texas, on April 17, 2013, which killed 15 people, most of whom were first responders, caused multiple injuries, and resulted in extensive building damage to the town.<sup>2</sup>

Section 6(a)(i) of EO 13650 required the Working Group to develop options for improved chemical facility safety and security that identify “improvements to existing risk management practices through agency programs, private sector initiatives, government guidance, outreach, standards, and regulations.” Section 6(c) of EO 13650 required the Administrator of EPA to review the Risk Management Program. As part of this effort to solicit comments and information from the public regarding potential changes to EPA’s RMP regulations (40 CFR part 68), EPA published a “Request for Information” notice or “RFI” (July 31, 2014, 79 FR 44604), and a Notice of Proposed Rulemaking (NPRM) (March 14, 2016, 81 FR 13637). While developing the proposed rule, EPA convened a Small Business Advocacy Review (SBAR) panel to receive input from Small Entity Representatives (SERs). EPA also hosted a public hearing on March 29, 2016 to provide interested parties the opportunity to present data, views or arguments concerning the NPRM.

The result of the previous rulemaking effort described above was the Risk Management Program Amendments rule, referred to as the Amendments rule. That final rule was published in the Federal Register on January 13, 2017 (82 FR 4594). In response to the Amendments rule, EPA received several petitions for reconsideration of the rule under CAA section 307(d)(7)(B) from stakeholders expressing concerns and requesting a delay or stay of the rule’s implementation. Under that provision of the CAA, the Administrator is to commence a reconsideration proceeding if, in the Administrator’s judgement, the petitioner raises an objection to a rule that was impracticable to raise during the comment period or if the grounds for the objection arose after the comment period but within the period for judicial review. In either case, the Administrator must also conclude that the objection is of central relevance to

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<sup>1</sup> The White House. Executive Order – Improving Chemical Facility Safety and Security. August 1, 2013. <https://www.whitehouse.gov/the-press-office/2013/08/01/executive-order-improving-chemical-facility-safety-and-security>.

<sup>2</sup> CSB. January 2016. Final Investigation Report, West Fertilizer Company Fire and Explosion, West, TX, April 17, 2013. REPORT 2013-02-I-TX. <http://www.csb.gov/west-fertilizer-explosion-and-fire/>.

the outcome of the rule. In response, in a letter dated March 13, 2017, the Administrator responded to the first of the reconsideration petitions received by announcing the convening of a proceeding for reconsideration of the Amendments rule. As explained in that letter, having considered the objections raised in the petition, the Administrator determined that the criteria for reconsideration have been met for at least one of the objections. EPA's Administrator then convened a proceeding for reconsideration of the rule and provided on March 16, 2017 (82 FR 13968), a 90-day administrative stay of the rule's effective date until June 19, 2017.

The Agency further published a proposed rule on April 3, 2017 (82 FR 16146) to further delay the effective date of the Amendments rule until February 19, 2019 to allow for the rule's reconsideration. After receiving and considering public comments on that proposed rule, EPA finalized on June 19, 2017 (82 FR 27133), a new effective date of February 19, 2019 (the Delay rule). On August 17, 2018, the U.S. Court of Appeals for the District of Columbia Circuit issued its decision in *Air Alliance Houston, et. al., v EPA* (USCA Case #17-1155), vacating the Delay Rule, and on September 21, 2018, the Court issued its mandate which made the Amendments rule immediately effective. However, all of the major Amendments rule provisions other than the emergency coordination provision have compliance dates in 2021 or later and with the exception of emergency coordination, EPA does not believe that the provisions have been implemented by regulated entities.

On May 30<sup>th</sup>, 2018 (83 FR 24850), EPA published a proposed rule to reconsider the Amendments rule. That proposal addressed the issues raised in all three petitions for reconsideration, as well as other issues that EPA believes warranted reconsideration. The Agency accepted public comments on the Reconsideration rulemaking during an 84-day public comment period. This final rulemaking is the Agency's reconsideration of the Amendments rule in response to the petitions for reconsideration, other issues that EPA believes warranted reconsideration, and public comments submitted following publication of the proposed rule (the Reconsideration rule).

## **Description of Final Rule**

The RIA analyzes the final revisions to the amended RMP requirements.

### *Third-Party Audits—(revisions apply to existing §§ 68.58, 68.79, 68.59, 68.80)*

The Amendments rule required facilities to contract with a third-party to conduct the next scheduled compliance audit within 12 months, following an RMP reportable accident or after an implementing agency determines that conditions at the stationary source could lead to an accidental release of a regulated substance or identifies problems with the prior third-party audit. At least one member of the third-party audit team was required to be someone with whom the facility did not have an existing or recent relationship and who met specific qualification criteria.

The final Reconsideration rule removes this requirement and reverts to the previous requirement of allowing the next required compliance audit to be conducted with no third-party requirements and

according to the previous compliance audit schedule of one audit every 3 years. EPA expects this change to result in cost savings relative to the Amendments rule.

*Root Cause Analysis—(revisions apply to §§ 68.60 and 68.81)*

The Amendments rule required facilities to conduct a root cause analysis as part of an incident investigation following an incident that resulted in a catastrophic release or an incident that could reasonably have resulted in a catastrophic release (i.e., “near miss”). A root cause analysis is a formal process to identify underlying reasons for failures that lead to accidental releases. These analyses usually require someone trained in the technique. The Amendments rule also clarified that “near misses” should be investigated, required additional information in the investigation report and required the report to be completed within 12 months.

The final Reconsideration rule removes this requirement and reverts to the previous requirement of Program 2 and 3 processes conducting an incident investigation (without explicitly requiring a root cause analysis, additional reporting elements, or completion deadline) following an incident that resulted in a catastrophic release or an incident that could reasonably have resulted in a catastrophic release. EPA expects this change to result in cost savings relative to the Amendments rule.

*Safer Technology and Alternatives Analysis (STAA)—(revisions apply to § 68.67)*

Under the Amendments rule, facilities in NAICS codes 322 (paper manufacturing), 324 (petroleum and coal products manufacturing), and 325 (chemical manufacturing) with Program 3 processes were required to conduct a STAA for each process as part of their process hazard analysis (PHA), which occurs every 5 years. The STAA requirement included two parts: the initial analysis to identify alternatives, and a practicability<sup>3</sup> study to determine whether a safer alternative could be successfully accomplished within a reasonable time, accounting for economic, environmental, legal, social, and technological factors.

The final Reconsideration rule removes this requirement and reverts to the previous requirement of all Program 3 processes performing a PHA update and revalidation every five years. EPA expects this change to result in cost savings relative to the Amendments rule.

*Coordination Activities—(revisions apply to §§ 68.90, 68.93, and 68.95)*

Under the Amendments rule, all facilities with Program 2 or Program 3 processes are required to coordinate with local response agencies annually to determine how the source is addressed in the community emergency response plan and to ensure that local response organizations were aware of the regulated substances at the source, their quantities, the risks presented by covered processes, and the

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<sup>3</sup> The RIA for the RMP Amendments proposed rule used the term “feasibility study” to denote this evaluation. In the RMP Amendments final rule, the term “feasibility” was replaced with the term “practicability,” but its definition was unchanged. In this RIA, “feasibility” is used when referring to the RMP Amendments proposed rule and “practicability” for the RMP Amendments final rule, however their meanings are interchangeable.

resources and capabilities at the source to respond to an accidental release of a regulated substance. The owner or operator is required to provide their source's emergency response plan, if one exists, updated emergency contact information and any other information that local emergency planning and response organizations identify as relevant to local emergency response planning. The owner or operator is also required to document coordination activities.

The final Reconsideration rule retains this requirement but modifies the rule language to address security concerns with the type of information to be shared. EPA does not expect any costs or cost savings relative to the Amendments rule from these modifications.

*Exercises—(revisions apply to § 68.96)*

The Amendments rule changed requirements for exercises.

Notification Exercises. Under the Amendments rule, all facilities with Program 2 or Program 3 processes were required to conduct a notification exercise annually to ensure that the emergency contact list is complete, accurate, and up-to-date.

The final Reconsideration rule retains this requirement with no changes.

Tabletop and Field Exercises. Under the Amendments rule, responding facilities were required to conduct exercises of their emergency response plans and invite local emergency response officials to participate. Facilities were required to conduct tabletop exercises every 3 years and field exercises every 10 years at a minimum based on communications with local emergency response officials.

The final Reconsideration rule retains these provisions but removes the 10-year minimum frequency requirement for field exercises, while still allowing owners and operators to consult with local emergency response officials to establish an appropriate frequency for field exercises. The final Reconsideration rule also gives owners and operators more flexibility in establishing the scope of tabletop and field exercises and in documenting exercises. While EPA has estimated no cost savings relative to the Amendments rule from these changes, as EPA stated in the proposed Reconsideration rule and RIA, EPA retained its Amendments rule estimate of exercise costs as a conservative approach to estimating exercise costs. By removing the minimum frequency requirement for field exercises (and encouraging facilities to conduct joint exercises and use exercises already conducted under other requirements to meet the requirements of the RMP rule), EPA expects that the total number, and therefore costs, of exercises held for compliance with the rule may be lower than this estimate. This change should allow regulated facilities and local responders more flexibility to manage the burden of field exercises. EPA was particularly concerned about the burden of field exercises in areas with multiple RMP facilities.



#### *Information Disclosure—(revisions apply to § 68.210)*

The Amendments rule required all facilities to provide, upon request by any member of the public, certain chemical hazard information for all regulated processes. Facilities were also required to provide ongoing notification on a company website, social media platform, or through other publicly accessible means that specified information is available to the public upon request. The information to be disclosed included names of regulated substances at the facility; Safety Data Sheets (SDS); accident history information; emergency response program information; exercise schedules; and LEPC contact information.

The final Reconsideration rule removes this requirement and reverts to the previous requirement of risk management plans being available to the public as specified under the CAA and 40 CFR part 1400. EPA expects this change to result in cost savings relative to the Amendments rule.

#### *Public Meetings—(revisions apply to § 68.210)*

The Amendments rule required facilities to hold a public meeting for the local community within 90 days of an RMP reportable accident.

The final Reconsideration rule retains this requirement but modifies the rule language to address security concerns with the type of information to be shared at a public meeting and clarifies that accident information specified in § 68.42 (b) shall be provided for only the most recent accident. The final Reconsideration rule also limits the trigger for the requirement of a public meeting to the occurrence of an RMP reportable accident with offsite impacts specified in § 68.42(a) (i.e., known offsite deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage). EPA expects these changes to lead to a net cost savings relative to the public meetings requirements contained in the Amendments rule.

### **Summary of Costs and Cost Savings**

Approximately 12,500 facilities have filed current RMPs with EPA and are potentially affected by the Reconsideration rule changes. These facilities range from petroleum refineries and large chemical manufacturers to water and wastewater treatment systems; chemical and petroleum wholesalers and terminals; food manufacturers, packing plants, and other cold storage facilities with ammonia refrigeration systems; agricultural chemical distributors; midstream gas plants; and a limited number of other sources that use RMP-regulated substances.

Exhibit A presents the number of facilities according to RMP reporting as of February 2015 by industrial sector and chemical use. For this analysis, EPA compared the February 2015 RMP database used for analysis of the Amendments rule to the November 2017 RMP database for the purposes of understanding and comparing how the universe of RMP facilities has changed in the intervening period between developing the Amendments RIA and the RIA for the proposed Reconsideration rule. The review found the number of facilities and sectors to be similar.

### Exhibit A: Number of Affected Facilities by Sector

Sector	NAICS Codes	2015 Total Facilities	2017 Total Facilities	Percent Change	Chemical Uses
Administration of environmental quality programs (i.e., governments)	92, 2213 (Gov owned)	1,923	1,746	(10.14%)	Use chlorine and other chemicals for water treatment
Agricultural chemical distributors/wholesalers	111, 112, 115, 42491	3,667	3,409	(7.57%)	Store ammonia for sale; some in NAICS 111 and 115 use ammonia as a refrigerant
Chemical manufacturing	325	1,466	1,463	(0.21%)	Manufacture, process, store
Chemical wholesalers	4246	333	329	(1.22%)	Store for sale
Food and beverage manufacturing	311, 312	1,476	1,528	3.40%	Use (mostly ammonia as a refrigerant)
Oil and gas extraction	211	741	750	1.20%	Intermediate processing (mostly regulated flammable substances and flammable mixtures)
Other	44, 45, 48, 54, 56, 61, 71, 21	247	262	5.73%	Use chemicals for wastewater treatment, refrigeration, store chemicals for sale
Other manufacturing	313, 326, 327, 33	384	379	(1.32%)	Use various chemicals in manufacturing process, waste treatment
Other wholesale	423, 424	302	308	1.95%	Use (mostly ammonia as a refrigerant)
Paper manufacturing	322	70	70	0.00%	Use various chemicals in pulp and paper manufacturing
Petroleum and coal products manufacturing	324	156	157	0.64%	Manufacture, process, store (mostly regulated flammable substances and flammable mixtures)
Petroleum wholesalers	4247	276	340	18.82%	Store for sale (mostly regulated flammable substances and flammable mixtures)
Utilities/Water	221 (non Gov owned water)	445	452	1.55%	Use chlorine (mostly for water treatment) and other chemicals
Warehousing and storage	493	1,056	1,125	6.13%	Use mostly ammonia as a refrigerant
<b>Total</b>		<b>12,542</b>	<b>12,318</b>	<b>(1.82%)</b>	

Exhibit B presents a summary of the avoided costs estimated in this RIA's analysis of the Reconsideration rule. EPA estimates annualized avoided costs of \$88.9 million at a 3% discount rate, and \$89.6 million at a 7% discount rate. Total undiscounted avoided costs are \$884.8 million measured over a ten-year period of analysis, or \$758.8 million and \$629.5 million when discounted at 3 and 7 percent, respectively.<sup>4</sup> To estimate the avoided costs due to the rescission of Amendments rule provisions, EPA simply assumed regulated firms would avoid the positive costs estimated for the Amendments rule associated with each rescinded provision; e.g., Third party Audits. This is true for all rescinded provisions except the public meetings requirement. There is a net cost savings associated with public meetings; however, not all of the meeting requirements imposed by the Amendments rule are rescinded, so it is not a full cost savings relative to the Amendments rule. Exhibit B presents these cost savings and presents cost estimates for rule familiarization of the Reconsideration rule. For those RMP Amendments Rule provisions that are retained or modified in a way that does not have an impact on costs, or that has de minimus impact on costs, Exhibit B reflects no impact on costs by omitting those provisions from the table (i.e., Coordination activities, Notification exercises, and Tabletop and Field exercises).

**Exhibit B: Summary of Costs and Avoided Costs (Millions, 2015 Dollars<sup>+</sup>)**

<b>Cost Elements</b>	<b>Total Undiscounted</b>	<b>Total Discounted (3%)+</b>	<b>Total Discounted (7%)</b>	<b>Annualized (3%)</b>	<b>Annualized (7%)</b>
<b><i>Costs</i></b>					
Rule Familiarization** (new)	\$13.8	\$13.4	\$12.9	\$1.6	\$1.8
<b>Total Cost</b>	<b>\$13.8</b>	<b>\$13.4</b>	<b>\$12.9</b>	<b>\$1.6</b>	<b>\$1.8</b>
<b><i>Avoided Costs</i></b>					
Rule Familiarization (previous)	(\$34.7)	(\$33.7)	(\$32.4)	(\$3.9)	(\$4.6)
Third-Party Audits	(\$98.4)	(\$83.6)	(\$69.1)	(\$9.8)	(\$9.8)
Root Cause Analysis (Incident Investigations)	(\$18.1)	(\$15.4)	(\$12.7)	(\$1.8)	(\$1.8)
STAA	(\$700.2)	(\$597.3)	(\$491.8)	(\$70.0)	(\$70.0)
Information Disclosure	(\$30.5)	(\$26.0)	(\$21.4)	(\$3.1)	(\$3.1)
Public Meetings	(\$2.8)	(\$2.4)	(\$2.0)	(\$0.28)	(\$0.28)
<b>Total Avoided Cost</b>	<b>(\$884.8)</b>	<b>(\$758.8)</b>	<b>(\$629.5)</b>	<b>(\$89.0)</b>	<b>(\$89.6)</b>
<b>Total Net Cost*</b>	<b>(\$871.0)</b>	<b>(\$745.5)</b>	<b>(\$616.6)</b>	<b>(\$87.4)</b>	<b>(\$87.8)</b>

<sup>+</sup>These estimates are presented in 2018 dollars in Exhibit 5-12.

<sup>4</sup> The 10-year period of analysis for the current RIA matches the period chosen for the 2017 Amendments rule. A 10-year period was selected for the 2017 rule because it was long enough for at least two rotations of many of the infrequently required activities (which occurred every five years) and at least one occurrence of the least frequently required activity (field exercises which were estimated to occur every 10 years).

\*Values may not sum due to rounding.

\*\*Reflects some costs of familiarization with Amendments rule. See Chapter 4 for detailed explanation.

## Summary of Benefits

In the Amendments rulemaking, EPA had no data to project the specific impact of each rule element on the probability and magnitude of chemical accidents. Indeed, the frequency and severity of baseline accidents themselves would be challenging to predict. Benefits were not directly tied to specific provisions of the 2017 rule and consisted of a variety of potentially avoided damages and improved efficiency impacts (from information provisions). However, it is clear from the RMP accident data and other available data that chemical accidents can impose costs on firms, employees, emergency responders, the community, and the broader economy, and that some of these costs can be substantial. The Amendments RIA constructed and presented data for a 10-year baseline period from 2004 to 2013, summarizing RMP accident impacts and when possible monetizing them.<sup>5</sup> The average annual cost of RMP accidents during the 10-year baseline was \$275 million. However, the monetized impacts omitted many important categories of accident impacts including lost productivity, the costs of emergency response, transaction costs, property value impacts in the surrounding community (that overlap with other benefit categories), and environmental impacts. Also not reflected in the 10-year baseline damages were the impacts of non-RMP accidents at RMP facilities and any potential impacts of rare high consequence catastrophes. A final omission is related to the information availability provision. Improving availability of information about RMP facilities to the public should improve the efficiency of location decisions and nearby property markets as well as decisions about allocation of resources to emergency response preparedness. In sum, reducing the probability of chemical accidents and the severity of their impacts, and improving information disclosure by chemical facilities, as the provisions intended, would provide benefits to potentially affected members of society. Accident data are now available for 2014 – 2016,<sup>6</sup> and these data show a continuing decline in accident frequency, consistent with the trend over the immediately prior 10-year period (Please see Exhibit 3-8).

The Reconsideration rule retains some portion of these benefits through the retention, or retention with modification, of the provisions for coordination activities, exercises, and public meetings. However, some portion of the Amendments rule benefits may no longer be realized due to the revision of some provisions associated with accident prevention.

The Reconsideration rule produces other benefits by way of increased facility security relative to the Amendments rule. EPA has modified the requirements for coordination activities and public meetings in order to enhance security. This benefit category reflects reduced risks of terror or other attacks, thefts, and other such events, that might have followed from freer-flowing information about the storage,

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<sup>5</sup> See <https://www.regulations.gov/document?D=EPA-HQ-OEM-2015-0725-0734>.

<sup>6</sup> EPA. March 2018. Risk Management Plan (RMP) Facility Accident Data, 2014-2016. USEPA, Office of Emergency Management. EPA-HQ-OEM-2015-0725-0909, note that document title in docket has incorrect date of April 2018. EPA issued a notice with correct date of March 2018 for this data on July 31, 2019 in 83 FR 86837 (EPA-HQ-OEM-2015-0725-1423).

processing, and emergency response procedures for RMP chemicals at RMP facilities. Exhibit C summarizes the new security benefit category, as well as the benefit categories qualitatively described in the Amendments RIA that will be reduced by the Reconsideration rulemaking. There are four broad benefit categories, including security, prevention and mitigation of RMP accidents and non-RMP accidents at RMP facilities, prevention of major catastrophes, and information disclosure. The exhibit explains each and identifies associated specific benefit categories that are provided or reduced, including reduced likelihood of criminal activity, avoided fatalities, avoided emergency response costs, improved efficiency of property markets, more efficient allocation of emergency resources, and others.

**Exhibit C: Summary of Changed Qualitative Benefits of Reconsideration Rule Provisions**

Broad Benefit Category	Explanation	Specific Benefit Categories
<b>Positive Qualitative Benefits associated with Reconsideration Rule Provisions</b>		
Improved Security	Sensitive information is held secure	Reduces likelihood of terror attacks and criminal activity
<b>Reduced Qualitative Benefits of Reconsideration Rule Provisions</b>		
Accident Prevention and Mitigation	Prevention and mitigation of future RMP facility accidents (including RMP and non-RMP accidents at RMP facilities)	Repeals some provisions related to: <ul style="list-style-type: none"> <li>• Reduced Fatalities</li> <li>• Reduced Injuries</li> <li>• Reduced Property Damage</li> <li>• Fewer People Sheltered in Place</li> <li>• Fewer Evacuations</li> <li>• Avoided Lost Productivity</li> <li>• Avoided Emergency Response Costs</li> <li>• Avoided Transaction Costs</li> <li>• Avoided Property Value Impacts*</li> <li>• Avoided Environmental Impacts</li> </ul>
Avoided Catastrophes	Prevention of rare but extremely high consequence events	
Information Disclosure	Provision of information to the public	

		<ul style="list-style-type: none"> <li>• Improved emergency response resource allocation</li> </ul>
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\* These impacts partially overlap with several other categories, such as reduced health and environmental impacts

# CHAPTER 1: INTRODUCTION AND BACKGROUND

## 1.1 History and Need for the Rule

Serious chemical accidents occurring in the 1970s and 1980s, including accidents in Bhopal, India, Seveso, Italy, and Pasadena, Texas led to a series of legislative reforms relating to chemical safety in industrialized countries.<sup>7,8</sup> In the United States, the Emergency Planning and Community Right to Know Act (EPCRA) was enacted in 1986 to promote community emergency planning and preparedness and provide local responders and the public with information about the chemical hazards in their community (42 U.S.C. 11002 et seq.). In 1990, sections 112(r) and 304 of the Clean Air Act were enacted to help prevent chemical facility accidents. Section 304 required the Occupational Safety and Health Administration (OSHA) to publish a chemical process safety standard to prevent accidental releases of chemicals that could pose a threat to employees. Section 112(r) required the Environmental Protection Agency (EPA) to publish Accidental Release Prevention Program regulations to prevent chemical releases or minimize their consequences if they occur.

Section 112(r) required EPA to develop a list of at least 100 regulated substances which, in the case of an accidental release, are known to cause or may reasonably be anticipated to cause death, injury, or serious adverse effects to human health or the environment (42 U.S.C 7412(r)). EPA was also required to establish threshold quantities (TQs) for these substances, which would determine the applicability of rules to prevent accidental releases of these substances. Section 112(r)(7)(B) required EPA to promulgate reasonable regulations and appropriate guidance to provide, to the greatest extent practicable, for the prevention and detection of accidental releases of regulated substances and for response to such releases by the owners or operators of the sources of such releases. The section mandates that the regulations require the owner or operator of a stationary source “to prepare and implement a risk management plan to detect and prevent or minimize accidental releases of such substances from the stationary source, and to provide a prompt emergency response to any such releases in order to protect human health and the environment.” The section further mandates that the plan include:

- A hazard assessment to assess the potential effects of an accidental release of any regulated substance. This assessment shall include an estimate of potential release quantities and a determination of downwind effects, including potential exposures to affected populations. Such assessment shall include a previous release history of the past 5 years, including the size,

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<sup>7</sup> US Fire Administration, Federal Emergency Management Agency. Phillips Petroleum Chemical Plant Explosion and Fire. October 1989. EPA-HQ-OEM-2015-0725-0109. EPA-HQ-OEM-2015-0725-0109. <https://www.usfa.fema.gov/downloads/pdf/publications/tr-035.pdf>.

<sup>8</sup> Hay, Alastair, A Technical Report on What Caused Italy's Dioxin Disaster Has Too Many Loopholes, Nature, 281, 521 (18 October 1979). EPA-HQ-OEM-2015-0725-0112. <http://www.nature.com/nature/journal/v281/n5732/pdf/281521a0.pdf>.

concentration, and duration of releases, and shall include an evaluation of worst case accidental releases;

- A program for preventing accidental releases of regulated substances, including safety precautions and maintenance, monitoring, and employee training measures to be used at the source; and
- A response program providing for specific actions to be taken in response to an accidental release of a regulated substance so as to protect human health and the environment, including procedures for informing the public and local agencies responsible for responding to accidental releases, emergency health care, and employee training measures.

Finally, the section requires the owner or operator of an affected stationary source to develop and file a risk management plan with EPA, the Chemical Safety Board (CSB) (also established under the section), the State, and local response agencies.

OSHA adopted its process safety management (PSM) standard (codified at 29 CFR 1910.119) in 1992 (57 FR 6403, Feb. 24, 1992). The PSM standard requires facilities to develop and implement an integrated approach to chemical process safety including the following elements: accurate, up-to-date diagrams of all process equipment; an analysis of the process hazards; standard operating procedures; training; maintenance; pre-startup reviews; management of change; compliance audits; incident investigation; employee participation; hot-work permits; contractor training; and emergency response. The applicability of the PSM standard is driven by the presence of specific chemicals in quantities above thresholds set in the standard.

EPA published its section 112(r) regulations in two stages – a list of regulated substances and TQs in 1994 (59 FR 4478, January 31, 1994), and the risk management program requirements in 1996 (61 FR 31731, June 20, 1996); both are codified at 40 CFR part 68. As required by section 112(r), part 68 includes several major requirements that were not covered by the PSM standard. These include a hazard assessment consisting of an offsite consequence analysis (OCA) and five-year accident history, and the development and submission of a risk management plan (RMP) that summarizes a source's risk management program. EPA also required stationary sources to develop a management system to oversee the program and included emergency response program requirements beyond those contained in the PSM standard. RMPs were first submitted to EPA in June 1999 and must be updated at least every 5 years. EPA has amended the rule a number of times to modify the list of substances, to alter data requirements, and to address other issues. The primary requirements adopted in 1996, however, remain in place.

The Risk Management Program rule establishes three program levels and requires facility owners or operators to conduct hazard assessments and submit RMPs regardless of the program level. Program 1 (P1) requirements apply to processes that would not affect the public in the case of a worst-case release and with no accidents with specific off-site consequences within the past five years. P1 provisions impose limited hazard assessment requirements and emergency response requirements.



Program 2 (P2) applies to processes not eligible for P1 or subject to Program 3 (P3), and imposes streamlined prevention program requirements, including safety information, hazard review, operating procedures, training, maintenance, compliance audits, and incident investigation elements. P2 provisions also impose hazard assessment, management, and emergency response requirements. P2 processes are primarily agricultural chemical distributors, chemical wholesalers, and chlorine use at publicly owned water and wastewater facilities, in States without OSHA-approved State plans. To further reduce the burden on facilities with P2 processes, EPA developed and published a number of industry-specific guidance documents<sup>9</sup> and an OCA guidance document.

P3 requirements apply to processes not eligible for P1 and either subject to OSHA's PSM standard, under federal or State OSHA programs, or classified in one of ten specified North American Industrial Classification System (NAICS) codes (1997 version) listed at 40 CFR 68.10(d)(1). The ten NAICS codes are:

- 32211 (pulp mills)
- 32411 (petroleum refineries)
- 32511 (petrochemical manufacturing)
- 325181 (alkali and chlorine manufacturing)
- 325188 (all other basic inorganic chemical manufacturing)
- 325192 (cyclic crude and intermediate manufacturing)
- 325199 (all other basic organic chemical manufacturing)
- 325211 (plastics material and resin manufacturing)
- 325311 (nitrogenous fertilizer manufacturing)
- 32532 (pesticide and other agricultural chemical manufacturing)

P3 requirements impose elements nearly identical to those in OSHA's PSM standard as the accident prevention program. The P3 prevention program includes requirements relating to the following:

- Process safety information
- PHA
- Operating procedures
- Training
- Mechanical integrity
- Management of change
- Pre-startup review
- Compliance audits
- Incident investigations
- Employee participation

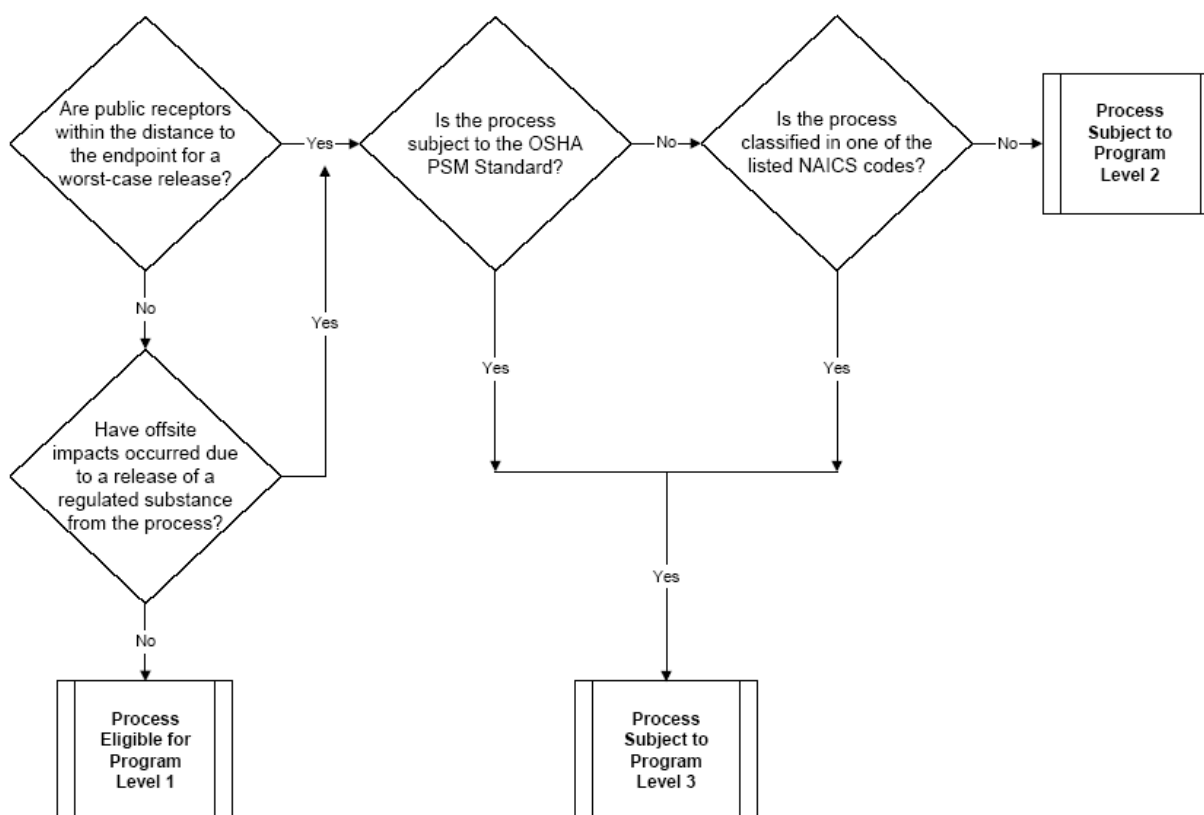
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<sup>9</sup> Industry-specific guidance documents include: Risk Management Program Guidance for Propane Storage Facilities, Risk Management Program Guidance for Warehouses, Risk Management Program Guidance for Chemical Distributors, and General Risk Management Program Guidance, which includes appendices specific to ammonia refrigeration facilities and wastewater treatment plants. All RMP guidance documents are available at: <https://www.epa.gov/rmp/guidance-facilities-risk-management-programs-rmp>.

- Hot work permits, and
- Contractors.

P3 provisions also impose the same hazard assessment, management, and emergency response requirements that are required for P2.

The following flow chart demonstrates how facilities determine to which program level they are subject<sup>10</sup>:



Facilities<sup>11</sup> that are exempt from the OSHA PSM standard may be subject to EPA requirements under the RMP rule. This occurs for several reasons. First, the lists of substances regulated are not identical; for example, EPA lists aqueous ammonia at any solution that is 20 percent ammonia or more; OSHA covers it only at concentrations of 44 percent or more. Second, because federal OSHA has no authority over State and local government employees, the OSHA PSM standard does not apply to publicly owned facilities (mainly water and wastewater treatment systems) in States where federal OSHA implements and enforces the standard (about half the States). Where States implement and enforce OSHA standards

<sup>10</sup> EPA. April 2004. General Guidance on Risk Management Programs for Chemical Accident Prevention (40 CFR Part 68). EPA-550-B-04-001. Chapter 2. EPA-HQ-OEM-2015-0725-0227.

<http://www2.epa.gov/sites/production/files/2013-10/documents/chap-02-final.pdf>.

<sup>11</sup> Facilities are also commonly referred to as stationary sources, and the terms are used interchangeably throughout this document.

(referred to as State-plan States), the State is required to impose OSHA standards on State and local government employees as a condition of delegation.<sup>12</sup> Lastly, regulatory exemptions are not identical; for example, the OSHA PSM standard exempts normally unoccupied remote facilities, but the RMP rule does not.

Approximately 12,500 currently regulated facilities have filed RMPs for approximately 17,000 processes. Most facilities have only one process, but certain industries, such as chemical manufacturing and petroleum refining, often have more than one regulated process; about 100 facilities have more than 10 regulated processes. The population of RMP facilities is dynamic. Several thousand facilities have either switched chemicals to non-regulated substances, reduced chemical inventories below threshold quantities, or ceased operations and subsequently deregistered from the program since the first RMPs were submitted in 1999. However, every year new facilities are registering and submitting new RMPs.

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. RMP data for 2004 through 2013 showed that there was an average of approximately 150 accidents with reportable impacts over the ten-year period.

In April 2013, the West Texas Fertilizer Company, an RMP-regulated facility in West, Texas, that stored anhydrous ammonia (an RMP- and PSM-regulated substance) and ammonium nitrate (not regulated under the RMP rule or the PSM standard), caught fire,<sup>13</sup> which led to a massive explosion of the ammonium nitrate. Fifteen people, most of them firefighters, died and more than 160 members of the public were injured. Two nearby schools, an apartment building, a nursing home, and much of the surrounding town were also damaged.<sup>14</sup> Additional serious incidents at RMP facilities demonstrate a significant risk to the safety of American workers and communities. On March 23, 2005, explosions at the BP Refinery in Texas City, Texas killed 15 and injured more than 170.<sup>15</sup> On April 2, 2010, an explosion and fire at the Tesoro Refinery in Anacortes, Washington killed seven.<sup>16</sup> On August 6, 2012, a fire at the

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<sup>12</sup> Twenty-six states, Puerto Rico, and the Virgin Islands have OSHA-approved State Plans. In these states, publicly owned water and wastewater treatment plants are typically in P2. Twenty-two State Plans (21 states and one U.S. territory) cover both private and state and local government workplaces. Public water and wastewater plants in these states are in P3. The remaining six State Plans (five states and one U.S. territory) cover state and local government workers only. Their public water/wastewater plants are P2. <https://www.osha.gov/dcsp/osp/>.

<sup>13</sup> The Bureau of Alcohol, Tobacco, Firearms and Explosives ruled that the West Fertilizer fire was intentionally set. See BATF: ATF Announces \$50,000 Reward in West, Texas Fatality Fire (May 11, 2016). EPA-HQ-OEM-2015-0725-0641. Also available at <https://www.atf.gov/news/pr/atf-announces-50000-reward-west-texas-fatality-fire>.

<sup>14</sup> CSB. January 2016. Final Investigation Report, West Fertilizer Company Fire and Explosion, West, TX, April 17, 2013. REPORT 2013-02-I-TX. EPA-HQ-OEM-2015-0725-0256. <http://www.csb.gov/west-fertilizer-explosion-and-fire/>.

<sup>15</sup> CSB. March 2007. Final Investigation Report: Refinery Explosion and Fire, Texas City, Texas, March 23, 2005. EPA-HQ-OEM-2015-0725-0267. <http://www.csb.gov/assets/1/19/CSBFinalReportBP.pdf>.

<sup>16</sup> CSB. May 2014. Investigation Report: Catastrophic Rupture of Heat Exchanger, Tesoro Anacortes Refinery, Anacortes, Washington, April 2, 2010. EPA-HQ-OEM-2015-0725-0264. [http://www.csb.gov/assets/1/7/Tesoro\\_Anacortes\\_2014-May-01.pdf](http://www.csb.gov/assets/1/7/Tesoro_Anacortes_2014-May-01.pdf).

Chevron Refinery in Richmond, California involving flammable fluids endangered 19 Chevron employees and created a large plume of chemicals that traveled across the Richmond, California area. Nearly 15,000 residents sought medical treatment due to the release.<sup>17</sup> On June 6, 2013, a fire and explosion at Williams Olefins in Geismar, Louisiana killed two and injured many more.<sup>18</sup>

Section 112(r) of the Clean Air Act aimed to address low frequency and high consequence chemical accidents. These are catastrophic incidents, which have large societal impacts when they occur, but very little likelihood for any individual chemical facility. As such, market forces may not provide an incentive for any given company to invest in measures to prevent such accidents, as they are so unlikely to occur at the individual level. However, looking across the United States and universe of regulated facilities, these accidents occur with sufficient frequency to warrant regulation.

In response to recent catastrophic chemical facility incidents such as the West explosion and others, in 2013 President Obama issued Executive Order 13650, entitled “Improving Chemical Facility Safety and Security,”<sup>19</sup> which among other items, required EPA and OSHA to consider whether and how to update and modernize the RMP rule and PSM standard. Both EPA and OSHA conducted public listening sessions,<sup>20</sup> and issued requests for information (RFI) to seek input from the public and the regulated community on potential revisions to the rules.<sup>21</sup> Based on feedback received from the RFI and public listening sessions, EPA subsequently published a NPRM on March 14, 2016 (81 FR 13637). EPA also hosted a public hearing on March 29, 2016 to provide interested parties the opportunity to present data, views, or arguments concerning the proposed action. The Amendments rule was the result of EPA’s consideration of the public comments received on the RFI and NPRM, recommendations from the CSB, comments received during E.O. 13650 listening sessions, and information gained by EPA through inspection of RMP facilities and enforcement of the rule over the previous seventeen years. The final Amendments rule was published in the Federal Register on January 13, 2017 (82 FR 4594).

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<sup>17</sup> CSB. January 2014. Regulatory Report: Chevron Richmond Refinery Pipe Rupture and Fire, Chevron Richmond Refinery #4 Crude Unit, Richmond, California, August 6, 2012. Report No. 2012-03-I-CA. EPA-HQ-OEM-2015-0725-0263. [http://www.csb.gov/assets/1/19/CSB\\_Chevron\\_Richmond\\_Refinery\\_Regulatory\\_Report.pdf](http://www.csb.gov/assets/1/19/CSB_Chevron_Richmond_Refinery_Regulatory_Report.pdf).

<sup>18</sup> CSB. October 2016. Case Study: Williams Geismar Olefins Plant Reboiler Rupture and Fire, Geismar, Louisiana. Incident Date: June 13, 2013, No. 2013-03-I-LA. EPA-HQ-OEM-2015-0725-0650. <http://www.csb.gov/williams-olefins-plant-explosion-and-fire/>.

<sup>19</sup> <https://www.whitehouse.gov/the-press-office/2013/08/01/executive-order-improving-chemical-facility-safety-and-security>. EPA-HQ-OEM-2015-0725-0245.

<sup>20</sup> In 2013 and 2014, as part of the EO 13650 activities, the federal government held eleven listening sessions, supplemented by four online webinars in 2013, 2014, and 2015. For a complete list of the eleven listening sessions with dates and locations and the four webinars with dates, see List of Listening Sessions and Webinars held on Executive Order 13650: Improving Chemical Facility Safety and Security, available in the rulemaking docket.

<sup>21</sup> OSHA’s RFI was published on December 9, 2013 (78 FR 73756) and EPA’s RFI was published on July 31, 2014 (79 FR 44604).

In response to the Amendments rule, EPA received three petitions for reconsideration from stakeholders,<sup>22, 23, 24</sup> expressing concerns and requesting a delay or stay in the rule's implementation. Concerns were that the rule was "over regulating" and imposed excessive costs and burdens, that it conflicted with OSHA's PSM standard which targets the same set of facilities, and that it caused facility security risks through its information disclosure requirements. In response, EPA's Administrator convened a proceeding for reconsideration of the rule and provided on March 16, 2017 (82 FR 13968), a 90-day administrative stay of the rule's effective date until June 19, 2017. The Agency further published a proposed rule on April 3, 2017 (82 FR 16146) to further delay the effective date of the Amendments Rule until February 19, 2019 to allow for reconsideration of the rule. After receiving and reviewing public comments on the proposed rule, EPA finalized on June 14, 2017 (82 FR 27133) a new effective date of February 19, 2019 (the Delay rule). However, on August 17, 2018, the U.S. Court of Appeals for the District of Columbia Circuit issued its decision in *Air Alliance Houston, et. al., v EPA* (USCA Case #17-1155), vacating the Delay Rule, and on September 21, 2018, the Court issued its mandate which made the Amendments rule immediately effective.

While the Delay rule was in litigation, on May 30<sup>th</sup>, 2018, EPA published a proposed rule reconsidering the Amendments rule. That proposal addressed the issues raised in all three petitions for reconsideration, as well as other issues that EPA believes warranted reconsideration. The Agency accepted public comments on the Reconsideration rulemaking during an 84-day public comment period. This final rulemaking is the Agency's reconsideration of the Amendments rule in response to the petitions for reconsideration, other issues that EPA believes warranted reconsideration, and public comments submitted following publication of the proposed rule. This rule reduces regulatory burden by lowering compliance costs; improves consistency between EPA and OSHA rules and thereby streamlines regulatory requirements; and improves facility security risks by removing some requirements for public access to potentially sensitive information regarding chemical storage, processes, and emergency response procedures.

## **1.2 Framework and Organization of the Analysis**

### **1.2.1 Framework**

This RIA assumes full compliance with the Amendments rule as the baseline from which incremental changes occur. Thus, the Amendments RIA is the starting point for the analysis in this RIA. Both analyses

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<sup>22</sup> RMP Coalition's Petition for Reconsideration and Request for Agency Stay Pending Reconsideration of Final RMP rule (82 FR 4594, January 13, 2017), February 28, 2017. Hogan Lovells US LLP, Washington, DC. Document ID: EPA-HQ-OEM-2015-0725-0759 (RMP Coalition petition).

<sup>23</sup> Chemical Safety Advocacy Group (CSAG)'s Petition and Reconsideration and Stay Request of the Final RMP rule (82 FR 4594, January 13, 2017) March 13, 2017. Hunton & Williams, San Francisco, CA. Document No. EPA-HQ-OEM-2015-0725-0766 (CSAG petition).

<sup>24</sup> Petition for Reconsideration and Stay Submitted by The States of Louisiana, Arizona, Arkansas, Florida, Kansas, Texas, Oklahoma, South Carolina, Wisconsin, West Virginia, and the Commonwealth of Kentucky by and through Governor Matthew Bevin, March 14, 2017. Document ID: EPA-HW-OEM-2015-0725-0762 (States petition).

rest on the same framework of analysis; the same set of underlying assumptions; and the same February 2015 RMP database. While there were newer RMP data available when initiating the RIA for the proposed Reconsideration rule in November 2017, due to the small differences between the 2015 and 2017 data sets, EPA believes that the incremental change in the estimated costs (or cost savings) of the rule would be quite small and would not justify undertaking a completely new analysis. Thus, this RIA presents the effects of reversing or rescinding required risk prevention or mitigation or information provisions as eliminating the costs those provisions were estimated to impose by the Amendments RIA.<sup>25</sup> To provide insight into the uncertainty introduced by relying on the older data, Chapter 3 of this RIA carefully presents and compares 2017 RMP data to the 2015 RMP data used for the Amendments RIA. The comparison suggests that changes have been minor. Further explanation is provided in the following chapters.

Benefits of the Amendments rule were not quantitatively estimated but only qualitatively described in the Amendments RIA. Benefits were not directly tied to specific provisions of the 2017 rule and consisted of a variety of potentially avoided damages and improved efficiency impacts (from information provisions). These will be partly eliminated by the Reconsideration rule as explained in Chapter 6. EPA has not updated the estimates of baseline damages to align with the 2017 RMP accident data. We continue to rely on the analysis of accident data over the ten-year period from 2004 to 2013 presented in the Amendments RIA. Chapter 3 carefully reviews the differences between 2015 and 2017 accident data and finds some differences that may be due in part to a lag in reporting accidents. Further explanation is provided in Chapter 3.

Importantly, since all of the Amendments rule provisions other than the emergency coordination provision have compliance dates in 2021 or later and EPA does not believe that the rescinded Amendments rule provisions have been implemented by regulated entities, any incremental changes to the universe of regulated facilities would impact the costs estimated for a provision in the Amendments RIA to the same degree that they would affect the cost savings estimated for the same provision in the current Reconsideration RIA. In other words, a small reduction in the number of relevant regulated facilities, for example, would marginally reduce the costs of the incident investigation provisions of the Amendments rule, and therefore it would also reduce the cost savings of repealing that provision in the Reconsideration rule. Or, considering a different example, an increase in the number of processes subject to the STAA provision would increase the costs of that provision in the Amendments rule, but also increase the cost savings associated with repealing the provision in the Reconsideration rule, by the same amount.

### **1.2.2 Organization**

This regulatory impact analysis (RIA) is organized as follows:

- Chapter 2 describes the provisions that EPA is repealing or amending.

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<sup>25</sup> See 2017 Amendments RIA at <https://www.regulations.gov/document?D=EPA-HQ-OEM-2015-0725-0734>.

- Chapter 3 discusses the universe of regulated entities and the various divisions used in the analysis.
- Chapter 4 discusses the basis for cost and avoided cost estimates for each of the provisions.
- Chapter 5 presents the total costs and avoided costs.
- Chapter 6 discusses the benefits and foregone benefits.
- Chapter 7 presents the small entity impacts.
- Chapter 8 presents the environmental justice analysis.
- Chapter 9 discusses other analyses, limitations of the RIA, and conclusions.

## CHAPTER 2: DEREGULATORY PROVISIONS

This chapter presents a summary of the provisions in the Reconsideration rule. The provisions include repealing several provisions from the Amendments rule and modifying some of the remaining provisions.

### 2.1 Summary of Provisions and Impacts on Regulated Facilities

The RIA analyzed the following provisions:

#### *Third-Party Audits—(revisions apply to §§ 68.58, 68.79, 68.59 and 68.80)*

The Amendments rule required facilities to contract with a third-party to conduct the next scheduled compliance audit within 12 months following an RMP reportable accident or after an implementing agency determines that conditions at the stationary source could lead to an accidental release of a regulated substance or identifies problems with the prior third-party audit. At least one member of the third-party audit team was required to be someone with whom the facility did not have an existing or recent relationship and who met specific qualification criteria.

The final Reconsideration rule removes this requirement and reverts to the previous requirement of allowing the next required compliance audit to be conducted with no third-party requirements and according to the previous compliance audit schedule of one audit every 3 years. EPA expects this change to result in cost savings relative to the Amendments rule.

#### *Root Cause Analysis—(revisions apply to §§ 68.60 and 68.81)*

The Amendments rule required facilities to conduct a root cause analysis as part of an incident investigation following an incident that resulted in a catastrophic release or an incident that could reasonably have resulted in a catastrophic release (i.e., “near miss”). A root cause analysis is a formal process to identify underlying reasons for failures that lead to accidental releases. These analyses usually require someone trained in the technique. The Amendments rule also clarified that “near misses” should be investigated, required additional information in the investigation report and required the report to be completed within 12 months.

The final Reconsideration rule removes these requirements and reverts to the previous requirement of Program 2 and 3 processes conducting an incident investigation (without explicitly requiring a root cause analysis, additional reporting elements or completion deadline) following an incident that resulted in a catastrophic release or an incident that could reasonably have resulted in a catastrophic release. EPA expects this change to result in cost savings relative to the Amendments rule.



*Safer Technology and Alternatives Analysis (STAA)—(revisions apply to § 68.67)*

Under the Amendments Rule, facilities in NAICS codes 322 (paper manufacturing), 324 (petroleum and coal products manufacturing), and 325 (chemical manufacturing) with Program 3 processes were required to conduct a STAA for each process as part of their PHA, which occurs every 5 years. The STAA requirement included two parts: the initial analysis to identify alternatives, and a practicability<sup>26</sup> study to determine whether a safer alternative could be successfully accomplished within a reasonable time, accounting for economic, environmental, legal, social, and technological factors.

The final Reconsideration rule removes this requirement and reverts to the previous requirement of all Program 3 processes performing a PHA update and revalidation every five years. EPA expects this change to result in cost savings relative to the Amendments rule.

*Coordination Activities—(revisions apply to §§ 68.90, 68.93, and 68.95)*

Under the Amendments Rule, all facilities with Program 2 or Program 3 processes are required to coordinate with local response agencies annually to determine how the source is addressed in the community emergency response plan and to ensure that local response organizations were aware of the regulated substances at the source, their quantities, the risks presented by covered processes, and the resources and capabilities at the source to respond to an accidental release of a regulated substance. The owner or operator is required to provide their source's emergency response plan, if one exists, updated emergency contact information and any other information that local emergency planning and response organizations identify as relevant to local emergency response planning. The owner or operator is also required to document coordination activities.

The final Reconsideration rule retains this requirement but modifies the rule language to address security concerns with the type of information to be shared. EPA does not expect any costs or cost savings relative to the Amendments rule from these modifications.

*Exercises—(revisions apply to § 68.96)*

The Amendments rule added requirements for exercises:

Notification Exercises. All facilities with Program 2 or Program 3 processes were required to conduct a notification exercise annually to ensure that the emergency contact list is complete, accurate, and up-to-date.

The final Reconsideration rule retains this requirement with no changes.

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<sup>26</sup> The RIA for the RMP Amendments proposed rule used the term "feasibility study" to denote this evaluation. In the RMP Amendments final rule, the term "feasibility" was replaced with the term "practicability," but its definition was unchanged. In this RIA, "feasibility" is used when referring to the RMP Amendments proposed rule and "practicability" for the RMP Amendments final rule, however their meanings are interchangeable.

Tabletop and Field Exercises. Under the Amendments rule, responding facilities were required to conduct exercises of their emergency response plans and invite local emergency response officials to participate. Facilities were required to conduct tabletop exercises every 3 years and field exercises every 10 years at a minimum based on communications with local emergency response officials.

The final Reconsideration rule retains both of these provisions but removes the 10-year minimum frequency requirement for field exercises, allowing owners and operators to consult with local emergency response officials to establish an appropriate frequency for field exercises. The final Reconsideration rule also gives owners and operators more flexibility in establishing the scope of tabletop and field exercises and in documenting exercises. While EPA has estimated no cost savings relative to the Amendments rule from these changes, as EPA stated in the proposed Reconsideration rule and RIA, EPA retained its Amendments rule estimate of exercise costs as a conservative approach to estimating exercise costs. By removing the minimum frequency requirement for field exercises (and encouraging facilities to conduct joint exercises and use exercises already conducted under other requirements to meet the requirements of the RMP rule), EPA expects that the total number, and therefore costs, of exercises held for compliance with the rule may be lower than this estimate.

*Information Disclosure—(revisions apply to § 68.210)*

The Amendments Rule required all facilities to provide, upon request by any member of the public, certain chemical hazard information for all regulated processes. Facilities were also required to provide ongoing notification on a company website, social media platform, or through other publicly accessible means that specified information is available to the public upon request. The information to be disclosed included names of regulated substances at the facility; Safety Data Sheets (SDS); accident history information; emergency response program information; exercise schedules; and LEPC contact information.

The final Reconsideration rule removes this requirement and reverts to the previous requirement of risk management plans being available to the public as specified under the CAA and 40 CFR part 1400 remains. EPA expects this change to result in cost savings relative to the Amendments rule.

*Public Meetings—(revisions apply to § 68.210)*

The Amendments rule required facilities to hold a public meeting for the local community within 90 days of an RMP reportable accident.

The final Reconsideration rule retains the requirement but modifies the rule language to address security concerns with the type of information to be shared at a public meeting and clarifies that accident information specified in § 68.42 (b) shall be provided for only the most recent accident. The final Reconsideration rule also limits the trigger for the requirement of a public meeting to the occurrence of an RMP reportable accident with offsite impacts specified in § 68.42(a) (i.e., known offsite deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage). EPA

expects these changes to lead to a net cost savings relative to the public meetings requirement contained in the Amendments rule.

## **2.2 Impacts to Governments**

This rule provides direct cost savings (i.e., avoided costs) to local governments that own and operate RMP facilities (primarily water and wastewater systems, but also some power plants and swimming pools). The RIA incorporates estimates of both direct and indirect cost savings to local governments (such as the cost savings of not participating in emergency response exercises) in the cost estimates for each regulatory provision.

## CHAPTER 3: CHANGES IN UNIVERSE OF REGULATED FACILITIES RELATIVE TO RMP AMENDMENTS RULE

The Amendments RIA utilized the February 2015 version of the RMP database to compile the universe of RMP facilities. The database reflected that approximately 12,500 facilities had filed current RMPs with EPA and could have been potentially affected by the Amendments final rule. These facilities ranged from petroleum refineries and large chemical manufacturers to water and wastewater treatment systems; chemical and petroleum wholesalers and terminals; food manufacturers, packing plants, and other cold storage facilities with ammonia refrigeration systems; agricultural chemical distributors; midstream gas plants; and a limited number of other sources that use RMP-regulated substances.

EPA compared the February 2015 RMP database to the RMP database from November 2017 for the purposes of understanding and comparing how the universe of RMP facilities has changed in the intervening period between developing the Amendments RIA and the RIA for the final Reconsideration rule. The comparison revealed that the number of RMP facilities and processes had experienced minor changes in the more than two years between data pulls. In total, the number of RMP facilities decreased by 1.8% over the time period and included small changes in the number of facilities in most industry codes and process levels. As described in this chapter, with the exception of the number of accidents, EPA determined that the differences between the databases were minor. As a result, EPA utilized the costs estimated for the Amendments RIA as the baseline set of costs to be impacted by the Reconsideration rule.

### 3.1 2017 Versus 2015 RMP Facilities

Exhibit 3-1 presents a comparison of the number of RMP regulated facilities by industry sector in the November 2017 RMP database (as adjusted by EPA) compared to the 2015 version of the database (as adjusted by EPA). The exhibit presents the number of facilities by industrial sector and chemical use. EPA adjusted the raw data from the 2017 database to align with the methodology for identifying RMP facilities used in the Amendments RIA.<sup>27</sup>

Overall, the total number of regulated facilities in the 2017 database has decreased by 224 facilities (12,542 - 12,318 = 224), equating to a 1.8% decrease in the total universe of regulated facilities. Most of the industrial sectors identified in Exhibit 3-1 experienced modest changes (~1% to 10%) in number of facilities between 2015 and 2017. However, of note is a ten percent decrease in the number of “government” facilities (i.e., facilities categorized in Exhibit 3-1 as “Administration of environmental quality programs”). Government facilities include facilities in the RMP database that identified

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<sup>27</sup> Adjustments included assigning program levels to facilities according to their highest program level process, modifying the NAICS codes of water treatment facilities to be considered municipal government institutions (NAICS 92), and other data corrections.

themselves in NAICS code 92, as well as government-owned water and wastewater treatment facilities identified in NAICS 2213. In contrast to a decrease in government facilities, the 2017 RMP database included a 19% increase in the number of petroleum wholesalers (NAICS 4247). The majority of this increase comes from an increase in P1 and P2 (not P3) facilities. We offer explanations for these large percentage changes in our explanation of Exhibit 3-4 below.

As Exhibit 3-1 illustrates, the 2017 database is of course not an exact replica of the 2015 database; however, generally the changes are small in magnitude and do not reflect a substantial change in the total universe of regulated RMP facilities.

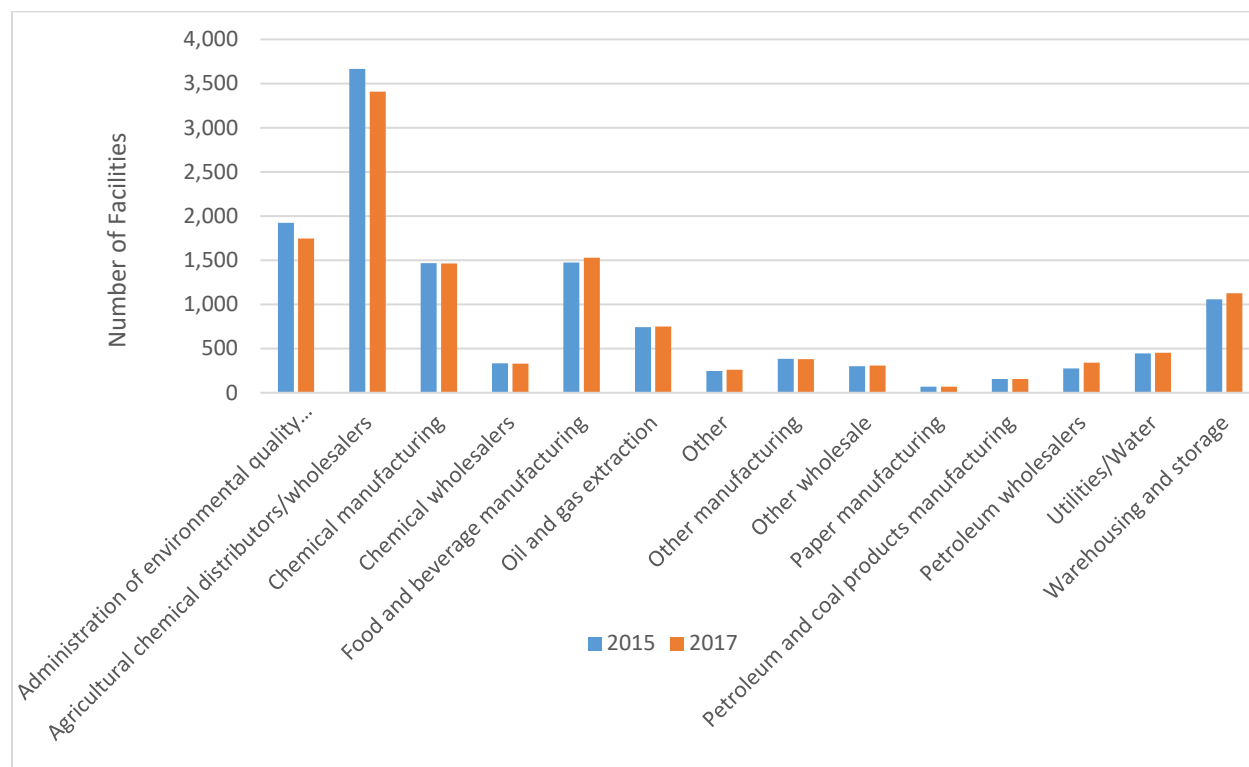
**Exhibit 3-1: Number of Affected Facilities by Sector – Comparison of 2015 and 2017 RMP Database**

Sector	NAICS Codes	2015 Total Facilities	2017 Total Facilities	Percent Change	Chemical Uses
Administration of environmental quality programs (i.e., governments)	92, 2213 (Gov owned)	1,923	1,746	(10.14%)	Use chlorine and other chemicals for water treatment
Agricultural chemical distributors/wholesalers	111, 112, 115, 42491	3,667	3,409	(7.57%)	Store ammonia for sale; some in NAICS 111 and 115 use ammonia as a refrigerant
Chemical manufacturing	325	1,466	1,463	(0.21%)	Manufacture, process, store
Chemical wholesalers	4246	333	329	(1.22%)	Store for sale
Food and beverage manufacturing	311, 312	1,476	1,528	3.40%	Use (mostly ammonia as a refrigerant)
Oil and gas extraction	211	741	750	1.20%	Intermediate processing (mostly regulated flammable substances and flammable mixtures)
Other	44, 45, 48, 54, 56, 61, 71, 21	247	262	5.73%	Use chemicals for wastewater treatment, refrigeration, store chemicals for sale
Other manufacturing	313, 326, 327, 33	384	379	(1.32%)	Use various chemicals in manufacturing process, waste treatment
Other wholesale	423, 424	302	308	1.95%	Use (mostly ammonia as a refrigerant)
Paper manufacturing	322	70	70	0.00%	Use various chemicals in pulp and paper manufacturing
Petroleum and coal products manufacturing	324	156	157	0.64%	Manufacture, process, store (mostly regulated flammable substances and flammable mixtures)

Petroleum wholesalers	4247	276	340	18.82%	Store for sale (mostly regulated flammable substances and flammable mixtures)
Utilities/Water	221 (non Gov owned water)	445	452	1.55%	Use chlorine (mostly for water treatment) and other chemicals
Warehousing and storage	493	1,056	1,125	6.13%	Use mostly ammonia as a refrigerant
<b>Total</b>		<b>12,542</b>	<b>12,318</b>	<b>(1.82%)</b>	

Exhibit 3-2 presents a comparison of the number of facilities in each sector in the form of a bar chart.

**Exhibit 3-2: Chart of Affected Facilities by Sector - Comparison of 2015 and 2017 RMP Database**



### 3.2 Comparing Facility Divisions Used in the Analysis: 2017 versus 2015 RMP Data

The Amendments rule imposed different requirements on facilities based on Program level. P3 processes are those that are not eligible for P1 and are subject to the OSHA PSM standard or are in certain NAICS codes (refineries, a limited number of chemical manufacturers, and pulp mills).

Exhibit 3-3 represents the number of facilities by program level in the 2015 RMP database. The number of facilities by program level in the 2017 RMP database differed slightly. In 2017, the number of P1 facilities is 678 compared to 642 in 2015 (increase of 5.3%). The number of P2 facilities decreased from 5,920 to 5,606 from 2015 to 2017 (a decrease of 5.6%). For P3 facilities, the number of facilities increased from 5,980 to 6,034 (a 0.9% increase).

**Exhibit 3-3: Number of Facilities by Program Level – 2015 RMP Database**

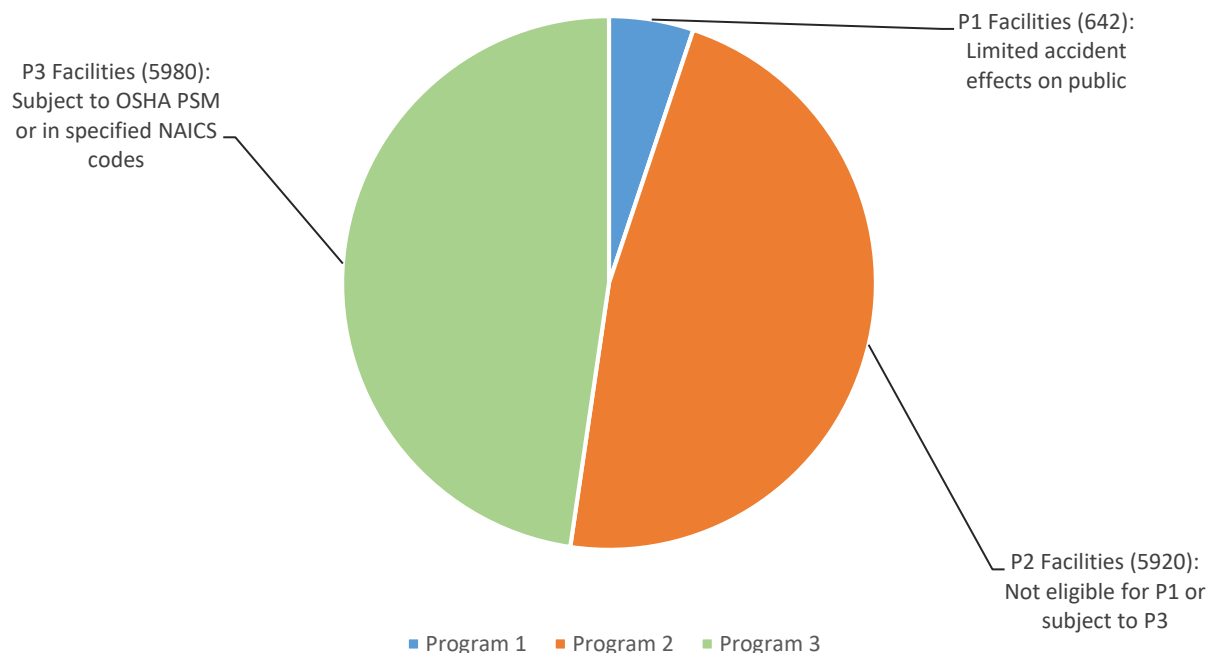


Exhibit 3-4 presents a comparison of the number of RMP facilities in 2015 and 2017 by industrial sector and program level. As shown in the Exhibit, the number of 2017 facilities in each program level have marginally changed relative to the number of 2015 facilities. Overall, most changes by sector and program level are modest (~1% to 10%). Some percent changes in Exhibit 3-4 are large but the associated changes in magnitude are small and only represent large percentage changes due to the small number of 2015 facilities in some sectors. Of note in Exhibit 3-4, as well as Exhibit 3-1, is an overall 18.82% increase in the number of petroleum wholesale distributors (NAICS 4247). The significant increase in petroleum wholesale distributors may be due to the growth of U.S. domestic oil and natural gas production associated with hydraulic fracturing and horizontal drilling (i.e., “fracking”). The Exhibits also show an overall 10.14% decline in the number of government-owned facilities (represented by NAICS 92 and 2213). Publicly owned water/wastewater treatment systems in these Exhibits are listed under governments (NAICS 92), while privately owned and operated systems are listed under NAICS 2213. The decline in the number of government-owned facilities is likely due to a continuing trend away from gaseous chlorine use for water disinfection. These are the largest changes in overall magnitude of the industrial sectors identified in the Exhibits 3-1 and 3-4.

Certain cost estimates in the Amendments RIA depended upon whether a facility was considered “complex.” In general, the cost of implementing the RMP rule provisions varies primarily by the complexity of the processes involved. The chemical manufacturers and refineries 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 responders and the public compared to facilities that simply store or use chemicals in simple processes (e.g., refrigeration systems and water and waste treatment systems). For the purposes of the Amendments RIA and this cost analysis, therefore, all facilities in NAICS 324 and 325 (petroleum and coal products manufacturing and chemical manufacturing) are considered “complex;” all other facilities are considered “simple.”

With regard to the number of complex facilities (NAICS 324, 325), the number of facilities has not changed significantly from 2015 to 2017. The number of petroleum and coal product manufacturers has increased by one (156 to 157), and the number of chemical manufacturing facilities has decreased by three (1466 to 1463). While paper manufacturers fall within the category of “simple” facility, their numbers are important for estimating changes in costs associated with the STAA program element. The number of paper manufacturers (NAICS 322) stayed constant at 70. The change in the number of all other simple facilities (all other NAICS codes) between 2015 and 2017 was greater than the change in complex facilities and paper manufacturers over that timeframe; however, the total change amounted to only a 2% decrease in the total number of simple facilities.



**Exhibit 3-4: Number of Facilities by Sector and Program Level**

<b>Sector</b>	<b>2015 P1</b>	<b>2017 P1</b>	<b>% Change</b>	<b>2015 P2</b>	<b>2017 P2</b>	<b>% Change</b>	<b>2015 P3</b>	<b>2017 P3</b>	<b>% Change</b>	<b>2015 Total</b>	<b>2017 Total</b>	<b>% Change</b>
NAICS 11, 12, 15, 42491 Agricultural	10	6	- 66.67%	3,371	3,021	(11.59%)	286	382	25.13%	3,667	3,409	(7.57%)
NAICS 4246 Chemical Distributors	6	6	0.00%	0	0	0.00%	327	323	(1.24%)	333	329	(1.22%)
NAICS 325 Chemical Manufacturing	53	50	(6.00%)	64	65	1.54%	1,349	1,348	(0.07%)	1,466	1,463	(0.21%)
NAICS 311, 312 Food and Beverage Manufacturer	3	2	- 50.00%	11	6	(83.33%)	1,462	1,520	3.82%	1,476	1,528	3.40%
NAICS 92 Governments	15	14	(7.14%)	935	887	(5.41%)	973	845	- 15.15%	1,923	1,746	- 10.14%
NAICS 211 Oil and Gas Exploration	310	317	2.21%	41	38	(7.89%)	390	395	1.27%	741	750	1.20%
Other	41	55	25.45%	62	55	(12.73%)	144	152	5.26%	247	262	5.73%
Other Manufacturing	62	66	6.06%	73	75	2.67%	249	238	(4.62%)	384	379	(1.32%)
NAICS 423, 424 Other Wholesale	5	3	- 66.67%	291	298	2.35%	6	7	14.29%	302	308	1.95%
NAICS 322 Paper Manufacturing	1	1	0.00%	1	1	0.00%	68	68	0.00%	70	70	0.00%
NAICS 324 Petroleum and Coal Products	13	12	(8.33%)	3	3	0.00%	140	142	1.41%	156	157	0.64%
NAICS 4247 Petroleum Distributors	14	27	48.15%	0	23	100.00%	262	290	9.66%	276	340	18.82%
NAICS 221, 222 Utilities	38	40	5.00%	72	69	(4.35%)	233	235	0.85%	343	344	0.29%
NAICS 493 Warehousing	70	78	10.26%	986	1,047	5.83%	0	0	0.00%	1,056	1,125	6.13%
NAICS 2213 Water/Wastewater*	1	1	0.00%	10	18	44.44%	91	89	(2.25%)	102	108	5.56%
<b>Total</b>	<b>642</b>	<b>678</b>	<b>5.31%</b>	<b>5,920</b>	<b>5,606</b>	<b>(5.60%)</b>	<b>5,980</b>	<b>6,034</b>	<b>0.89%</b>	<b>12,542</b>	<b>12,318</b>	<b>(1.82%)</b>

\* Except government-owned, which appear as NAICS 92 Government.

### **3.2.1 Facilities Affected by the STAA Requirement**

Under the Amendments rule, the applicability of the STAA provision was limited to P3 processes in three sectors (NAICS codes 322, 324, and 325) because they had a high frequency of accidental releases as compared to other sectors (see Amendments RIA, Exhibit 3-8: RMP Reportable Accidents by Sector) and they represent relatively complex processes. In 2015, accidents from these three sectors accounted for

49% of all RMP reportable accidents.<sup>28</sup> The Reconsideration rule rescinds the STAA requirement to decrease burden on regulated facilities and maintain RMP prevention program requirements consistent with OSHA's current PSM standard.

Exhibit 3-5 presents a comparison of the number of RMP P3 facilities and processes in 2015 and 2017 in NAICS 322, 324, and 325. As shown in Exhibit 3-5, the number of facilities in each NAICS has changed marginally relative to the 2015 version of the RMP database. The number of processes for each complex industry sector increased slightly relative to the 2015 RMP database. The largest change is in the number of NAICS 322 P3 processes, which increased from 96 in 2015 to 109 in 2017, representing a 12% increase. The percentage increase in the number of processes in NAICS 325, which represents the bulk of processes subject to the STAA provision, was 3.53%, while the percentage change in NAICS 324 processes was only 1.57%.

**Exhibit 3-5: Number of Processes and Facilities Subject to STAA Provision by Program Level and Sector**

NAICS	2015 P3 Processes	2017 P3 Processes	2015 P3 Facilities*	2017 P3 Facilities*	Process Change/Facility Change
NAICS 322	96	109	68	68	11.92%/0.00%
NAICS 324	1,444	1,467	140	142	1.57%/1.41%
NAICS 325	2,733	2,833	1,349	1,348	3.53%/(0.07%)
Total	4,273	4,409	1,557	1,558	3.08%/0.06%

\*Note that unlike Exhibit 3-1, the facility numbers in this Exhibit represent only the number of facilities with Program 3 processes in sectors affected by the Amendments rule provision.

### 3.2.2 Universe Breakdown for Emergency Response Coordination and Exercise Requirements

The requirements associated with the emergency response provisions in the Amendments rule depend on whether a facility responds to releases itself or relies on local public emergency responders. Responding facilities were identified by examining information provided to EPA related to the emergency response plan in the 2015 RMP database. Exhibit 3-6 presents a comparison of the number of responding and non-responding RMP facilities by complexity of the facility (refineries/chemical manufacturers as complex, all other facilities as simple) and by number of employees between 2015 and 2017. Exhibit 3-6 compares simple and complex facilities by number of full-time equivalent (FTE) employees on site, which affects the number of people involved in exercises. The large manufacturers

<sup>28</sup> February 2015 RMP Database.

were further divided because, unlike most of the facilities in the retail and wholesale sectors, they generally operate 24 hours a day, 7 days per week and therefore have fewer workers at the facility at any one time than the FTE count listed in the RMP. For the Amendments analysis, large manufacturers were considered those with more than 300 FTE or potentially 100 FTE or more per shift. (In general, swing and night shifts have fewer employees onsite than the day shift if only because administrative personnel are not usually present.) Hence, the analysis assigned costs to the 773 manufacturers with 100 to 300 FTE the same as if they were in the 20-99 FTE category for the response provisions.

As shown in Exhibit 3-6, the overall numbers of both responding and non-responding facilities have dropped slightly from 2015 to 2017, consistent with the small decrease in the total number of RMP facilities. The only major category of facilities to show a total change of more than 5% was complex non-responding facilities, which increased by 11.14% (from 422 to 469 facilities). However, this increase was more than offset by the decrease in the number of simple non-responding facilities, yielding an overall very small decrease in the number of non-responding facilities. The overall changes in the numbers of responding and non-responding facilities reported in 2017 relative to the 2015 version of the RMP database were slight.

**Exhibit 3-6: Responding and Non-Responding Facilities by FTE and Complexity\***

	2015 0-19 FTE	2017 0-19 FTE	% Change	2015 20-99 FTE	2017 20-99 FTE	% Change	2015 100+ FTE	2017 100+ FTE	% Change	2015 Total	2017 Total	% Change
<b>Responding</b>												
Simple	1,640	1,490	(9.15%)	880	846	(3.86%)	1,466	1,481	1.02%	3,986	3,817	(4.24%)
Complex	141	114	(19.15%)	459	435	(5.23%)	534	540	1.12%	1,134	1,089	(3.97%)
Total	1,781	1,604	(9.94%)	1,339	1,281	(4.33%)	2,000	2,021	1.05%	5,120	4,906	(4.18%)
<b>Non-Responding</b>												
Simple	4,728	4,533	(4.12%)	899	921	2.45%	731	811	1.02%	6,358	6,265	(1.46%)
Complex	141	155	9.93%	235	275	17.02%	46	39	(15.22%)	422	469	11.14%
Total	4,869	4,688	(3.72%)	1,134	1,196	5.47%	777	850	9.40%	6,780	6,734	(0.68%)

\* Note: Exhibit does not include RMP facilities with only P1 processes

### **3.2.3 Universe Breakdown for Provisions that Apply After an RMP Reportable Accident and for Baseline Damage Estimates**

The number of baseline accidents affected several estimates in the Amendments RIA. Accident numbers affect the costs estimated for rule provisions that must be implemented following an accident, which include the third-party audit, incident investigation root cause analysis, and public meeting provisions. Accident numbers and their associated impacts also affect estimates of baseline damages, which are

discussed in the qualitative benefits analysis. The Amendments RIA used the average number of accidents reported by RMP facilities from 2004 to 2013 to estimate the burden of rule provisions triggered by accidents, as well as baseline accident damages.

As discussed further below, accident data for 2014-2016 was available when EPA completed the analysis for the current RIA, and these data show a fairly steady decline in the number of RMP-reported accidents, as did the data from 2004 to 2013. If the observed continuing decline over 2014 to 2016 were incorporated into the cost and damage estimates, it would result in a reduction of the estimated costs of relevant Amendments rule provisions as well as a reduction in the baseline accident damages. EPA has not adjusted the cost and damage estimates to account for these new data. We will discuss the impacts of omitting the adjustment in the chapters on costs and benefits below.

### **3.2.3.1 Provisions Applicable After an Accident**

The third-party audit provision of the Amendments rule applied to facilities that have an RMP reportable accident. The third-party audit provisions also applied to facilities where the implementing agency identifies conditions that could lead to an accidental release or problems with a prior third-party audit. The root cause analysis provision of the Amendments rule applied to facilities that have an incident that resulted in a catastrophic release or a “near miss.” EPA assumed that the number of catastrophic release incidents and number of near misses were each equivalent to the number of RMP reportable accidents. The Reconsideration rule rescinded the third-party audit and root cause analysis provisions which decreased regulatory burden on the universe of RMP facilities and maintain the RMP prevention provisions consistent with OSHA’s PSM standard. By rescinding these provisions, EPA is assuming that facilities will not incur the costs associated with implementing them, as estimated in the Amendments RIA (all of the major prevention provisions of the Amendments rule had a compliance date of March 15, 2021).

The public meeting provision of the Amendments rule applied to facilities after an accident. The Reconsideration rule modified the public meeting provisions of the Amendments rule by revising the type of information to be shared at a public meeting and by limiting the trigger for the requirement to the occurrence of an RMP reportable accident with offsite impacts specified in § 68.42(a) (i.e., known offsite deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage). The public meeting provision cost estimate in the Amendments rule is based on the total number of accidents per year, including both accidents with onsite impacts and accidents with offsite impacts. For the Reconsideration final rule, the estimate for avoided costs associated with the public meeting provision is based on the number of accidents per year with onsite impacts. Exhibit 3-7 shows the breakdown of average yearly RMP accidents by offsite or onsite impacts.

**Exhibit 3-7: Average Yearly RMP Reportable (Impact) Accidents by Onsite and Offsite Impacts, 2004 – 2013**

Facility Type	Accidents
Accidents with Offsite Impacts	
Complex	17
Simple	30
<b>Total</b>	<b>47</b>
Accidents with Onsite Impacts	
Complex	52
Simple	53
<b>Total</b>	<b>105</b>
Total Accidents	
Complex	69
Simple	83
<b>Total</b>	<b>152</b>

### 3.2.3.2 Reduced Number of Accidents in Recent Years

The RMP program, as discussed in the Amendments RIA, requires reporting for accidental releases from covered processes with impacts that resulted in deaths, injuries, or significant property damage onsite, or known offsite deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage. In practice, however, some facilities have reported accidental releases with no reportable impacts. To estimate compliance costs and baseline damages for the Amendments RIA, EPA used only the number of RMP reportable accidents, which are those accidents with impacts just described. EPA analyzed the number of reportable accidents during the 10-year period from 2004 to 2013 because prior to 2004 some facilities were still completing initial implementation of the rule and 2013 was the most recent year for which there were complete accident data when EPA began its analysis in early 2015.

Accident data are now available for 2014 – 2016,<sup>29</sup> and these data show a continuing decline in accident frequency, consistent with the trend over the immediately prior 10-year period. Exhibit 3-8 presents the number of RMP reportable accidents per year for 2004 through 2013, as presented in the Amendments RIA, as well as the additional accident data now available for 2014 – 2016, and 10-year rolling averages for each available 10-year period. Exhibit 3-9 presents the same data in the form of a bar chart, overlaid with a trend line illustrating the average annual decline in the number of accidents over the 13-year period. As indicated in Exhibit 3-8, when including the additional 3 years of accident data, the average number of impact accidents per year for each 10-year period drops from 152 (for the period from 2004 to 2013) to 137 (for 2007 to 2016) – a decrease of approximately 10%. This decrease would result in a

<sup>29</sup> EPA. March 2018. Risk Management Plan (RMP) Facility Accident Data, 2014-2016. USEPA, Office of Emergency Management. EPA-HQ-OEM-2015-0725-0909, note that document title in docket has incorrect date of April 2018. EPA issued a notice with correct date of March 2018 for this data on July 31, 2019 in 83 FR 86837 (EPA-HQ-OEM-2015-0725-1423).

decrease in the estimated cost savings of repealing rule provisions triggered by reportable accidental releases relative to their costs as estimated in the Amendments RIA. Of course, they would also have resulted in an equal change to the costs of implementing these provisions, if they had gone into effect (i.e., the cost estimate in the Amendments RIA for provisions required following an accident would now be understood to have been too high).<sup>30</sup>

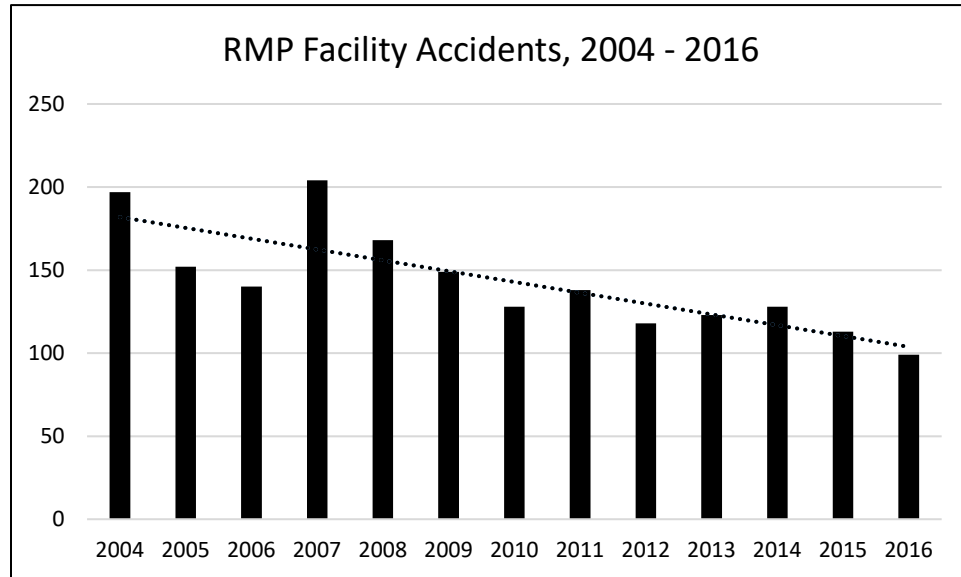
**Exhibit 3-8: RMP Reportable (Impact) Accidents by Year, 2004 – 2016**

<b>Year</b>	<b>Impact Accidents</b>
2004	197
2005	152
2006	140
2007	204
2008	168
2009	149
2010	128
2011	138
2012	118
2013	123
2014	128*
2015	113*
2016	99*
<b>Total (2004 – 2013)</b>	<b>1,517</b>
<b>Total (2005 – 2014)</b>	<b>1,448</b>
<b>Total (2006 – 2015)</b>	<b>1,409</b>
<b>Total (2007 – 2016)</b>	<b>1,368</b>
<b>Average/Year (2004 – 2013)</b>	<b>152</b>
<b>Average/Year (2005 – 2014)</b>	<b>145</b>
<b>Average/Year (2006 – 2015)</b>	<b>141</b>
<b>Average/Year (2007 – 2016)</b>	<b>137</b>

<sup>30</sup> EPA notes that accident totals for the most recent five years of data within the RMP national database increase slightly after each major five-year RMP reporting cycle occurs. Major five-year reporting cycles, or “waves”, have occurred every five years after the 1999 compliance date of the original rule; that is, in 2004, 2009, and 2014. This initially occurred because originally there was no requirement to update RMP accident information until the next RMP submission was due, which normally occurs every five years. Although EPA changed this requirement in 2004 to require owners and operators to update their RMP accident history information within 6 months of any reportable accident, not all sources consistently comply with this requirement. Some sources still update their accident history information only when their next full five-year RMP update occurs, which for most sources occurs in one of the “wave” years. Therefore, EPA expects that while the overall trend in accidents is downward, actual accident numbers for 2014-2016 may increase slightly above those shown here after the 2019 reporting wave occurs. This problem did not affect the Amendments RIA because the previous “wave” reporting year – 2014 – occurred the year prior to EPA extracting the accident data from the RMP National Database (i.e., EPA extracted the data for the Amendments RIA in early 2015), so all accidents in years prior to 2014 would have been represented in the dataset used for the Amendments RIA.

\*May increase slightly after the 2019 RMP reporting wave occurs.

**Exhibit 3-9: RMP Reportable (Impact) Accident Trend, 2004 – 2016\***



\*The line represents a linear trend line over the 13 years of data. The average annual decline is approximately 3.5%. Note that for the final three years, the number of reported impact accidents may increase slightly above those shown here after the 2019 RMP reporting wave occurs.

### **3.2.3.2 Baseline Damages**

Estimates of baseline damages from accidents at RMP facilities would also change from what was estimated for the Amendments rule if EPA was to update to the 2016 RMP data. The baseline damages would likely decline to reflect the recent decreases in the annual number of reported accidents. This would hold if the impacts associated with the accidents declined as well. This is discussed further in Chapter 6.

### **3.2.4 Universe for Information Availability Provisions**

The information availability provisions of the Amendments rule apply to all regulated facilities. The Reconsideration rule rescinds the information availability provisions, eliminating this requirement for all regulated facilities. As already discussed, the overall universe of RMP regulated facilities has changed only marginally from 2015 to 2017.

## **3.3 Limitations**

EPA has not updated the current RIA cost analysis to reflect the November 2017 version of the RMP database. Even though the Amendments rule has gone into effect as a result of the vacatur of the Delay

rule, the rescinded Amendments rule major provisions all had compliance dates in 2021 or later and EPA believes that they have not been implemented by the regulated community. As a result, any incremental changes to the universe of regulated facilities would affect the costs of that rule to the same degree that they affect the cost savings of the current Reconsideration rule.

However, the error in estimates may be larger for provisions depending on accident rates as well as for the estimates of avoided accident damages (which provide insight into the magnitude of potential benefits associated with the Amendments and Reconsideration rules). The reason is that the number of accidents reported for 2014, 2015, and 2016 shows a continuing annual decline<sup>31, 32</sup>.

There are also limitations associated with the assumptions used in the Amendments RIA.<sup>33</sup> The Amendments RIA assumed that every facility subject to the RMP rule has registered with EPA and filed an RMP as of 2015. EPA recognizes that this may not be true. EPA and delegated implementing agencies search for and occasionally identify regulated facilities that have failed to submit RMPs. Historically, relatively few of these “non-filers” have been found, but EPA has little basis for determining the full extent of such non-compliance.

The RMP database may also include facilities that are no longer operational. For the Amendments analysis, EPA removed one refinery (and nine processes) from the data because the facility appears to have closed in 2001 without following the requirements to deregister. EPA recognizes there may be other facilities in the RMP database that are no longer operating.

The RMP facility population is dynamic. The number of RMP facilities and processes is expected to change over the period of analysis because of firms that will grow, shrink, merge, close, or open in the near or distant future. Despite these expected changes, the analysis relies on the number and nature of RMP facilities and processes that exist as of the February 2015 RMP database as a constant estimate of future RMP facilities/processes.

Finally, as discussed in more detail in Chapter 7, there are some problems with the data as filed with EPA. There are a number of facilities that list NAICS codes that are inaccurately applied, which means some facilities have misclassified themselves as P2 instead of P3, and for public facilities in Federal OSHA states as P3 instead of P2. For example: EPA identified storage and terminal areas that were listed as refineries; agricultural co-operatives and refrigerated warehouses listed in multiple sectors; and large terminals listed as wholesalers, support for transportation, and warehouses. Although EPA has

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<sup>31</sup> EPA has also docketed a spreadsheet containing RMP facility accidents for 2017, extracted from the September 2018 version of the RMP database. EPA docketed this spreadsheet to corroborate the continued decline in RMP facility accidents in 2017 (there were 94 RMP facility accidents reported to EPA in 2017). See Docket ID: EPA-HQ-OEM-2015-0725-1974.

<sup>32</sup> Past experience with RMP facility accident reports suggests that following the next 5-year reporting wave, the current 2014, 2015, and 2016 accident totals may increase slightly.

<sup>33</sup> Assumptions in the Amendments RIA are relevant to this analysis as EPA is utilizing the baseline assumptions from the 2017 analysis in this RIA.



attempted to correct the most obvious problems, and the numbers in any category are EPA's best estimate, they should be viewed as approximations.

EPA's use of the 2015 RMP database in this analysis, subjects this RIA to the same limitations as those in the Amendments analysis.

## CHAPTER 4: UNIT COSTS AND COST SAVINGS OF FINAL RULE REVISIONS

This chapter discusses the quantifiable costs and cost savings (i.e., avoided costs) associated with rescinding rule provisions included in the Amendments rule. It also presents the assumptions used to estimate the incremental costs and cost savings. EPA does not estimate the baseline costs incurred to comply with the Amendments regulations enacted January 13, 2017, in this analysis.<sup>34</sup> Those baseline costs are estimated and explained in the Amendments RIA.

The Amendments rule analysis employed a model facility approach in which representative facility categories were developed to reflect a variety of features expected to influence costs (e.g., process complexity, number of full-time employees, etc.). Cost assumptions were developed for each model facility type and addressed factors such as number of staff hours involved in implementing a provision, equipment costs, and fixed costs for contractor involvement. Prevailing wage rates were used to estimate per facility costs for rule provisions. With a model facility approach, the unit cost estimates represent averages that cover a wide variation in expected costs even within a single sector. Given the high level of uncertainty associated with the costs of some of the provisions, however, attempting to project costs for a more disaggregated universe would imply a level of knowledge of future costs that does not exist.

For the Reconsideration rule cost analysis, EPA assumes the baseline is compliance with the 2017 Amendments rule as estimated by the Amendments RIA. The Reconsideration rule reduces costs relative to that baseline. As previously discussed in Chapter 3, the universe of RMP facilities remained largely unchanged from 2015 to 2017. EPA assumes that as of the effective date of the final version of this Reconsideration rule, few facilities will have taken steps to begin implementing the rescinded provisions of the 2017 Amendments. Thus, costs savings from the proposed rescission of provisions under the Reconsideration rule will completely eliminate costs for those provisions as estimated for the 2017 Amendments rule.

### 4.1 Wage Rates

In the Amendments RIA, the Agency used the Bureau of Labor Statistics May 2015 Occupational Employment and Wage Estimates<sup>35</sup> to construct a weighted wage rate for different occupation categories. For all rule provisions, labor hours were assumed to be distributed across six general labor

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<sup>34</sup> The Amendments regulation included notification requirements for exercises that are not affected by the current Reconsideration rulemaking. The costs and benefits for notification requirements are not considered here as they were already incorporated in the Amendments RIA document, available at <https://www.regulations.gov/document?D=EPA-HQ-OEM-2015-0725-0734>.

<sup>35</sup> See Table 1. at [https://www.bls.gov/news.release/archives/ocwage\\_03302016.pdf](https://www.bls.gov/news.release/archives/ocwage_03302016.pdf) and May 2015 National industry-specific and by ownership tables (XLS) at <https://www.bls.gov/oes/tables.htm>

categories: Management, Corporate Management, Attorneys, Engineers, Production Staff, and Local Responders. The weighted wage rates for complex facilities (NAICS codes 324 and 325) were estimated separately from simple facilities because wages paid by these facilities are higher than in wholesale and government sectors, which dominate the simple facilities category. For each of the NAICS codes representing industries in the simple facilities category that are affected by the rule provisions (Food and Beverage, Agricultural Facilities, etc.), standardized BLS Occupation Titles were identified to correspond to the six general labor categories. The wage rates for each BLS Occupation Title were multiplied by a fringe benefits factor of 1.5 to create a loaded wage rate.<sup>36</sup>

After loaded wage rates were established for each industry, they were combined to form a weighted average based on how prominent each industry was within its universe of facilities, either simple or complex. The Reconsideration RIA utilizes the same wage rates as used in the Amendments RIA. Exhibit 4-1 presents the wage rates.

EPA received public comments concerning the wage rates used by EPA in the Amendments and proposed Reconsideration RIAs. A commenter stated that EPA's wage rate estimates in the ICR and RIA do not accurately reflect wages paid by RMP-regulated facilities.<sup>37</sup> EPA wishes to highlight that BLS wage data is the national standard for wage rates for economic analysis and is referred to in the standards and guidance material published by numerous federal agencies conducting economic analysis. In response to this comment, EPA conducted an analysis to compare BLS wage rates against comparable wage rates published in other publicly available datasets. The conclusion of that analysis was that EPA's wage rates, which are based on BLS data, are consistent with other publicly available wages estimates.<sup>38</sup>

A commenter also specifically stated that EPA's estimate of attorney wage rates is not representative of industry experience, stating that EPA's estimates are considerably low given that many companies do not employ in-house counsel. EPA evaluated additional sources of data concerning attorney wage rates, including data specifically focused on billing rates for outside counsel. The conclusion of that evaluation was that while outside counsel billing rates may be higher than EPA's estimated wage rate for an attorney, EPA's estimated wage rate was appropriate because (1) EPA does not believe that it would be appropriate to assume that all, or even most, complex facility attorney labor hours for rule familiarization and implementation are conducted by outside firms and (2) other sources of publicly available wage rates for attorneys (without distinction between in-house or outside counsel) resulted in a lower average attorney wage rate than utilized by EPA.<sup>39</sup>

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<sup>36</sup> The benefits multiplier is based on an average for the sectors as estimated by BLS in its Employer Costs for Employee Compensation. BLS includes items such as sick leave and vacation as benefits. See <http://www.bls.gov/news.release/eccec.nr0.htm>.

<sup>37</sup> EPA-HQ-OEM-2015-0725-0983.

<sup>38</sup> See EPA memo, *Research Related to CSAG Comment on Wage Rates*, 05/03/19. This memo is available in the rulemaking docket, EPA-HQ-OEM-2015-0725.

<sup>39</sup> Ibid.

**Exhibit 4-1: Weighted-Average Loaded Hourly Wage Rates (2015 Dollars)**

<b>Labor Category</b>	<b>Simple Facilities</b>	<b>Complex Facilities</b>
Management	\$77.15	\$100.12
Corporate Management	\$82.83	\$102.67
Attorneys	\$101.66	\$128.73
Engineers	\$55.67	\$75.89
Production Staff	\$29.69	\$43.81
Local Responders	\$54.47	\$54.47

## **4.2 Rule Familiarization**

The Amendments RIA contained assumptions regarding the level of effort required to become familiar with the revisions to the RMP program and begin the initial stages of implementation of the Amendments rule. Although the Amendments rule has gone into effect as a result of the vacatur of the Delay rule, EPA assumes that as of the effective date of the final version of this Reconsideration rule, few facilities will have taken steps to begin implementing the provisions of the 2017 Amendments that are rescinded by the Reconsideration rule, as compliance with all of these provisions would not have been required until March 15, 2021 or later. Nevertheless, EPA estimates that a portion of the labor burden and cost associated with becoming familiar with the rescinded provisions of the Amendments rule will be imposed on RMP facilities. EPA acknowledges that facilities, local responders, and implementing agencies would have needed to obtain enough familiarity with the rescinded provisions in order to fully understand EPA's final rule action. Thus, EPA has assumed that the management labor portion of the Amendments rule familiarization burden for rescinded provisions has not been avoided. However, EPA also estimates that a portion of the labor burden and cost associated with becoming familiar with the rescinded provisions of the Amendments rule *will* be avoided. For the rescinded provisions, based on comments received on the proposed Amendments rule, EPA's rule familiarization estimate had included significant costs associated with training various facility staff (i.e., production staff, engineers, and attorneys) in how to comply with rescinded accident prevention program and information availability provisions, particularly for P3 complex facilities that were subject to the STAA provision. As the rescinded provisions all had 2021 compliance dates, EPA does not believe that most facilities have expended this degree of effort to conduct such rule familiarization training for provisions that EPA had proposed to rescind. Thus, EPA has assumed that the rule familiarization burden estimated for the Amendments rule in facility labor categories other than management has been avoided. In sum, to account for the net effects on rule familiarization burden of EPA's final rule action, EPA is assuming a new cost burden that includes (1) the non-avoided labor costs associated with management becoming familiar with the rescinded provisions of the Amendments, and (2) the full labor costs of becoming familiar with the non-rescinded and revised provisions of the Amendments rule. The

Reconsideration rule retained the single major provision with a compliance date prior to 2021 – local emergency coordination, which had an original compliance date of March 14, 2018 – and therefore rule familiarization burden for this provision is also reflected as a cost of the final Reconsideration rule.

EPA received public comments addressing EPA’s assumptions regarding how the Delay rule and the associated extension of the effective date of the Amendments rule would impact rule familiarization costs. A few commenters stated that the vacatur of the Delay rule would materially impact the rule familiarization costs and cost savings. EPA disagrees that the Delay rule vacatur materially impacts the cost benefit analysis. Our estimates of the cost and benefit impact of the final rule reflect reasonable judgments about the behavior of affected entities during the reconsideration process, including that period before the *Air Alliance Houston (AAH)* decision vacated the Delay rule. The Court of Appeals issued the *AAH* decision on August 17, 2018, and the vacatur of the Delay rule made the Amendments rule effective on September 21, 2018. At that time, the only major provision of the Amendments rule that required immediate compliance was the emergency coordination provision<sup>40</sup>. All other major provisions of the Amendments rule had compliance dates in 2021 or later. By the time of the Delay rule vacatur, EPA had already proposed to rescind or modify most of the Amendments rule’s provisions. With EPA’s proposal, regulated facilities could reasonably expect that Amendments rule provisions with future compliance dates might either be rescinded or modified before the original compliance date occurred.<sup>41</sup> Given this regulatory landscape, most sources would reasonably choose to delay complying with or preparing to comply with remaining Amendments rule provisions (i.e., all major prevention provisions and the information disclosure provisions excluding public meetings) except those requiring immediate compliance due to the Delay rule vacatur. Therefore, it is reasonable for EPA to assume that the Delay rule vacatur has had a de minimus impact on EPA’s estimates in the cost benefit analysis. We also note that with the exception of rule familiarization costs, the economic baseline and the cost savings associated with rescinded provisions are based on annualized costs for periodic, recurring activities. They are not one-time costs. Even if all of the rescinded provisions were already being implemented, rescinding them would still result in the annualized cost savings we have projected. Regarding rule familiarization, in the RIA for the final Reconsideration rule, EPA assumed that facilities would incur some of the rule familiarization costs of the rescinded provisions of the Amendments rule. Rule familiarization costs for non-rescinded provisions are also accounted for in the RIA for the final rule.

The RMP Reconsideration rule rescinds the RMP Amendments rule requirements related to third-party audits, incident investigation root cause analyses, STAA, and chemical hazard information availability to the public. The final rule also proposes to modify the language of the local emergency coordination, facility exercises, and public meeting provisions. The final rule does not introduce new provisions. Because of these changes, RMP facility staff will require some time to review the final rule and

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<sup>40</sup> Various other provisions that we have labelled the “minor changes” also became effective, but the RIA for the 2017 Amendments rule did not attribute costs to these provisions and this RIA attributes no cost savings to those minor changes that we rescind in the final rule.

<sup>41</sup> We also note that, prior to the vacatur of the Delay rule, sources had a basis to believe that compliance with the 2017 RMP Amendments would not be required so long as the rule had not become effective.

determine how the RMP provisions have changed, and which provisions apply to the RMP facility. Many of the revised provisions are straightforward, such as the rescission of the chemical hazard information public disclosure provision. Others, such as the local emergency coordination, exercise and public meeting provisions, have been modified and will require RMP facility staff to review the non-rescinded provisions and any amendments to their language. Overall, EPA expects RMP facilities to review the Reconsideration rule to determine how the rule differs from the Amendments rule; however, labor burden is expected to be reduced relative to the rule familiarization labor burden estimated in the Amendments RIA.

In the Amendments RIA, EPA projected that all facilities with simple processes would need four hours to review the rule as would the few complex facilities in P1 and P2.<sup>42</sup> Under the Reconsideration rule, the estimated number of labor hours for simple facilities is reduced relative to the Amendments RIA from four hours of management time, to two hours. This reduction is due to the rescission of the provisions applicable to simple facilities: third-party audits, root cause analysis, and chemical hazard information availability. With their rescission, simple facilities will be subject to fewer RMP provisions and will only need to be familiar with the structural changes of the rule and changes to the language of the coordination, exercise and public meeting provisions.

Under the Amendments rule, complex facilities in P3 were projected to spend 292 hours reviewing the rule.<sup>43</sup> For P3 complex facilities, the majority of rule familiarization labor hours under the Amendments rule would have been spent on familiarization with rescinded provisions, particularly STAA, third-party audits, and incident investigation root cause analysis. Therefore, rule familiarization for these facilities will be far less under the Reconsideration rule. The hours will continue to be higher than for other facility types as there are some modifications to the requirements of the exercise provision, which generally impacts large complex facilities. In general, hour estimates represent time to read and understand the requirements of the rule and additional time for those impacted by the changes to the exercise provisions. The revised estimate in the final Amendments rule for complex facilities is more in line with the NJ DEP estimate for revisions to the NJ TCPA program, as recommended by the comments submitted to EPA by AWWA and AFPM on the proposed Amendments rule.<sup>44</sup>

LEPCs were projected to spend five hours reviewing the Amendments rule. EPA does not expect LEPC labor hours for rule familiarization under the Reconsideration rule to change relative to the Amendments RIA, as the rescinded and modified provisions are expected to have little effect on LEPC burden. For delegated implementing agencies, labor hours are expected to decrease from four hours of

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<sup>42</sup> Labor hour estimates for Simple, P1 and P2 Complex, LEPC, and Implementing Agencies are taken from public comment EPA-HQ-OEM-2015-0725-0554 provided by the American Water Works Association (AWWA) on the proposed Amendments rule.

<sup>43</sup> See comment EPA-HQ-OEM-2015-0725-0363 provided by the Chemical Safety Advisory Group (CSAG) on the proposed Amendments rule for labor hour estimate. EPA used the midpoint of the P3 Complex high and low labor hour estimates.

<sup>44</sup> Please see comments EPA-HQ-OEM-2015-0725-0554 and EPA-HQ-OEM-2015-0725-0579 in the Amendments rulemaking docket.

management time to two. This reduction is due to the rescission of the third-party audit, root cause analysis, STAA, and chemical hazard information availability provisions.

EPA received a public comment on the expected costs to facilities of rule familiarization. Similar to the comments received in response to the proposed Amendments ICR and RIA, the comment broadly stated that EPA's estimates for RMP facility rule familiarization in the proposed Reconsideration ICR and RIA understated the cost of reviewing and becoming familiar with the rule. As a result of the similar comments submitted on the Amendments rule, EPA had revised the burden estimates for the final Amendments rule ICR and RIA.<sup>45</sup> Also, as described above, EPA adjusted the rule familiarization burden estimate for the Reconsideration rule RIA and ICR to account for the portion of rule familiarization burden for the Amendments rule that has not been avoided due to the Reconsideration rule. EPA therefore believes that the estimates now included in the Reconsideration rule ICR and RIA are the best possible estimates given the existing data.

Exhibit 4-2 shows projected unit labor hour burden estimates for RMP facilities, LEPCs, and delegated implementing agencies to become familiar with the Reconsideration rule.

**Exhibit 4-2: Reconsideration Rule Familiarization Unit Costs\* (2015 dollars)**

Facility Type	Labor Hours					Unit Costs
	Managers	Corporate Managers	Attorneys	Engineers	Production Staff	
Simple	6	0	0	0	0	\$463
P1 and P2 Complex	6	0	0	0	0	\$601
P3 Complex	30	4	6	6	6	\$4905
LEPCs	10	0	0	0	0	\$772
Delegated Implementing Agencies	6	0	0	0	0	\$463

\*Includes some costs of familiarization with rescinded Amendments rule provisions

As indicated above, for the purposes of this RIA, EPA assumes a portion of the rule familiarization costs in the Amendments RIA to be avoided costs. However, EPA assumes that RMP facilities, responders, and implementing agencies expended some rule familiarization burden for the Amendments rule, and expects RMP facilities, responders, and implementing agencies to review the Reconsideration rule to determine how the Reconsideration rule differs from the Amendments rule; those costs for reviewing those portions of the Amendments rule that were not rescinded or revised are considered part of rule familiarization costs for the Reconsideration rule. Exhibit 4-3 shows estimated unit avoided costs of rule familiarization.

<sup>45</sup> EPA. December 19, 2016. Information Collection Request (ICR) for Accidental Release Prevention Requirements: Risk Management Program Modernization Under the Clean Air Act (CAA) Section 112(r)(7) (Final Rule) EPA ICR No. 2537.02 Office of Management and Budget (OMB) No. 2050-0216. EPA-HQ-OEM-2015-0725-0730.

**Exhibit 4-3: Unit Avoided Costs of Rule Familiarization with Amendments Rule (2015 dollars)**

Facility Type	Labor Hours					Facility Avoided Cost
	Managers	Corporate Mgmt.	Attorneys	Engineers	Production	
Simple facilities	4	0	0	0	0	(\$309)
P1 and P2 Complex	4	0	0	0	0	(\$400)
P3 Complex	20	48	12	87	125	(\$20,554)
LEPCs	5	0	0	0	0	(\$386)
Delegated Implementing Agencies	4	0	0	0	0	(\$309)

## **4.3 Prevention Program Rule Provisions**

### **4.3.1 Third-party Compliance Audits**

The Reconsideration rule rescinds this provision in an effort to maintain consistency with the OSHA PSM standard and reduce facility burden. Through the rescission of the provision, regulated entities are expected to experience costs savings equal to the estimated costs of the provision in the Amendments RIA.

The Amendments RIA third-party compliance audit analysis estimated that the time required to contract for a third-party audit would vary with the complexity of the processes to be covered and multiple facility staff would be involved. At a minimum, one manager and one engineer would be involved to identify potential auditors and write the statement of work on which the auditor would base its bid. For larger firms that routinely contract and have contract departments, a contracts specialist and attorney would be part of the process. Many large firms and all governments would have standard contract language. Governments were estimated to spend more time on the contracting process, however, because most are required to solicit competitive bids and document the basis for the selection. Private firms were expected to use a similar process but were not required to do so. Private firms were also likely to spend time negotiating contract language after the award.

EPA received public comments on the rescission of the third-party audit provision of the proposed rule. A commenter suggested that EPA's estimate of the burden to regulated entities in the Amendments rule was low and not representative of industry experience. The commenter stated that the deficiencies in the estimate from the Amendments rule had trickled into the Reconsideration rule ICR and RIA.



Commenters made similar arguments in the Amendments rulemaking, stating that the estimated costs of the third-party audit requirements in the Amendments RIA were too low. Shortly after the proposed Amendments rule was published, EPA received cost information relating to a series of third-party audits conducted by a facility as a result of an enforcement action taken by EPA under CAA Section 112(r). The average cost of those audits was approximately double EPA’s estimate in the proposed Amendments rule, and comparable to cost estimates submitted by commenters. Therefore, EPA adjusted its cost estimate for this provision of the final Amendments rule accordingly, resulting in the estimated costs of third-party audits under the final Amendments rule nearly doubling. EPA believes that the burden estimates in the Amendments rule ICR and RIA and Reconsideration rule ICR and RIA are the best possible estimates given the existing data.

Hourly assumptions and unit avoided costs for third-party audits are shown in Exhibit 4-4.

**Exhibit 4-4: Hourly Assumptions and Unit Avoided Costs for Hiring Third-party Auditors**

Facility Type	Hours for Contracting Process			Facility Labor Cost	Auditor Fee	Facility Avoided Cost
	Management	Attorneys	Engineers			
Simple w/ 0-19 FTEs	64	8	0	(\$5,751)	(\$30,000)	(\$35,751)
Simple w/ 20-99 FTEs	88	8	36	(\$9,607)	(\$30,000)	(\$39,607)
Simple w/ 100+ FTEs	60	8	112	(\$11,677)	(\$30,000)	(\$41,677)
Complex w/ 0-19 FTEs	64	8	0	(\$7,438)	(\$80,000)	(\$87,438)
Complex w/ 20-99 FTEs	88	8	36	(\$12,572)	(\$80,000)	(\$92,572)
Complex w/ 100+ FTEs	60	8	112	(\$15,537)	(\$80,000)	(\$95,537)
Small Government	60	0	50	(\$7,413)	(\$30,000)	(\$37,413)
Large Government	120	0	78	(\$17,934)	(\$80,000)	(\$97,934)

#### 4.3.2 Incident Investigation Root Cause Analysis

The Reconsideration rule rescinds the root cause analysis provision introduced in the Amendments rule (and deletes the term “near miss” used to clarify understanding of those incidents that could have reasonably resulted in a catastrophic release). Through the rescission of the provision, regulated entities are expected to experience costs savings equal to the estimated costs of conducting root cause analysis in the Amendments RIA. However, the Reconsideration rule does not alter the previous RMP regulatory

requirement to investigate any incidents that resulted in, or could have reasonably resulted in, a catastrophic release.

As stated in the Amendments RIA, root cause analyses were not expected to require additional management time beyond that already required for incident investigation. Management time was expected to be devoted primarily to decisions concerning resolution of corrective actions arising from the investigation, and these activities should require roughly the same amount of time whether corrective actions relate to root causes or other contributing causes. For simple facilities, additional, non-management, labor for root cause analyses was assumed to be evenly distributed between production staff and engineers. For complex facilities, in addition to management, it was estimated that due to the facility's size and complexity, several attorney hours would be required, along with the acknowledgment of corporate management. It was also estimated that multiple hours of engineering and production staff would be required to conduct the analysis.<sup>46</sup>

The estimate of the time required for an incident investigation was based on estimates in the original 1996 RMP RIA, which relied on best professional judgement and comments on the original rule proposal received from industry.<sup>47</sup> The estimates in the 1996 RMP RIA involved development of a labor model that assumed investigations would involve a team of management, technical, and production staff, and that staff at larger and more complex facilities would require more hours to complete an investigation. Simple facility costs were estimated to include \$1,000 for a trained facilitator to assist with the investigation. Complex facilities generally have staff familiar with the methodology and would staff the root cause analysis in-house.

In response to the proposed Reconsideration rule, EPA received comments concerning root cause analysis and incident investigations. Commenters supporting the rescission stated that EPA had failed to adequately calculate the burden of root cause analysis in the Amendments rule. A commenter stated that the deficiencies in the estimate from the Amendments rule had trickled into the Reconsideration rule ICR and RIA. Commenters made similar arguments in the Amendments rulemaking, stating that EPA's labor estimates for root-cause analysis were low. EPA responded to those comments by incorporating the cost information submitted by commenters into the burden estimate for the Amendments final rule. EPA also noted that unlike the estimate for the Amendments proposed rule, the Amendments final rule burden estimate did not assume that investigations of near misses would require fewer labor hours than investigations of actual release events. Overall, those changes resulted in the estimated cost of this rule element approximately doubling for the Amendments final rule. EPA believes that the burden estimates in the Amendments rule ICR and RIA and Reconsideration rule ICR and RIA are the best possible estimates given the existing data.

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<sup>46</sup> Labor estimates are the midpoint of the high and low labor estimates provided by CSAG in comment EPA-HQ-OEM-2015-0725-0363 on the proposed Amendments rule.

<sup>47</sup> Economic Analysis in Support of the Final Rule on RMP Regulations for the Chemical Accident Release Prevention, as Required by Section 112(r) of the CAA, May 21, 1996. EPA-HQ-OEM-2015-0725-0096.

Hourly assumptions and unit avoided costs for rescission of the root cause analysis provision are shown in Exhibit 4-5.

**Exhibit 4-5: Unit Avoided Costs for Root Cause Analysis**

Facility Type	Labor Hours					Other Costs	Facility Avoided Cost
	Managers	Corporate Mgmt.	Attorneys	Engineers	Production		
P2 - simple	6	0	0	4	4	(\$1,000)	(\$1,804)
P2 - complex	68	0.5	6	30	28	(\$0)	(\$11,135)
P3 - simple	6	0	0	4	4	(\$1,000)	(\$1,804)
P3 - complex	68	0.5	6	30	28	(\$0)	(\$11,135)

### 4.3.3 Safer Technology and Alternatives Analysis (STAA)

The Reconsideration rule rescinds the STAA provisions introduced in the Amendments rule. The STAA provision of the Amendments rule required facilities with P3 processes in NAICS codes 322, 324, and 325 to conduct a STAA as part of their PHA, which occurs every 5 years.

STAA is generally a process in which facility staff analyze their current processes and practices to determine if there are safer alternatives to their current operating practice. This can range from small changes – such as upgrading valves – to large shifts like substituting less toxic or volatile chemicals.

The Amendments RIA divided the STAA process into three parts:

- The initial analysis to identify alternatives;
- A practicability study to determine the costs and assess the reasonableness of implementing the change in light of other costs and programs; and
- Implementation of alternatives (implementation was not required under the final Amendments rule).

The STAA provision included a requirement for facilities to conduct both an initial analysis and a practicability study. An initial analysis was required of all facility processes. While some facilities affected by the Amendments rule provision have likely already conducted an initial STAA for some processes,<sup>48</sup> the Agency took the conservative approach of assuming that all facilities subject to the STAA provision would conduct them for all processes.

<sup>48</sup> For example, some RMP facilities located in New Jersey and Contra Costa County, California have been subject to rules requiring safer technology reviews since 2006 and 1999, respectively.

Following the initial analysis, the Amendments rule required a practicability assessment if the initial analysis determined the existence of potential inherently safer technology alternatives. In the Amendments RIA, EPA anticipated that some facilities would conduct practicability studies to address alternatives considered in multiple initial analyses. As a consequence, some complex firms were assumed to conduct practicability studies that address up to 12 different alternatives. For a description of the number and types of practicability studies that formed the basis of EPA's cost estimate, please see Appendix D of the Amendments RIA.

EPA's hourly labor assumption estimates in the Amendments RIA for the STAA initial analysis were based on guidelines published by the American Institute of Chemical Engineers / Center for Chemical Process Safety (AIChE/CCPS) and consultation with engineers who have extensive experience in performing hazard analyses.<sup>49</sup> Facilities in NAICS codes 322, 324, and 325 were expected to have staff qualified to conduct the initial analysis in-house. All other facilities were expected to hire a consultant to lead the team. Most of these other facilities use chemicals or store them, but often rely on engineering firms or maintenance contractors to design the equipment and do anything other than routine minor maintenance. They may not, therefore, have had staff knowledgeable enough in the process and design to identify and evaluate alternatives.<sup>50</sup>

The technical practicability assessment considered the process redesign, its engineering implications, and possible costs of technologies identified in the initial analysis. EPA's labor estimate assumptions for the practicability assessment were informed by consultations with stakeholders and public comments. EPA's approach to estimating the costs of practicability studies is described in detail in Appendix D of the Amendments RIA. In summary, EPA used identified reference projects to estimate sample project costs for each facility class (i.e. large complex, chemical manufacturer small/medium complex, and paper manufacturing).<sup>51</sup> After compiling a list of sample project costs, EPA applied a practicability study rule of thumb to the total cost of the projects, assuming that all practicability studies will cost 1.2% of a project's total cost. Appendix D of the Amendments RIA presents a sensitivity analysis adopting different assumptions regarding the cost of practicability studies. EPA concluded that 1.2% of total project costs is representative of the costs of a practicability study through reviewing published articles, web sources, and public comments on the cost of feasibility studies.<sup>52</sup>

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<sup>49</sup> EPA consulted with engineers at ABS Consulting. See emails dated 6-11-15 (with attachments) and 6-18-15 between Myron Casada of ABS Consulting and Jim Belke of USEPA/OEM regarding IST Review cost estimate. EPA-HQ-OEM-2015-0725-0678.

<sup>50</sup> Additional discussion of EPA's methods for determining labor hours associated with the Initial Analysis can be found in Section 4 of the Amendments RIA.

<sup>51</sup> Large complex project costs were taken from Public Comment EPA-HQ-OEM-2015-0725-0579 provided by AFPM on the proposed Amendments rule, Small/medium complex and paper manufacturing project costs from Public Comment EPA-HQ-OEM-2015-0725-0554 provided by AWWA on the proposed Amendments rule.

<sup>52</sup> See Table D-4 in Appendix D of the Amendments RIA for a table of published articles, web sources, and public comments.

From the reference practicability project cost estimates, EPA estimated that practicability studies for a large complex facility would typically cost approximately \$1.38 million over a 5-year period (\$276,000 annually). A small/medium complex facility practicability study was estimated to typically cost \$27,607 over a 5-year period (\$5,521 annually). On average, a paper manufacturing practicability study was estimated to cost \$163,048 over a 5-year period (\$32,610 annually).<sup>53</sup> However, as stated in the Amendments final rule, implementation of safer alternatives was not required under the final rule.

The Reconsideration rulemaking eliminates the requirement to conduct an STAA. As such, the final rule has the benefit of averting the costs associated with implementing the STAA provision, including both the initial analysis and practicability assessment required in the Amendments rule.

In response to the proposed Reconsideration rule, EPA received public comments on the STAA provision. A few commenters stated that EPA had drastically understated in the RIA for the proposed Reconsideration rule (and Amendments rule) the costs of STAA requirements to industry. Several commenters made similar arguments in the Amendments rulemaking that EPA's labor estimates for STAA were low. EPA considered those comments and adjusted the STAA burden estimates in the Amendments final rule. EPA believes that its revised burden estimate in the Amendments final rule accurately depicts facility burden estimates for STAA.

For developing unit costs of the STAA provision in the Amendments RIA, EPA separated the processes in the three sectors into those that are more likely to involve manufacturing and reacting chemicals under extreme conditions (i.e., high temperatures and pressures) from those that involve mixing and using chemicals under less extreme conditions. The former are the petroleum operations in NAICS code 324, petrochemicals and other basic chemical manufacturing in NAICS code 3251, and synthetics and resins in NAICS code 3252. All other chemical manufacturing sectors (agricultural chemicals, drugs, paints, soaps, and others) were assumed to mix and use chemicals under less extreme conditions. The paper manufacturing sector was deemed to use chemicals under simpler conditions and was separated from the all other chemicals category. Exhibit 4-6 displays the labor hours and costs assumed for each task (initial analysis and practicability assessment) by labor category and type of facility, and the resulting per facility avoided cost estimates.

**Exhibit 4-6: Hourly Assumptions and Unit Avoided Costs for STAA (2015 dollars)**

Sector	Labor Hours						Facility Avoided Cost
	Manager	Corporate Mgmt.	Attorneys	Engineers	Production	Consultant	
Initial Analysis							
Large facilities NAICS 324-325	0	0	0	738	0	(\$0)	(\$56,006)

<sup>53</sup> Appendix D of the Amendments RIA explains the sources of reference project costs and Table D-6 presents the reference project cost estimates.

NAICS 322, Small/Medium 324, 325	20	0.5	3.5	82.5	23.5	(\$0)	(\$9,795)
Paper Manufacturing	20	0.5	3.5	82.5	23.5	(\$0)	(\$9,795)
Sector				Facility Avoided Cost			
Practicability Analysis							
Large facilities NAICS 324-325				(\$1,380,000)			
NAICS 322, Small/Medium 324, 325				(\$27,607)			
Paper Manufacturing				(\$163,059)			

## 4.4 Emergency Response Preparedness Rule Provisions

### 4.4.1 Emergency Response Coordination with Local Responders

The Emergency Response Coordination provision of the Amendments rule requires all facilities with P2 or P3 processes to coordinate with local responders annually to make them aware of the hazards at the facility. If the facility is a non-responder and relies on the local response force, then the coordination would primarily focus on any changes that have occurred at the facility and confirm existing response strategies or develop new ones.

If the facility is a responder and in charge of responding to its own chemical emergencies, then the coordination would primarily focus on informing local entities on what response capabilities are in place and how the community may be impacted by an accident.

The coordination provision in the Amendments rule states that coordination shall include, “providing to the local emergency planning and response organizations, the facility’s emergency response plan if one exists, emergency action plan, updated emergency contact information, and any other information that local emergency planning and response organizations identify as relevant to local emergency response planning.” Reconsideration petitioners indicated that the phrase, “any other information that local emergency planning and response organizations identify as relevant to local emergency response planning,” could include items not needed by LEPCs such as security vulnerabilities and plans. To address security concerns, EPA is modifying the local emergency response coordination amendments by replacing the phrase in § 68.93(b), “. . . and any other information that local emergency planning and response organizations identify as relevant to local emergency response planning” with the phrase “. . . and other information necessary for developing and implementing the local emergency response plan.” This would have the effect of limiting the type of information an LEPC could request from an RMP facility to only that information specified in the regulation. This modification is not expected to affect facility costs. While it is conceivable that removing the “any other information” language from the provision will

reduce anticipated facility burden, EPA believes that any reduction is likely to be small and therefore does not estimate avoided costs for this provision<sup>54</sup>

EPA received a public comment on the costs of the coordination provision. A commenter stated that EPA's estimate of the burden to regulated entities in the Amendments rule underestimated the costs of coordination with local responders. The commenter stated that the deficiencies in the estimate from the Amendments rule had trickled into the Reconsideration rule ICR and RIA. Similar comments were made during the Amendments rulemaking and EPA revised its cost estimate for the final Amendments rule to address commenters' concerns, including increasing the expected labor hours of management and LEPCs at Complex and Simple facilities. EPA believes that the estimates now included in the Amendments rule ICR and RIA and proposed Reconsideration rule ICR and RIA are the best possible estimates given the existing data.

#### **4.4.2 Notification Drills**

The Amendments rule required all facilities with P2 or P3 processes to conduct a notification drill, during which an RMP facility would contact each person and agency on its emergency action contact list to ensure that the contact information is accurate (e.g., that the person listed is still in that position and the phone numbers and email addresses are correct). The Reconsideration rule does not modify the notification drills provision of the 2017 Amendments final rule.

#### **4.4.3 Facility Exercises**

The Amendments rule requires responding facilities (facilities that intend to develop and implement the emergency response program required under § 68.95 in order to respond to releases at their site) to conduct exercises of their emergency response program and plan. The Amendments rule requires that at least once every 10 years, a full field exercise be conducted; and every three years, a facility must conduct a tabletop exercise. During a tabletop exercise, the participants would work together to identify a scenario and then establish objectives for the response without actually mobilizing responders and employees. The objectives for both field and tabletop exercises would include:

1. Identifying who would be contacted in an emergency,
2. Exercising procedures and measures for emergency response after an accidental release of a regulated substance (e.g., what equipment would be deployed, who would be evacuated, how decisions on public notification would be made, who would contact the public, etc.), and
3. Exercising proper first-aid and emergency medical treatment necessary to treat accidental human exposures to regulated substances.

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<sup>54</sup> For more information on the costs of the Coordination provision, please see Section 4.4.1 of the Amendments RIA.

In a field exercise, the steps of a response are actually carried out (e.g., responders and equipment would be deployed). The purpose of a field exercise is to evaluate the ability of the responders and other employees to implement the emergency response plan on which they have been trained.

In the Reconsideration rule, EPA is eliminating the ten-year frequency requirement for full field exercises. With the elimination of the ten-year frequency requirement, facilities would consult with local emergency response officials to establish an appropriate frequency for field exercises. With no minimum frequency requirement, facilities and local responders will have the option to choose when to conduct a full field exercise. Although facilities and responders may therefore choose to hold field exercises less often than every ten years, EPA has taken the conservative approach for cost estimation to assume that the average RMP facility will still conduct a field exercise every ten years. This assumption is based on the rationale that facilities, even without the minimum frequency requirement, will conduct field exercises at least this often in order to train new employees and community responders on the workings of the facility's emergency plan. EPA notes that it is also possible that some facilities may choose to conduct exercises on a more frequent basis.

In addition to removing the minimum frequency requirement for field exercises, EPA is also establishing more flexible scope and documentation provisions for field and tabletop exercises. In the Reconsideration rule, documentation of both types of exercises is still required, but the items specified for inclusion in exercises and exercise evaluation reports under the Amendments rule are recommended, and not required. As with the removal of the minimum frequency for field exercises, this change could reduce the burden on facilities of conducting and documenting exercises. However, as a conservative approach toward estimating the costs of the exercise provisions, EPA is assuming no cost savings associated with these changes.

The Reconsideration rule does not modify the minimum frequency requirement for table top exercises from the Amendments rule. Therefore, as with field exercises, EPA is estimating that the costs of table top exercises will not change under the Reconsideration rule.

EPA received public comments on the estimated costs of the exercise provision of the proposed Reconsideration rule. Commenters stated that EPA's estimate of the cost of field exercises is low. Similar comments were received during the Amendments rulemaking. In response to public comments received during the Amendments rulemaking, EPA revised the labor estimates to better reflect industry and EPA experience. EPA believes that the burden estimates now included in the Amendments rule analysis and Reconsideration rule analysis are the best possible estimates given the existing data.

#### Alternative Option for Exercises

In the Reconsideration proposed rule, EPA presented an alternative to eliminating the ten-year frequency requirement for full field exercises and establishing more flexible scope and documentation provisions for field and tabletop exercises. EPA considered whether to fully rescind the field and



tabletop exercise provisions. Under the alternative proposal, all of the costs associated with tabletop and field exercises from the Amendments rule would be avoided costs under the Reconsideration rule.

After review of public comments and Agency consideration of the alternative, EPA has decided not to implement the alternative option for exercises.

## **4.5 Information Availability Rule Provisions**

### **4.5.1 Public Information Availability**

The Reconsideration proposed rule proposed to rescind the chemical hazard information availability provisions in § 68.210 (b) – (c) of the Amendments rule. The Reconsideration final rule will implement the proposal.

Under the Amendments rule, regulated facilities were required to make certain information available upon request to the public. The provision also required facilities to provide ongoing notification to inform the public on how to obtain the requested information, on either a company Web site, social media platforms, or through other publicly accessible means. The information elements were expected to be readily available to facility managers because most of the information is already compiled for compliance with various health and safety regulations. For example, Safety Data Sheets are documents that OSHA requires every facility to have available for its employees, and which contain chemical hazard information required under 29 CFR 1910.1200. The names of chemicals and the facility's 5-year accident history are already collected for reporting in the RMP. Especially for simple facilities, this information was expected to be unlikely to change much from year to year; the only cost associated with this element was the time required to collect and review the information for accuracy.

In the Amendments RIA, EPA estimated that 50% of facilities would receive one information request in any given year. The Amendments RIA estimated that simple facilities would spend 2 hours reviewing the information to ensure that it is up-to-date. Complex facilities would have more information to review because they may manufacture, process, and use multiple regulated substances in multiple processes. The analysis estimated that small complex facilities would spend 4 hours collecting and reviewing the information. Large complex facilities were estimated to spend 54 hours because management and possibly counsel would need to ensure that the information was not subject to any restrictions related to security or confidential business concerns.

The Reconsideration rule eliminates the Amendments rule requirement to disclose this chemical hazard information to the public. As such, the Reconsideration rule has the benefit of averting the costs associated with implementing the chemical hazard information availability provision in the Amendments rule.

EPA received public comments on the cost of the information availability provisions in the Amendments rulemaking and adjusted labor hour and burden estimates based on a review of the comments and Agency experience to address those concerns. In particular, EPA increased labor burden estimates for

large complex facilities. EPA believes that the estimates now included in the Amendments rule RIA and Reconsideration rule RIA are the best possible estimates given the existing data.

Through the rescission of the provision, EPA and the regulated universe of facilities are expected to experience costs savings in line with the estimated costs of the provision in the Amendments RIA.

Avoided labor and facility costs are presented in Exhibit 4-7.

**Exhibit 4-7: Facility Unit Avoided Costs for Public Disclosure**

Facility Type	Annual Frequency	Labor Hours			Other Costs	Facility Avoided Costs
		Management	Attorney	Engineer		
Small Complex	0.5	2	0	2	\$0	(\$352)
Large Complex	0.5	8	10	36	\$0	(\$4,820)
Simple Facilities	0.5	1	0	1	\$0	(\$133)

#### Alternative Option for Public Information Availability

In the Reconsideration proposed rule, EPA considered rescinding all information availability requirements *except* the information on exercise schedules, as information on upcoming facility exercises would be the only item of information required to be disclosed in the public availability provisions of the Amendments rule that is not already available from another source. Under this alternative, EPA believed that public information disclosure costs may be lower than they are under the Amendments rule.

After review of public comments and consideration of the alternative, EPA has decided not to implement the alternative option for public information availability.

#### **4.5.2 Public Meetings**

The Amendments rule required RMP facilities to hold a public meeting to provide accident information required under § 68.42, as well as other relevant chemical hazard information such as that described in § 68.210(b), no later than 90 days after any accident subject to reporting under § 68.42. The Reconsideration proposed rule proposed to retain the requirement for the owner or operator of a stationary source to hold a public meeting, but to rescind the requirement to provide the “other relevant chemical hazard information.” The requirement to provide “other relevant chemical hazard information” could be interpreted to be an overly broad requirement for information, similar to the requirement to provide “any other information that local emergency planning and response organizations identify as relevant to local emergency response planning” to LEPCs, which EPA also proposed to rescind. However, as with the rescission of the similar language in the emergency

coordination provision, EPA does not expect that deleting this language from the public meeting provision will have a significant impact on the costs of that provision and has not projected any costs (or cost savings) associated with this change.

EPA also proposed to amend the public meeting provision to require the information listed in § 68.42 (b) for only the most recent accident, and not for previous accidents covered by the 5-year accident history requirement of § 68.42(a). This proposed modification would provide clarity for the regulated community regarding the public meeting requirements. EPA does not expect that deleting this language from the public meeting provision will have a significant impact on the costs of that provision and has not projected any costs (or cost savings) associated with this change.

The final Reconsideration rule finalizes the proposed revision to the type of information to be shared at a public meeting and also limits the trigger for the public meeting requirement to the occurrence of an RMP reportable accident with offsite impacts specified in § 68.42(a) (i.e., known offsite deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage). EPA does not anticipate that the change in the trigger for the public meeting requirement will impact the per unit cost on facilities to conduct a public meeting; however, EPA anticipates cost savings associated with fewer required public meetings, which is discussed further in Chapter 5.2.4.

Avoided labor and facility unit costs are presented in Exhibit 4-8.

**Exhibit 4-8: Hourly Assumptions Facility Unit Avoided Costs for Public Meetings**

Facility Type	Labor Hours			Other Costs	Facility Avoided Costs
	Management	Engineers	Production		
Simple Facilities	8	8	4	(\$550)	(\$1,737)
Large Complex Facilities	16	16	8	(\$550)	(\$3,717)

# CHAPTER 5: TOTAL COSTS

This chapter aggregates unit costs to present the total costs, including avoided costs, of the final Reconsideration rule provisions. Consistent with the Amendments RIA, costs are projected over 10 years and discounted at 3 percent and 7 percent. The 10-year time period was chosen for the Amendments rule because it was long enough for at least two rotations of many of the infrequently required activities (which occurred every five years) and at least one occurrence of the least frequently required activity (field exercises which were estimated to occur every 10 years).

This chapter is organized as follows:

- Section 5.1 presents the broad analytical assumptions used in the analysis focusing primarily on the annual frequency of rule provision activities.
- Section 5.2 presents the costs and avoided costs of the Reconsideration rule.
  - Section 5.2.1 shows the rule familiarization costs.
  - Section 5.2.2 describes the total avoided costs of the prevention program provisions - third-party compliance audits, incident investigation, and STAA.
  - Section 5.2.3 describes the total avoided costs associated with the emergency response preparedness provisions – emergency response coordination with local responders, notification exercises, and facility exercises.
  - Section 5.2.4 describes the total avoided costs associated with the information availability provisions.
- Section 5.3 presents costs and cost savings associated with alternative regulatory options.
- Section 5.4 presents net costs of the Reconsideration rule.

## 5.1 Analytical Assumptions

### Annual Frequency

The analysis generally divided total costs into initial year costs and ongoing costs. For provisions in which the activity occurs in several year increments, the annual frequency is a fraction representing what portion of facilities would likely be implementing the provision in any given year. For example, if an activity is expected to happen once every 5 years, the annual frequency would be 0.2, as 20 percent of the applicable facilities would likely be completing the activity in any given year. The assumption that implementation would be distributed evenly across time (i.e., if facilities are required to conduct an activity once every 5 years, that one fifth would do it in any one year) may overstate the costs for some years and understate them for others.

### Initial and Ongoing Costs

The analysis only used an ongoing cost when costs for years 2-10 were not the same as the initial cost components. If costs for years 2-10 were the same as the initial year (with some variation based on the

annual frequency), then multiplying the initial cost by the annual frequency accounted for any continuing costs. The only cost element with ongoing costs different from initial costs is rule familiarization.

### Baseline Scenario

The baseline for the Reconsideration rule assumes the costs of compliance with the Amendments rule are as estimated in the Amendments RIA. Estimates of additional or fewer hours required to implement the proposed rule are calculated relative to the hours estimated for complying with the Amendments rule. The baseline scenario assumed no change in facility requirements or in the number of regulated facilities or processes.

## **5.2 Costs and Cost Savings of the Final Rule**

### **5.2.1 Rule Familiarization**

Rule familiarization is a necessary cost of any rulemaking. All facilities, local governments, and delegated implementing agencies are estimated to be affected by rule familiarization. This cost is incurred in the first year of the rule only. The costs of conducting rule familiarization activities for the Reconsideration rule are described in Exhibit 5-1.

**Exhibit 5-1: Rule Familiarization with Reconsideration Rule (2015 dollars)**

<b>Facility Type</b>	<b>Unit Cost</b>	<b>Entities</b>	<b>Total Cost</b>
Simple	\$463	10,920	\$5,054,895
P1 and P2 Complex	\$601	133	\$79,879
P3 Complex	\$4,905	1489	\$7,303,370
LEPCs	\$772	1724	\$1,330,073
Delegated Implementing Agencies	\$463	14	\$6,481
<b>Total</b>		<b>14,280</b>	<b>\$13,774,716</b>

All facilities, local governments, and delegated implementing agencies were estimated to be affected by familiarization with the Reconsideration rule. Facilities, local governments, and implementing agencies were also estimated to have expended a portion of the rule familiarization burden from the Amendments rule (see chapter 4 for a detailed explanation). These costs were only expected to be incurred in the first year of the rule. The avoided costs of not conducting a portion of the rule familiarization activities for the Amendments rule are described in Exhibit 5-2.

### Exhibit 5-2: Rule Familiarization Avoided Costs

Facility Type	Unit Avoided Cost	Entities	Total Avoided Cost
Simple	(\$309)	10,920	(\$3,369,930)
P1 and P2 Complex	(\$400)	133	(\$53,264)
P3 Complex	(\$20,554)	1489	(\$30,605,095)
LEPCs	(\$389)	1724	(\$665,037)
Delegated Implementing Agencies	(\$309)	14	(\$4,320)
<b>Total</b>		<b>14,280</b>	<b>(\$34,697,646)</b>

## 5.2.2 Prevention Program Rule Revisions

### 5.2.2.1 Third-party Compliance Audits

Under the RMP rule before the Amendments rule, P2 and P3 facilities must conduct a compliance audit at least once every 3 years. The Amendments rule imposed the requirement for a third-party audit only on P2 or P3 facilities that had a reportable accidental release, or when requested by an implementing agency following a determination of conditions that could lead to an accidental release or identification of problems with a prior third-party audit. These facilities were required to contract with a third-party for their next scheduled compliance audit. Accident numbers were based on the RMP data from RMP reportable accidents, referenced in Exhibit 3-7, and were estimated based on the 10-year annual average. The 2015 RMP database contains data on accidents that have had reportable impacts, but also those without. The Amendments third-party compliance audits provision did not require third-party audits for accidents without reportable impacts, unless an implementing agency requires an audit as a result of conditions at the source that could lead to an accidental release or because of problems with a prior third-party audit. In the Amendments RIA, EPA assumed that implementing agencies would rarely exercise this authority. Therefore, EPA deducted the number of accidents with no impacts from the total number of accidents in the RMP database, to get the number of accidents with impacts which are reported in Exhibit 3-7. EPA also deducted the small number of accidents that occurred at P1 facilities, as the provision would only apply to P2 and P3 facilities. The Amendments analysis projected that the annual number and distribution of accidents among types of facilities will remain the same and that in any one year, the number of facilities conducting a third-party audit will be equal to the number of accidents.<sup>55</sup> That is, although the approximately 148 third-party audits for the P2 and P3 facilities that had a reportable release in 2017 may occur up to 3 years after the releases, depending on when the

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<sup>55</sup> EPA recognizes that accident rates could have decreased following the final Amendments rule in 2017 and the date of the Amendments rule implementation (as Exhibit 3-7 shows, accident rates were decreasing prior to the 2017 Amendments rule) but wishes to calculate a conservative cost estimate so we are assuming a constant accident rate.

previous audit occurred, the analysis projects that over time, about 148 facilities would conduct such an audit each year.<sup>56</sup>

The Reconsideration rule rescinds the third-party compliance audit provision. Rescission of the third-party audit provision results in the estimated cost of the Amendments provision becoming an avoided cost. Exhibit 5-3 shows the total avoided costs of rescinding the third-party audit provision.

**Exhibit 5-3: Total Annual Undiscounted Avoided Costs for Third-party Compliance Audits**

Facility Type	Annual Frequency	Unit Avoided Cost	Facilities	Total Annual Avoided Cost
Simple w/ 0-19 FTEs	1	(\$35,751)	18	(\$643,516)
Simple w/ 20-99 FTEs	1	(\$39,607)	15	(\$594,099)
Simple w/ 100+ FTEs	1	(\$41,677)	40	(\$1,667,091)
Complex w/ 0-19 FTEs	1	(\$87,438)	3	(\$262,313)
Complex w/ 20-99 FTEs	1	(\$92,572)	13	(\$1,203,442)
Complex w/ 100+ FTEs	1	(\$95,537)	52	(\$4,967,906)
Small Government	1	(\$37,413)	3	(\$112,238)
Large Government	1	(\$97,934)	4	(\$391,735)
<b>Total</b>			<b>148</b>	<b>(\$9,842,339)</b>

### 5.2.2.2 Incident Investigation Root Cause Analysis

The Amendments rule required a root cause analysis for any incident that resulted in a catastrophic release or was a near miss. The Amendments RIA estimated that the number of catastrophic release incidents was equal to the number of RMP reportable accidents and that there would also be one near miss for each RMP reportable accident. The number of actual near misses is unknown and depends on a judgment of the seriousness of an incident and belief that it could reasonably have resulted in a catastrophic release. Industry estimates for the cost of incident investigations vary widely. The Amendments rule applies the requirements for root cause analysis for incident investigation to all P2 and P3 facilities. For the purposes of calculating how often this provision would be incurred, accident numbers were drawn from the data on RMP reportable accidents, referenced in Exhibit 3-7.

The Reconsideration rule rescinds the incident investigation root cause analysis provision. Rescission of the provision would result in the estimated cost of the Amendments provision becoming an avoided cost. Exhibit 5-4 shows the total avoided costs of rescinding the incident investigation root cause analysis provision.

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<sup>56</sup> The number of audits may be overstated because the number of facilities that had reportable releases over the ten-year period considered (1,272) is lower than the number of releases reported (1,516), according to the RMP accident database, as some facilities may have multiple accidents.

**Exhibit 5-4: Total Annual Undiscounted Avoided Costs for Root Cause Incident Investigation**

<b>Facility Type</b>	<b>Annual Frequency</b>	<b>Unit Avoided Cost</b>	<b>Facilities</b>	<b>Total Avoided Annual Cost</b>
P2 Near Miss – Simple	1	(\$1,804)	18	(\$32,478)
P2 Near Miss – Complex	1	(\$11,135)	0	\$0
P3 Near Miss – Simple	1	(\$1,804)	63	(\$113,673)
P3 Near Miss – Complex	1	(\$11,135)	68	(\$757,199)
P2 Accident - Simple	1	(\$1,804)	18	(\$32,478)
P2 Accident - Complex	1	(\$11,135)	0	\$0
P3 Accident - Simple	1	(\$1,804)	63	(\$113,673)
P3 Accident - Complex	1	(\$11,135)	68	(\$757,199)
<b>Total</b>			<b>298*</b>	<b>(\$1,806,700)</b>

\* Total number of facilities may not sum to twice the total of the number of facilities in the third-party provision, due to the rounding of the number of P2 Simple accidents.

**5.2.2.3 Safer Technology Alternatives Analysis (STAA)**

In the Amendments rule, only a subset of P3 facilities (i.e., those in NAICS codes 322 (paper manufacturing), 324 (petroleum and coal products manufacturing), and 325 (chemical manufacturing)) were required to conduct an STAA. This provision required owner/operators to conduct an initial evaluation and practicability study of potential safer technologies every 5 years as part of the PHA. As the STAA is performed as part of the PHA, for the purposes of the Amendments analysis, EPA assumed that the same STAA costs were incurred every five years (this is a conservative assumption, as sources may not need to repeat analyses of safer alternative technology options evaluated during previous PHA cycles). EPA did not require the implementation of safer technology alternatives. Separations by facility instead of process were made to analyze the cost of the practicability study for the STAA provision. Numbers of processes and facilities used in conjunction with unit costs for the large complex, medium/small complex and paper manufacturing sectors are shown in Exhibit 5-5.

The Reconsideration rule rescinds the STAA provision. Rescission of the provision results in the estimated cost of the Amendments STAA provision becoming an avoided cost. Exhibit 5-5 shows the total avoided costs of rescinding the STAA provision. See also Appendix D of the Amendments RIA for more information.



**Exhibit 5-5: Total Annual Undiscounted Avoided Costs for STAA**

<b>Facility Type</b>	<b>Unit Avoided Cost (for 5 years)</b>	<b>Processes</b>	<b>Total Avoided Annual Cost</b>
<b>Initial Analysis</b>			
Small/Medium Complex	(\$9,795)	2,733	(\$5,353,778)
Paper Manufacturing	(\$9,795)	96	(\$188,058)
Large Complex	(\$56,006)	1,444	(\$16,174,575)
<b>Total</b>			<b>(\$21,716,411)</b>
	<b>Unit Avoided Cost</b>	<b>Facilities</b>	<b>Total Avoided Annual Cost</b>
<b>Practicability Assessment</b>			
Small/Medium Complex	(\$27,607)	1,349	(\$7,448,400)
Paper Manufacturing	(\$163,059)	68	(\$2,217,600)
Large Complex	(\$1,380,000)	140	(\$38,640,000)
<b>Total</b>		<b>1,557</b>	<b>(\$48,306,000)</b>
<b>Grand Total</b>			<b>(\$70,022,411)</b>

### **5.2.3 Emergency Response Preparedness Requirements**

#### **5.2.3.1 Emergency Response Coordination with Local Responders**

The modification by the Reconsideration Rule to this provision is not expected to affect facility costs. While it is conceivable that removing the “any other information” language from the provision will reduce anticipated facility burden, EPA believes that reduction is likely to be very small and therefore does not estimate avoided costs for this provision.

#### **5.2.3.2 Notification Exercises**

The Reconsideration rule did not modify the notification provision of the Amendments rule. Therefore, EPA does not anticipate costs or cost savings associated with this provision.

#### **5.2.3.3 Facility Exercises**

In the Reconsideration rule, EPA is eliminating the ten-year frequency requirement for full field exercises and making the scope and documentation requirements for field and tabletop exercises more flexible. As described in section 4.4.3, EPA has taken a conservative approach and does not anticipate that these

changes will impact the implementation costs estimated for the Amendments rule. Although some facilities may choose to hold field exercises at a frequency less than every ten years, EPA has taken the approach to assume that the average RMP facility will still conduct a field exercise every ten years and thus as a conservative approach estimates zero cost savings from this new flexibility.

In addition to removing the minimum frequency requirement for field exercises, EPA is also establishing more flexible scope and documentation provisions for field and tabletop exercises. As a conservative approach toward estimating the costs of the exercise provisions, EPA is assuming no cost savings associated with these changes.

## 5.2.4 Information Disclosure Rule Provisions

### 5.2.4.1 Information Availability

The Reconsideration rule rescinds the chemical hazard information availability provision in § 68.210(b) – (c). Rescission of the provision results in the estimated cost of the Amendments provision becoming an avoided cost. Exhibit 5-6 shows the total avoided costs of rescinding the information availability provision.

**Exhibit 5-6: Total Annual Undiscounted Avoided Costs for Information Sharing Provisions**

Facility Type	Annual Frequency	Unit Avoided Cost	Facilities (unless otherwise noted)	Total Avoided Annual Cost
<b>Public Disclosure</b>				
Small Complex	0.5	(\$352)	708	(\$124,615)
Large Complex	0.5	(\$4,820)	914	(\$2,202,851)
Simple	0.5	(\$133)	10920	(\$725,197)
<b>Total</b>				<b>(\$3,052,663)</b>

### 5.2.4.2 Public Meetings

For the public meeting provision of the Amendments rule, EPA is rescinding the requirement to provide “other relevant chemical hazard information, such as that described in paragraph (b) of this section [§ 68.210]” to members of the public. EPA also proposed to amend the public meeting provision to provide the information listed in § 68.42 (b) for only the most recent accident, and not for previous accidents covered by the 5-year accident history requirement of § 68.42(a). As discussed in section 4.5.2, EPA does not expect that deleting the language regarding “other relevant chemical hazard information...” nor requiring the accident information in § 68.42 for only the most recent accident in the public meeting provision will have a significant impact on the costs of the provision.

The final Reconsideration also limits the trigger for the public meeting requirement to the occurrence of an RMP reportable accident with offsite impacts specified in § 68.42(a) (i.e., known offsite deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage). EPA anticipates

that this reduction in the scope of accidents that require a public meeting will decrease the annual number of public meetings held by RMP facilities.

In the Amendments rulemaking, EPA's estimate of the costs for public meetings was based on accident numbers that came from the RMP facility accident data, referenced in Exhibit 3-7, and was based on the 10-year annual average number of accidents. For the Amendments rulemaking, EPA's analysis included all RMP reportable accidents, including those with offsite and/or onsite impacts. For the current RIA, EPA deducted the number of accidents with no impacts from the total number of accidents in the RMP database (see Exhibit 3-7). Exhibit 5-7 shows the total undiscounted costs for public meetings from the Amendments rule. Exhibit 5-8 shows the total avoided costs of modifying the trigger for the public meetings provision (requiring a public meeting only after an RMP accident with offsite impacts).

**Exhibit 5-7: Total Annual Undiscounted Costs for Amendments Rule Public Meeting Provision**

Facility Type	Annual Frequency	Unit Cost	Accidents	Total Annual Cost
Complex	1	\$3,717	69	\$257,192
Simple	1	\$1,731	83	\$143,352
<b>Total</b>			<b>152</b>	<b>\$400,544</b>

**Exhibit 5-8: Total Annual Undiscounted Avoided Costs for Revised Public Meeting Provision**

Facility Type	Annual Frequency	Unit Cost	Accidents with Onsite Impacts	Total Annual Cost
Complex	1	(\$3,717)	52	(\$192,894)
Simple	1	(\$1,731)	53	(\$91,932)
<b>Total Avoided Cost</b>			<b>105</b>	<b>(\$284,826)</b>

## 5.3 Costs and Cost Savings Associated with Alternative Options

### 5.3.1 Alternative Option for Exercises

In the proposed Reconsideration rule, EPA presented an alternative to eliminating the ten-year frequency requirement for full field exercises and establishing more flexible scope and documentation provisions for tabletop and field exercises. In the alternative, EPA considered whether to fully rescind the tabletop and field exercise provisions. Under this alternative proposal, all of the costs associated with tabletop and field exercises from the Amendments rule would be avoided costs under the Reconsideration rule. After reviewing public comments and reevaluating the proposal, EPA decided not to implement the alternative option.

### 5.3.2 Alternative Option for Public Information Availability

In the proposed Reconsideration rule, EPA also presented an alternative to rescinding all of the public information availability elements of the Amendments rule. In the alternative, EPA considered rescinding all information except the information on exercise schedules. Under this alternative, while EPA believed that public information disclosure costs may be lower than they are under the Amendments rule, as a conservative approach, EPA assumed that the cost of this provision would still be approximately equal to its cost under the Amendments rule. After reviewing public comments and reevaluating the proposal, EPA has decided not to implement the alternative option.

## 5.4 Net Cost Savings

Exhibit 5-9 presents total costs of the Reconsideration rule as total undiscounted costs over the 10-year period of analysis, as well as total and annualized costs discounted at 3 percent and 7 percent.

**Exhibit 5-9: Total and Annual Costs of Final Rule (Millions, 2015 Dollars)**

Cost Elements	Total Undiscounted	Total Discounted (3%)	Total Discounted (7%)	Annualized (3%)*	Annualized (7%)
Rule Familiarization	\$13.8	\$13.4	\$12.9	\$1.6	\$1.8
<b>Total Cost</b>	<b>\$13.8</b>	<b>\$13.4</b>	<b>\$12.9</b>	<b>\$1.6</b>	<b>\$1.8</b>

The Reconsideration rule is estimated to cost \$762,000 (annualized 3 percent) or \$891,000 (annualized 7 percent).

The analysis presents total avoided costs for revised or rescinded provisions as total undiscounted costs over the 10-year period of analysis, as well as total and annual discounted (3 percent and 7 percent), costs. When annual avoided costs for different years are equal to one another across the analysis time period, the annualized avoided costs calculated using different discount rates (e.g., 3 and 7 percent) are equal. Exhibit 5-10 presents the total avoided cost for the proposed rule.

**Exhibit 5-10: Total and Annual Avoided Costs of Reconsideration Rule (Millions, 2015 Dollars)**

Cost Elements	Total Undiscounted	Total Discounted (3%)	Total Discounted (7%)	Annualized (3%)	Annualized (7%)
Rule Familiarization	(\$34.7)	(\$33.7)	\$32.4)	(\$3.9)	(\$4.6)
Third-Party Audits	(\$98.4)	(\$83.6)	(\$69.1)	(\$9.8)	(\$9.8)
Incident Root Cause Analysis	(\$18.1)	(\$15.4)	(\$12.7)	(\$1.8)	(\$1.8)
STAA	(\$700.2)	(\$597.3)	(\$491.8)	(\$70.0)	(\$70.0)
Information Disclosure	(\$30.5)	(\$26.0)	(\$21.4)	(\$3.1)	(\$3.1)
Public Meetings	(\$2.8)	(\$2.4)	(\$2.0)	(\$0.28)	(\$0.28)
<b>Total Avoided Cost*</b>	<b>(\$884.8)</b>	<b>(\$758.8)</b>	<b>(\$629.5)</b>	<b>(\$89.0)</b>	<b>(\$89.6)</b>

\* Values may not sum due to rounding.

Comparing the costs to avoided costs on net this proposed rule leads to cost savings and therefore is a deregulatory action. Exhibits 5-11 and 5-12 display the total and annualized costs of the proposed rule compared with the avoided costs in 2015 and 2018 dollars, respectively.

**Exhibit 5-11: Comparison of Total Costs and Total Avoided Costs of Reconsideration Rule (Millions, 2015 Dollars)**

Cost Elements	Total Undiscounted	Total Discounted (3%)	Total Discounted (7%)	Annualized (3%)	Annualized (7%)
Costs					
Rule Familiarization** (new)	\$13.8	\$13.4	\$12.9	\$1.6	\$1.8
<b>Total Cost</b>	<b>\$13.8</b>	<b>\$13.4</b>	<b>\$12.9</b>	<b>\$1.6</b>	<b>\$1.8</b>
Avoided Costs					
Rule Familiarization (previous)	(\$34.7)	(\$33.7)	(\$32.4)	(\$3.9)	(\$4.6)
Third-Party Audits	(\$98.4)	(\$83.6)	(\$69.1)	(\$9.8)	(\$9.8)
Incident Root Cause Analysis	(\$18.1)	(\$15.4)	(\$12.7)	(\$1.8)	(\$1.8)
STAA	(\$700.2)	(\$597.3)	(\$491.8)	(\$70.0)	(\$70.0)
Chemical Hazard Information Disclosure	(\$30.5)	(\$26.0)	(\$21.4)	(\$3.1)	(\$3.1)
Public Meetings	(\$2.8)	(\$2.4)	(\$2.0)	(\$0.28)	(\$0.28)
<b>Total Avoided Cost*</b>	<b>(\$884.8)</b>	<b>(\$758.8)</b>	<b>(\$629.5)</b>	<b>(\$89.0)</b>	<b>(\$89.6)</b>
<b>Total Net Cost*</b>	<b>(\$871.0)</b>	<b>(\$745.5)</b>	<b>(\$616.6)</b>	<b>(\$87.4)</b>	<b>(\$87.8)</b>

\*Values may not sum due to rounding.

\*\* Includes some costs of rescinded Amendments rule provisions.

**Exhibit 5-12: Comparison of Total Costs and Total Avoided Costs of Reconsideration Rule (Millions, 2018 Dollars)**

Cost Elements	Total Undiscounted	Total Discounted (3%)	Total Discounted (7%)	Annualized (3%)	Annualized (7%)
Costs					
Rule Familiarization** (new)	\$14.5	\$14.1	\$13.6	\$1.7	\$1.93
<b>Total Cost</b>	<b>\$14.5</b>	<b>\$14.1</b>	<b>\$13.6</b>	<b>\$1.7</b>	<b>\$1.93</b>
Avoided Costs					
Rule Familiarization (previous)	(\$36.5)	(\$35.5)	(\$34.2)	(\$4.2)	(\$4.9)
Third-Party Audits	(\$103.7)	(\$88.4)	(\$72.8)	(\$10.4)	(\$10.4)
Incident Root Cause Analysis	(\$19.0)	(\$16.2)	(\$13.4)	(\$1.9)	(\$1.9)
STAA	(\$737.6)	(\$629.2)	(\$518.1)	(\$73.8)	(\$73.8)
Chemical Hazard Information Disclosure	(\$32.2)	(\$27.4)	(\$22.6)	(\$3.2)	(\$3.2)
Public Meetings	(\$3.0)	(\$2.6)	(\$2.1)	(\$0.3)	(\$0.3)
<b>Total Avoided Cost</b>	<b>(\$932.0)</b>	<b>(\$799.3)</b>	<b>(\$663.1)</b>	<b>(\$93.7)</b>	<b>(\$94.4)</b>
<b>Total Net Cost*</b>	<b>(\$917.5)</b>	<b>(\$785.2)</b>	<b>(\$649.5)</b>	<b>(\$92.1)</b>	<b>(\$92.5)</b>

\*Values may not sum due to rounding.

\*\* Includes some costs of rescinded Amendments rule provisions.

The Reconsideration rule rescinds several provisions of the Amendments rule that imposed significant compliance costs on RMP facilities. The Reconsideration RIA estimates that the final rule, including elimination of some of the need to review and plan for the implementation of the Amendments rule, revising the trigger for the public meeting requirement, and rescinding the third-party audit, incident investigation root cause analysis, STAA, and chemical hazard information disclosure provisions, could result in a net cost savings of approximately \$92 million annually (in 2018 dollars).

## CHAPTER 6: BENEFITS

This chapter qualitatively discusses the benefit categories associated the Reconsideration rule relative to the Amendments rule. One benefit of rescinding the Amendments rule is improved facility security. The Amendments rule produced accident mitigation and prevention benefits, as well as information benefits. EPA expects that these benefits may be reduced by the Reconsideration rule relative to the Amendments rule. This chapter also reviews the baseline damages associated with RMP accidents and how the newer 2017 RMP data might suggest that they are lower than estimated for the Amendments rule.

### 6.1 Benefit Categories

The Reconsideration rule produces benefits by way of increased facility security relative to the Amendments rule. The Reconsideration rule rescinds the information disclosure provision that required facilities, upon request, to disclose information including, for example, names of regulated substances at the facility. This benefit category reflects reduced risks of terror, theft, or other security breaches that might have followed from freer-flowing information about the storage, processing, and emergency response procedures for RMP chemicals at RMP facilities. It also slightly modifies the emergency coordination activities and public meetings provisions in order to improve security. See the first rows of Exhibit 6-1.

The Amendments rule produced a variety of benefits from prevention and mitigation of future RMP and non-RMP accidents at RMP facilities, avoided catastrophes at RMP facilities, and easier access to facility chemical hazard and accident history information.<sup>57</sup> The benefits associated with these categories may not be entirely eliminated by the Reconsideration rule, as portions of some Amendments Rule provisions (Coordination activities, Table and Field exercises, and Public meetings) are retained, but they may be reduced by the Reconsideration rule. One provision from the Amendments rule is completely retained (Notification exercises) and so the benefits associated with it are retained. Exhibit 6-1 summarizes affected categories.

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<sup>57</sup> For detailed information see Chapter 6 of the Amendments RIA.

**Exhibit 6-1: Summary of Qualitative Benefits of Amendments Rule Provisions**

Broad Benefit Category	Explanation	Specific Benefit Categories
<b>Positive Qualitative Benefits associated with Reconsideration Rule Provisions</b>		
Improved Security	Sensitive information is held secure	Reduces likelihood of terror attacks and criminal activity
<b>Reduced Qualitative Benefits of Reconsideration Rule Provisions</b>		
Accident Prevention and Mitigation	Prevention and mitigation of future RMP facility accidents (including RMP and non-RMP accidents at RMP facilities)	<ul style="list-style-type: none"> <li>• Reduced Fatalities</li> <li>• Reduced Injuries</li> <li>• Reduced Property Damage</li> <li>• Fewer People Sheltered in Place</li> <li>• Fewer Evacuations</li> <li>• Avoided Lost Productivity</li> </ul>
Avoided Catastrophes	Prevention of rare but extremely high consequence events	<ul style="list-style-type: none"> <li>• Avoided Emergency Response Costs</li> <li>• Avoided Transaction Costs</li> <li>• Avoided Property Value Impacts*</li> <li>• Avoided Environmental Impacts</li> </ul>
Information Disclosure	Provision of information to the public	<ul style="list-style-type: none"> <li>• Improved efficiency of property markets</li> <li>• Improved emergency response resource allocation</li> </ul>

\* These impacts overlap with several other categories, such as reduced health and environmental impacts.

The Reconsideration rule retains, with modification, the revised local emergency coordination and exercise provisions of the Amendments rule, which will continue to convey mitigation benefits though they may be reduced relative to the Amendments rule. If a chemical accident or major catastrophe occurs, mitigating its impacts benefits society by reducing the number of fatalities and injuries, reducing the magnitude of property damage and lost productivity both on-site and off-site, and reducing the extent of public evacuations, sheltering, and expenditure of emergency response resources. These retained provisions along with public meetings -- the latter is also retained with modification by the Reconsideration rule -- will continue to produce social benefits (though they may be reduced relative to the Amendments rule) by improving the information going to emergency planners, responders, and the



public. Improved information should result in more efficient allocation of public response resources by improving the ability of planners and responders to make appropriate decisions concerning equipment, training, and procedures. Improved information may improve local contingency planning and training of emergency responders. Providing better information to members of the public will allow people to make better decisions about where to live and work, what to do when an emergency occurs, and how to account for the market value of property located near RMP facilities.

The rescission of the major prevention program requirements (e.g., third-party audits, incident investigation, STAA), as well as certain information disclosure provisions in the Amendments rule may result in a reduction in the magnitude of prevention and information benefits, relative to the baseline post Amendments rule. The prevention program provisions were designed to prevent accidents by triggering improvements in plant design, equipment, procedures, or operator training, for example. Preventing accidents avoids numerous types of direct damages, including worker, responder, and public fatalities and injuries, public evacuations, public sheltering-in-place, and property and environmental damage. It also avoids indirect damages, such as lost productivity due to product damage and business interruption both on-site and off-site, expenditure of emergency response resources and attendant transaction costs, and reduced offsite property values. As all of the major prevention program provisions of the Amendments rule are rescinded by the Reconsideration rule, the prevention benefits associated with those provisions will be foregone. A portion of the information benefits would also be foregone due to the reduction in information disclosure requirements.

EPA received several public comments concerning the benefits and foregone benefits of the prevention program requirements. Commenters stated that EPA failed to substantiate the benefits of third-party audits and STAA in the Amendments rulemaking. Regarding third-party audits, EPA disagrees with the assertion that EPA failed to substantiate the benefits of the third-party audit provisions in the Amendments rule. EPA continues to maintain that these benefits exist. The rescission of the third-party audit requirements is not being finalized because EPA determined the provisions were not beneficial, but to allow for better coordination of process safety requirements with OSHA before proposing future regulatory changes, and to reduce the costs and burdens associated with unnecessarily applying regulations to some sources that may not benefit from them.

Regarding the STAA provision, EPA now believes the Amendments rule provision was likely to be less effective at preventing accidents than the Agency previously believed. Prior to its reconsideration of the Amendments, EPA had not attempted to quantify the effects of state level regulations that are comparable to the Amendments rule's STAA provision. EPA has now conducted a detailed analysis of RMP-facility accident rates in New Jersey and Massachusetts – two states with long-established state-level regulations comparable to the Amendments rule STAA provision – and found that accident rates in these states have not improved more than accident rates at RMP facilities nationwide under the pre-Amendments rule. In fact, the average number of accidents per RMP facility in both states have exceeded the national average. Therefore, EPA believes that the STAA provision of the Amendments would not have had the significant influence on RMP-facility accident rates that would be necessary for

its costs to be reasonably proportionate to its benefits. Additionally, rescinding the STAA provision will allow for better coordination of process safety requirements with OSHA before proposing future regulatory changes, and reduce the costs and burdens associated with unnecessarily applying regulations to some sources that may not benefit from them. EPA addressed these and similar comments in greater detail in the Reconsideration rule Response to Comments document<sup>58</sup>.

Some commenters objected to the rescission of the incident investigation provisions, stating that the burden of the incident investigation provisions is less than the identifiable benefits of the provision. However, EPA did not rely solely on a comparison of costs and benefits to justify the rescission. In addition to reducing the burden on the regulatory community, EPA has decided to rescind the incident investigation provision to maintain consistency with the OSHA PSM Standard. EPA addressed these and similar comments in greater detail in the Reconsideration rule Response to Comments document.

A commenter also stated that in the proposed Reconsideration rule, EPA overlooked the foregone benefits of the information availability provisions. As previously stated, the elimination of the Amendments rule's information availability provisions will reduce the magnitude of the information disclosure benefits of the rule. EPA notes, however, that almost all of the information elements provided under the Amendments rule were already publicly available via other means, so this loss of benefits should be small. EPA has decided to rescind the information availability provisions of the Amendments rule to address facility security concerns. Despite the acknowledgement that some of the benefits of the information availability provisions will be lost, EPA determined that the rescission of these provisions was necessary to more appropriately balance these benefits with facility security concerns. EPA addressed this and similar comments in greater detail in the Reconsideration rule Response to Comments document.

EPA also received other comments concerning the foregone benefits in the Reconsideration rule. Several commenters expressed concern that EPA did not quantify benefits of the Amendments rule and are subsequently not quantifying foregone benefits in the Reconsideration rule. EPA acknowledges that it was not possible to estimate quantitative benefits for the Amendments rule. EPA has no data to project the specific impact on accidents made by each rule provision. The accidents themselves have highly variable impacts that are difficult to predict. EPA addressed these and similar comments in greater detail in the Reconsideration rule Response to Comments document.

As reflected in Exhibit 6-1, the Reconsideration rule produces benefits by way of increased facility security relative to the Amendments rule. The Reconsideration rule rescinds the information disclosure provision that required facilities, upon request, to disclose information including names of regulated substances at the facility; Safety Data Sheets (SDS); accident history information; emergency response program information; exercise schedules; and LEPC contact information. Petitioner CSAG noted that the Department of Homeland Security (DHS) raised security concerns during White House Office of

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<sup>58</sup> The Response to Comments document is available in the rulemaking docket.

Management and Budget (OMB) review of the proposed Amendments rule about security threats posed by information disclosure requirements.<sup>59</sup> DHS oversees the Chemical Facility Anti-Terrorism Standards (CFATS) program which regulates high-risk facilities to improve security. Both DHS (2012)<sup>60</sup> and the Council on Foreign Relations highlight two threats posed by chemical facilities. As summarized by the Council on Foreign Relations: “A direct attack or sabotage could expose the surrounding population to hazardous chemicals, or theft of chemicals could provide terrorists with a weapon for use in a later attack” (Kaplan 2006).<sup>61</sup> This benefit category reflects reduced risks of terror, theft, or other security breaches that might have followed from freer-flowing information about the storage, processing, and emergency response procedures for RMP chemicals at RMP facilities.

EPA received public comments on the proposed Reconsideration rule questioning EPA’s assertion of qualitative security benefits from the rescission of the information availability provision. As stated above, the facility security benefit category reflects reduced risks of terror, theft, or other security breaches that might have followed from freer-flowing information about the storage, processing, and emergency response procedures for RMP chemicals at RMP facilities. Specifically, EPA has acknowledged that security concerns related to § 68.205 in the Amendments rule have merit. Section 68.205 from the *proposed* Amendments rule listed specific items of information that the owner or operator must provide to the LEPC or local emergency response officials upon request, but it did not include an open ended provision for “any other information that local emergency planning and response organizations identify as relevant to local emergency response planning.” By including such a provision in the *final* Amendments rule, EPA may have inadvertently opened the door to local emergency officials requesting and receiving security-sensitive information even beyond the specific items included in § 68.205 of the proposed Amendments rule about which petitioners and others had raised concerns. EPA believes that the rescission of the information availability provisions and modification of the “any other information” language will provide security benefits relative to the 2017 Amendments rule by eliminating the security concerns created by the Amendments rule provisions. EPA addressed these and similar comments in greater detail in the Reconsideration final rule Response to Comments document.

## **6.2 Benefits Associated with Alternative Options**

### **6.2.1 Alternative Option for Exercises**

In the proposed Reconsideration rule, EPA presented an alternative to eliminating the ten-year frequency requirement for full field exercises and establishing more flexible scope and documentation

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<sup>59</sup> Chemical Safety Advocacy Group (CSAG)’s Petition for Reconsideration and Stay Request of the Final RMP rule (82 FR 4594, January 13, 2017), March 13, 2017, Hunton & Williams, San Francisco, CA. EPA-HQ-OEM-2015-0725-0766, page 6.

<sup>60</sup> U.S. Department of Homeland Security. September 2012. Chemical Sector Security Awareness Guide: A Guide for Owners, Operators, and Chemical Supply-chain Professionals. EPA-HQ-OEM-2015-0725-0917. Accessed at <https://www.dhs.gov/sites/default/files/publications/DHS-Chemical-Sector-Security-Guide-Sept-2012-508.pdf>

<sup>61</sup> Kaplan, Eben. December 11, 2006. Targets for Terrorists: Chemical Facilities. Council on Foreign Relations. EPA-HQ-OEM-2015-0725-0912. Accessed at <https://www.cfr.org/backgrounder/targets-terrorists-chemical-facilities>.

provisions for field and tabletop exercises. In the alternative, EPA considered whether to fully rescind the field and tabletop exercise provisions. Under the alternative proposal, notification drills would still be required, but there would be no requirement to conduct either field or tabletop exercises. Under this alternative proposal, all of the benefits associated with tabletop and field exercises from the Amendments rule would be foregone benefits under the Reconsideration rule. Following a review of public comments and the alternative option, EPA has decided to not proceed with the alternative option.

### **6.2.2 Alternative Option for Public Information Availability**

In the proposed Reconsideration rule, EPA presented an alternative to rescinding all of the public information availability elements of the Amendments rule. EPA considered rescinding all except the information on exercise schedules, as information on upcoming facility exercises would be the only item of information required to be disclosed in the public availability provisions of the Amendments rule that is not already available from another source. Under the alternative, additional information provision benefits would be retained. Following a review of public comments and the alternative option, EPA has decided to not proceed with the alternative option.

## **6.3 Baseline Accident Damages**

The Amendments RIA did not associate quantitative risk reductions with particular rule provisions. Similarly, for the Reconsideration rule, this RIA does not estimate specific changed risks or damages. EPA instead provides information about the magnitude of baseline damages from accidents at RMP facilities. We emphasize that the Amendments RIA did not claim that all baseline accident damages would be prevented by the Amendments rule's provisions. Likewise, the baseline accident damages should not be viewed as equal to the magnitude of foregone benefits under this Reconsideration Rule, particularly since the rule retains some provisions of the Amendments rule.

Facilities subject to the RMP regulation pose significant risks to the public and the environment. These risks stem from potential accidental chemical releases that can cause fires, explosions, and harmful vapor clouds. Chemical accidents - fires and explosions, in particular - not only kill and injure people, but can do great damage to property. Property damage can include damage to goods produced, plant equipment and structures, and nearby industrial, commercial, and residential buildings, equipment, and furnishings. Damage can also occur to the natural environment and negatively affect nearby ecosystems and wildlife. Resources, such as emergency personnel and equipment, are diverted to address the fire, explosion, or vapor cloud. Properties located near the accident may lose value as a result of the perceived risks and other disamenities posed by proximity to the facility. Exhibits 6-2 and 6-3 summarize some of these baseline damages, monetizing when possible, including information presented in the Amendments RIA and additional information on accident impacts for 2014-2016.<sup>62</sup>

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<sup>62</sup> For detailed information on accident cost estimates see chapter 6 of the Amendments RIA.

**Exhibit 6-2: Average Impacts per Year and Accident (2004 – 2013 and 2014 - 2016)**

	2004-2013			2014-2016		
	10-Year Total	Average/ Year	Average/ Accident	3-Year Total	Average/ Year	Average/ Accident
<b>On-site</b>						
Fatalities	58	5.8	0.04	12	4.0	0.035
Injuries	2,103	210	1.39	394	131	1.16
Property Damage	\$2.1 billion	\$205.5 million	\$1.4 million	\$509.7 million	\$169.9 million	\$1.49 million
<b>Offsite</b>						
Fatalities	1	0.10	0.001	0	0	0
Hospitalizations	189	19	0.125	20	6.7	0.06
Medical Treatment	14,807	1,481	9.76	30	10	0.09
Evacuations	38,589	3,859	25.44	5605	1,868	16.48
Sheltering in Place	451,665	45,167	298	37,602	12,534	111
Property Damage	\$11.4 million	\$1.1 million	\$10,000	\$5.1 million	\$1.7 million	\$15,000

**Exhibit 6-3: Monetized Accident Costs per Year and Accident (2004 – 2013 and 2014 – 2016) (Millions, 2015)**

		2004 – 2013			2014 – 2016		
	Unit Value	10-Year Total	Average per Year	Average per Accident	3-Year Total	Average per Year	Average per Accident
<b>On-site</b>							
Fatalities	\$8.6	\$497.8	\$49.8	\$0.33	\$103.0	\$34.3	\$0.3
Injuries	\$0.05	\$105.2	\$10.5	\$0.07	\$19.7	\$6.6	\$0.06
Property Damage		\$2,054.9	\$205.5	\$1.4	\$509.7	\$169.9	\$1.5
<b>On-site Total</b>		<b>\$2,657.9</b>	<b>\$265.8</b>	<b>\$1.8</b>	<b>\$632.4</b>	<b>\$210.8</b>	<b>\$1.9</b>
<b>Offsite</b>							
Fatalities	\$8.6	\$8.6	\$0.86	\$0.01	\$0	\$0	\$0
Hospitalizations	\$0.04	\$6.8	\$0.68	\$0.004	\$0.7	\$0.2	\$0.002
Medical Treatment	\$0.001	\$14.8	\$1.5	\$0.01	\$0.03	\$0.01	\$0.0001
Evacuations*	\$0.0	\$7.0	\$0.70	\$0.005	\$1.0	\$0.3	\$0.003
Sheltering in Place*	\$0.0	\$40.9	\$4.1	\$0.03	\$3.4	\$1.1	\$0.01
Property Damage		\$11.4	\$1.1	\$0.008	\$5.1	\$1.7	\$0.02
<b>Offsite Total</b>		<b>\$89.5</b>	<b>\$8.9</b>	<b>\$0.06</b>	<b>\$10.3</b>	<b>\$3.4</b>	<b>\$0.03</b>
<b>Total</b>		<b>\$2,747.3</b>	<b>\$274.7</b>	<b>\$1.8</b>	<b>\$642.7</b>	<b>\$214.2</b>	<b>\$1.9</b>

\* The unit value for evacuations is less than two hundred dollars and for sheltering in place is less than one hundred dollars so when expressed in rounded millions the value represented in the table is zero.

Note that the annual number of accidents and associated impacts in Exhibit 6-2 for 2004-2013 are based on the February 2016 version of the RMP database (see Exhibits 6-2 and 6-3 of Amendments RIA). The total number of accidents with impacts for 2004-2013 is 1,517 (also see Exhibit 3-8 of this document). As explained in Chapter 3, the annual number of accidents reported for 2014-2016 has declined, compared to those occurring during 2003-2014 (see Exhibit 3-8 in this document). The total number of accidents with impacts occurring in 2014-2016 was 340 (also see Exhibit 3-8 in this document).

In response to public comments requesting EPA provide additional data and statistics from the RMP database concerning accident rates, EPA has analyzed additional RMP accident data from 2014-2016. Exhibits 6-2 and 6-3 also present additional data for accidents with impacts occurring in 2014-2016, compared with those occurring in 2004-2013. These 2014-2016 accident data were extracted from a March 2018 version of the RMP database into a spreadsheet, which is available in the docket as EPA-HQ-OEM-2015-0725-0909. The data from 2014-2016 indicate that average annual accident severity has declined with the number of accidents. Specifically, the average number of onsite fatalities at RMP facilities between 2004 and 2013 was 5.8 deaths per year; however, from 2014 to 2016, the average number of onsite fatalities decreased to 4.0 deaths per year. Similarly, RMP facilities did not experience an offsite death between 2014 and 2016, while one was reported between 2004 and 2013.

Concerning property damage, the average annual onsite property damage from RMP accidents from 2004 to 2013 was \$205.5 million per year, while from 2014 to 2016, the annual average decreased to \$169.9 million per year. For offsite property damage, the average offsite property damage from RMP accidents increased to an average of \$1.7 million per year between 2014-2016 from \$1.1 million per year between 2004 and 2013. The overall decrease in total property damage and fatalities from RMP accidents supports the conclusion that, similar to declining accident rates, the severity of accidents at RMP facilities is also declining.

The apparent decline in accidents and accident severity suggests that baseline accident damages may indeed be lower than estimated based on the 2015 data and that Exhibits 6-2 and 6-3 may overstate current and future baseline damages. However, as noted in Chapter 3, experience with the RMP data suggests that the number of accidents reported for the most recent years may increase slightly during the next 5-year reporting wave. Thus, the number of accidents reported for the most recent years in the 2018 RMP data set may rise.

EPA received several comments concerning EPA's baseline of accident damages in the proposed Reconsideration rule. Several commenters stated that the cost of an RMP related accident could be many times larger than EPA's monetized estimates and suggested sources of accident data that EPA should evaluate when determining the potential cost of RMP accidents. EPA acknowledges that many sources of data and information exist for estimating the costs of RMP-related incidents and that there are other possible methods of estimating costs than the one relied on in this rulemaking. EPA developed

total cost estimates for RMP facility incidents from accident and release data directly submitted to the RMP database. In response to public comments, EPA also evaluated a number of other accident data sources, including the RAND Corporation, CCPS, and others in the Reconsideration rulemaking. After reviewing those additional materials, EPA continues to believe that the RMP database is the most accurate and relevant source of data on RMP accidents available to EPA. Additional discussion of accident data can be found in the Reconsideration rule Response to Comments and Technical Background documents<sup>63</sup>.

In the proposed Reconsideration rulemaking, EPA evaluated security risks at RMP facilities and their impact on facility accidents. EPA identified several past cases of security breaches or planned security breaches at chemical facilities. In 2015, a truck was driven into a warehouse containing chemicals in France leading to an explosion, as part of an apparent terror attack (Trager 2015).<sup>64</sup> One of the 1993 World Trade Center bombers, Nidal Ayyad, worked at a New Jersey chemical company and procured chemicals to make the bomb. The Government Accountability Office cites a Justice Department finding that in the late 1990s domestic terrorists plotted an attack on a chemical facility storing large quantities of propane (Kaplan 2006).<sup>65</sup> Finally, the theft of anhydrous ammonia, a key ingredient in production of the illicit drug methamphetamine, is a well know security threat at facilities that store it. These thefts have caused accidental chemical releases from some facilities. For example, siphoning activities have resulted in valves being left open. Several past examples of thefts accompanied by accidental releases are summarized in US EPA 2000, pp 1-3.<sup>66</sup> These examples illustrate general security risks at chemical facilities, and not necessarily risks posed by information disclosure. However, as a result of the Chemical Facility Information, Site Security, and Fuels Regulatory Relief Act (Public Law 106-40), the Department of Justice (DOJ) performed an assessment of the increased risk of terrorist or other criminal activity associated with posting off-site consequence analysis information on the Internet. In that assessment, DOJ found that the increased availability of information would increase the risk of the misuse of information by criminals or terrorists, that criminals and terrorists had already sought to target U.S. chemical facilities, and that such threats were likely to increase in the future.<sup>67</sup>

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<sup>63</sup> See Response to Comments on the 2018 Proposed Rule Reconsidering EPA's Risk Management Program 2017 Amendments Rule, and Technical Background Document for Final RMP Reconsideration Rule - Risk Management Programs Under the Clean Air Act, Section 112(r)(7). Both documents are available in the rulemaking docket.

<sup>64</sup> Trager, Rebecca. July 2, 2015. Failed Terror Attack Raises Alarms About Chemical Plant Security. Chemistry World, Royal Society of Chemistry. EPA-HQ-OEM-2015-0725-0914. Accessed at <https://www.chemistryworld.com/news/failed-terror-attack-raises-alarms-about-chemical-plant-security/8708.article>.

<sup>65</sup> Kaplan, Eben. 2006. Targets for Terrorists: Chemical Facilities. Council on Foreign Relations. December 11, 20016. EPA-HQ-OEM-2015-0725-0912. Accessed at <https://www.cfr.org/backgrounder/targets-terrorists-chemical-facilities>.

<sup>66</sup> U.S. Environmental Protection Agency. March 2000. Anhydrous Ammonia Theft. EPA-F-00-005. EPA-HQ-OEM-2015-0725-0918. Accessed at <https://www.epa.gov/sites/production/files/2013-11/documents/csalert.pdf>.

<sup>67</sup> 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, DOJ, April 18, 2000. This document is available in the rulemaking docket, EPA-HQ-OEM-2015-0725.

## CHAPTER 7: SMALL ENTITY IMPACTS

The Regulatory Flexibility Act, as amended, (RFA) (5 U.S.C. 601-612) requires agencies to determine whether a rule will have a “significant economic impact on a substantial number of small entities.” The Small Business Administration (SBA) sets the standard for defining a small entity by 5 or 6-digit NAICS code for businesses (13 CFR part 121); governments are considered small if they serve fewer than 50,000 residents.<sup>68</sup> Although “significant economic impact” is not defined by either the RFA or SBA, EPA guidance provides example thresholds of one percent and three percent of revenues.<sup>69</sup> This analysis, however, uses the more stringent one percent threshold because almost 30 percent of the small entities affected by the rule are agricultural chemical distributors; data from the Department of Agriculture indicates that net income in this sector is less than three percent of sales.<sup>70</sup>

This chapter presents the analysis of impacts of the rule on small entities. The first section discusses the industrial sectors reported by RMP facilities. The second section describes the approach to determining how many facilities and firms subject to the rule are small based on SBA standards. The third section discusses the economic impacts of the rule on small entities.

### 7.1 RMP Affected Sectors

The RMP rule affects a broad range of sectors (296 separate NAICS codes are listed in RMP filings; 240 of these are associated with small entities). The primary sectors subject to the rule and the SBA standards for defining a small firm are shown in Exhibit 7-1. A dollar value standard refers to firm revenues in millions; the full-time-equivalent (FTE) employees applies to the firm’s total FTE, not the number at any one location. For governments, the standard is based on the population served. The NAICS codes are presented at the 2- to 6-digit level based on whether the SBA standard varies for the 5- and 6-digit codes and whether there are a considerable number of RMP facilities in the sector.<sup>71</sup> For example, the SBA standard for the wholesale trade sector, NAICS code 42, is the same across all codes (100 FTE).

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<sup>68</sup> Some small governments serve substantial populations associated with businesses, particularly irrigation districts that serve large farming areas, but few residences, and small cities that have large tourist-related businesses.

<sup>69</sup> See Chapter 2 of *Final Guidance for EPA Rulewriters: Regulatory Flexibility Act*, EPA-HQ-OEM-2015-0725-0104. <https://www.epa.gov/reg-flex/epas-action-development-process-final-guidance-epa-rulewriters-regulatory-flexibility-act>.

<sup>70</sup> EPA-HQ-OEM-2015-0725-0098.

<http://www.usda.gov/wps/portal/usda/usdahome?contentid=2013/10/0199.xml>.

<sup>71</sup> In some cases, NAICS codes are disaggregated to 5 digits and in others 6 digits. SBA does not include all 6-digit codes in its regulation.



**Exhibit 7-1: Industry Sector Small Entity Standards**

NAICS	Sector	Standard	NAICS	Sector	Standard
111	Crop Production	\$0.75m	3254	Pharmaceutical and Medicine Manufacturing	1,000 - 1,250 FTE
112	Animal Production and Aquaculture	\$0.75m - \$15m	3255	Paint, Coating, and Adhesive Manufacturing	500 - 1,000 FTE
115	Support Activities for Agriculture and Forestry	\$7.5m - \$27.5m	3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	750 - 1,250 FTE
211111	Crude Petroleum and Natural Gas Extraction	1,250 FTE	3259	Other Chemical Product and Preparation Manufacturing	500 - 1,500 FTE
221112	Fossil Fuel Electric Power Generation	750 FTE	326	Plastics and Rubber Products Manufacturing	500 - 1,250 FTE
22131	Water Supply and Irrigation Systems	\$27.5m	327	Nonmetallic Mineral Product Manufacturing	500 - 1,250 FTE
22132	Sewage Treatment Facilities	\$20.5m	331	Primary Metal Manufacturing	500 - 1,250 FTE
3111	Animal Food Manufacturing	500 - 1,000 FTE	332	Fabricated Metal Product Manufacturing	500 - 1,500 FTE
3112	Grain and Oilseed Milling	500 - 1,000 FTE	333	Machinery Manufacturing	500 - 1,500 FTE
3113	Sugar and Confectionery Product Manufacturing	750 - 1,250 FTE	334	Computer and Electronic Product Manufacturing	500 - 1,250 FTE
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	750 - 1,250 FTE	335	Electrical Equipment, Appliance, and Component Manufacturing	500 - 1,500 FTE
3115	Dairy Product Manufacturing	750 - 1,250 FTE	336	Transportation Equipment Manufacturing	1,000 - 1,500 FTE
3116	Animal Slaughtering and Processing	750 - 1,250 FTE	337	Furniture and Related Product Manufacturing	500 - 1,000 FTE
3117	Seafood Product Preparation and Packaging	750 FTE	339	Miscellaneous Manufacturing	500 - 1,000 FTE
3118	Bakeries and Tortilla Manufacturing	750 - 1,250 FTE	42	Wholesale Trade	100 - 150 FTE
3119	Other Food Manufacturing	750 - 1,250 FTE	44422	Nursery, Garden Center, and Farm Supply Stores	\$11m
3121	Beverage Manufacturing	750 - 1,250 FTE	45431	Fuel Dealers	100 FTE
322	Paper Manufacturing	500 - 1,500 FTE	48691	Pipeline Transportation of Refined Product	1,500 FTE

NAICS	Sector	Standard	NAICS	Sector	Standard
32411	Petroleum Refineries	1,500 FTE	48821	Support Activities for Rail Transportation	\$15m
32412	Asphalt Paving, Roofing, and Saturated Materials Manufacturing	500 - 750 FTE	4931	General Warehousing and Storage	\$27.5m
32419	Other Petroleum and Coal Products Manufacturing	500 - 750 FTE	56179	Other Services to Buildings and Dwellings	\$7.5m
3251	Basic Chemical Manufacturing	1,000 - 1,250 FTE	5621	Waste Management	\$38.5m
3252	Resin and Synthetic Rubber Manufacturing	1,000 - 1,250 FTE	5622	Waste Treatment and Disposal	\$38.5m
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	500 - 1,000 FTE	92	Governments	<50,000 residents served

Some codes listed by facilities in their RMP filings are problematic. First, for a variety of reasons, many firms list multiple NAICS codes for their facilities (this is not necessarily erroneous – EPA allows a facility to list different NAICS codes for different processes if a process performs a function different than the primary activity of the facility). Particularly for agricultural chemical distributors there are multiple NAICS codes for facilities with activities that appear to be the same (e.g., facilities named as agricultural co-ops appear in NAICS codes 111, 115, 32531, 325312, 325313, 325314, 325193, 42451, 42459, 42491, 444, 453, and 493). For other facilities, the parent firm has listed its facilities in the code appropriate for activities occurring at a specific facility, but not appropriate for the firm (e.g., integrated gas exploration, production, and distribution companies have facilities in NAICS codes 211, 424, 486, and 488; integrated oil firms list facilities in NAICS codes 211, 213, 221, 324, 325, 424, and 541). Second, not all of the NAICS codes listed exist; some are clearly earlier versions of current codes (42269 rather than 42469) and were recoded, but others represent subsectors that do not exist, making them difficult to define. Third, checks of some facilities indicate that the sector listed is incorrect; the only facility with less than five FTEs listed for NAICS code 32511 (petrochemicals) is variously described in Internet sources as an aerosol packager (an official Missouri report), a paperboard company, or an agricultural chemical distributor (it was recoded to NAICS code 32599). Finally, almost all of the governmental entities, which should be listed under NAICS code 92, listed themselves under other codes, primarily 2213 (water and wastewater treatment), but also under chemical manufacturing and waste management; all of these were recoded to NAICS code 924. Some of the other facilities listed under NAICS code 2213 belong to manufacturing plants. The decision rules applied to re-categorize firms into correct NAICS codes are discussed below.

## 7.2 Estimating the Number of Small Entities

The RFA and the SBA standards apply to firms, not facilities (or establishments, the term used by the Economic Census) because the costs of the rule are ultimately borne by the firm, rather than the facility. Therefore, to determine the number of small entities, the analysis identified the number of firms and the size of those entities. The RMP data include facility and parent company name as well as the number of full time equivalents (FTE) for the facility and the NAICS codes. Although this information facilitates the small entity analysis, a review of the data indicated a substantial number of issues. Parent company information was often missing and when present, incorrect. For example, for one company with 68 facilities, 15 listed no parent company, 52 listed the company name, and only one listed the name of the foreign firm that owns the company. Two cooperatives with 20 and 30 RMP facilities listed zero FTEs for every facility; research indicated that one is among the largest firms in its sector, with revenues of about \$1 billion and a senior management team of 15 people. The size of the parent cooperative for the second could not be determined and, therefore, it was categorized as small. Research on one facility determined that it was owned by another firm; that firm in turn was determined to own 8 companies, most of which have RMP facilities but none of which had identified the parent company. Particularly in the oil and gas sectors, where corporate structures include multiple divisions that are separate legal entities for management and tax purposes, and where mergers are frequent, facilities often list the intermediate entities rather than the actual parent company or the entity that purchased the site rather than the current owner.

To develop an estimate of the number of small entities, the analysis required a series of reviews of the data to identify the large entities and the small entities that were part of small firms owning multiple facilities. First, any facility that exceeded 1,500 FTE was categorized as large; 1,500 FTE is the highest threshold for large entities when the SBA standard is based on FTE. Based on Economic Census data, it was determined that any facility of that size would also generate revenues high enough to exceed the highest revenue threshold of any covered sector. Second, SBA sets its standards to ensure that while most firms in a sector are classified as small, the largest firms in a sector are not. The data were reviewed to identify parent companies that were clear from the facility name, but not included in the parent company field. That made it possible to determine the total FTE for facilities belonging to the same parent company and compare that number to the SBA standard (when in FTEs). The analysis treated all facilities owned by the same parent company as large if one or more of those facilities were classified as large according to the appropriate SBA standard for that facility's NAICS code. For example, if a parent company owned two facilities, one in NAICS code 211111 (SBA standard: 1,250 FTE) with 1,000 employees and the second in NAICS code 221112 (SBA standard: 750 FTE) with 1,000 employees), both facilities would be classified as large. Industry data on the largest firms in each of the major sectors (agricultural chemical distributors, food manufacturers, chemical manufacturers, and oil and gas companies) were used to identify those firms. The largest government entities were also identified in this screen (e.g., all federal entities; any State-owned facility; water systems serving Los Angeles, New York City, Chicago, etc.).

The RFA defines “small government jurisdictions” as governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.<sup>72</sup> Most governmental RMP facilities are water and wastewater treatment systems and listed a city or county as the owning entity. A check of budgets that were available for some of the smallest cities indicated that the systems (1) are sub agencies of the city/county and (2) obtain some revenues from the general fund although most of their revenues are derived from user fees. To determine which facilities belong to small governments, the population for the associated city or county was determined by checking the 2014 estimates from the Census. For special water and irrigation districts, their Internet sites were checked for information on the population served. Exhibit 7-2 presents the number of small and large facilities by program level. Exhibit 7-3 presents the small/large breakdown by sectors.

**Exhibit 7-2: Number of Facilities Owned by Small and Large Entities by Program Level**

<b>RMP Program</b>	<b>Small</b>	<b>Large</b>	<b>Total</b>
Program 3	2,348	3,632	5,980
Program 2	2,577	3,343	5,920
Program 1	268	374	642
<b>Total</b>	<b>5,193</b>	<b>7,349</b>	<b>12,542</b>

The number of small entities is likely to be overstated. Particularly in the agricultural chemical distributor sector, it was not possible to determine common ownership among facilities with common names (e.g., Farmers Cooperative). Not all of these facilities have websites and, when they do, they do not always provide information on ownership or locations. Unless the names were identical, and the facilities located in the same State, the analysis assumed that they belonged to separate firms, which likely increases the number of small entities in this estimate. It is also likely that for many of these facilities the FTE reported are too low. A number of the agricultural chemical distributors listed multiple facilities at zero FTE even though they are open more than 8 hours a day, 5 days a week, which increases the number of small entities evaluated on the FTE-basis.

The classification of facilities as Program 2 or 3 is based solely on the RMP data submitted and on existing program classification standards. A review of other facilities indicates that, in some cases, classifications in the RMP database are inappropriate. For example, of the 701 water/wastewater facilities in State-plan states, 661 listed themselves correctly as P3, but 40 (including those in a major city) listed themselves as P2.<sup>73</sup> Of the 1,194 publicly owned facilities in States where Federal OSHA implements the PSM standard, 893 listed themselves correctly as P2, but 301 said they are P3. In addition, there are more than 500 other facilities that listed themselves as P2 (outside of the primary

<sup>72</sup> 5 U.S.C. 601- Definitions

<sup>73</sup> About half of the States have accepted delegation to enforce OSHA rules; OSHA refers to these as State-plan States. As a condition of delegation, the State must impose OSHA standards on State and local governments. Federal OSHA has no authority over those governments, so in States where OSHA enforces the rules, they do not apply to governments.

agricultural retail sectors); although many of these are, in fact, agricultural chemical distributors, others appear to be facilities that should be subject to Program 3.

**Exhibit 7-3: Program Level and Size by Sector**

NAICS	Description	Program 1		Program 2		Program 3		Total
		Small	Large	Small	Large	Small	Large	
311	Food Mfg.	2	1	6	5	481	890	1,385
312	Beverage/Ice	0	0	0	0	29	62	91
322	Paper/Pulp	0	1	1	0	12	56	70
324	Petroleum	5	8	0	3	33	107	156
325	Chemical	39	14	53	11	578	771	1,466
313, 321, 326, 327, 33	Other Manufacturing	36	26	40	33	143	106	384
4246	Chemical Distributors	2	4	0	0	89	238	333
4247	Petroleum Distributors	2	12	0	0	73	189	276
11, 12, 15, 42491	Agricultural	9	1	1,438	1,933	148	138	3,667
211	Oil and Gas Exploration	113	197	18	23	129	261	741
2213	Water/Wastewater	0	1	6	4	12	79	102
221 222	Utilities	27	11	48	24	116	117	343
493	Warehousing	18	52	309	677	0	0	1,056
423, 424	Other Wholesale	0	5	102	189	4	2	302
92	Governments	6	9	520	415	448	525	1,923
Other		9	32	36	26	53	91	247
<b>Total</b>		<b>268</b>	<b>374</b>	<b>2,577</b>	<b>3,343</b>	<b>2,348</b>	<b>3,632</b>	<b>12,542</b>

### 7.2.1 Non-Government Facilities

The analysis divides facilities by responder status. There is a total of 1,718 small responding facilities and 3,207 small non-responding facilities (includes governments but excludes P1 facilities). Exhibit 7-4 breaks down by FTE, the number of small non-government facilities that indicated in their RMPs that are not responders. Government facilities are excluded because FTEs do not reflect the size of the governmental entity. Appendix B of the Amendments RIA provided a summary of the number of facilities by 3 and 5/6-digit NAICS code by FTE and responder status for non-governmental facilities.

#### Exhibit 7-4: Small Non-Governmental Non-Responding Facilities by FTE

Non-Responders	
0-19 FTE	1,691
20-99 FTE	521
100+ FTE	248
<b>Total</b>	<b>2,460</b>

The Amendments rule Final Regulatory Flexibility Analysis included STAA requirements for small entities and estimated 623 such entities would be subject to these requirements. The Reconsideration rule rescinds the STAA requirements and thus results in avoided costs to these entities.

#### 7.2.2 Governments

As shown in Exhibit 7-3, there are a combined total of 968 facilities with P2 and P3 processes that are owned and operated by small governments (i.e., the government serves less than 50,000 residents). Because governments that serve populations above 15,000 have revenues well above \$10 million so that the costs of the rule would never exceed 1%, the analysis focused on those that served fewer than 15,000 people. Exhibit 7-5 presents the number of all small governments and the number serving less than 15,000 by the number of RMP facilities they operate. Three government facilities included in the number of small governments and number of small government non-responders could not be classified by population; each is a special district for which information could not be located to determine residents served. Two are in very small rural areas and likely serve fewer than 5,000; the third is in a suburb of Salt Lake City and appears to serve at least 25,000 residents.

#### Exhibit 7-5: Small Governments by the Number of RMP Facilities (P2 and P3) Operated

Category*	Number of Governments	Number of Facilities
All Small Governments	689	968
Non Responders	524	747
Non Responders <15,000 Residents	257	367
Non Responders <10,000 Residents	165	213
Non Responders <5,000 Residents	58	78

\*Values are cumulative.

### 7.3 Economic Impact on Small Entities

The Amendments rule considered a broad range of costs on small entities based on facility type. As estimated in the Amendments RIA, the provisions in that final rule had quantifiable impacts on small entities. The Reconsideration rule largely repeals, or retains with slight modification, the provisions incurring costs on small entities. As a result, EPA expects the Reconsideration rule to impose negative costs for all facilities, including small entities. Even P1 facilities, which were exempted from most

provisions in the Amendments rule (and therefore would not see significant cost savings in the Reconsideration rule because the repeals did not affect them, as explained below), would still experience a cost savings (negative costs) as a result of the rule's implementation. The only new costs imposed on small entities would be rule familiarization with the Reconsideration rule, but even that cost would be offset by savings associated with eliminating a portion of the costs associated with becoming familiar with the Amendments rule. Exhibit 7-6 demonstrates the change in rule familiarization costs for the Amendments and the Reconsideration rules.<sup>74</sup>

**Exhibit 7-6: Rule Familiarization Cost Comparison (Per Facility)**

Category	Amendments Rule Cost	Reconsideration Rule Cost	Difference
Simple Facilities	\$308.60	\$462.90	\$154.30
P1 and P2 Complex Facilities	\$400.48	\$600.73	\$200.25
P3 Complex Facilities	\$20,554.13	\$4904.88	(\$15,649.25)

Conservatively, given that the per facility costs of the rule are at most \$21 and for most facilities, a much greater negative cost based on facility type<sup>75</sup>, this rule will not impose a significant economic burden on small entities by imposing costs that exceed the threshold amount of 1% of company revenues.

Accordingly, the Administrator of the EPA hereby certifies that that the Reconsideration rule will not have a significant economic impact on a substantial number of small entities.

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<sup>74</sup> The derivation of these costs is explained in Section 4.2. See Exhibits 4-2 and 4-3.

<sup>75</sup> \$21 is the difference between the additional rule familiarization costs associated with the Reconsideration rule for simple facilities (\$154) and the avoided costs of public disclosure for simple facilities (\$133 – see Exhibit 4-7), which is the only rescinded provision of the Amendments that applied to every RMP facility. Simple facilities are the only category of facilities that could experience any positive cost associated with the Reconsideration rule. All other categories of facilities, as well as simple facilities that have any RMP-reportable accident, would experience overall negative costs due to avoiding the costs associated with the rescinded or modified provisions of the Amendments rule.

# CHAPTER 8: ENVIRONMENTAL JUSTICE

## 8.1 Background and Context

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” (February, 1994) places a responsibility on federal agencies for “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 in the United States[.]” This section explains how EPA has addressed environmental justice issues associated with this rulemaking.

Environmental risks may result from industrial or commercial activities by private actors, or from governmental activities or programs. When those risks are disproportionately borne by particular subpopulations, environmental justice is achieved through *Fair Treatment* and *Meaningful Involvement*.<sup>76</sup>

***Fair treatment*** refers to efforts to prevent environmental risks and harms from disproportionately affecting a particular group of people.

***Meaningful involvement*** refers to inclusion of potentially affected populations in decisions about activities or programs to address those risks. Meaningful involvement may include facilitating the involvement of populations potentially affected by those activities or programs. It also entails ensuring that potentially affected populations have an opportunity to participate in decisions and influence decisions about those activities or programs. “Empowering communities” is a specific goal established by the OSWER Environmental Justice Task Force.<sup>77</sup>

EPA used these principles in identifying and ameliorating environmental justice issues associated with RMP facilities.

## 8.2 Identifying Potential Environmental Justice Concerns Associated with RMP Facilities

At all facilities regulated under the Risk Management Program, an accidental release of a regulated substance creates a hazard to surrounding communities and environments. These hazards include, for example, exposure to toxic substances, fires, explosions, and noxious gas clouds.

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<sup>76</sup> *Guidance on Considering Environmental Justice During the Development of Regulatory Actions*, US EPA, May 2015. EPA-HQ-OEM-2015-0725-0102.

<sup>77</sup> “OSWER Environmental Justice Task Force Draft Final Report”, EPA 540/R-94/004, April 1994. Also see “Integration of Environmental Justice into OSWER Policy, Guidance, and Regulatory Development” (OSWER directive No. 9200, 3-17, Sept 21, 1994.) EPA-HQ-OEM-2015-0725-0100.



In undertaking actions in response to Executive Order 13650 while developing the Amendments rule,<sup>78</sup> EPA sought to determine if there were environmental justice concerns associated with these risks from stationary sources regulated under the RMP rule. The agency assessed data using EPA tools and census information and reviewed existing academic and gray literature on risks to populations of concern.

### 8.2.1 Assessment of risks to relevant populations, based on proximity

Facilities that are regulated under the Risk Management Program pose risks of fire, explosion, and/or exposure to hazardous chemicals. Chemical hazards include burns, corrosive damage to people and property, as well as exposure associated with acute toxicity. Exposure from these facilities may put local populations at risk through inhalation, ingestion, or dermal contact.

Exhibit 8-1 shows the demographics in the vicinity of RMP sites, using locational data from the RMP database and demographic data from EPA's EJSCREEN tool.<sup>79</sup> The analysis shows that minority and low-income populations are more likely to be in proximity to those facilities (and thus at greater risk) than other populations.<sup>80</sup>

**Exhibit 8-1: Demographic Profile of Key Populations**

Location	Population	Low-income	Minority	Linguistically isolated
Total near RMP facilities <sup>81</sup>	31.27 million	13,757,000	14,770,000	2,482,000
US Total	309.14 million	104,256,000	112,235,000	15,905,000
Percentage of population near RMP facilities <sup>82</sup>		44%	47%	8%
Percentage of overall US population		34%	36%	5%
<i>Difference in percentage of populations near RMP sites<sup>83</sup></i>		<i>10% more</i>	<i>11% more</i>	<i>3% more</i>

<sup>78</sup> E.O. 13650 "Improving Chemical Facility Safety and Security," August 2013.

<sup>79</sup> See EJSCREEN. EPA-HQ-OEM-2015-0725-0106 [http://www2.epa.gov/sites/production/files/2015-05/documents/ejscreen\\_technical\\_document\\_20150505.pdf](http://www2.epa.gov/sites/production/files/2015-05/documents/ejscreen_technical_document_20150505.pdf).

<sup>80</sup> Demographic data on populations are from the American Community Survey 2008-2012, US Census Bureau. EPA-HQ-OEM-2015-0725-0072 [https://www.census.gov/programs-surveys/acs/news/data-releases/2012/release.html#par\\_textimage\\_0](https://www.census.gov/programs-surveys/acs/news/data-releases/2012/release.html#par_textimage_0)

<sup>81</sup> Not including facilities in Puerto Rico and Guam.

<sup>82</sup> This analysis counts each person once for *each* RMP facility they are near. There is a likelihood of a small degree of double-counting, therefore, for those who are in close proximity to two or more facilities. However, this effect is likely to be small, as the data show that less than 5% of the US population is in close proximity to two or more RMP facilities.

<sup>83</sup> For the comparable Exhibit 8-1 presented in the Amendments RIA, EPA had expressed the difference in populations as the percentage change between two percentages. For the table above, EPA has expressed the difference in populations as a simple difference in percentage values, which we believe more accurately characterizes the differing risks.

44% of people in proximity (defined as living within a one-mile radius) to RMP sites are low-income; the average in the US population is 34%. Low-income is defined here as less than twice the Census Bureau's poverty threshold.

47% of people in proximity to RMP sites are ethnic minorities, including any designation except for "Non-Hispanic, White." It therefore includes those identifying as Hispanic white or as multiracial white. The average in the US population (overall) is 36%.

The other demographic indicator EPA examined was "linguistic isolation." This category consists of households where no one over age 14 speaks English well, and some other language is spoken at home. 8% of populations in proximity to RMP facilities are linguistically isolated, compared to only 5% in the general US population. This characteristic is important for understanding disproportionate impact, inasmuch as these people are less likely to be aware of risks, to understand them, and to know what to do to help protect themselves.

In comparison to the general US population, therefore, EPA can conclude that populations surrounding RMP facilities are:

- 10% more likely to be low-income;
- 11% more likely to be minorities; and
- 3% more likely to be linguistically isolated.

To the extent that populations living closer to facilities are more likely to be exposed if a release occurs, RMP facilities pose a greater risk to these key demographic groups.

### **8.2.2 Assessment of risks to relevant populations, in existing literature**

Studies external to EPA have also examined these issues. A 2004 analysis by the University of Pennsylvania examined risk to surrounding minority communities, based on an assessment of the potential for releases and property damages and injuries at RMP facilities.<sup>84</sup> The writers also compared those risks with the demographics of surrounding communities. They found significant correlations between riskier facilities (larger and featuring more complex chemical processes) with location in counties with larger African American populations. They concluded:

"Thus, higher risk facilities are more likely to be found in counties with sizeable poor and/or minority populations that disproportionately bear the collateral environmental, property, and health risks."

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<sup>84</sup> Elliott, M.R., et al, "Environmental Justice: frequency and severity of US chemical industry accidents and the socioeconomic status of surrounding communities" Journal of Epidemiology and Community Health 2004; 58:24-30. EPA-HQ-OEM-2015-0725-0105.

In 2014, the Environmental Justice and Health Alliance for Chemical Policy Reform found that the populations vulnerable to releases from chemical facilities are disproportionately black or Latino.<sup>85</sup> Compared to the US population as a whole, these vulnerable populations have higher rates of poverty, lower incomes, and education levels. In particular, this report focuses on the communities closest to the facilities (at the “fence line”).

In 2016, Center for Effective Government found that people of color and people living in poverty, especially poor children of color, are significantly more likely to live in fence line zones of RMP facilities than whites and people with incomes above the poverty line.<sup>86</sup>

### **8.2.3 Conclusions**

Based on analysis of RMP data and other studies, EPA concludes that there is evidence that risks from RMP facilities fall on minority and low-income populations, to a significantly greater degree than those risks affect other populations. Therefore, EPA believes that this action may have disproportionately high and adverse human health or environmental effects on minority populations, low-income populations and/or indigenous peoples, as specified in Executive Order 12898 (59 FR 7629, February 16, 1994).

## **8.3 Actions Taken to Facilitate “Fair Treatment”**

Chapters 4 and 5 describe the costs and cost savings resulting from this rule, and Chapter 6 describes the change to benefits including the reduction in security risks that EPA anticipates resulting from this rule. These might include, for example, loss of the benefit of potentially preventing some future accidental releases that might have been avoided by implementing the prevention program provisions of the Amendments rule, contrasted to the new benefit of avoiding potential security incidents that might have resulted from the open-ended emergency coordination and public information availability provisions of the Amendments. Of note, EPA believes that some of the Amendments rule’s benefits of mitigating the damages when releases at RMP facilities occur and improving information for emergency planners and responders will still occur under the Reconsideration rule.

EPA was unable to associate the magnitude of risk increases or risk reductions with the removal of specific Amendments rule provisions. As noted, accident risks may increase while security risks may decrease. To the extent that this rule results in either increases or reductions of risk to US populations overall, EPA anticipates that it will result in greater risks or risk reductions for minority communities and lower-income communities, since they bear a larger portion of the risk. As EPA does not know the

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<sup>85</sup> *Who’s in Danger? A Demographic Analysis of Chemical Disaster Vulnerability Zones*, May 2014. The report was produced in collaboration with Coming Clean and The Center for Effective Government. EPA-HQ-OEM-2015-0725-0097 <http://comingcleaninc.org/whats-new/whos-in-danger-report>.

<sup>86</sup> Center for Effective Government. January 2016. *Living in the Shadow of Danger - Poverty, Race, and Unequal Chemical Facility Hazards*. EPA-HQ-OEM-2015-0725-0913 <https://www.foreffectivegov.org/sites/default/files/shadow-of-danger-highrespdf.pdf>

magnitude of risk changes, the extent to which risks faced by populations in close proximity to RMP facilities will increase or decrease is also unknown.

#### **8.4 Actions Taken to Facilitate “Meaningful Involvement”**

Addressing environmental justice concerns entails meaningful involvement by affected communities. While developing the Amendments rule, EPA took a variety of steps to consult with communities that might be threatened by RMP-regulated substances, including conducting a series of listening sessions, public communication efforts, a public hearing, and a webinar regarding addressing potential hazards from RMP stationary sources and other facilities. See Section 8.4 of the RIA for the Amendments rule for a description of these efforts. During the development of the Reconsideration rule, EPA held a public hearing on June 14, 2018. Participation in this public hearing was larger (38 speakers) than the public hearing held for the proposed RMP Amendments rule (22 speakers) or the public hearing for the proposed Delay of Amendments rule held on April 19, 2017 (28 speakers). Local and state advocacy and community groups were well represented at the Reconsideration rule hearing, numbering 13 of the 38 speakers.<sup>87</sup> EPA also held a special information session for environmental groups and other commenters on July 26, 2018, where EPA demonstrated methods and techniques for querying the RMP database and demonstrated how EPA obtained facility, process and accident counts from the database, to better allow interested parties to query and analyze RMP information associated with the Reconsideration rulemaking.<sup>88</sup>

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<sup>87</sup> Thirteen speakers from local/state advocacy or community groups: Texas Environmental Advocacy Services, Clean and Healthy NY (New York), Delaware Concerned Residents for Environmental Justice, Minority Workforce Development Coalition (Delaware), Rubbertown Emergency Action- REACT (Rubbertown, Kentucky), Coalition for Safe Environment (Wilmington, California), Harambee House (Savannah, Georgia), Utah Physicians for Healthy Environment, People Concerned About Chemical Safety (West Virginia), NJ Environmental Justice Alliance (New Jersey), Houston Sierra Club (Houston, Texas), Colorado Latino Forum and Center for Earth, Energy and Democracy (Minneapolis, Minnesota). See EPA-HQ-OEM-2015-0725-0985 - Written Transcript of Public Hearing (June 14, 2018) on Risk Management Program (RMP) Reconsideration Proposed Rule.

<sup>88</sup> EPA. July 26, 2018. Summary of Meeting between EPA and Earthjustice, Union of Concerned Scientists and NY Attorney General’s Office regarding Analysis of RMP Database. EPA-HQ-OEM-2015-0725-1463

## CHAPTER 9: OTHER ANALYSES, LIMITATIONS, AND CONCLUSIONS

### 9.1 Unfunded Mandates Reform Act

The Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1531–1538) requires agencies to conduct a cost benefit analysis of any rulemaking that may impose a net cost of \$100 million or more for state, local and tribal governments, in the aggregate, or the private sector in any one year. Though the Reconsideration rule will not result in such an expenditure, the Agency does discuss the costs and benefits of this rule throughout this document.

### 9.2 Protection of Children from Environmental Health Risks and Safety Risks

Executive Order 13045 - Protection of Children from Environmental Health Risks and Safety Risks (62 FR 19885, April 23, 1997) requires agencies to identify and assess health and safety risks that may disproportionately affect children and ensure that activities address disproportionate risks to children. Children may be more vulnerable to environmental exposures and/or the associated health effects, and therefore more at risk than adults. Actions are subject to the Executive Order if they are economically significant; concern an environmental health risk or safety risk that the EPA has reason to believe may disproportionately affect children; and were initiated after April 21, 1997, or if a notice of proposed rulemaking (NPRM) was published on or after April 21, 1998.

This action is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866, and EPA does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children.

An analysis of the number of people and children living in near proximity to the approximately 12,500 RMP regulated facilities that submitted an RMP to EPA was done by the Center for Effective Government with results published in a January 2016 report.<sup>89</sup> This study reported the number of residents, children and children under the age of five that live within one mile of an RMP facility. The data were based on RMP facility location data (latitude/longitude) reported from 12,545 RMP facilities current as of December 31, 2014, and demographic information on the populations living near RMP facilities from U.S. Census Bureau American Community Survey (ACS) 5-year estimates spanning 2009-2013. EPA compared the results from this study to total U.S. population demographics using population

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<sup>89</sup> Center for Effective Government. January 2016. Living in the Shadow of Danger - Poverty, Race, and Unequal Chemical Facility Hazards. EPA-HQ-OEM-2015-0725-0913.

<https://www.foreffectivegov.org/sites/default/files/shadow-of-danger-highrespdf.pdf>

data reported in the same 2009-2013 5-Year ACS data.<sup>90</sup> Results of this comparison are shown in Exhibit 9-1. The small differences from these comparisons show that children living within one mile of an RMP facility are not substantially more likely to be exposed to a potential release of a hazardous chemical due to a chemical accident at an RMP facility than other children, and thus are not disproportionately at risk.

**Exhibit 9-1: Demographic Profile of Children near RMP sites**

Location	Population	Children	Children less than 5 years old.
Total near RMP facilities	23 million	5.7 million <sup>91</sup>	1.6 million
US Total	311.54 million	73.83 million	20 million
Percent of population near RMP facilities		24.8%	7%
Percent of overall US population		23.7%	6.4%
<i>Difference in percentage of populations near RMP sites</i>		<i>0.9% greater</i>	<i>0.6% greater</i>

EPA also notes that none of the RMP accidents included in the 10-year analysis period (2004 – 2013) resulted in reported injuries or fatalities to children. Most injuries and fatalities occurred to adult facility workers and emergency responders; the relatively few public injuries and fatalities that occurred were also to adults. Other accident impacts, such as evacuations and sheltering-in-place, affected the general population near RMP facilities, including children. Future accidents at RMP facilities could potentially have these and other more severe impacts on the general population, including injuries and fatalities. However, as the proportion of children living near RMP facilities is not significantly higher than the

<sup>90</sup> Census Bureau. 2009-2013 American Community Survey 5-Year Estimates, Sex and Age. EPA-HQ-OEM-2015-0725-0919. <https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2013/> Click on *United States, Demographic Characteristics — includes Sex and Age, Race, Hispanic Origin, Housing Units*. Total population: 311,536,594.

Percent of total population 18 years and over: 76.3%

Number of children under 5 years: 20,052,112

<sup>91</sup> Assumed children in study were below age of 18.

proportion of children in the general population, EPA does not believe that risks addressed by the Reconsideration rule would affect children disproportionately.

EPA's *Policy on Evaluating Health Risks to Children*<sup>92</sup> is broader than E.O. 13045 in that it calls upon EPA "to consider the risks to infants and children consistently and explicitly as a part of risk assessments generated during its decision making process, including the setting of standards to protect public health and the environment." The applicability of the policy does not depend on whether risks are "disproportionate" or different from risks to adults. For actions concerning health or safety risks for which the EPA is already conducting a risk assessment, EPA's policy is to develop a separate assessment of risks to infants and children or to document clearly why we did not develop one. For the Reconsideration rule, EPA is not conducting a children's health or risk assessment to inform its regulatory action. Unlike regulations that involve assessments of risk for a specific substance or type of hazard, the risk management program is a management-based system of safety practices for industrial facilities handling a wide variety of chemicals and requires facility owners or operators to develop procedures and controls to maintain and safely operate processes and equipment to prevent chemical accidents and mitigate any accidental releases that may occur. Given the wide latitude in selection of risk controls afforded to facility owners and operators under such a regulatory program, EPA believes it unlikely that any quantitative assessment of children's health risks would meaningfully inform this rule.

### 9.3 Employment Impacts

Executive Order 13777 directs federal agencies to consider a variety of issues regarding the characteristics and impacts of regulations, including the effect of regulations on jobs (Executive Order 13777 (2017)).<sup>93</sup> Employment impacts of environmental regulations are composed of a mix of potential declines and gains in different areas of the economy over time. Regulatory employment impacts can vary across occupations, regions, and industries; by labor demand and supply elasticities; and in response to other labor market conditions. Employment impacts from environmental regulation are difficult to disentangle from changes driven by other economic factors. Employment impacts may occur in the directly regulated sector, the environmental protection sector, and in upstream, and other related sectors. Multiple impacts are incurred by firms in regulated industries. New costs that are incurred to protect the environment may include labor, energy, capital, materials, and other costs. For the current deregulatory rulemaking, avoided costs largely represent avoided labor hours.

As environmental protection costs increase, if firms pass along costs to consumers, output may decrease, which could cause a decrease in labor demand. Conversely, if environmental protection costs

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<sup>92</sup> EPA. Guide to Considering Children's Health When Developing EPA Actions: Implementing Executive Order 13045 and EPA's Policy on Evaluating Health Risks to Children. October 2006. <http://www2.epa.gov/children/guide-considering-childrens-health-when-developing-epa-actions-implementing-executive-order>. EPA-HQ-OEM-2015-0725-0916.

<sup>93</sup>E.O. 13777. <https://www.federalregister.gov/documents/2017/03/01/2017-04107/enforcing-the-regulatory-reform-agenda>. Also available in docket, EPA-HQ-OEM-2015-0725-0864.

decrease, as would occur under the Reconsideration rule, output may increase, resulting in increased labor demand. There may also be operational impacts incurred by regulated firms as they modify operations to adapt to changing regulatory requirements; the direction of that impact on labor demand is a function of the interaction between the regulatory requirements and the firm's labor intensity of production.

In the Amendments RIA, EPA did not include a complete analysis of labor market effects of the final Amendments rule (see Amendments RIA, section 9.2). EPA noted that in general, an environmental regulation can be understood as an increase in demand for a particular output: environmental quality. Meeting this new demand can result in increased demand for the various factors of production (including labor). EPA further determined that the final Amendments rule was unlikely to have significant impacts on employment, because even in a year where a large complex facility complied with all of the Amendments rule requirements, the total labor hours would represent about one half FTE,<sup>94</sup> but those hours would be distributed across many employees. For simple non-responding facilities, under the final Amendments rule, the annual labor cost would average less than 120 hours distributed among several workers. Therefore, EPA judged that at most, perhaps a facility might need to hire another employee to comply with the Amendments rule or to cover the work that would otherwise have been done by those workers involved in compliance activities. The Reconsideration rule rescinds several provisions of the Amendments rule, including the STAA, root cause analysis, third-party audit, and information availability provisions, and makes changes to the emergency exercise provisions to allow more flexibility to owners and operators in complying with them. The Reconsideration rule also modifies the Amendments rule public meeting provision by limiting the trigger for the requirement to the occurrence of an RMP reportable accident with offsite impacts specified in § 68.42(a). As demonstrated in this RIA, the net effect of these changes would be to avert most of the costs associated with the final Amendments rule. Therefore, as the Amendments rule would have been unlikely to have significant impacts on employment, EPA expects that the Reconsideration rule is also unlikely to have significant employment impacts. To the extent any such impacts occur, they would be in the opposite direction to impacts associated with the Amendments rule.

## **9.4 Limitations and Conclusions**

As discussed in detail in Chapters 3 and 6, the data on which this analysis is based are necessarily limited. EPA has attempted to correct obvious errors, such as removing accidents reported more than once and reclassifying some facilities to more appropriate NAICS codes, but some issues related to facility employment size and ownership could not be resolved. EPA could not add accidents that had not been reported or correct accident impact data where they may have been inaccurate.

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<sup>94</sup> One full time equivalent (FTE) equates to 2080 labor hours. Under the Amendments rule, a large complex facility could expend approximately half this much to comply with all Amendments rule requirements (including annualized labor costs of periodic provisions, such as STAA, coordination, etc.).



Components of the cost estimates for rule familiarization, emergency response coordination, and several other provisions were provided by public commenters in response to EPA requests for information made in the RMP Amendments proposed rule.

The analysis used a model facility approach so that each estimate represents the average for a group of facilities, not a point estimate for any one facility. This analysis has attempted to develop reasonable central estimates recognizing that the range of costs incurred by individual facilities could be wide. The number of people who would participate in field exercises will vary considerably based on facility size and location. Facilities of any size and complexity in urban industrial areas may involve more people in a field exercise than the same facilities would if located at a considerable distance from other facilities.

In this analysis, EPA has built from a baseline of compliance with the Amendments rule, and EPA has continued to use the 2015 RMP database, as was used for the Amendments RIA. Not switching to the most recent version of the RMP database is a potential source of error. However, while the 2017 RMP database is a better reflection of the current universe of RMP facilities than the 2015 version, the difference in the databases is generally small. See chapter 3 for a detailed comparison of the two data sets.

Chapter 5 estimates the avoided costs and Chapter 6 qualitatively describes benefits and foregone benefits of the Reconsideration rule. Even though benefits and foregone benefits could not be quantified because of lack of data, EPA believes the benefits and avoided costs are large enough to justify the foregone benefits.