Submitted to the US Environmental Protection Agency:

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PETITION TO THE ENVIRONMENTAL PROTECTION AGENCY TO EXERCISE ITS AUTHORITY UNDER SECTION 112(r) OF THE CLEAN AIR ACT TO PREVENT CHEMICAL FACILITY DISASTERS THROUGH THE USE OF SAFER CHEMICAL PROCESSES

Nearly thirty years after the disastrous release of methyl isocyanate from a chemical plant in Bhopal, India, and more than a decade after the attacks of September 11, 2001, brought home the vulnerability of U.S. chemical facilities to terrorist attacks that could cause similarly devastating releases of hazardous materials, many Americans remain at risk of death or injury from the unforeseen release of harmful chemicals from nearby industrial plants, water treatment facilities, and the like. To address this risk, the undersigned organizations and individuals hereby petition the Environmental Protection Agency (EPA), pursuant to the Administrative Procedure Act, 5 U.S.C. § 553(e), and section 112(r)(7)(A) of the Clean Air Act, 42 U.S.C. § 7412(r)(7)(A), to commence a rulemaking to require the use of inherently safer technologies, where feasible, by facilities that use or store hazardous chemicals.

Petitioners also request that, pending completion of a rulemaking under section 112(r)(7)A), EPA revise its guidance concerning the enforcement of the Clean Air Act's general duty clause, section 112(r)(1), 42 U.S.C. § 7412(r)(1), to make clear that the duty to prevent releases of extremely hazardous substances includes the use, where feasible, of safer technologies to minimize the presence and possible release of hazardous chemicals.

I. THE NEED FOR ACTION

A. MILLIONS OF AMERICANS ARE THREATENED BY POSSIBLE ACCIDENTAL RELEASES OF HAZARDOUS CHEMICALS.

The Bhopal tragedy, which killed thousands and injured hundreds of thousands, alerted the world to the potential magnitude of the consequences of a major release of hazardous substances from a chemical facility. In 1990, as a partial response to this threat, Congress enacted section 112(r) of the Clean Air Act, 42 U.S.C. § 7412(r), which provided EPA with new powers to address possible releases of extremely hazardous substances. Two decades later, however, Americans remain vulnerable to the risk of catastrophic releases of such materials—a risk that, we are increasingly aware, is magnified by the possibility that chemical facilities may be targets of terrorist attacks that may result directly in the release of deadly chemicals.

The scope of these hazards is revealed by information submitted to EPA by operators of facilities that use hazardous chemicals. Under Clean Air Act section 112(r)(7)(B), 42 U.S.C.

§ 7412(7)(B), EPA has promulgated regulations requiring facilities that possess more than threshold amounts of designated hazardous substances to submit risk management plans (RMPs) to EPA. The RMP regulations require facilities to identify "worst-case scenarios" that indicate how many people would be at risk of exposure in the event of a release of the hazardous materials that are on-site.

In April 2011, the Congressional Research Service analyzed the most recent information from RMPs submitted to EPA and found that there were 94 facilities across the country where a release of hazardous substances *would potentially affect a population of 1 million people or more.* Another 398 facilities placed between 100,000 and 1 million people at risk; over 2,000 more threatened between 10,000 and 100,000 people, and more than 4,500 could affect 1,000 to 10,000 people.[1]

Another illustration of the extent of the potential exposure of the public to hazardous releases is the Department of Homeland Security's (DHS) designation of nearly 5,000 U.S. chemical facilities as presenting a high risk of vulnerability to releases of hazardous substances. DHS has promulgated "chemical facility anti-terrorism standards" (CFATS) pursuant to legislation giving it interim authority to impose security measures on facilities that have threshold amounts of 322 designated hazardous chemicals, depending on DHS's determination of whether those facilities present a high level of risk.[2] Under the CFATS regulations, DHS has divided high-risk facilities into four tiers. According to a January 2012 analysis by the Congressional Research Service, as of September 2011, 4,589 facilities had been finally or tentatively designated has high-risk, with 102 in the first tier representing the greatest threat, 539 in the second tier, 1,290 in the third tier, and 2,638 in the fourth tier.[3]

The DHS designations of high-risk facilities substantially understate the public threat posed by concentrations of dangerous chemicals because many chemical facilities are excluded from the purview of DHS's CFATS regulations. Most notably, the CFATS regulations do not cover water treatment facilities, many of which use and store significant quantities of chlorine gas, a potent poison that can threaten death or injury to large numbers of people if released into the atmosphere. As of March 2010, an estimated 2,600 water treatment facilities nationwide continued to use large quantities of chlorine gas.[4] Also exempt from CFATS regulations are an undetermined number of facilities, including most refineries, that are nominally regulated under the Maritime Transportation Security Act.

Such concentrations of hazardous chemicals pose significant threats of releases as a result of accidents during normal operations. Illustrative examples abound. In 2011, the Center for Public Integrity and ABC News reported that 16 million Americans live within range of potential releases of clouds of toxic hydrofluoric acid from gasoline refineries, including 550,000 near a single plant in Texas City, Texas, and 2.2 million near a refinery outside Minneapolis,

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[1] Congressional Research Service, *RMP Facilities in the United States as of April 2011* (April 12, 2011).

[2] *See* Pub. L. No. 109-295, § 550 (2006); 6 C.F.R. Part 27.

[3] Congressional Research Service, *Chemical Facility Security: Issues and Options for the 112th Congress*, at 5 (Jan. 13, 2012).

[4] Reece Rushing, Paul Orum, *Leading Water Utilities Secure Their Chemicals* (March 2, 2010), http://www.americanprogress.org/issues/2010/03/chemical_security.html/

Minnesota. [5] A 2009 explosion at a refinery in Corpus Christi, Texas, resulted in the release of more than a ton of the material, and a much larger release was only narrowly avoided.[6] Other examples include a 2008 explosion and fire at a Bayer facility in West Virginia, which narrowly missed causing a breach in piping on the top of an above-ground tank of methyl isocyanate, which in turn would have resulted in a deadly release of the same chemical responsible to the Bhopal disaster.[7] In 2007, an explosion and fire at a Texas refinery resulted in the release of nearly three tons of chlorine gas, with deaths and injuries avoided only by prompt evacuation of workers.[8] A 2007 release of 900 pounds of chlorine gas in Tacoma, Washington, required closure of the entire Port of Tacoma and resulted in 25 hospitalizations, and other releases of chlorine associated with railway accidents have resulted in numerous deaths in recent decades.[9]

Natural disasters such as hurricanes, floods, and earthquakes also create the potential for releases of hazardous chemicals. For example, numerous releases of potential toxins, including several thousand pounds of ammonia from a food-processing plant, resulted from the 1989 San Francisco earthquake.[10] Flooding in Brazil in 1995 resulted in a massive release of ammonia from a chemical plant requiring the mass evacuation of a nearby city and causing numerous injuries.[11] As extreme weather events proliferate in the wake of global warming, such disasters will become increasingly likely.

Concentrations of hazardous chemicals at industrial and other sites also present obvious targets for terrorists. Analyses by federal security agencies indicate that the targeting of concentrations of chlorine gas or other hazardous materials could easily cause tens of thousands of deaths and hundreds of thousands of injuries in downwind areas. The National Academies of Sciences summed up the point in a 2006 report: "it is easy to determine that a single chemical event could cause catastrophic casualties."[12] Moreover, the dispersed nature of facilities storing hazardous chemicals, their large number, and the shipment of chemicals between them render it exceedingly difficult to ensure that such an attack cannot occur or succeed, and the close proximity of major facilities to large populations of potential victims makes the evacuation in the event of a release problematic, to say the least.

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[5] J. Morris, et al., *Use of toxic acid puts millions at risk* (Feb. 24, 2011), http://www.iwatchnews.org/2011/02/24/2118/use-toxic-acid-puts-millions-risk.

[6] *Id.*

[7] *See* National Research Council, *The Use and Storage of Methyl Isocyanate (MIC) at Bayer CropScience* (2012).

[8] R. Moure-Eraso, *It's time for government and industry to adopt inherently safer technology*, Charleston Gazettte, June 23, 2012, http://wvgazette.com/Opinion/OpEdCommentaries/201206230057.

[9] R. Jones, et al., *Chlorine Gas: An Evolving Hazardous Material Threat and Unconventional Weapon*, 11 West J. Emerg. Med. 151 (2010), http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2908650/.

[10] S. Young, et al., *Natural and Technologic Hazardous Material Releases During and After Natural Disasters: A Review*, 322 Science of the Total Environment 3, 11 (2004).

[11] *Id.* at 5.

[12] National Research Council, *Terrorism and the Chemical Infrastructure: Protecting People and Reducing Vulnerabilities* 99 (2006).

B. USE OF INHERENTLY SAFER TECHNOLOGIES CAN HELP ENSURE PROTECTION OF THE PUBLIC.

Technologies and processes to reduce the likelihood that hazardous materials will be released, and actions to minimize or mitigate the consequences of releases, are of course essential parts of any strategy to protect the public against harmful chemical exposures. But as long as hazardous materials remain present in sufficient quantities to cause injury, such measures always leave some remaining degree of risk, and often substantial risk, particularly given the possibility of such unpredictable factors such as terrorism or natural disasters that may negate the effectiveness of protective measures. By contrast, if a hazardous material is not present at a site, or not present in a quantity capable of causing harm, there is no possibility of a catastrophic release.

This intuitively obvious proposition underlies the concept of using safer materials and processes to avoid chemical hazards — that is, taking steps to eliminate or minimize extremely hazardous materials where feasible. As the American Chemical Society has stated:

> Inherently safer industrial technologies for the production, transport, and use of industrial and agricultural chemicals, pharmaceuticals, and both commodity and advanced materials is a vital concept that is currently the focus of significant activity in a wide range of forums in the industrial, academic, and governmental arenas. While many industrial processes and sectors use various definitions of this term, collectively, they capture a group of processes and technologies that improve safety by greatly reducing or eliminating hazards through a permanent and inseparable element of the process. Thus, safety is built into the process, not added on, and hazards are reduced or eliminated, not simply controlled.
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> Where feasible, inherently safer process technology can greatly reduce potential threats to public and worker safety, health, the environment and plant and public infrastructure from a variety of scenarios that might result in the release—fugitive or otherwise—of hazardous and toxic materials.
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> Many organizations involved in the chemical, pharmaceutical, and related process industries have strongly advocated and advanced inherent safety, supporting the work of professional societies and academic institutions, utilizing the concept in training chemists and engineers, and incorporating it into internal process safety management programs. Inherent safety is a well recognized engineering process concept that is based on the belief that a hazard can be moderated or eliminated, thereby reducing risk and possibly removing the risk altogether. Certainly an inherently safer system or technology can make hazardous events less likely and less intense if there is an accident. [13]

These considerations led the National Research Council of the National Academy of Sciences, in its influential 2006 report, *Terrorism and the Chemical Infrastructure: Protecting People and Reducing Vulnerabilites*, to recommend that "[t]he most desirable solution to

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[13] American Chemical Society, *Inherently Safer Technology for Chemical and Related Industrial Process Operations*, 2009-2012, http://portal.acs.org/portal/PublicWebSite/policy/publicpolicies/promote/ist/WPCP_011539.

preventing chemical releases is to reduce or eliminate the hazard where possible, not to control it. This can be achieved by modifying processes where possible to minimize the amount of hazardous material used, lower the temperatures and pressures required, replace a hazardous substance with a less hazardous substitute, or minimize the complexity of a chemical process."[14] More recently, in its report on the near-disaster at Bayer's West Virginia facility, the NAS has emphasized that the philosophy of inherently safer technology recognizes that "[i]t may not always be feasible to eliminate or reduce hazards, but … this [must] be attempted before moving on to specification of risk management equipment and procedures."[15] Inherently safer technologies not only "have the potential to reduce the probability or likelihood that a worst-case accident occurs," but also "to provide assurance that, should a worst-case release occur (i.e., the entire chemical inventory under worst meteorological conditions), an absolute upper bound to the magnitude of an offsite release exists, and that this upper bound is less severe than the worst-case accident resulting from conventional passive, active, and procedural controls."[16]

The success of the inherently safer technology approach depends on the availability and feasibility of alternatives to the use and storage of dangerous quantities of extremely hazardous substances. Practical experience demonstrates that such alternatives are, in many cases, readily available. Clorox, for example, announced in 2009 that it would eliminate the use of bulk amounts of chlorine gas in its bleach-manufacturing process, eliminating the possibility of large-scale releases from its facilities.[17] Similarly, a survey in March 2010 found that 554 water treatment facilities had converted from reliance on chlorine gas and other extremely hazardous substances to alternative technologies, such as the use of liquid bleach and ultraviolet light as disinfectants, although nearly 2,600 water and wastewater facilities continued to rely on chemicals that would endanger the public in the event of an accidental release.[18] Similarly, alternatives to the use of hydrofluoric acid in gasoline refining are available, yet one third of the nation's refineries continue to rely on it.[19] These examples illustrate both the feasibility of using inherently safer technology and the continuing need for requiring its adoption in the face of the inertia that leads owners and operators of particular facilities to hold to outmoded and dangerous practices even in the face of recognition in their own industries that there are feasible and cost-effective alternatives. The scope of the potential application of safer technologies in the prevention of accidents is indicated by a recent analysis of Chemical Safety Board accident investigation reports finding that the Board has addressed the potential application of safer technology to avoid such accidents in 90 of the serious accidents it has investigated.[20]

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[14] National Research Council, *Terrorism and the Chemical Infrastructure: Protecting People and Reducing Vulnerabilities* 7 (2006)

[15] National Research Council, *The Use and Storage of Methyl Isocyanate (MIC) at Bayer CropScience*, at 4-53 (2012).

[16] *Id.* at 4-57.

[17] M. McCoy, *Clorox to Stop Using Chlorine*, Chemical & Engineering News, Nov. 9, 2009, http://pubs.acs.org/cen/news/87/i45/8745notw2.html

[18] Rushing & Orum, *supra.*

[19] J. Morris, et al., *Use of toxic acid puts millions at risk* (Feb. 24, 2011), http://www.iwatchnews.org/2011/02/24/2118/use-toxic-acid-puts-millions-risk.

[20] U.S. Chemical Safety Board, *Inherently Safer: The Future of Risk Reduction* (July 11, 2012) (video), http://www.csb.gov/videoroom/detail.aspx?VID=66.

As the Association of American Railroads has put it, "We can no longer continue to risk the lives of millions of Americans by using, transporting and storing highly toxic chemicals when there are safer alternatives commercially available. It is time for the nation's big chemical companies to stop making the dangerous chemicals that can be replaced by safer substitutes or new technologies currently in the marketplace."[21]

C. Existing Regulations Do Not Require Use of Safer Technologies Even Where Readily Feasible.

Despite the clear benefits of using feasible technologies that do not result in concentrations of lethal chemicals that pose threats to the public, existing federal regulations governing chemical facilities fail to address the subject adequately. Although some states and local governments have attempted to step into this void, the issue is national in scope, and resource scarcity and competitive pressures may bar individual states from taking effective steps to protect their populations.

As noted above, EPA has invoked its authority under Clean Air Act section 112(r)(7)(B) to promulgate the RMP regulations, but those regulations are primarily procedural, requiring facilities to prepare and file planning documents with federal authorities; they do not impose substantive requirements to prevent chemical hazards through the use of safer technologies. Nor do the RMP regulations explicitly require facilities to systematically evaluate and document major technological options that can remove chemical hazards. Moreover, EPA's regulatory authority under section 112(r)(7)(B) does not reach all facilities that pose threats of release of hazardous chemicals, but only facilities that have more than threshold amounts of those chemicals that EPA has listed under section 112(r)(3).

EPA also has not, to date, broadly invoked the general duty clause in Clean Air Act section 112(r)(1), which requires owners and operators of chemical facilities to design and maintain safe facilities in such a manner as to prevent releases of hazardous chemicals, to require the use of available safer technologies and alternative materials and processes that would avoid risks to the public. EPA's existing guidance on the enforcement of the general duty clause does state that owners and operators of facilities "should try to substitute less hazardous substances for extremely hazardous substances or minimize inventories when possible" and recognizes that "[t]his is usually the most effective way to prevent accidents and should be the priority of a prevention program."[22] However, it does not appear that EPA has vigorously invoked the general duty clause to obligate facilities to recognize technological alternatives and to adopt feasible alternatives that *ensure* failsafe design and maintenance, or that industry recognizes this as a requirement under the general duty clause as currently enforced by EPA.

Nor do DHS's CFATS regulations address the use of inherently safer technology. DHS has authority to promulgate interim regulations applicable to chemical facilities, requiring them to implement performance-based site-security standards. *See* Pub. L. No. 109-295, § 550 (2006).

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[21] Association of American Railroads, *Homeland Security Committee urged to consider safer chemicals; Chemical companies should stop manufacturing extremely dangerous chemicals* (2008), http://www.greenpeace.org/usa/Global/usa/report/2008/2/railroads-in-favor-of-safer-te.pdf.

[22] EPA, Guidance for Implementation of the General Duty Clause Clean Air Act Section 112(r)(1), at 15 (2000).

Defending facilities as they currently exist against attack is not a substitute for designing them to be inherently safer. DHS has not required safer chemical processes that would prevent chemical releases that can occur not only as a result of security breaches, but also because of process accidents or natural disasters. Moreover, DHS is prohibited from requiring the use of any "particular security measure" in its CFATS regulations, *see id.* § 550(a), which would complicate any potential attempt to use DHS's authority to require use of specific safer processes and chemicals. Finally, DHS's authority does not extend to many facilities that use significant quantities of hazardous materials, most notably water treatment facilities, large numbers of which continue to rely on lethal chlorine gas. *See id.*

II. EPA HAS AUTHORITY TO ACT UNDER CLEAN AIR ACT SECTION 112(r).

Despite the inadequacy of existing regulatory measures, EPA has legal authority under existing statutes to take actions requiring safer technologies to reduce the possibility of catastrophic releases. In particular, section 112(r) contains two sources of authority: (1) EPA's hitherto unused authority under section 112(r)(7)(A) "to promulgate release prevention, detection, and correction requirements which may include monitoring, record-keeping, reporting, training, vapor recovery, secondary containment, and other design, equipment, work practice, and operational requirements." 42 U.S.C. § 7412(r)(7)(A); and (2) the "general duty clause," section 112(r)(1), which imposes an obligation on all owners and operators of facilities that use extremely hazardous substances to "design and maintain a safe facility taking such steps as are necessary to prevent releases, and to minimize the consequences of accidental releases which do occur," 42 U.S.C. § 7412(r)(1).

A. SECTION 112(r)(7)(A) AUTHORIZES EPA TO IMPOSE DESIGN AND OPERATIONAL REQUIREMENTS TO PREVENT RELEASES.

EPA's regulatory authority under § 112(r)(7)(A) directly provides EPA with regulatory authority to require chemical facilities to avoid or mitigate releases through the use of safer technologies. Section 112(r)(7)(A) provides the agency broad authority (which it has apparently never exercised) to regulate chemical facilities in order to prevent accidental discharges:

> In order to prevent accidental releases of regulated substances, the Administrator is authorized to promulgate release prevention, detection, and correction requirements which may include monitoring, record-keeping, reporting, training, vapor recovery, secondary containment, and other design, equipment, work practice, and operational requirements. Regulations promulgated under this paragraph may make distinctions between various types, classes, and kinds of facilities, devices and systems taking into consideration factors including, but not limited to, the size, location, process, process controls, quantity of substances handled, potency of substances, and response capabilities present at any stationary source. Regulations promulgated pursuant to this subparagraph shall have an effective date, as determined by the Administrator, assuring compliance as expeditiously as practicable.

42 U.S.C. § 7412(r)(7)(A).

The authority conferred by § 112(r)(7)(A) clearly encompasses the power to require the use of safer technology to reduce or eliminate quantities of extremely hazardous substances. The provision specifically authorizes the imposition of "design" and "operational" requirements, and

further authorizes EPA to make distinctions among facilities based on "process controls, quantity of substances handled, [and] potency of substances." This authority seems ideally suited to serve as the basis for regulations that require that facilities be designed and operated in such a manner as to minimize quantities of highly potent hazardous substances. And it permits regulation of any stationary source, thus permitting the agency to regulate without regard to whether "threshold" quantities of substances are present (as under regulations pursuant to § 112(r)(7)(B)) and without restrictions on the types of facilities subject to regulation (such as the limits imposed on DHS in establishing the CFATS regulations).

That EPA's authority under § 112(r) encompasses the power to require measures to prevent release through eliminating or minimizing the use of dangerous chemicals is fully consistent with the intent of the enacting Congress. As the Senate Report on the 1990 legislation that added § 112(r) to the Clean Air Act explains, such measures were viewed by Congress as the best way to achieve the statutory goal of preventing accidental releases:

> The objectives of the proposed section … include both the prevention of accidental releases and the minimization of the consequences which may result. Systems and measures which are effective in preventing accidents are preferable to those which are intended to minimize the consequences of a release. *Measures which entirely eliminate the presence of potential hazards (through substitution of less harmful substances or by minimizing the quantity of an extremely hazardous substance present at any one time), as opposed to those which merely provide additional containment, are the most preferred.*

S. Rep. No. 101-228, at 209, 1990 U.S.C.C.A.N. 3385, 3594 (emphasis added).

EPA's regulatory authority under § 112(r)(7)(A) extends broadly to "accidental releases" of covered chemicals. Moreover, the statutory definition of "accidental releases" does not preclude the agency from requiring safer chemical technology simply because such measures would reduce the likelihood and possibility of releases caused by terrorist attacks as well as releases caused by other types of accidents. For purposes of § 112(r), an "accidental release" is defined as "an unanticipated emission of a regulated substance or other extremely hazardous substance into the ambient air from a stationary source." 42 U.S.C. § 7412(r)(2)(A). Proponents of the view that EPA should not use its authorities under section 112(r) to require safer technologies have argued that this definition does not allow EPA to take action based on the possibility of releases caused by terrorism, because such releases are not "unanticipated" from the standpoint of the terrorists. The argument is incorrect for several reasons.

To begin with, although the use of safer technologies would be highly beneficial in reducing the likelihood and possibility of catastrophic releases caused by terrorism, it would be equally effective in preventing and mitigating the consequences of "traditional" accidents not caused by terrorism, such as the Bhopal release that was among the motivating factors in the enactment of § 112(r).[23] Thus, EPA's authority to use its section 112(r) powers for this purpose

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[23] Indeed, the cause of the Bhopal disaster was a controversial issue, and at the time of the legislation Union Carbide had blamed sabotage, although the Indian government and independent experts disagreed. *See Theory of Bhopal Sabotage Is Offered*, N.Y. Times, June 23, 1987, http://www.nytimes.com/1987/06/23/world/theory-of-bhopal-sabotage-is-offered.html?pagewanted=all&src=pm; *Disaster in Bhopal Laid to Sabotage: Study Blames Worker at Carbide Facility*, L.A. Times, May 11, 1988, http://articles.latimes.com/1988-05-11/business/fi-

does not depend on whether releases resulting from terrorism are "accidental" within the meaning of the statute.

In any event, the argument that EPA may not consider the potential for releases caused by terrorism in using its authority to require prevention of "accidental releases" is not well-founded. The definition of "accidental releases" can easily be construed to encompass accidents that result from terrorism. In providing that an "accidental release" is one that is "unanticipated," the statute does not specify *by whom* it must be unanticipated. Given that the focus of the general duty clause is on owners and operators of facilities, however, the most natural reading of the clause would be that the definition is aimed at releases that are unanticipated *from the standpoint of facility owners and operators* (as opposed to releases that are a regular part of their operations, which are subject to CAA permitting requirements).

Such an interpretation would also be in accord with the way similar terms are treated in an analogous context in which legal consequences are attached to whether an event is "accidental": liability insurance, in which coverage typically is available unless an accident is "expected or intended from the standpoint of the insured."[24] By incorporating a similar concept of "accidental" in § 112(r), Congress likely intended to adopt a similar view of the standpoint from which whether an event was "unanticipated" should be determined.

At worst, the statute is ambiguous as to the standpoint from which an "accidental release" must be "unanticipated." In light of the possible ambiguity, an EPA determination that "unanticipated" means "unanticipated from the standpoint of the facility's owner or operator" would at least be entitled to deference under *Chevron U.S.A., Inc. v. NRDC*, 467 U.S. 837 (1984). In light of the statute's purposes of protecting the public against catastrophic releases, its delegation of broad authority to the agency, and its language, courts would be required to defer to EPA's assertion of such authority.

Moreover, confirmation that Congress anticipated and approved of the possibility that EPA's authority under §112(r) could protect the public against the effects of accidental releases resulting from terrorist attacks on chemical facilities as well as other types of accidental releases can be found in language added to the subsection by the Chemical Safety Information, Site Security and Fuels Regulatory Relief Act of 1999, Pub. L. No. 106-40, 113 Stat. 207. Among other things, that legislation added a new provision, § 112(r)(7)(H)(ix), requiring the Attorney General to "submit to Congress a report that describes the extent to which regulations promulgated under this paragraph have resulted in actions, including the design and maintenance of safe facilities, that are effective in detecting, preventing, and minimizing the consequences of releases of regulated substances that may be caused by criminal activity." 42 U.S.C. § 7412(r)(7)(H)(ix). The provision supplies express congressional recognition that EPA actions respecting "accidental releases" under the regulatory authority granted by § 112(r)(7) should be "effective" in addressing releases "caused by criminal activity" (including terrorism).[25] The

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2522_1_carbide-disaster-bhopal. It would be an odd reading of the statute to exclude from its coverage one of the possible causes of the exact type of accident that gave rise to its passage.

[24] *See* Jon Kalmuss-Katz, *Eco Anti-Terrorism: EPA's Role in Securing our Nation's Chemical Plants*, 18 N.Y.U. Envtl. L.J. 689, 709 & n.109 (2011).

[25] The reference to "this paragraph" in section 112(r)(7)(H)(ix) refers to paragraph (7) of subsection (r). Thus, the provision expressly refers to EPA's regulatory authority under § 112(r)(7).

provision offers strong support that EPA may consider the effectiveness of its actions to prevent such releases, as well as their impact on other types of accidental releases, when exercising its powers under § 112(r).

The use of EPA's regulatory authority under section 112(r)(7)(A) would be particularly appropriate in addressing the subject of inherently safer technology, because, by allowing the agency to "make distinctions between various types, classes, and kinds of facilities, devices and systems," that provision provides the agency with the needed flexibility to take into account the many considerations that are necessary to determine when the use of safer technology is appropriate (and when it should be mandated). Section 112(r)(7)(A) also provides the agency with the ability not only to announce a generally applicable standard, but also to issue specific rules applicable to specific types of facilities and chemicals that pose particular hazards and for which there are readily available safer technologies (e.g., water treatment facilities that use chlorine gas). Regulations under § 112(r)(7)(A) could also incorporate requirements that site owners and operators perform written assessments of the hazards posed by regulated substances used on-site, and the potential for their replacement or minimization through the use of feasible alternative materials and processes; in addition, regulations could authorize EPA to require use of such alternatives if, upon review of such an assessment, the agency found that such a change would have significant benefits for public health and safety and would be feasible and not unreasonably costly.[26] Use of the agency's regulatory authority to promulgate such requirements would provide site owners and operators with clear standards facilitating compliance and enforcement, and the notice-and-comment process leading to promulgation of regulations would allow all stakeholders and interested members of the public to have a voice in developing the standard that emerged.

B. The General Duty Clause Provides Additional Authority Allowing EPA to Take Action Now to Address Unsafe and Unnecessary Concentrations of Hazardous Chemicals.

As a complementary measure that could be implemented while the rulemaking process goes forward, or in the alternative to a rulemaking, petitioners request that EPA issue guidance making clear that the general duty clause of Clean Air Act section 112(r)(1) itself requires the use of inherently safer technology where it would be feasible and would reduce grave risks of accidental discharges resulting from process upsets, natural disasters, and terrorist attacks or other criminal acts.

The general duty clause imposes a requirement that all chemical facility owners and operators take measures to prevent "accidental releases" of extremely hazardous substances—including measures that relate to the design and maintenance of their facilities and that minimize the consequences of releases. The statutory provision itself creates a legally enforceable duty that is effective without implementing regulations. Because implementing regulations are not necessary under the general duty clause, EPA has provided direction to its enforcement personnel, and to facilities that must comply with the clause, through "guidance" that explain how it will enforce the clause.

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[26] One possible model for requirements that could be imposed through EPA's regulatory authority would be the provisions of § 2111 of H.R. 2868, the Chemical and Water Security Act of 2009, which passed the House of Representatives in 2009.

EPA's existing guidance does not clearly emphasize that the general duty clause requires use of safer technology, including less hazardous chemicals, that would prevent hazardous releases and mitigate their consequences by reducing the presence of hazardous materials, and neither EPA enforcement efforts nor industry practice have broadly recognized that the clause incorporates such a requirement. The language of the statute, however, readily encompasses, and even requires, a reading under which the general duty clause mandates the avoidance of releases through the recognition and use of reasonably available technology that would prevent them. The clause, on its face, requires that the "design" of facilities be such as to "prevent releases" and "minimize the consequences of accidental releases that do occur." Designs that prevent releases and minimize their consequences by using available technology to reduce or eliminate the use of extremely hazardous materials fall readily within the scope of that language.

The general duty clause further requires site owners and operators to use "appropriate hazard assessment techniques" to identify hazards posed by their facilities, and then take steps to address those identified hazards through the design of their facilities. This language is perfectly suited to convey a requirement that chemical facilities analyze the risks posed by the presence of concentrations of hazardous chemicals and consider, and, if appropriate, implement measures to reduce them through the use of feasible substitutes. Indeed, the Congress that enacted the general duty clause so recognized. The House Conference Report on the legislation expressly stated that hazard assessments required by § 112(r) "shall include ... a review of the efficacy of various release prevention and control measures, including process changes or substitution of materials." H.R. Conf. Rep. No. 101-952, at 349, 1990 U.S.C.C.A.N. 3867, 3872.

The general duty clause, like EPA's authority to regulate to prevent releases under section 112(r)(7), is applicable to "accidental releases." For the reasons stated above, the statutory definition of "accidental releases" does not in any way limit EPA's authority to use the general duty clause to require appropriate uses of safer technology to reduce the likelihood and mitigate the consequences of catastrophic releases, regardless of whether releases caused by terrorist attacks are among the releases EPA seeks to prevent. Any reliance on the general duty clause to impose such requirements must, of course, be consistent with other limitations on the scope of the general duty clause. Principal among those limitations is that the duty to identify and avoid hazards under §112(r)(1) is qualified by language incorporating standards applicable under the Occupation Safety and Health Act's general duty clause. That is, § 112(r)(1) provides that chemical facility owners and operators have a general duty to identify and address risks "in the same manner and to the same extent as section 654 of Title 29" (the OSH Act's general duty clause). 42 U.S.C. § 7412(r)(1).

The OSH Act's general duty clause has been construed to require employers to protect workers against hazards that are "recognized" within their industries. *Duriron Co. v. Sec. of Labor*, 750 F.2d 28 (6th Cir. 1984). Arguably, § 112(r)(1)'s statement that the general duty to avoid and mitigate accidental releases exists "in the same manner and to the same extent" as the general duty under the OSH Act indicates that a general duty clause violation would require that a chemical facility had disregarded a "recognized" hazard.

Assuming that reading of the statute is correct, it would not pose an obstacle to the use of the general duty clause to require appropriate uses of inherently safer technology to avoid or mitigate accidental releases by reducing or eliminating extremely hazardous substances. The hazards posed by unnecessary use and storage of large quantities of such substances are clearly

"recognized," as actions by some facilities to eliminate unnecessary hazards (such as gaseous chlorine) demonstrate. The general duty clause requirement of recognition of feasible alternatives assuredly encompasses generally accepted industry practices, including the safer design practices of industry leaders as well as technologies that are widely commercially available. Moreover, EPA's listing of hazardous substances under Clean Air Act § 112(r)(3), and the regular reporting by facilities (pursuant to risk management plans required under regulations promulgated under § 112(r)(7)(B)) of worst-case scenarios for the release of such substances, also demonstrate that the hazards that EPA would be addressing under the general duty clause are widely recognized. Guidance on the use of safer technology to avoid or mitigate hazardous releases would easily comply with the limitation imposed by the incorporation of the OSH Act standard, as long as the agency's guidance addressed materials (and quantities of those materials) that are recognized to be hazardous.

Like regulations under section 112(r)(7), guidance implementing the general duty clause would be most helpful to site owners and operators who must comply with the general duty to avoid releases, as well as to EPA enforcement personnel and the general public, if it not only set forth a general standard for the use of inherently safer technology, but also addressed specific examples of facilities and substances that could trigger enforcement. Because the greatest risks to large numbers of members of the public appear to be posed by only a small number of hazardous substances, guidance could place a priority on addressing the use of those materials and outline specific circumstances where the general duty clause might require substitution of other materials or processes. Such guidance would also avoid anticipated criticism that the agency is imposing vague and open-ended requirements that could lead to arbitrary enforcement.

Finally, even after regulations under section 112(r)(7) are promulgated, the agency should recognize that the general duty clause has a continuing role to play. Unlike section 112(r)(7)(A), which provides regulatory authority only with respect to "regulated substances" (i.e., those designated under section 112(r)(3)), the general duty clause applies not only to substances listed under section 112(r)(3), but also to "any other extremely hazardous substance." 42 U.S.C. § 7412(r)(1). The general duty clause thus gives the agency flexibility to address dangers posed by newly developed chemicals as well as by existing hazardous chemicals that did not meet section 112(r)(3)'s criterion of "posing the greatest risk." 42 U.S.C. § 7412(r)(3). Reserving the ability to exercise its powers under the general duty clause would give EPA the ability to proceed against potential risks that might otherwise fall through the cracks in the agency's regulatory authority under § 112(r)(7).

CONCLUSION

In outlining the policies his Administration would implement if he were elected, President Obama stated that his Administration would "[s]ecure our chemical plants by setting a clear set of federal regulations that all plants must follow, including improving barriers, containment, mitigation, and safety training, and, where possible, using safer technology, such as less toxic chemicals."[27] The President, Vice President, and other Administration officials have repeatedly stated their support for inherently safer technology requirements. Former EPA Administrator Christine Todd Whitman has recently called upon EPA to exercise its powers under the section 112(r) to

[27] *Change We Can Believe In: Barack Obama's Plan to Renew America's Promise*, at 116 (2008).

address chemical threats,[28] and Chemical Safety Board Chair Rafael Moure-Eraso has called upon EPA to make enforceable requirements for the use of safer chemicals and processes "a cornerstone of its accident prevention programs."[29] As elaborated above, such requirements are necessary to protect the public against possible chemical releases, including those that may be caused by terrorist attacks, and are well within EPA's existing authority under section 112(r) of the Clean Air Act.

For these reasons, petitioners respectfully request that EPA grant this petition, commence rulemaking proceedings under Clean Air Act section 112(r)(7), and take action to revise its guidance for enforcement of the general duty clause of Clean Air Act section 112(r)(1). Petitioners request that EPA, in compliance with its obligations under the Administrative Procedure Act,[30] proceed expeditiously to consider this petition within a reasonable time, considering the grave matters of public safety at stake.

Respectfully submitted,

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[28] *See The Danger Downwind*, N.Y. Times, May 23, 2012, http://www.nytimes.com/2012/05/24/opinion/the-danger-downwind-of-chemical-plants.html.

[29] R. Moure-Eraso, *It's time for government and industry to adopt inherently safer technology*, Charleston Gazettte, June 23, 2012, http://wvgazette.com/Opinion/OpEdCommentaries/201206230057.

[30] See 5 U.S.C. §§ 555(b), 706(1).

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"PETITION TO THE ENVIRONMENTAL PROTECTION AGENCY TO EXERCISE ITS AUTHORITY UNDER SECTION 112(r) OF THE CLEAN AIR ACT TO PREVENT CHEMICAL FACILITY DISASTERS THROUGH THE USE OF SAFER CHEMICAL PROCESSES"

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