State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF RELEASE PREVENTION
401 East State Street
P.O. Box 420, Mail Code 22-03D
Trenton, New Jersey 08625-0420
Tel. (609) 633-0610 • Fax (609) 633-7031
www.nj.gov/dep

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

SHAWN M. LATOURETTE
Commissioner

July 14, 2021

Online submission to the Federal eRulemaking Portal: http://www.regulations.gov
Docket ID No. EPA–HQ–OLEM–2021–0312

Ms. Deanne Grant
Regulations Implementation Division
Office of Land and Emergency Management (5104A)
Office of Emergency Management
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, D.C. 20460

Re: Accidental Release Prevention Listening Session
Docket ID No. EPA–HQ–OLEM–2021–0312

Dear Ms. Grant:

The New Jersey Department of Environmental Protection ("Department") appreciates the opportunity to submit comments and suggestions pertaining to the review of EPA's Risk Management Program (RMP) regulatory revisions adopted since 2017 and to address new priorities, as directed under Executive Order 13990.

The Department is one of the first regulatory agencies in the country to enact process safety management rules and has implemented an accidental release prevention program following the adoption of New Jersey's Toxic Catastrophe Prevention Act ("TCPA") on January 8, 1986, codified in N.J.A.C. 7:31 In 1998, the Department readopted the TCPA Program rules and incorporated the Federal 40 CFR Part 68 rules by reference with specified changes. The Department received delegation as the implementing agency for the Risk Management Program regulations on July 3, 2001.

Currently, the Department oversees compliance of 92 facilities subject to the TCPA Program rules. These facilities encompass a wide range of industries such as chemical manufacturing, petroleum refining, water and wastewater treatment, refrigeration/cold storage, power generation, and chemical warehouse/distribution. The TCPA Program's Chemical Safety

Engineers conduct compliance inspections and audits at the subject facilities every one to three years.

The Department supports repealing the December 2019 RMP rule rollback and reinstating the January 2017 final rule requirements adopted under the Obama administration. A summary of the Department's recommendations for additional requirements in the RMP rule, 40 CFR Part 68, is provided below. Please refer to Attachment 1 which provides a detailed discussion of these recommendations. The Department strongly believes that it is vital to examine and address these areas as part of the rule amendment process.

1. Climate-related prevention and safety measures to protect communities and workers

Require owners or operators to develop Climate Resiliency Plans to evaluate mitigation measures for their facilities to prevent incidents resulting from climate change.

2. Emergency response exercises

Require facilities to perform at least one annual full-scale emergency response (ER) exercise in which the ER team and ER containment, mitigation, and monitoring equipment are deployed at a strength appropriate to demonstrate the adequacy and implementation of the ER plan.

3. ***Expanding coverage of the RMP program to more facilities***

A. Threshold quantity (TQ) applicability:

i. Base TQ applicability on the total chemical inventory at the entire facility (stationary source) (the sum of the regulated substance inventory of all covered processes at the facility) instead of an individual covered process at the facility.

ii. Use the hourly generation rate of the regulated substance (i.e. the rate at which a regulated substance is created in a reaction process), or the amount of the regulated substance that can be released in one hour from any equipment within a covered process (i.e. the flow rate of regulated substance through piping or equipment) in addition to the current EPA rule requirement of only instantaneous static inventory.

B. Reactive Hazard Substances

Expand the list of regulated substances to include Reactive Hazard Substances (RHS). Include:
- individually listed highly reactive substances, and
- RHS mixtures, substances with specified functional groups that have a high heat of reaction in the intentional mixing of two or more chemicals in a process.

4. Expand the process hazard analysis to include Risk Assessment:
- implement a semi-quantitative method that is similar to layer of protection analysis (LOPA)
- quantify the release amount from the scenarios identified in the process hazard analysis
- model the scenarios in a consequence analysis to determine the impact distance

- determine the release likelihood of scenarios that have offsite impact
- implement risk reduction measures to reduce the consequences or likelihood of off-site scenarios that exceed specified likelihood criteria.

5. Require all facilities to implement Program 3 prevention programs; eliminate Program 2 for simpler prevention programs for facilities that are not in specified NAICS code for Program 3

6. Require all facilities to conduct Safer Technology Alternatives Analysis, not just those in select NAICS codes

7. Expanding the application of environmental justice in the RMP

The Department believes that RMP's should address issues related to Overburden Communities (OBC's). New Jersey's Environmental Justice Law (EJ Law), N.J.S.A 13:1D-157, which was signed by Governor Phil Murphy on September 18, 2020, requires the Department to evaluate the contributions of certain facilities to existing environmental and public health stressors in OBC's. The Department plans to evaluate how to effectively implement the EJ Law into facility RMP's.

If you have any questions regarding these comments, please contact me at (609) 633-0610.

Sincerely,

Paul Komosinsky

Paul Komosinsky
Chief, Bureau of Release Prevention
Department of Environmental Protection

Attachment 1

1. Climate-related prevention and safety measures to protect communities and workers

The Department agrees that owners or operators should begin to evaluate mitigation measures for their facilities to prevent incidents resulting from climate change. Therefore, the Department plans to propose rules to address Governor Murphy's Executive Order No. 100 (2020) and Commissioner McCabe's Administrative Order 2020-01 by requiring the owner or operator of facilities to prepare, submit, and implement a Climate Resiliency (CR) plan. New Jersey's Executive Order (EO) No. 100 (2020) requires that the Department integrate climate change considerations, such as sea level rise, into its regulatory and permitting programs, including but not limited to, land use permitting, water supply, stormwater and wastewater permitting and planning, air quality, and solid waste and site remediation permitting. The executive order states in paragraph 2 that within 30 days of the date of the order, the DEP Commissioner shall issue an administrative order. Commissioner McCabe issued Administrative Order (AO) 2020-01 that requires each Assistant Commissioner to identify climate change and resiliency activities to be included in Department planning efforts. Planned rule proposals will specifically address paragraph 3 of AO 2020-01, which requires revision to regulations that would be appropriate to incorporate climate change considerations and plans for climate change education and communications with the regulated community through implementation of the CR plan.

The CR plan provisions being considered will not require the owner or operator to immediately implement mitigation measures. Instead, it is intended to promote awareness and planning at facilities. The CR plan should identify layers of protection against such things as rising sea level, increased rainfall, and extreme weather events which result from climate change. In the CR plan, facilities should propose layers of protections against those changes described in the Department's report, "2020 New Jersey Scientific Report on Climate Change." Active protection such as use of engineering controls should be described in the CR plan. The plan should also describe administrative controls such as operating procedures, administrative checks, emergency response, and other management approaches to protect the facility and the environment from the effects of climate change. Owners and operators of facilities may refer to reports published by the Department for more scientific information regarding climate change to further assess how the facility might be affected by climate change. Additionally, they may reference other reputable sources including, but not limited to, the "U.S. Chemical Safety and Hazard Investigation Board's 2020 Hurricane Season: Guidance for Chemical Plants During Extreme Weather Events" for guidance in assessing the facility's response.

The Department will continue to closely monitor the evolution of climate science and evaluate rules in accordance with the best available science. For example, in accordance with Executive Order No. 89 (2019), the Department's Climate and Flood Resilience Program is required to develop a report on the best available science regarding the anticipated effects of climate change in New Jersey. The order requires that the scientific report be updated as necessary every two years after the initial publication date. The Department intends that facilities will be required to utilize data and tools from the Department's Climate Change website (https://www.nj.gov/dep/climatechange) or other current scientific resources.

Facilities may evaluate sea level rise using mapping tools and data provided by the Department or other sources. In the planned proposed rules, the Department is considering requiring facilities to map and evaluate cases for short, medium, and long-term projections for specified years from 2030 through 2100.

2. Emergency response exercises

The Department recommends requiring facilities to perform at least one annual full-scale emergency response (ER) exercise in which the ER team and ER containment, mitigation, and monitoring equipment are deployed at a strength appropriate to demonstrate the adequacy and implementation of the ER plan. Also, for each ER exercise, facilities must prepare a written assessment of the ER plan, of the adequacy of notification to outside agencies and the public, and of the adequacy or need for ER equipment.

It is important that facilities that actively respond to releases have hands-on practice once a year due to frequent turnover of all personnel including operators, maintenance, emergency responders, supervisors, and managers. All personnel must routinely exercise the emergency response program. Facilities should attempt to invite other outside responding agencies to participate each year, but it is understood that the outside agencies may not be able to participate each year. The Department recommends revising the proposed § 68.96(b) to coincide with the requirements in N.J.A.C. 7:31-5.2(b)2. Pursuant to N.J.A.C. 7:31-5.2(b)2, each owner or operator must perform at least one emergency response (ER) exercise involving the regulated substance per calendar year in accordance with the following provisions:

> A. An owner or operator of a facility whose employees will not respond to an EHS accident in accordance with 40 CFR 68.90(b) must invite at least one outside responder agency designated in the ER plan to participate in the ER exercise. Facility employees must perform their assigned responsibilities for all ER exercises.
> (In this case, the facility must invite outside responders designated in their Emergency Response Plan. However, outside responders may not be able to attend the exercise. Nonetheless, facility personnel still must simulate their emergency procedures such as notifications, emergency shutdown, etc.)
>
> B. All other owners or operators (i.e. facilities whose employees will respond) must perform at least one full scale ER exercise in which the ER team and ER containment, mitigation, and monitoring equipment are deployed at a strength appropriate to demonstrate the adequacy and implementation of the plan.

3. *Expanding coverage of the RMP program to more facilities.*

A. Threshold quantity (TQ) applicability:

i. Base TQ applicability on the total inventory at the entire facility (stationary source) (the sum of the regulated substance inventory of all covered processes at the facility) instead of an individual covered process at the facility.

TCPA requires facilities that have an EHS above a threshold quantity at the facility to have a risk management program (RMP). Therefore, a facility must count the total aggregate quantity of an EHS at the facility when determining threshold quantity applicability, regardless of where or how the EHS is stored. This prevents facilities from segregating inventory of an EHS solely for the purpose of evading the rules. Every process having an EHS must implement an RMP; however, the depth and complexity of complying with each of the elements of the RMP will vary depending on the complexity of the individual process. For example, the level of detail for risk management program documentation involving elements such as process safety information, standard operating procedures, process hazard analysis/risk assessment, maintenance requirements, and training will be less complex for a storage area than for a complex reaction process.

Separation of equipment and/or processes could be considered an inherently safer method; however, the concept is similar to implementing process safeguards and layers of protection such as installing detection and automatic shutdown systems, mitigation systems, or adding inhibitors to reactives. The separation of equipment is an administrative method that requires ongoing implementation of elements such as a management system, standard operating procedures, training, and management of changes to make it work effectively, (in other words, a risk management program). Also, separating equipment or inventory to fall below regulatory threshold requirements should not be done without careful consideration. For example, location in relation to the property line, the public, other equipment, and other stored materials must be considered so that applicable codes and standards are being followed and that the risk of an accidental release is not increased. However, for insignificant amounts handled at a separate section of a facility, the facility should implement risk management program requirements in a level of detail appropriate for inconsequential amounts.

ii. Use the hourly generation rate of the regulated substance (i.e. the rate at which a regulated substance is created in a reaction process), or the amount of the regulated substance that can be released in one hour from any equipment within a covered process (i.e. the flow rate of regulated substance through piping or equipment) in addition to the current EPA rule requirement of only instantaneous static inventory.

Threshold quantity applicability under the EPA rules is determined only by the instantaneous static inventory of a regulated substance in a process. The TCPA statute explicitly includes both “generation” and “storage and handling” of extraordinarily hazardous substances as regulated activities. Under the TCPA program rules, the inventory to determine threshold quantity applicability is the greatest of the instantaneous static inventory of the EHS contained and stored, the hourly generation rate of the EHS, or the amount of the EHS that can be released in one hour from any EHS equipment. Several owners or operators are subject to the TCPA Program rules because one or more of their processes generates, or is capable of generating, an EHS at threshold quantities over a one-hour period of time. For example, New Jersey water purveyors using ozone to disinfect potable water are affected by this if their processes are capable of generating ozone at threshold quantities is. Because ozone is not a Federally regulated substance, these owners and operators come under the purview of the TCPA rules

solely because ozone is a State-regulated EHS generated by their processes. Another example is the regulation of hydrogen sulfide at petroleum refineries. For example, if hydrogen sulfide is generated at a high rate, but the instantaneous static inventory within vessels or piping is relatively low. In such a case, a large release could occur if equipment fails before the process is shut down.

B. Reactive Hazard Substances

Expand the list of regulated substances to include Reactive Hazard Substances (RHS). Include:
- individually listed highly reactive substances
- RHS mixtures, substances with specified functional groups that have a high heat of reaction in the intentional mixing of two or more chemicals in a process.

The list of regulated substances should be expanded to include reactive hazard substances. In 2003, the Department added certain reactive hazard substances as extraordinarily hazardous substances listed in Table I, Part D in N.J.A.C. 7:31-6.3, thus making them subject to the TCPA rules at listed threshold quantities. Investigations of the accidents at two New Jersey companies, Napp Technologies in 1995 and Morton International in 1998, identified reactive substances as contributors to the root cause of these accidents and raised concerns about reactive hazards to a national level. In addition, as reported in its October, 2002 publication, the United States Chemical Safety and Hazard Investigation Board concluded that out of 167 incidents that occurred between 1980 and 2001, over 50% involved reactive hazards. On April 22, 2014, the U.S. Chemical Safety Board (CSB) released preliminary findings into the April 17, 2013, West Fertilizer explosion and fire in West, Texas, which resulted in at least14 fatalities, 226 injuries, and widespread community damage. The CSB's investigation focuses on shortcomings in existing regulations, standards, and guidance at the federal, state and county level. Previously, on August 20, 2013, the CSB released a video safety message calling for regulatory coverage of reactive chemicals following the massive ammonium nitrate explosion that killed at least 14 people and devastated the town of West, Texas, on April 17, 2013. The safety message also describes other serious reactive chemical accidents investigated by the CSB since its 2002 study. These include a December 19, 2007, explosion and fire at T2 Laboratories in Jacksonville, Florida; a January 31, 2006, explosion at the Synthron chemical manufacturing facility in Morganton, North Carolina; and an April 12, 2004, toxic release at MFG Chemical in Dalton, Georgia.

Reactive substances are classified as those that can cause a dangerous release of heat, energy, toxic vapors or gases when exposed to conditions that may occur in either normal or abnormal situations. Although an explosion or fire involving a reactive hazard substance is more directly responsible for off-site harm, some amount of the reactive hazard substance will be released into the environment. Examples of reactive substances are 1) spontaneously combustible materials, 2) water reactive substances, and 3) flammable solids. The term reactive hazard substance is defined at N.J.A.C. 7:31-1.5 as follows: "Reactive hazard substance" or "RHS" means an EHS that is a substance, or combination of substances, which is capable of producing toxic or flammable EHSs or undergoing unintentional chemical transformations producing energy and causing an extraordinarily hazardous accident risk. RHSs are identified at N.J.A.C. 7:31-6.3(a), Table I, Part D, Group I (List of Individual Reactive Hazard Substances).

The Department considered the circumstances under which a reactive hazard substance could be classified as an EHS and cause a catastrophic accident and determined that there are two likely scenarios. The first scenario involves unintentional reactions caused by the inherent properties of the chemical itself. These chemicals may be unstable or self-reacting, or may react if they are unintentionally exposed to air or water. In the second scenario, the accident is caused by intentional mixing of two or more chemicals in a process. In order to identify the chemicals that may be involved in each scenario, the Department reviewed several technical sources to determine which chemicals or chemical functional groups, as defined in N.J.A.C. 7:31-1.5, have the potential to cause these unintentional and intentional reactions that would impact the public beyond the property boundary of the stationary source.

In developing its list of reactive Extraordinarily Hazardous Substances that are likely to cause unintentional reactions, the Department reviewed existing lists of reactive substances compiled by nationally recognized fire protection and emergency response agencies. The Department first reviewed the National Fire Protection Association (NFPA) lists of substances contained in the NFPA's Fire Protection Guide to Hazardous Materials (Thirteenth Edition). The NFPA Section 704, Identification of the Hazards of Materials for Emergency Response, categorizes substances by the type and the degree of hazard (from the lowest level-1 to the highest level-4) posed by the substance. Chapter 7 of that document discusses instability hazards and defines each of the four degrees of hazard associated with unstable materials. The Department focused on the NFPA 4 unstable substances and substances that NFPA classifies as water reactive substances. The NFPA 4 unstable substances are defined as materials which, in themselves, without an initiating force, are readily capable of detonation or explosive decomposition or explosive reaction at normal temperatures and pressures. The water reactive substances release energy when combined with water causing an explosive reaction.

The Department also reviewed the lists of spontaneously combustible, flammable solids, and dangerous when wet materials on the United States Department of Transportation's (USDOT) Hazardous Materials Table at 49 CFR 172. The Department focused on these lists, 49 CFR 172.101, Class 4, Divisions 4.1, 4.2, and 4.3, because of their potential to be involved in a hazardous chemical reaction.

The NFPA 4 unstable substances and the list of water reactive substances and the three USDOT Class 4 lists at 49 CFR 172.101 were then further evaluated in light of their chemical composition and their potential impact on the health and safety of the public. To accomplish this, the Department reviewed L. Bretherick's Handbook of Reactive Chemical Hazards (Sixth Edition, 1999), recognized as an authoritative source on the reactive hazards of chemicals. Bretherick's handbook, lists specific classes of chemicals, which contain functional groups that present an inherent hazard by themselves or when reacted with other chemicals. As defined at N.J.A.C. 7:3-1.5, these functional groups represent chemical compounds that have similar structural, molecular features, which impart similar physical characteristics or reactive properties to the compounds in that group (i.e. peroxides, halites, n-nitroso compounds). The Department reviewed the chemical composition of each of the unstable substances listed on the NFPA 4 list, water reactive substances list and the USDOT Hazardous Materials Table Class 4.1, 4.2 and 4.3 lists to determine whether they contained one of the functional groups. By comparing the list of functional groups to the NFPA 4 unstable substances, the water reactive substances and the

substances on the 3 USDOT lists, the Department retained the substances that present a severe hazard to the public. Those substances containing a listed functional group are listed as EHSs in Table I, Part D, Group I, List of Individual Reactive Hazard Substances under N.J.A.C. 7:31-6.3(a).

In addition to the chemical classes identified by Bretherick, the Department reviewed accident histories involving reactive hazards to identify additional functional groups to be regulated. The Department then reviewed the NFPA and USDOT lists to select additional substances that should be added to the list of individual reactive hazard substances inTable I, Part D, Group I. As a result of this review, the Department included in this list the following chemicals that contain the dithionite functional group: calcium dithionite, sodium dithionite, and potassium dithionite. These dithionites were selected because of their accident history and their reactive, spontaneous decomposition and explosive properties.

Along with each reactive hazard substance listed in Table I, Part D, Group I, the Department developed a threshold quantity, which if met, would trigger coverage under the TCPA program. The thresholds are based on the amount of reactive hazard substance needed to impact the public beyond an assumed property boundary of 100 meters using an overpressure value of 2.3 pounds per square inch (psi). The 100 meters represents an average distance from the covered process to the property line for facilities in New Jersey. A psi of 2.3 was chosen because damage to nearby buildings and other structures, severe enough to cause serious personal injuries, has been documented at that overpressure. Using these values, the Department used the TNT equivalency method equation to calculate threshold quantities for unintentional reactions:

$$W=(D/24)^3*(1024/E)$$

Where W = threshold quantity (TQ) of reactive hazard substance (pounds)
D= distance to property line (100 meters = 328 feet)
24=the scaled distance for the mass of TNT that results in a blast overpressure of 2.3 psi (feet/pound $^{1/3}$)
E=energy of explosion of the reactive hazard substance (calories/gram)
1024= the energy of explosion for TNT (calories per gram)

The TNT equivalency method is an industry accepted method described in consequence analysis literature. The TNT equivalency method is used by USEPA in its guidance document for the performance of an off-site consequence analysis for flammable substance explosions. In the TNT equivalency method, the explosive energy of a reactive hazard substance is related to an equivalent amount of TNT.

For this equation, the Department originally intended that the energy of explosion be used to estimate threshold quantity. The energy of explosion is the amount of energy released when a substance explodes. However, the energy of explosion for many selected chemicals was not available in the technical sources the Department used. Therefore, the Department estimated the explosion energy of each reactive hazard substance by applying 28% to the value of the heat of combustion or 100% to the value of the heat of decomposition of the substance, which were

values that were readily available in technical sources. The value of 28% for the heat of combustion was selected because the ratio of energy of explosion to heat of combustion for many highly reactive substances, such as TNT, is 28%.

By applying this equation, the Department calculated the threshold quantity of each individual reactive hazard substance. Although there was some variation in the resulting values, the Department assigned the same threshold quantity of 2500 pounds to all but three reactive hazard substances, three dithionite compounds.

The threshold quantity calculation for these three chemicals—calcium dithionite, sodium dithionite, and potassium dithionite (also known as calcium hydrosulfite, sodium hydrosulfite, and potassium hydrosulfite) resulted in threshold quantity values that were much higher than those calculated for the other Group I chemicals. However, the multiple hazards of reactivity, spontaneous decomposition, and explosivity of these chemicals coupled with their accident history required that they be listed with a threshold quantity that was lower than values derived from the actual calculations. Therefore, the Department established the threshold quantity of each of these three dithionite compounds at 5000 pounds. The list of individual reactive hazard substances and their regulated thresholds is provided in Table I, Part D, Group I in N.J.A.C. 7:31-6.3(a).

The second reactive hazard substance catastrophic scenario the Department considered involves intentional mixtures. In determining when intentional mixtures would be covered under TCPA, the Department first considered requiring facility owners or operators to obtain the heat of reaction (ΔH) for each of their intentional reactions to determine the potential for a catastrophic accident. For exothermic reactions, which are chemical reactions that release heat, ΔH is a negative value. Generally, a higher negative ΔH results in a greater impact of an accident.

Because of the large number of intentional reactions that typically occur at many facilities and the resources involved with testing or determining the heat of reaction, the Department limited coverage of the TCPA rules to intentional mixtures that are products, byproducts or reactants containing the same functional groups that were used to select the individual reactive hazard substances listed in Table I, Part D, Group I. These functional groups were chosen for the Department's initial listing of reactive hazard substance mixtures because they are inherently unstable, increasing the potential for a catastrophic accident when mixed or blended with other chemicals. These functional groups are listed in Table I, Part D, Group II in N.J.A.C. 7:31-6.3(a). The Department added five additional functional groups that were not included in Bretherick's list to Table I, Part D, Group II. The chemicals in these functional groups are known to have an accident history, although none are listed in the NFPA and USDOT lists. These five functional groups are listed in Table I, Part D, Group II as numbers 6, 40, 41, 42, and 43. Subsequently, in 2008 the Department added functional group number 44, organometallics, following the catastrophic explosion at T2 Labs.

Intentional mixtures involving at least one chemical that contains a Group II listed functional group must be tested to determine the ΔH of that reaction. Once the ΔH is known, the threshold quantity is determined by referencing Table II in N.J.A.C. 7:31-6.3(c). The Department

calculated the threshold quantity values in Table II by using the same TNT equivalency equation used for unintentional reactions, described above (100 meters distance to overpressure endpoint, and 2.3 psi overpressure endpoint value) but with ΔH as the heat of reaction with a 100 percent yield factor. Using 100% of the heat of reaction as the estimate for the energy of explosion is a conservative, but reasonable, assumption since the reaction and explosion are occurring in a confined process vessel.

The results of these calculations rounded off to the nearest 100 pounds are listed in Table II in N.J.A.C. 7:31-6.3(c). Table II contains the threshold quantities for ten ΔH ranges from -100 calories/gram to -1000 calories/gram of RHS Mixture. Threshold quantities for each ΔH range are listed in Table II and decrease as the negative ΔH, and the potential consequence, increases. Mixtures having ΔH values of less than -100 calories/gram are not covered under the TCPA program, because the Department has determined that an accidental release of the mixture presents minimal risk to public health and safety and the environment. Any RHS Mixture having a ΔH of more than -1000 calories/gram presents a high level of risk to the public and is regulated at a threshold of 2400 pounds of RHS Mixture.

4. Expand the process hazard analysis to include Risk Assessment

- implement a semi-quantitative method that is similar to layer of protection analysis (LOPA)
- quantify the release amount from the scenarios identified in the process hazard analysis
- model the scenarios in a consequence analysis to determine the impact distance
- determine the release likelihood of scenarios that have offsite impact
- implement risk reduction measures to reduce the consequences or likelihood of off-site scenarios that exceed specified likelihood criteria.

New Jersey's Toxic Catastrophe Prevention Act (TCPA) rule includes provisions for risk assessment. The TCPA risk assessment is required to be conducted in conjunction with the process hazard analysis. In the risk assessment study, the owner or operator is required to identify the equipment subject to the assessment, the points of possible regulated substance, the corresponding approximate quantity of an instantaneous regulated substance release or the rate(s) and duration of a continuing release, either steady or non-steady state, and the corresponding cause of the regulated substance release. Rather than assessing the impacts of a worst-case accident, estimates of the quantity or rate and duration of a release are based on actual release mechanisms and reflect the operating procedures, safeguards, and mitigation equipment and procedures, planned for new or modified covered processes, or in place for existing covered processes.

In the risk assessment, the owner or operator must consider toxicity, flammability, explosion, and reactivity hazards applicable to the regulated substance. The owner or operator must identify all scenarios of toxic, flammable, and reactive hazards that have a potential off-site impact for endpoint criteria defined in the rule using a consequence analysis, consisting of dispersion analysis, thermal analysis, and overpressure analysis, as applicable to the regulated substance and scenario.

The owner or operator must identify all release scenarios that have an off-site impact of

the specified endpoint criteria. For each release scenario that has an off-site impact of the specified endpoint criteria, the owner or operator must determine the likelihood of release occurrence. If the likelihood of release occurrence exceeds a specified likelihood value (e.g. 10^{-6} per year), the owner or operator shall perform an evaluation of risk reduction measures which would reduce the likelihood or consequences of the regulated substance release. The owner or operator is required to implement a risk reduction plan for feasible risk reduction measures.

This is a semi-quantitative method of risk assessment that is similar to layer of protection analysis (LOPA), which provides a middle ground between a qualitative process hazard analysis and a traditional, expensive quantitative risk analysis. LOPA is a risk management technique commonly used in the chemical process industry and advocated by the American Institute of Chemical Engineers Center for Chemical Process Safety. LOPA can provide a more detailed, semi-quantitative assessment of the risks and layers of protection associated with release scenarios. LOPA provides a means to identify the scenarios that present the most significant risk and determine if the consequences could be reduced by the application of inherently safer design principles. Beginning with an identified accident scenario, LOPA uses simplifying rules to evaluate initiating event frequency, independent layers of protection, and consequences to provide an order-of-magnitude estimate of risk. LOPA is also an excellent approach for determining the safety integrity level necessary for an instrumented safety system, an approach endorsed in instrument standards, such as ISA S84 and IEC 61511.

5. Require all facilities to implement Program 3 prevention programs; eliminate Program 2 for simpler prevention programs for facilities that are not in specified NAICS code for Program 3.

All facilities should implement Program 3 prevention programs. The EPA rule currently allows facilities under specified NAICS codes to implement a simpler Program 2 prevention program. Program 2 has less prevention program elements, and the Program 2 prevention program elements that are required have less detailed requirements than their analogous Program 3 prevention program elements. In the past, EPA has stated that the less complex Program 2 requirements are appropriate because the processes at facilities that are in the specified Program 2 NAICS codes are less complex. However, the Department does not agree with this reasoning. First, the risk of a Program 2 facility could be greater than a Program 3 facility because of the regulated substance or quantity that is being handled. Also, implementing a Program 3 prevention program is not unduly onerous for a facility that meets the Program 2 NAICS criteria. The additional Program 3 elements and requirements enhance safety and help to reduce the risk of an incident, and the amount of work to implement the more detailed requirements would still be naturally less for a less complex process.

6. Require all facilities to conduct Safer Technology Alternatives Analysis, not just those in select NAICS codes

The Department supports reinstating the provisions for Safer Technology Alternatives Analysis in §68.67(c)(8), which were repealed on December 19, 2019, when EPA Administrator Andrew Wheeler signed the Risk Management Program (RMP) Reconsideration final rule.

Please see the attached December 17, 2019, letter from former Commissioner Catherine McCabe in which our Department refutes EPA's comments for the 2019 amendments that New Jersey's Inherently Safer Technology rules are ineffective.

In addition, the Safer Technology Alternative Analysis provision should not only be reinstated but should be expanded. This provision formerly required the Safer Technology Alternatives Analysis for processes in NAICS 322, 324, and 325 - the petroleum and coal products manufacturing (NAICS 324), chemical manufacturing (NAICS 325), and paper manufacturing (NAICS 322) sectors. There should not be any limit on the included NAICS sectors. Many safer technology alternative opportunities exist in other sectors, especially to substitute the use of a regulated substance with a less hazardous substance. Examples include water supply/wastewater treatment, for which chlorine has various other substitutes; and power generation, for which anhydrous ammonia has been substituted with aqueous ammonia.

7. Expanding the application of environmental justice in the RMP

The Department believes that RMP's should address issues related to Overburden Communities (OBC's). New Jersey's Environmental Justice Law (EJ Law), N.J.S.A 13:1D-157, which was signed by Governor Phil Murphy on September 18, 2020, requires the Department to evaluate the contributions of certain facilities to existing environmental and public health stressors in OBC's. The Department plans to evaluate how to effectively implement the EJ Law into facility RMP's.

An Overburdened Community (OBC), as defined by the law, is any census block group, as determined in accordance with the most recent United States Census, in which:

i. at least 35 percent of the households qualify as low-income households (at or below twice the poverty threshold as determined by the United States Census Bureau);
ii. at least 40 percent of the residents identify as minority or as members of a State recognized tribal community; or
iii. at least 40 percent of the households have limited English proficiency (without an adult that speaks English "very well" according to the United States Census Bureau)

Some examples of possible measures the Department may consider in such areas include utilizing mapping tools, public notification of new or modified RMPs, and facility public engagement information/education sessions.