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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Chapter I

[EPA-HQ-OPPT-2015-0487; FRL-9934-77]

Carbon Dioxide Emissions and Ocean Acidification; TSCA Section 21 Petition; Reasons for Agency Response

AGENCY: Environmental Protection Agency (EPA).

ACTION: Petition; reasons for Agency response.

SUMMARY: This document provides the reasons for EPA's denial of a petition it received under section 21 of the Toxic Substances Control Act (TSCA) from the Center for Biological Diversity and Donn J. Viviani, PhD. The petitioners requested EPA to initiate rulemaking under TSCA to address risks related to carbon dioxide emissions, particularly those associated with ocean acidification, or, in the alternative, that EPA initiate rulemaking under TSCA to require testing to determine toxicity, persistence, and other characteristics of carbon dioxide emissions that affect human health and the environment. After careful consideration, EPA denied the TSCA section 21 petition for the reasons discussed in this document.

DATES: EPA's response to this TSCA section 21 petition was signed September 25, 2015.

FOR FURTHER INFORMATION CONTACT: *For technical information contact*: Cindy Wheeler, National Program Chemicals Division (7404), Office of Pollution Prevention and Toxics, Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460-0001; telephone number: (202) 566-0484; email address:

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SUPPLEMENTARY INFORMATION:

I. General Information

A. Does this Action Apply to Me?

This action is directed to the public in general. This action may, however, be of interest to sources of carbon dioxide emissions, such as power plants, cement plants, pulp and paper mills, and various types of mobile sources. Since other entities may also be interested, the Agency has not attempted to describe all the specific entities that may be affected by this action.

B. How Can I Access Information About this Petition?

The docket for this TSCA section 21 petition, identified by docket identification (ID) number EPA-HQ-OPPT-2015-0487, is available at *http://www.regulations.gov* or at the Office of Pollution Prevention and Toxics Docket (OPPT Docket), Environmental Protection Agency Docket Center (EPA/DC), West William Jefferson Clinton Bldg., Rm. 3334, 1301 Constitution Ave., N.W., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the OPPT Docket is (202) 566-0280. Please review the visitor instructions and additional information about the docket available at *http://www.epa.gov/dockets*.

II. TSCA Section 21

A. What is a TSCA Section 21 Petition?

Under TSCA section 21 (15 U.S.C. 2620), any person can petition EPA to initiate a rulemaking proceeding for the issuance, amendment, or repeal of a rule under TSCA section 4, 6, or 8 or an order under TSCA section 5(e) or 6(b)(2). A TSCA section 21 petition must set forth the facts that are claimed to establish the necessity for the action requested. EPA is required to grant or deny the petition within 90 days of its filing. If EPA grants the petition, the Agency must promptly commence an appropriate proceeding. If EPA denies the petition, the Agency must publish its reasons for the denial in the **Federal Register**. A petitioner may commence a civil action in a U.S. district court to compel initiation of the requested rulemaking proceeding within 60 days of either a denial or the expiration of the 90-day period.

B. What Criteria Apply to a Decision on a TSCA Section 21 Petition?

Section 21(b)(1) of TSCA requires that the petition "set forth the facts which it is claimed establish that it is necessary" to issue the rule or order requested (15 U.S.C. 2620(b)(1)). Thus, TSCA section 21 implicitly incorporates the statutory standards that apply to the requested actions. In addition, TSCA section 21 establishes standards a court must use to decide whether to order EPA to initiate rulemaking in the event of a lawsuit filed by the petitioner after denial of a TSCA section 21 petition (15 U.S.C. 2620(b)(4)(B)). Accordingly, EPA has relied on the standards in TSCA section 21 and in the provisions under which actions have been requested to evaluate this TSCA section 21 petition.

III. TSCA Sections 6 and 4

Of particular relevance to this TSCA section 21 petition are the legal standards

regarding TSCA section 6 rules and TSCA section 4 rules.

A. TSCA Section 6 Rules

To promulgate a rule under TSCA section 6, the EPA Administrator must find that "there is a reasonable basis to conclude that the manufacture, processing, distribution in commerce, use, or disposal of a chemical substance or mixture . . . presents or will present an unreasonable risk" (15 U.S.C. 2605(a)). This finding cannot be made considering risk alone. Under TSCA section 6, a finding of "unreasonable risk" requires the consideration of costs and benefits. Furthermore, the control measure adopted is to be the "least burdensome requirement" that adequately protects against the unreasonable risk (15 U.S.C. 2605(a)).

In addition, TSCA section 21(b)(4)(B) provides the standard for judicial review should EPA deny a request for rulemaking under TSCA section 6(a): "If the petitioner demonstrates to the satisfaction of the court by a preponderance of the evidence that . . . there is a reasonable basis to conclude that the issuance of such a rule . . . is necessary to protect health or the environment against an unreasonable risk of injury," the court shall order the EPA Administrator to initiate the requested action (15 U.S.C. 2620(b)(4)(B)).

Also relevant to the issuance of regulations under TSCA section 6, TSCA section 9(b) directs EPA to take regulatory action on a chemical substance or mixture under other statutes administered by the Agency if the EPA Administrator determines that actions under those statutes could eliminate or reduce to a sufficient extent a risk posed by the chemical substance or mixture. If this is the case, the regulation under TSCA section 6 can be promulgated only if the EPA determines that it is in the "public interest" to protect against that risk under TSCA rather than, or in addition to, the alternative authority (15

U.S.C. 2608(b)).

B. TSCA Section 4 Rules

To promulgate a rule under TSCA section 4, EPA must find that data and experience are insufficient to reasonably determine or predict the effects of a chemical substance or mixture on health or the environment and that testing of the chemical substance is necessary to develop the missing data (15 U.S.C. 2603(a)(1)). In addition, EPA must find either that: (1) The chemical substance or mixture may present an unreasonable risk of injury; or (2) The chemical substance is produced in substantial quantities and may either result in significant or substantial human exposure or result in substantial environmental release (15 U.S.C. 2603(a)(1)).

In the case of a mixture, EPA must also find that "the effects which the mixture's manufacture, distribution in commerce, processing, use, or disposal or any combination of such activities may have on health or the environment may not be reasonably and more efficiently determined or predicted by testing the chemical substances which comprise the mixture" (15 U.S.C. 2603(a)(2)).

IV. Summary of the TSCA Section 21 Petition

A. What Action was Requested?

On June 30, 2015, the Center for Biological Diversity and Donn J. Viviani, PhD., petitioned EPA under TSCA section 21 to determine that carbon dioxide (CO_2) presents an unreasonable risk of injury to health or the environment and initiate rulemaking to control CO_2 (Ref. 1). The petitioners point to TSCA section 6(a) for options that EPA may exercise in order to protect against unreasonable risk and ask that EPA take into consideration the harm caused by past CO_2 emissions.

If EPA determines that the available data and information are insufficient to permit EPA to reasonably determine or predict the effects of CO_2 emissions on human health and the environment, the petitioners request that EPA initiate rulemaking for testing under TSCA section 4 to fill the information gaps. The petitioners suggest that EPA consider requiring the following tests or studies under TSCA section 4:

- Tests of CO_2 emission reduction, capture, and sequestration strategies.
- Vulnerability assessments for marine and coastal species and ecosystems.
- Forecasts, using modeling, of species' responses to ocean acidification.
- Assessments of the economic values of ecosystems at risk and the costs of reducing CO_2 emissions to protect those ecosystems.

Petitioner Viviani submitted a supplement supporting all actions requested in the petition and including additional information and requests (Ref. 2). The supplement requests further that, with any TSCA section 6 or TSCA section 4 action, EPA also consider health effects from climate change and ocean acidification, direct and indirect economic impacts, insurance impacts, and environmental justice implications. Petitioner Viviani also suggested that EPA include, in any TSCA section 6 rule, options to sequester carbon emissions, including sequestration that relies on alternative energy and/or produces net carbonates, as well as the use of economic incentives to encourage sequestration efforts by the private sector. Alternately, the Viviani supplement specifically asks that EPA use TSCA section 4 to gather information on sequestration technologies and offers a suggested cost apportionment method.

The supplement includes a variety of additional requests and observations. For example, the supplement urges EPA to consider making an imminent hazard finding

under TSCA section 7 in order to complement other Agency actions and to inform the public on the risks, causes, and methods for mitigating ocean acidification resulting from anthropogenic CO_2 emissions. The supplement urges EPA to address the impacts of ocean acidification on pesticide tolerances by taking into account the increased fish farming that will be needed as a result of ocean acidification. Finally, the supplement asks EPA to use other programs and authorities to address ocean acidification, such as the Clean Air Act (CAA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

B. What Support Do the Petitioners Offer?

The petitioners contend that CO_2 emissions cause ocean acidification, and that ocean acidification is a severe threat to the marine environment and the health of people who depend on oceans and coasts. According to the petitioners, about 28% of the CO_2 emissions from power generation, cement production, industry, and other sources are absorbed by the ocean, which causes the seawater to become more acidic and corrosive to sea life. The petitioners state that, since the industrial revolution, man-made CO_2 emissions have increased the acidity of the oceans on average by 30%, and that, by the end of the century, the oceans will become 150-170% more acidic if anthropogenic CO_2 emissions continue unabated. The petitioners provide numerous examples of the potential adverse effects of ocean acidification, some of which they say are already apparent, such as the loss of oyster larvae in the Pacific Northwest, the poor condition of pteropod (a type of zooplankton) shells along the West Coast, and the decline in calcification rates at coral reef locations in the Pacific and the Caribbean. Other adverse impacts to be expected from ocean acidification, according to the petitioners, are impairment of sensory

abilities and behavior in fish, decreased metabolic rate and activity levels in squid, increased toxicity of algal blooms, and loss of species diversity across ocean ecosystems.

In addition to describing the environmental impacts of ocean acidification, the petitioners provided some socioeconomic information to establish that the impacts will be more widespread and may include our nation's food security. The petitioners cited the United Nations Convention on Biological Diversity for a 2014 prediction that the oceans will lose more than $1 trillion in value annually from ocean acidification by 2100 (Ref. 3). The petitioners also cited a 2010 report from the United Nations Environment Programme that ocean acidification's impact on marine organisms is a threat to food security for the billions of people that have a marine-based diet (Ref. 4). The petitioners contend that the US economy is dependent on the health of the ocean, citing 2009 information from the National Oceanic and Atmospheric Administration (NOAA) that estimated that the ocean economy contributes over $223 billion annually to the gross domestic product and provides more than 2.6 million jobs (Ref. 5).

V. Disposition of TSCA Section 21 Petition

A. What is EPA's Response?

After review and consideration of the support provided, EPA denied the petition. EPA has acknowledged the impacts of CO_2 and other greenhouse gas emissions on ocean acidification and the potential impacts of ocean acidification on marine ecosystems in its 2009 greenhouse gas endangerment finding (Ref. 6). However, the petitioners provided neither adequate specifics on the relief sought under TSCA, nor sufficient information on the costs and benefits associated with a requested regulatory option to allow EPA to make the unreasonable risk finding specified in TSCA section 6(a). In addition, actions to

address CO_2 emissions under authorities other than TSCA could reduce the risk posed by CO_2 more efficiently and effectively at this time. Finally, the petitioners do not present EPA with information sufficient to establish that testing under TSCA section 4 is necessary to develop data that would allow EPA to determine whether anthropogenic CO_2 emissions present an unreasonable risk of injury under TSCA. A copy of the Agency's response, which consists of a letter to the petitioners, is available in the docket for this TSCA section 21 petition.

B. What is EPA's Reason for this Response?

1. Background on federal action. Ocean acidification refers to the decrease in the pH of the Earth's oceans caused by the uptake of CO_2 from the atmosphere. Ocean acidification presents a suite of environmental changes that would likely negatively affect ocean ecosystems, fisheries, and other marine resources.

EPA and other parts of the federal government are working diligently on many fronts to address climate change and related concerns, including ocean acidification. The Federal Ocean Acidification Research and Monitoring Act of 2009 created the Interagency Working Group on Ocean Acidification (IWG-OA), which is chaired by NOAA and consists of a dozen federal agencies including EPA. Over the past several years, the member agencies have conducted and funded research into the effects of acidification on ocean ecosystems and the economy. The IWG-OA released its Strategic Plan for Federal Research and Monitoring of Ocean Acidification in 2014 (Ref. 7). The group's Third Report on Federally Funded Ocean Acidification Research and Monitoring Activities, a report to Congress issued in April 2015 (Ref. 8), highlights the wide variety of research aimed at understanding the impacts of acidification, including the following

activities undertaken or funded by EPA:

- A study of coastal acidification impacts on shellfish in Narragansett Bay.
- Studies of plankton community and macro-algal responses to acidification.
- Support for the development of biophysical models and new methodologies to determine the economic and intrinsic value of coral reefs and shellfish.
- Research to assess the economic impacts of ocean acidification on US mollusk fisheries to support quantification of the damages resulting from greenhouse gas emissions.
- Support for monitoring acidification in National Estuary Program study areas.
- Support for the development of computational models that will predict changes in biogeochemical parameters of coastal waters.

The current Administration has focused on ocean policy comprehensively, including ocean acidification. In 2009, President Obama established an Interagency Ocean Policy Task Force charged with developing recommendations to enhance national stewardship of the ocean, coasts, and Great Lakes. The Task Force received and reviewed nearly 5,000 written comments from Congress, stakeholders, and the public before issuing final recommendations. On July 19, 2010, President Obama signed Executive Order 13547, adopting the final recommendations of the Task Force and establishing a national policy for the stewardship of the ocean, coasts, and Great Lakes. This National Ocean Policy recognizes the importance of marine and lake ecosystems in providing jobs, food, energy resources, ecological services, transportation, and recreation and tourism opportunities. In April of 2013, the final plan for implementing the National Ocean Policy was issued, after additional opportunities for stakeholders and the general public

to comment (Ref. 9). The implementation plan describes specific actions Federal agencies will take to address key ocean challenges, while at the same time giving states and communities greater input in Federal decisions, streamlining Federal operations, and promoting economic growth. In relation to ocean acidification, the implementation plan (and its appendix) focus on information development and dissemination, as well as coastal resiliency and adaptation.

President Obama released a Climate Action Plan in 2013 which laid out a vision for reducing greenhouse gases based on three key pillars, namely domestic greenhouse gas reductions, preparations for future impacts, and leading international efforts to address climate change (Ref. 10). Reductions of CO_2 emissions through domestic and international actions will contribute to the amelioration of ocean acidification. Domestic actions under the Climate Action Plan that will lead to CO_2 reductions include regulatory activities, promoting renewable energy, supporting innovation in the energy and vehicle sectors, and improving efficiency at multiple levels. CO_2 is a globally well-mixed gas, one of the greenhouse gases that are sufficiently long-lived in the atmosphere such that, once emitted, concentrations of each gas become well mixed throughout the entire global atmosphere (Ref. 6). Therefore, global reductions are also necessary, and the Administration is pursuing multiple avenues to work with and in other nations to reduce emissions and deforestation and promote clean energy and energy efficiency.

Much of the domestic regulatory activity has been under the authority of the CAA. In 2009, under CAA section 202(a), the Administrator determined that six well-mixed greenhouse gases (CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) in the atmosphere threaten the public health

and welfare of current and future generations and that the combined emissions from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare (Ref. 6). [Note: Although this finding was supported by a record that included extensive scientific assessment literature on climate change and its impacts, including ocean acidification, particularly of the US Global Change Research Program (USGCRP), the National Research Council (NRC) of the US National Academies of Science and the Intergovernmental Panel on Climate Change (IPCC), the EPA notes that its actions under the CAA are governed by different statutory provisions and different standards than the standard for making a finding of unreasonable risk under TSCA sections 6(a) or 4. As such, the Agency's determinations on this petition under TSCA are separate from and would not affect EPA's determinations under other statutory authorities.]

Subsequently, EPA promulgated emissions standards for light duty vehicles for model years 2012-2016 (Ref. 11) and model years 2017-2025 (Ref. 12) controlling emissions of CO_2, methane, nitrous oxide, and hydrofluorocarbons from the light duty fleet. EPA has also promulgated standards for these same air pollutants for new heavy duty vehicles and engines for model years 2014-2018 (Ref. 13), and recently proposed a second phase of standards for these vehicles and engines for model years 2018-2027 (Ref. 14). Together, the enacted and proposed standards are expected to save more than six billion barrels of oil through 2025 and reduce more than 3,100 million metric tons of CO_2 emissions.

Also with respect to mobile sources, EPA is required to set annual standards for the Renewable Fuel Standard (RFS) program for each year that ensure that transportation

fuel sold in the US contains a minimum volume of renewable fuel. By 2022, the RFS program will reduce greenhouse gas emissions by 138 million metric tons, about the annual emissions of 27 million passenger vehicles, replacing about seven percent of expected annual diesel consumption and decreasing oil imports by $41.5 billion.

While mobile sources are important contributors to greenhouse gas pollution, power plants are the largest stationary source of carbon pollution in the United States and about one third of all greenhouse gas pollution comes from the generation of electricity by power plants. On August 3, 2015, EPA issued the Clean Power Plan, which includes standards for new and existing power plants (Ref. 15). Under the authority of CAA section 111(b), the Plan sets carbon pollution standards for new, modified, and reconstructed power plants. Emission limits, based on the best adequately demonstrated system of emission reduction for the type of unit, are set for new, modified, and reconstructed stationary combustion turbines as well as new, modified, and reconstructed coal-fired steam generating units. Under the authority of CAA section 111(d), the Clean Power Plan also establishes interim and final CO_2 emission performance rates for fossil fuel-fired electric steam generating units and for natural gas-fired combined cycle generating units. To maximize the range of choices available to states in implementing the standards and to utilities in meeting them, the Clean Power Plan also includes interim and final statewide goals. States will then develop and implement plans that ensure that their power plants, either individually, together, or in combination with other measures, achieve the interim CO_2 emissions performance rates over the period of 2022 to 2029 and the final CO_2 emission performance rates or goals by 2030. EPA estimates that by 2030, when the Clean Power Plan is fully effective, the CO_2 emission level from fossil-fuel

fired electric power plants will be lower than the 2005 level by about 32 percent, which is 870 million tons of CO_2.

In addition, since January of 2011, under the CAA, EPA has required that the construction of large stationary sources of air pollution (including power plants) incorporate the best technology available for controlling emissions of greenhouse gases, including CO_2. Under CAA section 165(a), a major emitting facility may not commence construction without obtaining a Prevention of Significant Deterioration (PSD) permit that limits the emissions of "each pollutant subject to regulation" under the Act to the maximum degree achievable through the application of the Best Available Control Technology (BACT) (42 U.S.C. 7475(a)(4); 7479(3)). This requirement became applicable to greenhouse gas emissions when EPA's light-duty vehicle standards for this pollutant first took effect 2011 (Ref. 16). In 2010, EPA took several steps to ensure that EPA and state permitting authorities were able to apply the PSD BACT requirement to greenhouse gas emissions from the largest stationary sources and to incorporate those requirements into operating permits for stationary sources under Title V of the Clean Air Act. EPA first issued a rule that phased-in the requirements of these CAA permitting programs and initially limited covered facilities to the nation's largest greenhouse gas emitters: power plants, refineries, and cement production facilities (Ref. 17). EPA also issued several rules to ensure that either EPA or a state permitting authority was in a position to implement these requirements in every state (Refs. 18-20).

EPA has developed many programs and projects that partner with industry and others to reduce greenhouse gas emissions. Examples include ENERGY STAR, the Green Power Partnership, and the Combined Heat and Power Partnership. Through

voluntary energy and climate programs, EPA's partners reduced over 345 million metric tons of greenhouse gases in 2010 alone (equivalent to the emissions from 81 million vehicles).

In addition to taking actions to reduce CO_2 emissions, EPA has been working on ocean acidification issues under the Clean Water Act (CWA). In 2009, EPA published a Notice of Data Availability (NODA) containing data and information on the potential effects of ocean acidification on aquatic life and requested data and information from the public that could be useful to EPA in deciding whether to reevaluate and revise the recommended marine pH water quality criterion under section 304(a)(1) of the CWA (Ref. 21). EPA carefully reviewed all of the information received during the public comment period as well as additional information from NOAA. EPA determined that, at the time, the available data did not indicate a need to revise the national recommended criteria for marine pH to address the natural variability in pH across coastal regions.

In addition, EPA issued a March 2010 request for comment on consideration of the effects of ocean acidification in the implementation of the program for listing of impaired waters under CWA section 303(d) (Ref. 22). Under that section, states, territories, and authorized tribes develop lists of impaired waters and develop Total Maximum Daily Loads (TMDLs) for the pollutant(s) causing the impairment. In the notice, EPA asked for comment on what considerations to take into account when deciding how to address the listing of waters as threatened or impaired for ocean acidification under the 303(d) program. In November 2010, EPA distributed a memorandum entitled “Integrated Reporting and Listing Decisions Related to Ocean Acidification” (Ref. 23). Among other things, the memorandum explained that states

should continue to list waters that do not attain applicable water quality standards, including marine pH water quality criteria, on the lists of impaired waters submitted to EPA, and should continue to solicit existing and readily available information on ocean acidification using the current section 303(d) listing program framework. EPA also committed to providing additional guidance to states, territories, and tribes when future ocean acidification research efforts provide the basis for improved monitoring and assessment methods.

In 2012, EPA took actions to approve the 2010 list of impaired waters for the State of Washington and to establish the 2010 list of impaired waters for the State of Oregon. Neither of those lists included waters impaired due to pollutants associated with or conditions attributable to ocean acidification, and EPA's actions were challenged in court. In 2015, the court upheld EPA's determination that existing and readily available data and information, including confounding and incomplete data that might otherwise support listing the States' coastal and estuarine waters as impaired, did not require listing of such waters as impaired due to ocean acidification (Ref. 24).

2. Rationale for petition denial. To regulate CO_2 to address ocean acidification under TSCA section 6 in addition to other authorities, EPA would have to make the unreasonable risk finding specified in TSCA section 6(a). The TSCA section 21 petition asserts that "CO2 pollution is changing ocean chemistry and harming the marine environment" and that there will be "severe and detrimental impacts on marine ecosystems, the economy, and public health if this pollution is unabated" (Ref. 1). However, the petitioners' argument as to the existence of unreasonable risk under TSCA section 6 is hindered by a nearly complete lack of detail as to the TSCA risk management

sought. Under TSCA section 21, the public can petition EPA for the issuance, amendment or repeal of "a rule" under section 6. The petitioners have not identified a particular rule that they believe EPA should issue. Rather, they have identified a global environmental concern and asked that EPA, during the 90 days available to it under section 21, identify a rule that would address the concern and then assess the costs and benefits of such a rule to determine whether the identified risk is unreasonable. Section 21 requires considerably more specificity than petitioners have provided.

While the petitioners stated an overall goal of mitigating ocean acidification under TSCA, and suggested a variety of actions that could be used to achieve this goal, *e.g.*, mandatory emission reductions or "repurchasing relief using sequestration," the petitioners did not describe, in any reasonable manner, what specific action available under TSCA section 6 the petitioners seek in order to achieve that outcome (Ref. 1). For example, although the petitioners state that "stabilizing atmospheric concentration to prevent further acidification of the oceans would require about an 80% decrease in all emissions," the petitioners did not specify a regulatory approach for achieving such a reduction in the United States (EPA clearly could not require emission reductions abroad under TSCA), or estimate the costs and benefits of such a regulation (Ref. 1). Among the costs EPA would want to evaluate would be the impacts of further emission reductions on energy and transportation reliability and affordability. Similarly, although the petitioners argue that EPA has the authority to require the mitigation of past emissions through sequestration, and identify a variety of methods for sequestering carbon, the petitioners provided no specifics on how EPA might impose mandatory carbon sequestration actions on current and past emitters of CO_2 that are subject to TSCA.

The finding of unreasonable risk under TSCA section 6 encompasses both the anticipated benefits of regulatory action as well as the anticipated costs. As noted above, EPA has acknowledged that greenhouse gas emissions impact ocean acidification and the petitioners have provided evidence that CO_2 contributes to ocean acidification and therefore poses a risk to the environment within the meaning of TSCA. The petitioners have also provided information on the benefits that might be expected from reductions in CO_2 emissions and/or mitigation or sequestration of past CO_2 emissions globally. However, the petitioners present minimal information on CO_2 emission controls or the costs of reducing CO_2 emissions or sequestering past emissions. The petitioners conclude that "many industries could employ existing technology to achieve meaningful emissions reductions affordably," and cite a couple of EPA documents that review available technologies for reducing greenhouse gas emissions (Ref. 1). While these documents are indeed useful as a survey of the state of the industry on emission controls and reductions, they do not provide the kind of evidence or data EPA would need in order to estimate the costs of any rule that EPA might impose under TSCA section 6 to regulate CO_2 emissions. In addition, the petitioners provide no basis for EPA to estimate the benefits of any particular rule that EPA might impose. While the combined effects of global CO_2 emissions create significant environmental and human health concerns, and the elimination or reduction of those emissions would have substantial benefits, any particular TSCA rule could address only a portion of those emissions. The analysis EPA would have to undertake in assessing the unreasonableness of the identified risks would involve assessing the costs and benefits of particular rulemaking actions under TSCA, and the petitioners simply have not provided sufficient information about either the rule

they think EPA should promulgate or the likely costs and benefits of such a rule to enable EPA to perform such an analysis.

In addition to a TSCA section 6 rule regulating CO_2 emissions, the petitioners suggest that EPA could use its authority under TSCA section 6(a)(7)(C) to require emitters to take steps to mitigate or sequester past CO_2 emissions. According to the petitioners, this provision, which gives EPA the authority to require manufacturers and processors to replace or repurchase chemical substances or mixtures, also gives EPA the authority to "remediate existing harm by requiring that responsible parties mitigate past CO_2 emissions" (Ref. 1). The petitioners go on to discuss a wide variety of mitigation and sequestration methods and processes that EPA should evaluate and potentially impose under this authority, including land use and agricultural practice changes, programs directed at consumer choice (like EPA's existing ENERGY STAR program), and sequestration of CO_2 in products, infrastructure and waste management. The petition supplement provides additional detail on mitigation and sequestration methods, including bio-char, the use of more structural timber in buildings, and sequestration in products such as "green" cement and foam insulation (Ref. 2).

The petitioners' suggestion to consider TSCA section 6(a)(7)(C) is misplaced. While EPA agrees that this provision gives EPA some authority to address past harms, it is intended to address chemical substances and mixtures that move in the stream of commerce, not air pollution that is a byproduct of industrial and other activity on a global scale. According to the statute, when the appropriate findings are made, EPA can require manufacturers or processors to repurchase or replace chemical substances or mixtures, but the regulated manufacturers and processors must be permitted to decide whether to

repurchase or replace. In EPA's view, the authority to require replacement or repurchase of a chemical substance or mixture does not include the authority to require extraction from the environment of widely dispersed chemicals. EPA reads this provision as applying when a distinct person or persons who received the chemical substance or mixture and from whom the manufacturer or processor can elect to repurchase or replace can be identified. Applying this provision to past anthropogenic CO_2 emissions does not make sense where emitted CO_2 has mixed throughout the global atmosphere and there is no way to connect the CO_2 with any one entity for repurchase.

In addition, TSCA section 9(b) requires EPA's Administrator to coordinate actions taken under TSCA with actions taken under other laws administered by EPA. When EPA determines that actions under other authorities can eliminate or reduce a risk to health or the environment to a sufficient extent, the Administrator must use the other authorities unless she determines it is in the public interest to protect against the risk by action taken under TSCA. While the petitioners recognize that anthropogenic CO_2 emissions are being regulated under the CAA, they assert that those efforts are inadequate to protect marine species from climate change and ocean acidification. However, even if petitioners had requested a TSCA rule with reasonable specificity, EPA would likely determine that actions related to ocean acidification taken under other laws administered by EPA, both those already underway and those planned for the future, could reduce the risks to a sufficient extent under TSCA section 9(b). Because CO_2 is a global pollutant, domestic actions alone cannot eliminate the risks, but the Administration has engaged in a set of coordinated domestic actions and international negotiations to reduce CO_2 emissions in order to reduce the risks of climate change and ocean acidification. EPA

sees no sound reason to exercise authorities available under TSCA to further address any such risk or to deviate from EPA's regulatory efforts and programs already underway.

The CAA is the comprehensive federal law designed to regulate air emissions from stationary and mobile sources. As discussed above, EPA has issued rules under the CAA that address CO_2 emissions from a variety of sources, including power plants and mobile sources. The Clean Power Plan, for example, represents real action and leadership on climate change by ensuring meaningful reductions in carbon pollution from power plants while maintaining energy reliability and affordability. EPA does not understand why the petitioners seem to believe that TSCA, which is intended to address toxic substances generally, would be an appropriate vehicle for addressing emissions of CO_2 when the Agency is already doing so under the federal statute specifically designed to regulate air emissions. In fact, the petitioners acknowledge that "full implementation of our flagship environmental laws, particularly the Clean Air Act, would provide an effective and comprehensive greenhouse gas reduction strategy" (Ref. 1). The petitioners go on to contend that, due to the alleged non-implementation of these laws, "existing domestic regulatory mechanisms must be considered inadequate to protect marine species from climate change and ocean acidification" (Ref. 1). The Agency notes that the CAA and the Administrative Procedures Act (APA) provide mechanisms to ask the Agency to take administrative action, see APA 553(e), 5 USC 553(e) (providing the right to petition an agency for issuance, amendment or repeal of a rule), and avenues to seek judicial redress where the Agency has unreasonably delayed in responding to such requests. See APA 706(1), 5 USC 706(1) (establishing claim for unreasonable delay), and CAA 304(a), 42 USC 7604(a) (establishing jurisdiction and notice requirements for unreasonable delay

claims). One of the petitioners, the Center for Biological Diversity, has regularly participated in development of EPA actions to address the concerns related to those in the petition.

In addition to the CAA, the CWA provides some limited authorities that may be used to reduce the risk associated with ocean acidification. As noted above, EPA has explained that states should continue to list waters that do not attain applicable water quality standards, including marine pH water quality criteria, on the lists of impaired waters submitted to EPA, and should continue to solicit existing and readily available data and information regarding pollutants contributing to and conditions associated with ocean acidification using the current CWA section 303(d) listing program framework. Where such data and information supports a finding that a water body is impaired, the state must establish a total maximum daily load for relevant pollutants and implement a plan to control the pollutants from contributing sources. Thus far, neither EPA nor any states have listed any water bodies as impaired due to pollutants contributing to nor conditions associated with ocean acidification.

The petitioners also requested that EPA promulgate a test rule under TSCA section 4 if EPA was unable to determine, based on available data, whether anthropogenic CO_2 emissions present an unreasonable risk to human health and the environment within the meaning of TSCA. EPA notes that it did not construe the petitioners' request for rulemaking under TSCA section 4 as a strictly contingent request, and EPA has independently reviewed the TSCA section 21 petition itself to determine whether it sets forth facts sufficient to justify the initiation of rulemaking to require testing under TSCA section 4.

In order to promulgate a test rule under TSCA section 4, EPA must find that data and experience are insufficient to reasonably determine or predict the effects of a chemical substance or mixture on health or the environment and that testing of the substance or mixture with respect to such effects is necessary to develop the missing data. EPA must also find that either the chemical substance or mixture may present an unreasonable risk or that it is produced in substantial quantities and may either result in significant or substantial human exposure or result in substantial environmental release. EPA does not dispute that anthropogenic CO_2 emissions are produced in substantial quantities and result in substantial environmental releases. However, the petitioners have not made the case that testing of the chemical substance is necessary to develop missing data. The fact that atmospheric CO_2 affects ocean pH is not in dispute, and there are numerous studies documenting the effect of ocean pH on marine organisms (Refs. 21, 22). TSCA section 4 testing authority primarily speaks to testing of a chemical substance's or mixture's effects on health and the environment. Much of the testing recommended by the petitioners does not fit this description and probably could not be required by EPA under TSCA section 4. For instance, development of information on the costs and effectiveness of CO_2 emission control technology is not a test of the effect of a substance on health or the environment.

Regardless of whether the information described by the petitioners is information that can be developed using the authority of TSCA section 4, EPA and other federal agencies are working diligently to further our collective understanding of the impacts of ocean acidification. Some research underway matches the petitioners' recommendations for information to seek under TSCA section 4. For example, the petitioners suggest

conducting vulnerability assessments for marine and coastal species and ecosystems. In the National Ocean Policy Implementation Plan, NOAA, the Department of the Interior (DOI), EPA, the Department of Defense and the Department of Transportation were tasked with developing best practices for climate change and ocean acidification vulnerability assessments for Federally-funded and/or Federally-managed coastal and ocean facilities and infrastructure in high-hazard areas (Ref. 9). In August of 2014, EPA issued "Being Prepared for Climate Change: A Workbook for Developing Risk-Based Adaptation Plans" (Ref. 25). This document provides guidance for conducting risk-based climate change vulnerability assessments and developing adaptation action plans. In addition, EPA and NOAA have collaborated on studies of coastal acidification impacts on shellfish in Narragansett Bay, and EPA is working with the University of Rhode Island on studies of plankton communities and macroalgal responses to acidification. The petitioners suggest studying the economic values of ecosystems that are at risk from ocean acidification. In recent years, NOAA and EPA have allocated funding for socioeconomic studies related to ocean acidification. EPA supported the development of biophysical models and new methodologies to determine the economic and intrinsic value of coral reefs and shellfish. EPA has also conducted research to assess the economic impacts of ocean acidification on US mollusk fisheries for the purpose of including these impacts in monetary estimates of damages from greenhouse gas emissions. Further, the National Ocean Policy Implementation Plan calls for developing data on job trends to assess the economic impact of ocean acidification (Ref. 9). NOAA's Digital Coast website provides access to two datasets containing coastal and ocean job trends (Ref. 8).

Several other EPA actions were requested in the supplement. The petitioners suggest action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) would be triggered if EPA issues a TSCA section 7 "notice informing the public of the serious risks to coral reefs associated with ocean acidification, its causes, and what must be done to mitigate it" (Ref. 1). As an initial matter, under TSCA section 21, a petitioner is limited to requesting relief under TSCA sections 4, 5, 6, or 8. In addition, the action authorized under TSCA section 7 is for EPA to bring a civil action in district court to seize an imminently hazardous chemical or seek other relief. Section 7 does not provide authority to make a finding of imminent hazard independent of a civil action.

The supplement also outlines potential EPA actions under other statutes, such as Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), and the CAA (Ref. 2). EPA is asked to reevaluate pesticide tolerances based on the increased grain consumption that will occur as fish farming increases due to ocean acidification. To the extent that fish farming increases grain consumption, EPA will consider that in any need for changes to pesticide tolerances during the Agency's regular reassessment of those tolerances.

The supplement also discusses the possibility of giving formal notification under section 115(a) of the CAA to the Governors of States found to emit pollution that endangers public health and welfare in other countries. The supplement, however, does not seek to demonstrate that the prerequisites for action under CAA section 115 have been met at this time or that any specific notifications are warranted. Moreover, to the extent that the discussion of potentially available CAA remedies constitutes a request for action, EPA denies the requests because they are not actions that can be petitioned for

under TSCA section 21. The relief that may be requested under TSCA section 21 is limited to actions under TSCA sections 4, 5, 6, or 8.

VI. References

The following is a listing of the documents that are specifically referenced in this document. The docket includes these documents and other information considered by EPA, including documents that are referenced within the documents that are included in the docket, even if the referenced document is not physically located in the docket. For assistance in locating these other documents, please consult the technical person listed under **FOR FURTHER INFORMATION CONTACT**.

1. Center for Biological Diversity and Donn J. Viviani, PhD. Petition for Rulemaking Pursuant to Section 21 of the Toxic Substances Control Act, 15 U.S.C. 2620, Concerning the Regulation of Carbon Dioxide. June 30, 2015.

2. Donn J. Viviani, PhD. Supplement to the Petition for Rulemaking Pursuant to Section 21 of the Toxic Substances Control Act, 15 U.S.C. 2620, Concerning the Regulation of Carbon Dioxide. June 30, 2015.

3. Secretariat of the Convention on Biological Diversity. An Updated Synthesis of the Impacts of Ocean Acidification on Marine Biodiversity (Eds: S. Hennige, J.M. Roberts & P. Williamson). **Technical Series No. 75**. 2014.

4. United Nations Environment Programme (UNEP). UNEP Emerging Issues: Environmental Consequences of Ocean Acidification: A Threat to Food Security. 2010.

5. National Oceanic and Atmospheric Administration (NOAA). Coastal Services Center, National Summary: The United States Ocean and Great Lakes Economy. 2011.

6. EPA. Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act. **Federal Register**. 74 FR 66496, December 15, 2009 (FRL–9091–8).

7. Interagency Working Group on Ocean Acidification. Strategic Plan for Federal Research and Monitoring of Ocean Acidification. March 2014.

8. Committee on Environment, Natural Resources, and Sustainability of the National Science and Technology Council. Third Report on Federally Funded Ocean Acidification Research and Monitoring. April 2015.

9. National Ocean Council. National Ocean Policy Implementation Plan. April 2013.

10. Executive Office of the President. The President's Climate Action Plan. June 2013.

11. EPA, Department of Transportation-National Highway Traffic Safety Administration (DOT-NHTSA). Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule. **Federal Register**. 75 FR 25324, May 7, 2010 (FRL-9134-6).

12. EPA, DOT-NHTSA. 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards; Final Rule. **Federal Register**. 77 FR 62624, October 15, 2012 (FRL-9706-5).

13. EPA, DOT-NHTSA. Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles; Final Rule. **Federal Register**. 76 FR 57106, September 15, 2011 (FRL-9455-1).

14. EPA, DOT-NHTSA. Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2; Proposed Rule. **Federal Register**. 80 FR 40138, July 13, 2015 (FRL-9927-21-OAR).

15. EPA. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Final Rule. Signed August 3, 2015 and pending publication in the **Federal Register**. Until publication, a pre-publication version of the signed document is available at: *http://www2.epa.gov/sites/production/files/2015-08/documents/cpp-final-rule.pdf*.

16. EPA. Reconsideration of Interpretation of Regulation That Determine Pollutants Covered by Clean Air Act Permitting Programs; Final Rule. **Federal Register**. 75 FR 17004, April 2, 2010 (FRL-9133-6).

17. EPA. Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule; Final Rule. **Federal Register**. 75 FR 31514, June 3, 2010 (FRL-9152-8).

18. EPA. Action to Ensure Authority to Issue Permits Under the Prevention of Significant Deterioration Program to Sources of Greenhouse Gas Emissions: Finding of Failure to Submit State Implementation Plan Revisions Required for Greenhouse Gases; Final Rule. **Federal Register**. 75 FR 81874, December 29, 2010 (FRL-9244-7).

19. EPA. Action to Ensure Authority to Issue Permits under the Prevention of Significant Deterioration Program to Sources of Greenhouse Gas Emissions: Federal Implementation Plan; Final Rule. **Federal Register**. 75 FR 82246, December 30, 2010 (FRL-9245-3)

20. EPA. Determinations Concerning Need for Error Correction, Partial Approval and Partial Disapproval, and Federal Implementation Plan Regarding Texas's

Prevention of Significant Deterioration Program; Final Rule. **Federal Register**. 76 FR 25178, May 3, 2011 (FRL-9299-9).

21. EPA. Ocean Acidification and Marine pH Water Quality Criteria; Notice of Data Availability (NODA). **Federal Register**. 74 FR 17484, April 15, 2009 (FRL-8892-5).

22. EPA. Clean Water Act Section 303(d): Notice of Call for Public Comment on 303(d) Program and Ocean Acidification; Request for Public Comment. **Federal Register**. 75 FR 13537, March 22, 2010 (FRL-9128-8).

23. EPA. Integrated Reporting and Listing Decisions Related to Ocean Acidification. November 15, 2010.

24. Center for Biological Diversity v. EPA, 2015 U.S. Dist. LEXIS 25945 (W.D. Wash. March 2, 2015).

25. EPA. Being Prepared for Climate Change: A Workbook for Developing Risk-Based Adaptation Plans. August 2014.

Authority: 15 U.S.C. 2601 *et seq*.

Dated: September 25, 2015.

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