

Oil, Gas, and Sulphur Operations in the Outer Continental Shelf 30 CFR Part 550 – Proposed Subparts A, B, C and J

Environmental Assessment

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Bureau of Ocean Energy Management
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1.0 INTRODUCTION

1.1 *Background and Overview*

The Outer Continental Shelf Lands Act of 1953 (43 U.S.C. §§ 1331 *et seq.*) (OCSLA) authorizes the Secretary, Department of the Interior (Secretary) to prescribe and amend regulations as necessary to manage the orderly leasing, exploration, development, and production of mineral resources on the Outer Continental Shelf (OCS). Specifically, section 5(a)(8) of OCSLA (43 U.S.C. §1334(a)(8)) directs the Secretary to prescribe regulations to control air emissions from proposed OCS activities “for compliance with the national ambient air quality standards pursuant to the Clean Air Act (CAA) (42 U.S.C. §§7401 *et seq.*) to the extent activities authorized under OCSLA significantly affect the air quality of any State.” Regulatory responsibility for ensuring compliance with section 5(a)(8) of OCSLA has been delegated to the Bureau of Ocean Energy Management (BOEM) and regulations promulgated pursuant to that authority are codified at 30 C.F.R. Part 550 subpart B “Plans and Information,” and subpart C “Pollution Prevention and Control.” The air emissions regulations under subpart C have remained fundamentally unchanged since promulgated in 1980, and were at the time applicable to all OCS activities authorized under OCSLA.

The 1990 amendments to the CAA (Pub. L. 101-549) included a new section 328(a) & (b) (42 U.S.C. §7627(a) & (b)) which redefined the Secretary’s jurisdictional boundary to control air emission sources on the OCS. The revision limited the Secretary’s jurisdiction to only areas westward of longitude 87 degrees and 30 minutes (central and western Gulf of Mexico), where compliance management responsibilities rest with the BOEM Gulf of Mexico Region (GOMR). The 1990 revision of the CAA (section 328(a) & (b)) placed all other OCS areas, including offshore Alaska, under the authority and jurisdiction of the U.S. Environmental Protection Agency (USEPA).

On December 23, 2011, the enactment of the “Consolidated Appropriations Act, 2012” (Pub. L. 112-74) again revised section 328(a) and (b) of the CAA and restored responsibility for regulating air emissions for a portion of Alaska OCS planning areas to the Secretary. Specifically, the Secretary’s jurisdiction now includes the OCS planning areas adjacent to Alaska’s North Slope Borough (the Beaufort Sea OCS and the Chukchi Sea OCS Planning Areas (Arctic OCS), and a small portion of the Hope Basin OCS Planning Area. Air quality management responsibilities for the Arctic OCS rest with the BOEM Alaska Regional Office (AOCSR).

Certain provisions of 30 C.F.R. Part 550 regulations relating to air emissions and pollution prevention and control are outdated as the result of 35 years of changes to environmental science and technology, and advances in petroleum geology, exploration, drilling, and production practices. Therefore, the BOEM proposes to revise portions of the existing subparts A, B, C and J of 30 C.F.R. Part 550 to update the OCS air emissions regulations for implementation by the GOMR and the AOCSR and that take into account the specific needs in the restored jurisdiction of AOCSR. The proposed revisions relate to air emissions data required for OCS plans (Exploration Plan (EP), Development and Production Plan (DPP) or Development Operations

Coordination Document (DOCD)), incorporate by reference the appropriate updated National Ambient Air Quality Standards (NAAQS) established by the USEPA, and provide clarification of the compliance process.

The promulgation of the proposed rule will enhance BOEM's ability to carry out its responsibilities under section 5(a)(8) of OCSLA by improving the ability to incorporate new standards established by the USEPA and using environmentally sound and regionally appropriate methods to regulate OCS air emissions. The BOEM has evaluated the proposed changes to determine whether promulgation of the proposed rule could result in potential significant environmental impacts to the human, biological or physical environment.

This environmental assessment (EA) is being prepared under the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 *et seq.*) in accordance with its implementing regulations promulgated by the Council on Environmental Quality (CEQ) (40 C.F.R. Parts 1500 to 1508), an office within the Executive Office of the President. This EA provides an evaluation of the potential environmental effects, if any, of the proposed action, and will assist the Secretary in determining whether promulgation of the proposed rule and the associated implementation have the potential to significantly affect the quality of the human environment.

1.2 Purpose and Need

The authority to promulgate rules and revise existing regulations governing air emissions from BOEM approved activities is provided by section 5(a)(8) of OCSLA and the jurisdictional boundaries for application of such regulations is provided by section 328(b) of the CAA. The purpose of the proposed action is to ensure that BOEM's air quality regulations enable BOEM to better meet its obligations under section 5(a)(8) when it authorizes activities on the OCS, making certain that the impact of such activities on the air quality of any State complies with the NAAQS. The proposed action is needed in order to incorporate current air quality standards related to the NAAQS, to provide up-to-date requirements for lessees with respect to calculate projected emissions, to perform air dispersion and photochemical modeling, to monitor emissions, and control and offset emission sources. The proposed action is needed to update existing regulations by revising requirements related to lessee and operator obligations to provide BOEM air emissions information and analysis when submitting a proposed OCS Plan (EP, DPP, DOCD, Right-of-Way, Right-of-Use and Easement, lease term pipeline application). In addition, the proposed rule is not only needed to ensure that BOEM's regulation of OCS air emissions results in compliance with the NAAQS but that its requirements are enforced efficiently and consistently by BOEM's regional offices.

There have been no substantive changes to the air quality rules and regulations established under OCSLA since their promulgation in 1980. During the ensuing 35 years, the USEPA has updated the CAA air regulations for ensuring compliance with the NAAQS, but the existing OCSLA regulations do not allow for automatic updates to accommodate the changes which USEPA has made. As a result, the BOEM regional offices have used informal guidance to review and approve plans. Consequently, the amendments to subparts A, B, C and J of 30 C.F.R. Part 550 are needed to incorporate USEPA ambient air quality standards, allow for future changes in such standards, accommodate future updates to the procedures used to determine the impact of air

emissions, and permit the adaptation of the rules and regulations to the unique conditions of the Arctic OCS.

2.0 PROPOSED ACTION AND ALTERNATIVES

The CEQ regulations state alternatives are the heart of the NEPA environmental review. As such, the regulations require the Federal decision-maker perform the following tasks:

- Assess and objectively evaluate all reasonable alternatives, including alternatives not within the jurisdiction of the Federal agency; and for alternatives which were eliminated from the detailed study, briefly discuss the reasons for their having been eliminated; and
- Disclose the potential environmental consequences for each alternative, including a No-Action Alternative, so reviewers may evaluate their comparative merits.

The CEQ regulations and guidelines concerning the environmental review process require an agency to identify and evaluate all reasonable, feasible, prudent, and practicable alternatives which might accomplish the objectives outlined in the discussion of the purpose and need for the proposed action. As required, BOEM has identified and evaluated alternatives to the proposed amendment of subparts A, B, C, and J of 30 C.F.R. Part 550 which could meet and satisfy the purpose and need of this proposed action as well as the no action alternative.

As a result, Section 2 presents a discussion of five alternatives, with Alternative A representing the proposed rulemaking and Alternative B representing the no action alternative. Alternatives C, D, and E examine additional options which would omit specific provisions of the proposed rulemaking, maintaining certain aspects of the current rule. This section also provides the rationale for why other alternatives were considered, but not analyzed.

2.1 *Alternative A: The Proposed Action*

The proposed action is the promulgation of the *Air Quality Control, Reporting, and Compliance* proposed rule, to update the requirements under 30 C.F.R. Part 550 Subparts A, B, C and J, clarifying policy and procedures and incorporating improved air emissions reporting and monitoring. In summary, the proposed rule would include the following:

- 1) Changes terminology by either adopting it from the USEPA, current de facto terminology, or creating new or modified terminology for:
 - a. Air pollutants, including all criteria pollutants and precursor pollutants, greenhouse gases and hazardous air pollutants;
 - b. Attainment areas and non-attainment areas;
 - c. Averaging Times;
 - d. Class I, II, and III Areas;
 - e. Determination of offshore vehicle emissions;
 - f. Complex Total Emissions;
 - g. Dispersion Modeling;
 - h. Emissions Averaging Times;
 - i. Emissions Offsets;
 - j. Facility;

- k. Federal Land Manager;
 - l. Flaring;
 - m. Flashing;
 - n. Fully Reduced;
 - o. Geographically Proximate Activities;
 - p. Projected Emissions;
 - q. Emissions Source;
 - r. Significant emissions;
 - s. Emissions Reduction Measures;
 - t. Ambient air standards and benchmarks;
 - u. State;
 - v. Significant Impact Level; and
 - w. Ambient Air Increments.
- 2) Allows Regional Directors to require lessees to submit a revised plan if applicable air standards change.
 - 3) Requires air quality models to be approved by BOEM, the USEPA, or a Federal Land Manager.
 - 4) Specifies oil and gas exploration and development plans that require modeling must use USEPA approved guidelines.
 - 5) Requires collection of data, needed for reviewing Class I areas air quality by Federal Land Managers.
 - 6) Allows for Federal Land Managers to have input on certain plan approvals.
 - 7) Allows BOEM to require additional information and impose new requirements if it determines there is a significant potential impact to a State's air quality upon objections from States and Tribes
 - 8) Implements new or updated USEPA standards, which would immediately apply to all new or revised OCS exploration or development plans, except in limited circumstances where the BOEM grants a deferral for individual facilities.
 - 9) Changes how USEPA standards are implemented, requiring emission reduction measures any time projected emissions would cause an exceedance of USEPA defined Significant Impact Level (SIL) and requiring Best Available Control Technology (BACT) only when long-term facilities would cause an exceedance of a SIL in non-attainment areas.
 - 10) Requires an expansion of emissions monitoring and collection of fuel log data.
 - 11) Allows for periodic review of OCS operations conducted under approved plans by BOEM.
 - 12) Facilities definition expanded to include those involved in the transport of oil.
 - 13) The definition of facility has explicitly been made to include artificial islands.
 - 14) The potential to emit criteria has been removed from the definition of facility.
 - 15) Modifies attributed emissions:
 - a. Aircraft emissions are not required to be reported, and are excluded from attributed emissions calculations;
 - b. The scope of attributed emissions considered in the regulation of facility emissions will include those of all support vessels and offshore vehicles, while operating in support of a facility regardless of distance from facility;

- c. Criteria and precursor air pollutants emitted from any support vessel or offshore vehicle, described in a plan operating in support of a facility while above the OCS or State submerged lands, are included in attributed emissions; and,
 - d. Attributed emissions from non-stationary sources are to be modeled at their actual location.
- 16) Adjusts Plan Reporting requirements as follows:
- a. Engine unit of measurement changed from horsepower to kilowatt hour;
 - b. Adds MARPOL as an option for the determination of Support Vessel Emissions for Natural Gas Engines, non-Engine Sources and Diesel Engines under 900 kWh;
 - c. Removes AP42 as an option for the determination of Support Vessel Emissions for Diesel Engines over 900 kWh; and,
 - d. Requires the consolidation of multiple plans, in which facilities are located nearby, operate contemporaneously and by the same operator.
- 17) Authorizes data collection for regional air emission inventories.
- 18) Modifies the process through which BOEM can change the exemption formula which screens-out low emission facilities from more extensive analyses. The proposed rule sets a range within which BOEM can adjust the exemption thresholds, with the upper bound of the range being the current exemption formula. The change allows BOEM to update the emissions exemption formula within this range by publishing a notice in the *Federal Register* without a rulemaking. This change also will:
- a. Change the emissions exemption threshold;
 - b. Change the distance for the formula so that it would be the closest distance to the state seaward boundary or the closest Class I area, whichever is closest; and
 - c. Change where impacts from attributed emissions are to be measured to the location pollutant concentrations are the highest within any State.
- 19) Modifies emissions control sections as follows:
- a. Lessee must notify Region and implement an equally or more effective alternative if any control technology becomes non-functional or unavailable;
 - b. Emissions offsets are allowed from any source that is not related to the sources described in the plan, not only from other facilities;
 - c. Offsets, if proposed by a lessee or operator as an emissions control measure, must be of the sufficient magnitude to bring the plan under the NAAQS thresholds; and
 - d. Additional emissions reduction measures may be required if a NEPA analysis indicates the cumulative impacts exceed previously estimated levels.
- 20) Eliminates exemptions from rule for facilities constructed before 1980.
- 21) After the completion of future studies which are evaluating the impact of emissions on the air quality of States, BOEM will measure the impacts of emissions from facilities on air quality at the state seaward boundary. In most cases this is three miles from the shoreline, but Texas' submerged lands extend nine miles from the shoreline.
- 22) Air quality regulations will also cover Right-of-Way and Right-of-Use and Easement applications.
- 23) Requires operators to resubmit plans every 10 years to ensure ongoing compliance.

2.2 Alternative B: No Action Alternative

The No-Action Alternative is the rejection of the proposal for amendments to subparts A, B, C and J of 30 C.F.R. Part 550. This alternative would take no action to amend existing BOEM air emissions regulations.

2.3 Alternative C: Point of Impact Evaluation Unchanged

Alternative C is the promulgation of the proposed rule, with the exception of changing the point at which air quality impacts to the State air quality are evaluated. This would maintain the current policy of evaluating air quality impacts at the shoreline, instead of the proposed change in Alternative A of evaluating such impacts at a State's seaward boundary. Under Alternative C, impacts would be evaluated at the shoreline and points inland, where they are currently evaluated.

2.4 Alternative D: Resubmission of Air Emissions Plans Unchanged

Alternative D is the promulgation of the proposed rule, with the exception of those parts requiring operators to resubmit their facility air quality plans every ten years. Currently, operators are only required to update plans if equipment is changed and emissions will exceed the previously approved levels.

2.5 Alternative E: Not Attributing Vessel Emissions

Alternative E is the promulgation of the proposed rule with the exception of those parts requiring the attribution and evaluation of air emissions of offshore vessels, and if necessary, the modeling of any impacts to the air quality of States. If BOEM selects this alternative, the bureau would not attribute emissions from vessels to facilities and they would be excluded from exemption threshold calculations. This would be a change in current practice in that BOEM would follow the current regulation.

2.6 Alternatives Considered But Not Analyzed

Several other alternatives were considered, but they were rejected for the reasons given below. They are as follows:

- 1) The air emissions of all onshore vehicles and support facilities that operate in support of offshore facilities would be attributed to the facility, in addition to attributing air emissions from offshore vehicles and vessels. This was not examined because while it is possible to allocate emissions from offshore vehicles to individual OCS facilities based on the description in a plan, it would be extremely difficult to allocate the use of onshore vehicles and support facilities to activities described in a plan. Further, even if it were feasible to allocate the usage of onshore vehicles and support facilities to a particular plan, the amount of emissions allocated from such support vehicles and facilities would likely be very low. Accounting for the air emissions of all onshore vehicles and support facilities would not meet the purpose and need of the proposed action.
- 2) BOEM could eliminate the exemption formulas which exempt some operators from modeling. This was not considered because this alternative would provide no measurable

additional protection to the environment over the proposed action. Exceedance of the exemption threshold does not itself trigger a requirement to reduce air pollutants. The purpose of the exemption formula is to act as a screening tool to avoid the unnecessary expenditure by operators, and BOEM, of evaluating plans having no significant impact on the air quality of a State and thus require regulation. The resource burdens would affect both the operators who would be required to model, and the BOEM, which would have to review and assess a significant increase in the number of modeling results. The exemption formula is an effective way to lessen the resource burdens on BOEM and operators while not lessening the protection to the air quality of States from OCS activities. Eliminating the exemption formulas would not meet the purpose and need of the proposed action.

- 3) BOEM could include a requirement that operators obtain a permit for their air emissions, a similar approach to USEPA's offshore air quality program. However, a permit program would impose significant resource burdens on both the operators and the BOEM without assisting BOEM to fulfill its obligations to ensure compliance with the NAAQS to the extent that activities BOEM authorizes significantly impact the air quality of any State. A permit program would require a significant increase in the number of BOEM staff required to conduct the necessary reviews prior to the issuance of any permits. Moreover, the environmental effects of a permit program would not differ from the proposed rule's environmental effects, since the permit application and the plan would collect the same information and evaluate it according to the same standards. This alternative would not have any different impacts on the environment than the proposed action. While an air quality permit program would achieve the purpose of the proposed action, it is not needed since the same results could be achieved through the simpler and more cost-efficient process set forth in the proposed action, and therefore, it is not necessary to analyze this alternative.

3.0 AFFECTED ENVIRONMENT

As required by the CAA, the USEPA has established NAAQS for six "criteria" pollutants to provide protection from adverse effects on human public health and public welfare:

- carbon monoxide (CO)
- nitrogen dioxide (NO₂)
- coarse particulate matter (PM₁₀) and fine particulate matter (PM_{2.5})
- sulfur dioxide (SO₂)
- ozone (O₃)
- lead (Pb)

The CAA established two types of air quality standards under the NAAQS. Primary standards set limits to protect human public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. The Primary and Secondary NAAQS are identical for four of the six criteria pollutants (NO₂, PM, O₃, and Pb). The SO₂ Secondary NAAQS is less strict than its Primary standard, and there is no Secondary NAAQS for CO. The NAAQS pollutants released by OCS sources include

CO, NO₂, PM, and SO₂. Nitrogen oxides and volatile organic compounds released by OCS sources are precursor pollutants for O₃, which is formed through photochemical reactions in the atmosphere.

When an area does not meet the air quality standard for one or more of the criteria pollutants, USEPA designates the location as a nonattainment area. The CAA sets forth the regulatory process to be applied to an area in order to comply with the standards within a specified time frame. This timeframe varies by the type of pollutant and severity.

The entire atmosphere above the OCS, both in areas under USEPA and BOEM jurisdiction, is unclassified. USEPA defines unclassified as “any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.” (USEPA, 2015a)

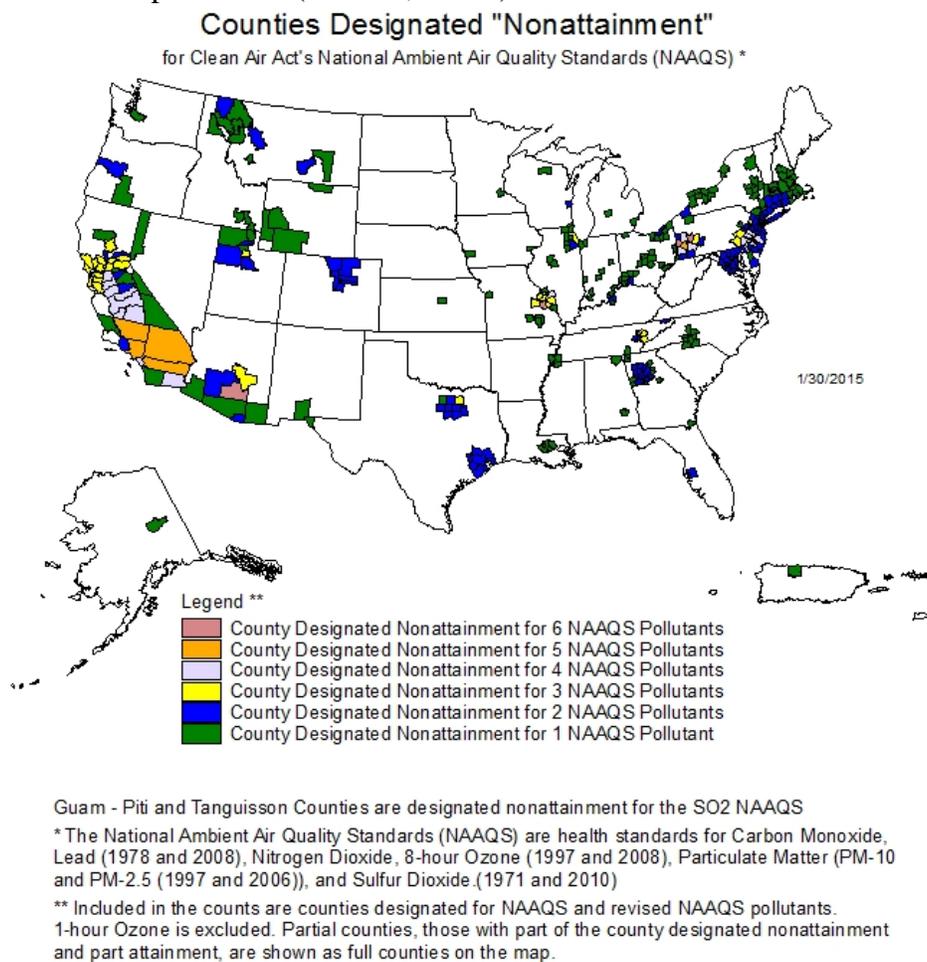


Figure 1 – The location of USEPA’s current nonattainment areas (USEPA, 2015b)

Arctic Air Quality: The closest nonattainment area to the Arctic OCS is a portion of the Fairbanks North Star Borough, which is located approximately 500 mi (805 km) south of the Arctic OCS. This area was designated by USEPA as nonattainment for PM_{2.5} in December 2010 and is the only nonattainment area in Alaska (see Figure 1). There is a mountain range, the Brooks Range, which stretches from east to west across northern Alaska acting as a barrier between emissions

released north of the range and Fairbanks North Star Borough. The distance of the nonattainment area from the Arctic OCS, the barrier caused by the Brooks Range, and the relatively few existing emission sources on the North Slope prevents contribution of PM_{2.5} to Fairbanks North Star Borough from the Arctic OCS.

Gulf of Mexico Air Quality: The Gulf of Mexico OCS and nearby onshore areas are more industrialized than the Arctic OCS and Alaska's North Slope Borough. The USEPA identifies non-attainment areas in all or part of the Dallas-Fort Worth, Houston, New Orleans, Baton Rouge, Memphis, Chattanooga, Knoxville, Atlanta, Charlotte and the Tampa-St. Petersburg metropolitan areas as well as Pike County, Alabama (see Figure 1). Some of the nonattainment areas are as close as 10 mi (16 km) to the OCS, although the larger oil and gas operations are generally farther offshore. OCS activities contribute a minority of the air emissions affecting air quality onshore in the States around the Gulf of Mexico, with the majority coming from onshore sources.

4.0 ENVIRONMENTAL CONSEQUENCES

The proposed action is a rulemaking proposal, which if approved, would apply to all current and future OCS oil and gas exploration, development, production and transportation (pipelines) activities in any OCS planning area under the jurisdiction of BOEM. Under the current rule, the main impact to air quality by oil and gas operations in the Gulf of Mexico, and anticipated in the Arctic, is from:

- platform construction and emplacement
- platform operations
- drilling activities
- flaring
- seismic-survey and support-vessel operations
- pipeline laying and burial operations
- evaporation of volatile petroleum hydrocarbons during transfers
- fugitive emissions
- the release of oil, condensate, natural gas
- chemicals used offshore, or pollutants from the burning of these products

These activities result in the release of NO₂, CO, SO₂, PM₁₀, and PM_{2.5}, which are NAAQS pollutants, and volatile and semi-volatile organic compounds, hydrogen sulfide, methane, and ammonia.

After analyzing the proposed rule, BOEM has determined that air quality is the primary resource with the potential to be affected as the proposed rule affects the standards for submitting and approving plans only with regard to air quality. The proposed rule does not change the overall way facilities operate on the OCS. This determination was made by BOEM after considering the following resources for impacts by the proposed air quality rulemaking:

- Air Quality

- Water Quality
- Marine Mammals
- Marine and Coastal Birds
- Fish Resources and Essential Fish Habitat
- Sea Turtles
- Coastal Habitats
- Seafloor Habitats
- Areas of Special Concern
- Population, Employment, and Regional Income
- Sociocultural Systems and Environmental Justice
- Archeological Resources
- Land Use and Existing Infrastructure
- Tourism and Recreation
- Fisheries

4.1 Alternative A: The Proposed Action

The proposed action consists largely of changes to administrative, procedural and informational requirements regarding air emissions associated with OCS facilities. Some of these changes address requirements for reporting, record keeping, testing and plan submission. Consequently, these portions of the proposed action would not cause environmental impacts. Other changes in the regulation would not result in significant environmental impacts because standard operational procedures and equipment would be used to implement the technological and reporting requirements, and would not jeopardize the protection provided by current regulations. Two subsections **550.306** and **550.307**, when considered in isolation appear to allow for the emission of additional NAAQS pollutants and precursor pollutants. However, in the context of the rest of the rule, these provisions would work to reduce emissions. These provisions are designed to allow facility operators to shift their emissions reduction efforts towards activities with greater benefit. These sections are discussed at greater length in this section below. Three additional subsections, **550.303**, **550.304** and **550.310**, are also discussed in greater detail as the environmental effects, though neutral and positive, are more nuanced. The requirements in these sections would help avoid potential adverse environmental impacts by reducing the amount of NAAQS criteria pollutants emitted as a result of BOEM-approved activities on the OCS. In addition, the proposed rule would require, in certain circumstances, some operators to conduct modeling to determine the effect of their emissions on ozone formation in a State, and to control emissions to reduce ozone formation. By reducing emissions of criteria and precursor pollutants, BOEM would, in certain cases, reduce the contribution of OCS facilities' emissions to nonattainment areas, such as ozone in the Houston metropolitan area, preventing future contribution to NAAQS exceedances.

The following amendments to 30 C.F.R. Part 550 have been reviewed and are exclusively administrative and technical. No impacts to a state's air quality are anticipated as a result of these revisions since they do not require or encourage changes to any facility's operations. Therefore, further environmental analysis of these provisions is not necessary.

Subpart A – General

550.101 Applicability

550.105 Definitions

550.198 Documents incorporated by reference

Subpart B—Plans and Information

550.200 Definitions

Subpart C—Air Quality Analysis, Control and Compliance

Title

550.301 Under what circumstances does this subpart apply to operations in my plan?

550.302 Definitions concerning air quality.

The following changes to 30 C.F.R. Part 550 have been reviewed and contain provisions which affect the way offshore air emissions data is collected from OCS operators. These regulations explain how offshore data would be collected, stored, and transferred to the BOEM. This includes an expanded program designed to require operators to monitor actual emissions within certain criteria. This differs from the current practice, which relies on fuel logs and manufacturer estimates of the air emissions of machines and other equipment. It also includes a requirement to include air emissions from all Right-of-Use and Easement, decommissioning activities and offshore support vessels, or mobile sources, regardless of their distance from the facilities they support. By themselves, these provisions cause no environmental impacts, since they do not require or encourage changes to any facility's operations. Therefore, further environmental analysis of these provisions is not necessary. However, these provisions should lead to more accurate information collection, which would result from OCS approvals. Therefore in combination with other proposed provisions discussed later, result in result in beneficial environmental impacts.

Subpart A – General

550.102 What does this part do?

550.160(f) When will BOEM grant me a right-of-use and easement and what requirements must I meet?

550.187 What region-wide offshore air emissions data must I provide?

Subpart B—Plans and Information

550.205 What air emissions information must be submitted with my plan (EPs, DPPs and DOCDs)?

550.211 What must the EP include?

550.212 What information must accompany the EP?

550.215 What hydrogen sulfide (H₂S) information must accompany the plan?

550.224 What information on support vessels, offshore vehicles, and aircraft must accompany the plan?

550.225 What information on the onshore support facilities must accompany the plan?

550.241 What must the DPP or DOCD include?

550.242 What information must accompany the DPP or DOCD?

550.245 What hydrogen sulfide (H₂S) information must accompany the plan?

550.249 What air emissions reporting must accompany the plan?

550.257 What information on support vessels, offshore vehicles, and aircraft must accompany the plan?

550.258 What information on the onshore support facilities must accompany the plan?

550.280 How must I conduct activities under the approved EP, DPP, DOCD or RUE, pipeline ROW, or lease term pipeline application?

550.284 How will BOEM require revisions to the approved EP, DPP, DOCD, or application for a RUE?

Subpart C—Air Quality Analysis, Control and Compliance

550.311 Under what circumstances will I be required to measure and report my actual emissions?

550.312 What post-approval monitoring and reporting is required?

Subpart J—Pipelines and Pipeline Rights-of-Way

550.1012 Air quality requirements for pipeline right-of-way holders.

The following changes to 30 C.F.R. Part 550 could help avoid potential adverse air quality impacts. These changes do not allow for the emission of additional air pollutants, and therefore will have no negative impacts on air quality. They are likely to have a positive impact because the proposed regulations would increase the number of facilities required to reduce air emissions. This reduction would lead to lower levels of ambient air pollution onshore.

Subpart A – General

550.141 May I ever use or be required to use alternate procedures or equipment?

Subpart C—Air Quality Analysis, Control and Compliance

550.305 How do I determine whether my projected emissions of criteria pollutants require controls?

550.308 Under what circumstances will BOEM require additional emissions reduction measures on my proposed facility or facilities?

550.313 Under what circumstances will BOEM impose additional requirements on facilities operating under already approved plans?

550.314 Under what circumstances will the Regional Supervisor review the emissions from my existing facility or facilities?

The following changes to 30 C.F.R. Part 550 have been reviewed and could help avoid potential adverse environmental impacts because they describe how changes to USEPA regulations would affect the reporting of air emissions from facilities that are regulated by BOEM. These changes, in the immediate future, would have either a positive or a neutral impact. This regulation provides for incorporating future changes to USEPA’s regulations into BOEM requirements. The impact of these changes will vary depending on how USEPA adjusts regulations, and the relevance of those changes to OCS facilities. Although it is possible for USEPA to increase allowable emissions, thereby increasing the amount of emissions allowed at BOEM regulated facilities, this is a highly unlikely and unforeseeable event. The evidence used by USEPA to establish the current CAA regulations such as the NAAQS and associated significant impact

levels are documented and subject to statutory criteria and a rigorous rulemaking process that will likely ensure that they will continue to be protective of the environment.

Subpart C—Air Quality Analysis, Control and Compliance

550.310 (a), (b) How will revisions to the ambient air standards affect my plan?

The following changes to 30 C.F.R. Part 550 have been reviewed and could help avoid potential adverse air quality impacts. This section describes how operators would reduce emissions, should such reductions be required. Although the current regulations contain provisions for offsets and controls, they do not describe specific requirements for methods of emission reduction. These changes would not establish standards for when controls would be required (as sections 550.305 through 550.307 do), but instead they determine how operators would be required to reduce their emissions. As a result, it is not clear how to quantify the effect from this change alone, but, due to other proposed provisions affecting when controls would be required, this change is estimated to affect the operations described in 3 to 4 plans annually, which would result in lower emissions from these plans. However, the proposed rule also contains expanded recording, reporting, and stricter limitations which would, in combination with this provision, result in an increased number of facilities using offsets and emissions control technology. Since an increase in the use of offsets and emissions control technology could only reduce the net amount of emissions, the air quality impacts from these sections of the proposed rule would be either neutral, if no plans require a reduction of emissions, or positive, if control technology or offsets would be used.

Subpart C—Air Quality Analysis, Control and Compliance

550.309 What requirements apply to my emissions reduction measures?

The following three sections in *Subpart C—Air Quality Analysis, Control and Compliance* may have more substantial and nuanced impacts to air quality. These sections are discussed individually because they are not similar and their effects differ greatly.

The current rule requires the use of BACT regardless of attainment status in nearby onshore areas. Like the current rule, the changes in section **550.306 What ERM are required for a Short-term facility?** and section **550.307 What ERM are required for a Long-term facility?** would require the reduction of emissions when a facility's emissions are expected to exceed certain USEPA standards. However, while BACT may still be required under the proposed rule when USEPA standards are exceeded in a non-attainment area, BACT would not be required when emissions exceed USEPA standards in an attainment area. This change would allow operators more options to reduce emissions when only attainment areas are affected, including: offsets or operational controls and other emissions reduction measures. The provisions of this proposed section, when examined independently from the rest of the proposed rule, would have the potential to increase the amount of emissions from a limited number of OCS facilities. However, these OCS facilities would still be required to reduce their emissions as much as practicable using operational controls or other emissions reduction measures. It is the intent of BOEM to allow facility operators to shift their resources away from BACT, in areas where attainment has been achieved and emissions reductions can be achieved with other methods. Moreover, other new provisions, such as the consolidation of plans, regulation of support

vessels, prevention of impacts on air over state submerged lands, reevaluation of plans and cross referencing USEPA regulations would likely reduce emissions to a greater extent than any possible increase in air emissions as a result of this provision. More importantly, the rule requiring that emissions from OCS facilities not affect the air quality of the States remains unchanged. This proposed change, when considered together with the other provisions of the proposed rule, would better ensure that OCS emissions do not impact the air quality of a State.

The revisions in section **550.303 What analysis of my projected emissions is required under this subpart?** in *Subpart C*, would change BOEM's current policy of modeling impacts at the shoreline when evaluating plans, including the exemption formula, air dispersion and photochemical modeling, and other analyses which determine when reduction measures are required. The proposed rule would require that BOEM model the impact of OCS emissions at the state seaward boundary and points closer to shore and onshore. Under the Submerged Lands Act (43 U.S. Code § 1312), in most cases, the state seaward boundary extends three nautical miles from the shoreline, however Texas' Gulf of Mexico seaward boundary extends nine nautical miles offshore (NOAA, 2015).

This change may not have an environmental impact or a positive impact, depending on local conditions such as which atmospheric process is more dominant in mixing air aloft down to the surface, sea breezes or platform downwash. The atmosphere over maritime waters tends to be relatively stable, meaning there is very little vertical mixing of the atmosphere. Thus it is possible that emissions from facilities remain aloft, and only mix at the surface when the emissions approach the shoreline. Differences in how the ocean and the land heat and cool cause increased vertical and horizontal mixing of the atmosphere in the vicinity of the shoreline, commonly referred to as a sea breeze (NWS, 2010). If this mixing is the first vertical motion with which emissions interact after being released, it would cause the highest concentration of emissions to occur at the surface near the shoreline. The shoreline location is being used to evaluate plans by BOEM for impacts by offshore facilities under the current rule.

There is a second process which may affect where emission concentrations are highest, called downwash (Liu, 2002). In this process, air emissions from the top of solid buildings are moved down the leeward side of a building, within the building's wind shadow. In the offshore environment, the facility from which the emissions originate is the most likely building where downwash may occur. However, downwash is less efficient at vertically mixing the atmosphere leeward of offshore facilities. This is a result of offshore facilities being elevated from the surface of the water, unlike onshore buildings where a building's footprint almost always reflects its shape higher up. These differences reduce the size of offshore facility's wind shadow, thereby reducing the amount of emission downwash (Peterson, 1986). However, should this process mix enough criteria and precursor pollutants to the surface, they may currently be impacting air quality at the state seaward boundary. The proposed action would have BOEM evaluate and prevent these impacts and thus have a positive air quality impact at the state seaward boundary by reducing the emissions reaching that boundary.

This section of the proposed rule also describes an exemption formula BOEM uses as a screening tool to evaluate potential impacts. The purpose of the exemption formula as a screening tool is to evaluate the amount of potential emissions a plan will generate to determine

if it is possible for the facility to have an impact on the air quality of any State. If a plan emits more criteria pollutants than the formula allows, the facility's proposed emissions are subject to air dispersion and photochemical modeling to determine if and how much of an impact those emissions would have on a state's air quality.

The BOEM has proposed creating a range within which, it may adjust this formula, through a notice in the *Federal Register* without further rulemaking. Since the proposed range uses the current formula as its upper bound, the proposed action would not authorize BOEM to increase the amount of emissions a facility can produce, while remaining exempt. However, BOEM would be able to lower the emissions exemption threshold without a rulemaking and require air dispersion and photochemical modeling for additional facilities. Since this provision can only increase the scrutiny with which plans are evaluated, it would not have any negative impacts on air quality. The exemption formula could remain at the current levels, but if it were adjusted lower, the only direct effect would likely be to require more operators to perform modeling.

Indirectly, however, there could be a positive impact on air quality if the exemption formula is lowered. Under the current practice, operators can commit to applying controls, directly or indirectly through operational constraints, in order to avoid having to model their emissions. If the exemption thresholds were lowered and operators continued this practice, this could result in a reduction of air emissions. The extent of positive impact would depend on how much the exemption formula is reduced, and the method by which facility operators adapt to meet the new thresholds. When BOEM proposes exemption formulas in the future, it should be able to more fully analyze the impacts they could have on air quality.

Impacts from air emissions of OCS facilities at the shoreline and at the state seaward boundary in the Gulf of Mexico and the Arctic are currently being researched by BOEM based on changes made to the NAAQS since the last time BOEM modified its air quality regulations. These studies will also reevaluate the exemption formulas currently used in the Gulf of Mexico and the Arctic.

The proposed section **550.304 What must I do if my projected emissions exceed an emissions exemption threshold?** shifts the location where the impacts on a state's air quality are evaluated by modeling. Changes to this section, once effective, would ensure that effects on the state air quality driven by both platform downwash and sea breezes would be evaluated wherever they are highest within the State, allowing BOEM to take appropriate action to prevent negative air quality impacts to the State. If sea breezes are the dominant way criteria and precursor pollutants are brought to the surface, then there would likely be no change in the results of air quality modeling. If platform downwash is the dominant way criteria and precursor pollutants are brought to the surface, then this change would have a positive impact on air quality over state submerged lands.

Proposed section **550.310 How will revisions to the Ambient air standards affect my Plan?** would require approved plans to be resubmitted every ten years, however, required resubmission of existing plans would be phased into this process over the first decade after promulgation of the new rule. Since the plan approval process is when facilities' potential emissions are evaluated to determine if a significant impact to a state's air quality would occur and whether emissions controls are necessary, resubmission of plans would require lessees and operators to comply with

any new standards enacted by BOEM or USEPA and, if necessary, re-determine whether the such emissions significantly impact a state's air quality.

The current regulations do not have a general requirement that operations under already-approved plans meet air emissions standards that have come into effect since the plan was initially approved. However, facility operators currently have the option to resubmit plans at any time and would continue to have that option under the proposed rule. Consequently, this change would likely have a positive impact on the environment because in the event BOEM or EPA's air quality regulations are updated, the new requirement would require any plan older than ten years to be updated based on the new air quality regulations and standards.

This provision would not cause a negative impact to air quality because it is not foreseeable that any standards proposed for incorporation into BOEM's regulations would increase permissible concentrations of pollutants nor is it likely that USEPA would increase them above the levels in BOEM's current regulations. Therefore, the proposal to require plans to be resubmitted every ten years would not degrade the air quality of any state.

4.2 *Alternative B: No Action Alternative (NAA)*

Selection of the "no action" alternative would mean there would be no revisions to 30 C.F.R. Part 550. Therefore, the proposed 30 C.F.R. Part 550 changes would not be implemented; the intended benefits of the proposed rule would not be realized.

Under the No-Action alternative, the rules and regulations for the protection of coastal States' air quality from OCS sources of emissions under 30 C.F.R. Part 550:

- Would not specifically address attributing emissions from support vessels and offshore vehicles and therefore not ensure consistency across OCS regions with respect to what emissions are considered;
- Would not accommodate the updates and revisions to the USEPA ambient air quality standards;
- Would continue to lack the clarity which the new and revised definitions and revised text provides. As such, the BOEM regional offices would continue to expend valuable time explaining the rules and regulations to lessees, particularly for those lessees unfamiliar with the procedures in the AOCSR;
- Would maintain the practice of evaluating the impact of air emissions at the shoreline, instead of at the state seaward boundary;
- Would not require operators to resubmit their plans every ten years to demonstrate compliance with the regulations.

OCS oil and gas exploration and development activity is expected to increase over the coming decades. Without the proposed amendments, any changes to the USEPA standards which would be applicable under the proposed rule to facilities regulated by and within BOEM's jurisdiction would not be incorporated. Further, because the existing BOEM regulations were adopted almost 35 years ago, they were designed for the environment and circumstances existing at the time.

Unlike the current situation, most facilities were located close to the shoreline and were serviced by a small number of locally operated support vessels. Today, the number and variety of support vessels is much greater and they typically travel much longer distances before arriving at their supported facilities. Under this alternative BOEM would not be able to use an approach to air quality that accounts for longer distances traveled and different work expected of support vessels.

As the USEPA has made adjustments to the NAAQS, the BOEM's regulations have not been updated accordingly. Without the proposed revisions to the regulations, BOEM's current regulations would allow for future additional contribution of criteria pollutants to onshore nonattainment areas and other degradation of onshore air quality.

These OCS activities result in the release of NO₂, CO, SO₂, PM₁₀, and PM_{2.5}, which are NAAQS pollutants, and volatile and semi-volatile organic compounds, hydrogen sulfide, methane, and ammonia. Individual facility operations would not be expected to have a significant effect onshore, as prevailing atmospheric conditions and emissions rates typically disperse pollutants before reaching the shoreline. Previous analyses have not taken air quality from the shoreline to the State seaward boundary into consideration, although studies are underway to examine the impact on air quality over State's submerged lands around the Gulf of Mexico and the Arctic. There is the potential that OCS emissions affect ozone in the Greater Houston area. On the whole, however, OCS operations have a minimal impact on the air quality onshore (BOEM, 2015).

4.3 Alternative C: Point of Impact Evaluation Unchanged

This section evaluates the environmental impact of promulgating the proposed rule in its entirety with the exception of shifting the point of evaluation of impacts to a State's air quality to the state seaward boundary. This would be the only provision of the proposed action which would not be adopted.

Should the sea breeze phenomenon discussed under the effects of proposed section 550.303 in Alternative A be the dominant atmospheric factor mixing NAAQS pollutants to the surface, there will be no environmental impact as a result of adopting this Alternative, since this impact is already being addressed under the current rule. However, if downwash is more significant in moving NAAQS pollutants to the surface, then the highest concentrations of OCS emissions within a State is very likely to be at the state seaward boundary. If this is the case, by adopting this alternative, which effectively ignores downwash, it is possible there would be increased impacts on a State's air quality when compared to the proposed action. If platform downwash is not significant in mixing NAAQS pollutants to the surface, air quality will not be either positively or negatively affected. However, given the possibility that downwash is the dominant cause of mixing NAAQS pollutants and precursor pollutants to the surface, it is possible this alternative would increase NAAQS pollutants and precursor pollutants impacting the air quality over State submerged lands when compared to the proposed action.

Alternative C could have negative effects when compared to the Proposed Action, as described in section 4.1.

4.4 Alternative D: Resubmission of Air Emissions Plans Unchanged

This section evaluates the environmental impact of promulgating the proposed rule in its entirety with the exception of the provision requiring periodic reevaluation of a plan's air quality information. This would be the only provision of the proposed action which would not be adopted.

This alternative would retain the current requirement for the mandatory reevaluation of plans only when facilities are modified. By maintaining this aspect of the current regulation, no new negative impacts are likely; however, higher levels of air emissions to the atmosphere could be expected compared to the proposed action. Under the current rule, after a facility's plan is approved, it is only reevaluated if there are changes in equipment or operations which would cause the facility to exceed the amount of air emissions in a BOEM approved plan. It is possible for facilities to continue to emit NAAQS pollutants and precursor pollutants in excess of revised requirements by BOEM and USEPA, if those revisions were made subsequent to the last review of a facility's emissions. Under this alternative, when BOEM and USEPA requirements change, facilities would continue to operate under the standards at the time of their plan approval.

As a result, Alternative D would allow for higher levels of air emissions to the atmosphere than could be expected under the proposed action.

4.5 Alternative E: Disregard Vessel Emissions

This section evaluates the environmental impact of BOEM not attributing to facilities the air emissions from offshore vessels and other mobile sources which service those facilities. The rest of the rule would be adopted in its entirety, with only the provisions addressing vessels and other mobile sources excluded.

Current practice attributes the total emissions of a support vessel's emission sources to the total emissions an OCS facility, when it is within 25 miles of that facility, before calculating the emissions for use in the exemption formula and for emissions evaluation and reduction requirements. This practice treats vessel emissions as if they were permanently co-located with the facility. Since this practice is not written into BOEM's regulations, the effect of not including vessel and other mobile sources in the proposed rule would be to exclude them from the air quality evaluation of facility plans. Under this alternative BOEM would cease the current practice of including emissions from vessel sources in the exemption formula and for emissions evaluation and reduction requirements.

Ending BOEM's current practice of attributing vessel source emissions to an OCS approved facility, while not adopting a new method of evaluating mobile sources, might result in the emission of additional NAAQS air pollutants and precursors into the atmosphere because not attributing support vessel emissions would allow facilities to emit more pollutants without

exceeding the levels that trigger requirements for controls. This would have a negative impact on air quality because support vessels as a whole contribute more NO_x emissions than facilities to the atmosphere. Due to the amount of NAAQS air pollutants and precursor pollutants emitted by vessels and other mobile sources in the GOMR, compared to the amount emitted by facilities in the GOMR, this change would have the potential to add a significant amount of additional NAAQS pollutants to the atmosphere. Given the expected use of larger and greater numbers of offshore vessels in the Arctic, relative to the number of facilities, this change would likely have a substantial negative impact in that region as well.

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The Department of the Interior Mission



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The Bureau of Ocean Energy Management (BOEM) manages the exploration and development of the nation's offshore resources. It seeks to appropriately balance economic development, energy independence, and environmental protection through oil and gas leases, renewable energy development and environmental reviews and studies.