

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)	
)	
PETITION OF EXXONMOBIL)	AS 23 - ____
OIL CORPORATION FOR)	(Adjusted Standard – Air)
ADJUSTED STANDARD FROM)	
35 ILL. ADM. CODE 216.361,)	
35 ILL. ADM. CODE 216.103, AND)	
35 ILL. ADM. CODE 216.104)	

NOTICE OF FILING

To: Don Brown, Clerk	Division of Legal Counsel
Illinois Pollution Control Board	Illinois Environmental Protection Agency
100 West Randolph St.	1021 North Grand Avenue East
Suite 11-500	P.O. Box 19267
Chicago, Illinois 60601	Springfield, IL 62795-9276

Please take notice that on August 14, 2023, the Petitioner filed electronically with the Office of the Clerk of the Illinois Pollution Control Board, the attached Petition of ExxonMobil Oil Corporation for an adjusted standard from 35 Ill. Adm. Code 216.361, 35 Ill. Adm. Code 216.103, and 35 Ill. Adm. Code 216.104 , Certificate of Service, and Appearance, copies of which are served upon you.

Dated: August 14, 2023

Respectfully submitted,

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CERTIFICATE OF SERVICE

I, the undersigned attorney, certify that I have filed the documents described above electronically with the Illinois Pollution Control Board and served the Illinois Environmental Protection Agency with the same documents by First Class Mail, postage prepaid, on August 14, 2023.

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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
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PETITION OF EXXONMOBIL) **AS 23 - ____**
OIL CORPORATION FOR) **(Adjusted Standard – Air)**
ADJUSTED STANDARD FROM)
35 ILL. ADM. CODE 216.361,)
35 ILL. ADM. CODE 216.103, AND)
35 ILL. ADM. CODE 216.104)

PETITION FOR ADJUSTED STANDARD

NOW COMES the Petitioner, ExxonMobil Oil Corporation (“Petitioner” or “ExxonMobil”), by and through its undersigned counsel, and pursuant to Section 28.1 of the Illinois Environmental Protection Act (the “Act”), 415 ILCS 5/28.1, and section 104.428 of the Illinois Pollution Control Board’s (“Board”) regulations, 35 Ill. Adm. Code 104.428, and petitions the Board for an Order granting it an adjusted standard from the provisions of 35 Ill. Adm. Code 216.361, 35 Ill. Adm. Code 216.103, and 35 Ill. Adm. Code 216.104. In support thereof, Petitioner states as follows:

I. INTRODUCTION

In December 2022, the Illinois Environmental Protection Agency (“Agency” or “Illinois EPA”) proposed amendments to the startup, malfunction, and breakdown (“SMB”) regulations in PCB R 23-18, including removing SMB provisions in 35 Ill. Adm. Code Parts 201, 202, and 212. Illinois EPA Proposal, PCB R 23-18 (Dec. 7, 2022). On July 20, 2023, the Board adopted Illinois EPA’s proposal. Opinion and Order, PCB R 23-18 (July 20, 2023).

Petitioner operates a facility in Joliet, Illinois (the “Joliet Refinery”) that is impacted by the changes to the SMB provisions¹ Petitioner submits this Petition seeking an adjusted standard

¹ The Board’s July 26, 2023 Notice of Adopted Rules submitted to the Illinois Secretary of State indicated the effective date of the amendments was July 25, 2023. Pursuant to Section 28.1(f) of the Act and 35 Ill. Adm. Code 104.412(b), Petitioner’s filing of this Petition has the effect of exempting the Joliet Refinery from the adopted amendments until

from the Board's carbon monoxide (CO) standard applicable to petroleum and petrochemical processes in Part 216 as a result of the Board's removal of the SMB provisions. As explained herein, the Board's removal of the SMB provisions from Part 201 will greatly impact operations at the Joliet Refinery, which include one fluid catalytic cracking unit ("FCCU"), as FCCUs are unable to comply with the CO standard in 35 Ill. Adm. Code 216.361 during SMB events. Petitioner proposes an adjusted standard to Section 216.361, with corresponding adjusted standard revisions to 35 Ill. Adm. Code 216.103 and 35 Ill. Adm. Code 216.104, which incorporates by reference select provisions of the National Emission Standards for Hazardous Air Pollutants ("NESHAP") for Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units at 40 CFR Part 63, Subpart UUU. In promulgating NESHAP Subpart UUU, the United States Environmental Protection Agency ("USEPA") recognized the unique and important operating conditions that FCCUs must follow during SMB periods to ensure safe operations and to minimize emissions. The Board's removal of the SMB provisions in Part 201 will prohibit the use of these effective and useful standards for SMB periods for FCCUs and could cause direct economic harm to the Joliet Refinery by potentially resulting in periods of unnecessary curtailment of gasoline, diesel, and other key feedstocks production, which in turn would cause negative economic impacts in the Illinois and greater Midwest markets. Petitioner, therefore, respectfully requests that the Board adopt Petitioner's proposed adjusted standard.

final action is taken by the Board on the Petition. As explained further in Section III below, the effective date of the regulation for which Petitioner seeks an adjusted standard should be considered the same date as the effective date of the amendments to the SMB regulations, which was July 25, 2023. Since this Petition is filed within 20 days after this effective date, Section 28.1(f) of the Act and 35 Ill. Adm. Code 104.412(b) apply.

II. BACKGROUND

A. Background on SMB Regulations

The majority of the SMB provisions that were the subject of PCB R 23-18 were originally adopted by the Board in April 1972. *See* Opinion and Order of the Board, *In the Matter of: Emission Standards*, PCB R 71-23 (Apr. 13, 1972) (adopting Section 201.149 (then Rule 105(a)), Section 201.157 (then Rule 103(b)(3), Sections 201.261 – 201.265 (then Rules 105(b) – (f), Section 201.301 (then Rule 107(a)), and Section 212.124 (then Rule 202(c)). The SMB provisions were adopted in a large rulemaking for new regulations for emission control of sulfur dioxide, nitrogen oxides, CO, hydrocarbons, and particulate matter. Final Order and Opinion, PCB R 71-23, at 1 (April 13, 1972). The Board recognized that sources were unable to meet many of the emission limitations and standards being adopted, explaining:

Many of the substantive limitations adopted today impose stringent new requirements which cannot be met immediately without closing down large numbers of existing facilities. While it is important that the new standards be met as soon as is practicable, we have no wish to obtain clean air at the cost of closing down society.

Id. at 8. Instead of delaying the effective date of the standards, the Board promulgated provisions providing for compliance schedules to allow time for new control equipment to be installed on existing units. 35 Ill. Adm. Code 201, Subpart H. These provisions provided for a prima facie defense to an enforcement action alleging a violation of the air standards or limitations. 35 Ill. Adm. Code 201.245. Similarly, the SMB provisions in the Board's rules provided for a prima facie defense, and the SMB permit conditions were intended to be revisited with each operating permit renewal.

As to adopting the SMB provisions in Sections 201.261-201.265 (then Rules 105(b)-(f)), the Board explained the rules as follows:

Rule 105: Malfunctions, Breakdowns, and Startups. No machine works perfectly all the time. Further, startup conditions may result in less than optimum emission control. The policy of this Rule is that insofar as is practicable, efforts shall be made to reduce the incidence and duration of startups and excessive emissions during startup periods; and that, except in special cases, equipment whose pollution controls are out of order should not be operated, just as an automobile should not be operated when its brakes are out of commission. Clearly the latter principle cannot be absolute, for it may not be worth blacking out the entire Midwest to prevent emissions from a partly malfunctioning boiler precipitator. We cannot resolve the myriad of individual variations in a single rule. The Agency's admirable proposal, which we have adopted, places case-by-case discretion in the Agency under its permit powers, providing that if special conditions warrant permission to operate during a malfunction, or if irreducible startup emissions will somewhat exceed the general standards, EPA may grant permission for such emissions upon application and proof.

Opinion and Order of the Board, R71-23 at 9.

The SMB relief provisions were a foundational part of the development of the “general standards” (promulgated at the same time, *see* PCB R 71-23). The Board recognized fifty years ago that sources may be unable to comply with applicable emission limitations or standards during startup because “startup conditions may result in less than optimum emission control.” *Id.* The Board also recognized that unavoidable malfunctions and breakdowns do occur and that, in certain circumstances, continued operation is required even though emission may be in excess of the generally applicable standard. *Id.* The SMB provisions adopted in PCB R 71-23 remained unchanged for many years except for minor, non-substantive revisions. Testimony of Rory Davis, Illinois EPA, Transcript of January 19, 2023 Hearing, PCB R 23-18, at 13:6-15 (Jan. 19, 2023). The reasons for originally adopting the SMB provisions still hold true today.

B. SSM SIP Call and Guidance for Alternative Emission Limitations (AELs)

On June 12, 2015, USEPA published in the Federal Register a final rule clarifying, restating, and updating USEPA's national policy regarding startup, shutdown, and malfunction (“SSM”) provisions in State Implementation Plans (“SIP”). *State Implementation Plans: Response to Petition for Rulemaking; Restatement and Update of EPA's SSM Policy Applicable to SIPs*;

Findings of Substantial Inadequacy; and SIP Calls to Amend Provisions Applying to Excess Emissions During Periods of Startup, Shutdown, and Malfunction, 80 Fed. Reg. 33840 (June 12, 2015). A Notice of Proposed Rulemaking was first published in the Federal Register for these revisions on February 22, 2013. *See id.* at 33842. The revisions were USEPA's response to a 2011 Petition for Rulemaking filed by the Sierra Club. *Id.*

USEPA announced in the 2015 final action its SSM policy, which concluded that broad SSM exemption provisions and affirmative defense SIP provisions are generally viewed as inconsistent with the requirements of the Clean Air Act ("CAA"). *Id.* at 33851. Specifically, USEPA granted Sierra Club's Petition "on the request to rescind its SSM Policy element that interpreted the [Clean Air Act] to allow states to elect to create affirmative defense provisions in SIPs." *Id.* However, USEPA also recognized that there are approaches to address emissions during SSM events that are consistent with the requirements of the CAA. *Id.* at 33844. USEPA explained:

The EPA emphasizes that there are other approaches that would be consistent with CAA requirements for SIP provisions that states can use to address emissions during SSM events. While automatic exemptions and director's discretion exemptions from otherwise applicable emission limitations are not consistent with the CAA, SIPs may include criteria and procedures for the use of enforcement discretion by air agency personnel. Similarly, SIPs may, rather than exempt emissions during SSM events, include emission limitations that subject those emissions to alternative numerical limitations or other technological control requirements or work practice requirements during startup and shutdown events, so long as those components of the emission limitations meet applicable CAA requirements The EPA acknowledges that for some states, this rulemaking entailed the EPA's evaluation of SIP provisions that may date back several decades. Aware of that fact, the EPA is committed to working closely with each of the affected states to develop approvable SIP submissions consistent with the guidance articulated in the updated SSM Policy in this final action.

Id.

USEPA also offered additional explanation as to USEPA's recommended criteria for developing alternative emission limitations that would be applicable during periods of SSM:

In addition, the EPA is providing in this document some additional explanation and clarifications to its recommended criteria for developing alternative emission limitations applicable during startup and shutdown. The EPA continues to recommend that, in order to be approvable (i.e., meet CAA requirements), alternative requirements applicable to the source during startup and shutdown should be narrowly tailored and take into account considerations such as the technological limitations of the specific source category and the control technology that is feasible during startup and shutdown. Accordingly, the EPA continues to recommend the seven specific criteria enumerated in section III.A of the Attachment to the 1999 SSM Guidance as appropriate considerations for SIP provisions that establish alternative emission limitations that apply to startup and shutdown. . . .

The EPA seeks to make clear in this document that the recommended criteria are intended as guidance to states developing SIP provisions that include emission limitations with alternative emission limitations applicable to specifically defined modes of source operation such as startup and shutdown. A state may choose to consider these criteria in developing such a SIP provision. The EPA will use these criteria when evaluating whether a particular alternative emission limitation component of an emission limitation meets CAA requirements for SIP provisions. Any SIP revision establishing an alternative emission limitation that applies during startup and shutdown would be subject to the same procedural and substantive review requirements as any other SIP submission.

Id. at 33913.²

USEPA then restated the seven criteria for developing AELs, which are as follows:

- (1) The revision is limited to specific, narrowly defined source categories using specific control strategies (e.g., cogeneration facilities burning natural gas and using selective catalytic reduction);
- (2) Use of the control strategy for this source category is technically infeasible during startup or shutdown periods;
- (3) The alternative emission limitation requires that the frequency and duration of operation in startup or shutdown mode are minimized to the greatest extent practicable;

² USEPA defined an “alternative emission limitation” as “an emission limitation in a SIP that applies to a source during some but not all periods of normal operation” (e.g., applies only during a specifically defined mode of operation such as startup or shutdown). An alternative emission limitation is a component of a continuously applicable SIP emission limitation, and it may take the form of a control measure such as a design, equipment, work practice or operational standard (whether or not numerical). This definition of the term is independent of the statutory use of the term “alternative means of emission limitation” in sections 111(h)(3) and 112(h)(3), which pertain to the conditions under which the EPA may pursuant to sections 111 and 112 promulgate emission limitations, or components of emission limitations, that are not necessarily in numeric format.” 80 Fed. Reg 33842.

(4) As part of its justification of the SIP revision, the state analyzes the potential worst-case emissions that could occur during startup and shutdown based on the applicable alternative emission limitation;

(5) The alternative emission limitation requires that all possible steps are taken to minimize the impact of emissions during startup and shutdown on ambient air quality;

(6) The alternative emission limitation requires that, at all times, the facility is operated in a manner consistent with good practice for minimizing emissions and the source uses best efforts regarding planning, design, and operating procedures; and

(7) The alternative emission limitation requires that the owner or operator's actions during startup and shutdown periods are documented by properly signed, contemporaneous operating logs or other relevant evidence.

Id. at 33914.

USEPA recognized that it may be appropriate to establish alternative emission limitations for modes of source operation other than startup and shutdown, but the same criteria should be utilized. *Id.* Hot standby is one of these modes of source operation which is implemented in response to a malfunction or breakdown situation. USEPA recognized hot standby as another mode of source operation by including provisions applicable during hot standby periods in NESHAP Subpart UUU.

In the 2015 final action, USEPA issued findings of substantial inadequacy for SIP provisions applying to excess emissions during SSM periods for 36 states/air agencies, including Illinois. USEPA also issued a SIP Call to each of those states/air agencies, requiring them to adopt and submit revisions to USEPA to correct identified SSM-related deficiencies by November 22, 2016. *Id.* at 33840, 33848, and 33930.

The 2015 SIP final action was then subject to legal challenges. *See Environ. Comm. Fl. Elec. Power v. EPA, et al.*, No. 15-1239 (D.C. Cir.) (consolidated cases). In October 2020, USEPA

issued a Memorandum establishing a new SSM policy, which permitted the inclusion of SSM provisions related to exemptions and affirmative defenses. “Inclusion of Provisions Governing Periods of Startup, Shutdown, and Malfunctions in State Implementation Plans,” USEPA Memorandum (October 9, 2020).³ In September 2021, USEPA issued a Memorandum withdrawing the 2020 Memorandum and announcing USEPA’s intent to return to the 2015 SSM policy. “Withdrawal of the October 9, 2020, Memorandum Addressing Startup, Shutdown, and Malfunctions in State Implementation Plans and Implementation of the Prior Policy,” USEPA Memorandum (Sep. 30, 2021).⁴

On January 12, 2022, USEPA published in the Federal Register a final rule finding that 12 States or local air pollution control districts, including Illinois, failed to submit SIP revisions required by the Clean Air Act in a timely manner to address USEPA’s 2015 findings of substantial inadequacy and SIP Call. *Findings of Failure to Submit State Implementation Plan Revisions in Response to the 2015 Findings of Substantial Inadequacy and SIP Calls to Amend Provisions Applying to Excess Emissions During Periods of Startup, Shutdown, and Malfunction*, 87 Fed. Reg. 1680 (Jan. 12, 2022). The 2022 final action became effective on February 11, 2022 and requires the impacted states to submit SIP revisions addressing the findings of inadequacy relating to SSM within 18 months from the effective date (*i.e.*, by August 11, 2023). *Id.* at 1682.

C. Illinois EPA Proposal and Board Adopted Rules

In PCB R 23-18, Illinois EPA proposed to “amend the Illinois Administrative Code to remove provisions that allow sources to request, and the [Agency] to grant, advance permission to

³ The 2020 USEPA Memorandum is publicly available on USEPA’s website at <https://www.epa.gov/system/files/documents/2021-09/2020-ssm-in-sips-guidance-memo.pdf>.

⁴ The 2021 USEPA Memorandum is publicly available on USEPA’s website at <https://www.epa.gov/system/files/documents/2021-09/oar-21-000-6324.pdf>.

continue operating during a malfunction, or to violate emission limitations during startup.” Illinois EPA Statement of Reasons, PCB R 23-18, at 1 (Dec. 7, 2022). Illinois EPA also requested revision of the definition of “[a]llowable emissions” in Section 202.107 to remove subsection (c) which states “[a]llowable emissions shall include a reasonable estimate of emissions in excess of applicable standards during start-up, malfunction, or breakdown, as appropriate, only if the applicable provisions of 35 Ill. Adm. Code Part 201 have been complied with” 35 Ill. Adm. Code 202.107(c). According to the Agency, removing the provisions at issue in Parts 201, 202, and 212 was necessary to comply with USEPA’s SIP Call and Finding of Failure.

Under the Fast Track rulemaking procedures, two hearings were held in the main rulemaking – one on January 19, 2023 in Springfield and one on February 16, 2023 in Chicago. Pursuant to Illinois EPA’s request, the third hearing scheduled was cancelled. Proposed AELs were submitted via pre-filed testimony for the second hearing and were discussed during the second hearing. *See* Second Hearing Transcript, PCB R 23-18 (Feb. 16, 2023). In the main rulemaking, the Illinois Environmental Regulatory Group (“IERG”) filed a proposed AEL for FCCUs. Pre-filed Testimony of Kelly Thompson and David Wall, PCB R 23-18 (Feb. 6, 2023). The American Petroleum Institute, with which Petitioner associates, filed testimony in support of IERG’s FCCU proposal. *See* Pre-filed Testimony of John Derek Reese, PCB R 23-18 (Feb. 6, 2023). Post-hearing comments were submitted by the rulemaking participants on March 7, 2023. Several comments by industrial associations and environmental organizations were submitted through the rulemaking.

On July 20, 2023, over an objection by the Joint Committee on Administrative Rules (“JCAR”), the Board adopted the amendments proposed by Illinois EPA. Final Opinion and Order, PCB R 23-18 (July 20, 2023). On July 26, 2023, the Board’s Notice of Adopted Rules submitted

to the Illinois Secretary of State was filed in the docket for this rulemaking, and indicated that the effective date of the amendments was July 25, 2023. The amendments remove all SMB provisions from Parts 201, 202, and 212 that relate to establishing a prima facie defense for exceedances during SMB events and that effectively established permit-based exemptions for periods of SMB. The amendments also revised the definition of “allowable emissions” to remove excess emissions during periods of SMB authorized in permits pursuant to Part 201. The adopted amendments do not include any AELs, or alternative SMB provisions, as the Board declined to adopt the AELs proposed by industry. *See id.*

Throughout the PCB R 23-18 proceeding, Illinois EPA maintained that the amendments were technically and economically reasonable because the amendments do not impose any new or additional obligations on affected sources. *See, e.g.,* Illinois EPA Statement of Reasons, PCB R 23-18, at 15 (Dec. 7, 2022). Illinois EPA argued that the provisions at issue only created an affirmative defense for violations of applicable standards during SMB events. Petitioner does not agree with this position. Prior to the Board’s July 20, 2023 amendments, Section 201.149 stated:

No person shall cause or allow the continued operation of an emission source during malfunction or breakdown of the emission source or related air pollution control equipment if such operation would cause a violation of the standards or limitations set forth in Subchapter c of this Chapter unless the current operating permit granted by the Agency provides for operation during a malfunction or breakdown. No person shall cause or allow violation of the standards or limitations set forth in that Subchapter during startup unless the current operating permit granted by the Agency provides for violation of such standards or limitations during startup.

35 Ill. Adm. Code 201.149.⁵ Section 201.149 previously provided Illinois EPA the authority to issue permits with provisions that allow violation of standards or limitations during startup and allow for the continued operation of an emission source during malfunction or breakdown in

⁵ *See also* 35 Ill. Adm. Code 270.407 and 270.408, which provided the Illinois EPA with the authority to issue CAAPP permits containing similar exemptions for sources to continue to operate in violation of SIP provisions during SMB periods.

violation of limits or standards. There was no reference to only establishing a prima facie defense or to Section 201.265 in that provision.

Furthermore, in the proposal for the 2015 SIP Call, USEPA discussed the various state SSM provisions with which USEPA had concerns. As to Illinois' SMB provisions, USEPA stated:

The Petitioner objected to three generally applicable provisions in the Illinois SIP which together have the effect of providing discretionary exemptions from otherwise applicable SIP emission limitations, and such exemptions are impermissible under the CAA because the statute and the EPA's interpretation of the CAA in the SSM Policy require that all such excess emissions be treated as violations.

The Petitioner noted that Illinois has claimed that its SIP provisions do not provide for advance permission to violate emission limitations but that its SIP provisions instead authorize "case- by-case claims of exemption." The Petitioner argued that despite this explanation, the language in the SIP is not clear and appears to grant advance permission for violations during malfunction and startup events. Furthermore, the Petitioner objected because the effect of granting that permission would be to provide the source with an absolute defense to any later enforcement action, that is, "a defense [would] attach[] at the state's discretion." The Petitioner argued that this approach would violate the fundamental requirement that all excess emissions be considered violations.

b. The EPA's Evaluation

The EPA agrees that the CAA does not allow for discretionary exemptions from otherwise applicable SIP emission limitations. In accordance with the requirements of CAA section 110(a)(2)(A), SIPs must contain emission limitations and, in accordance with the definition of "emission limitations" in CAA section 302(k), such emission limitations must be continuous. Thus, any excess emissions above the level of the applicable emission limitation must be considered violations, whether or not the state elects to exercise its enforcement discretion. The EPA agrees that together Ill. Admin. Code tit. 35 § 201.261, Ill. Admin. Code tit. 35 § 201.262, and Ill. Admin. Code tit. 35 § 201.265148 can be read to create exemptions by authorizing a state official to determine in the permitting process that the excess emissions during startup and malfunction will not be considered violations of the applicable emission limitations. The language of the SIP on its face appears to permit the state official to grant advance permission to "continue to operate during a malfunction or breakdown" or "to violate the standards or limitations * * * during startup" (Ill. Admin. Code tit. 35 § 201.261(a)).

The EPA notes that the Petitioner's characterization of Illinois's interpretation of its SIP is not accurate. . . . Thus, the state claimed that under its SIP provisions, any excess emissions during periods of startup or malfunction would still constitute a "violation" and that the only effect of the permission granted by the state official in the permit would be to allow a source to assert a "prima facie defense" in an enforcement action. Even in light of this explanation, the EPA agrees that the plain language of the SIP provisions do not make explicit this limitation on the state official's authorization to grant exemptions. Indeed, by expressly granting "permission," the provisions are ambiguous and could be read as allowing the state official to be the unilateral arbiter of whether the excess emissions in a given malfunction, breakdown, or startup event constitute a violation. By deciding that an exceedance of the emission limitation was not a "violation," exercise of this discretion could preclude enforcement by the EPA or through a citizen suit. Most importantly, however, the grant of permission would authorize the state official to create an exemption from the otherwise applicable SIP emission limitation, and such an exemption is impermissible in the first instance. Such a director's discretion provision undermines the emission limitations and the emission reductions they are intended to achieve and renders them less enforceable by the EPA or through a citizen suit. The EPA believes that the inclusion of director's discretion provisions in Ill. Admin. Code tit. 35 § 201.261, Ill. Admin. Code tit. 35 § 201.262, and Ill. Admin. Code tit. 35 § 201.265 is thus a substantial inadequacy and renders these specific SIP provisions impermissible for this reason.

State Implementation Plans; Response to Petition for Rulemaking; Findings of Substantial Inadequacy; and SIP Calls to Amend Provisions Applying to Excess Emissions During Periods of Startup, Shutdown, and Malfunction, 78 Fed. Reg. 12514-15 (Feb. 22, 2013) (internal citations removed) (emphasis added).^{6,7} USEPA recognized that the SMB provisions in Part 201 are at best ambiguous and could be read as providing an exemption from otherwise applicable emission limitations.

Illinois EPA has historically used Section 201.149 as a basis to include broad SMB conditions in construction and operating permits. USEPA's evaluation failed to mention Illinois' only definition of "allowable emissions" found in 35 Ill. Adm. Code 202.107 which explicitly

⁶ USEPA then goes on to explain that, even if the Illinois SIP provisions cited *intended* to provide only an affirmative defense to enforcement, the prima facie mechanism is not an acceptable affirmative defense provision. *Id.* at 12515 (emphasis added).

⁷ All of the Federal Registers cited in this filing are publicly available on the U.S. Government's "GovInfo" website at <https://www.govinfo.gov/app/collection/FR/>.

included, in subsection (c) of the definition, Part 201-compliant SMB emissions (*i.e.*, authorized in operating permits), additional evidence of exemption within the SIP. Realizing the significance of this definition, the Agency sought a Part 202 revision, which was broader than the scope of the 2015 SIP call, to remove subsection (c) that addressed permit-authorized excess emissions during SMB events.

In fact, Petitioner's current Title V - Clean Air Act Permit Program ("CAAPP") Permit allows Petitioner to continue to operate during SMB periods. *See* Joliet Refinery CAAPP Permit, Sections 7.3.3(j) and 7.3.3(k).⁸ Section 7.3.3(j) of the Joliet Refinery CAAPP Permit states:

j. Startup Provisions

The Permittee is authorized to operate an affected FCC Unit in violation of the applicable limit of 35 IAC 212.123, 212.381, 214.301, 216.361(a), and 218.301 during startup pursuant to 35 IAC 201.262, as the Permittee has affirmatively demonstrated that all reasonable efforts have been made to minimize startup emissions, duration of individual starts, and frequency of startups. This authorization is subject to the following:

- i. This authorization only extends for a period of up to 78-hours following initial start-up of the main air blower during each startup event.
- ii. The Permittee shall take the following measures to minimize startup emissions, the duration of startups, and minimize the frequency of startups:

Implementation of established startup procedures so as to minimize the startup time and emissions.
- iii. The Permittee shall fulfill the applicable recordkeeping requirements of Condition 7.3.9(a).

Section 7.3.3(k) of the Joliet Refinery CAAPP Permit states:

k. Malfunction and Breakdown Provisions

⁸ A complete copy of the Joliet Refinery CAAPP Permit can be obtained from the Illinois EPA's Document Explorer at <https://webapps.illinois.gov/EPA/DocumentExplorer/>.

In the event of a malfunction or breakdown of a FCC Unit Regenerator, Regenerator cyclones, Third Stage Separator cyclones, or the East or West CO Boiler, the Permittee is authorized to continue operation of the associated affected FCC Unit in violation of the applicable requirement of 35 IAC 212.123, 212.381, 214.301, 216.361(a), or 218.301, as necessary to prevent risk of injury to personnel or severe damage to equipment. This authorization is subject to the following requirements:

- i. This authorization is for a maximum of 72 hours, unless the Permittee obtains an extension from the Illinois EPA. The request for such an extension must document that the reason that an extension is necessary and specify a schedule of actions the Permittee will take that will assure all measures are taken to minimize the quantity of emissions and the length of the malfunction or breakdown.
- ii. The Permittee shall fulfill the applicable recordkeeping and reporting requirements of Conditions 7.3.9(b) and 7.3.10(a).

This “continue to operate” in violation language during periods of SMB in Petitioner’s CAAPP Permit clearly provides more than simply a defense, and demonstrates why relief is necessary given the Board’s final action in R23-18 and its adoption of the IEPA’s mistaken interpretation of the SMB regulations that had been in place for nearly 50 years.

Removal of the SMB provisions in Part 201 and related permit conditions will have a detrimental effect on the Joliet Refinery’s ability to comply during periods of SMB. The Joliet Refinery has relied upon its past understanding of the SMB provisions and permit conditions. The amendments adopted by the Board do not provide a workable path for compliance for SMB periods. Accordingly, an alternative emission limitations or an adjusted standard is necessary.

III. STANDARD FROM WHICH AN ADJUSTED STANDARD IS SOUGHT AND EFFECTIVE DATE (35 ILL. ADM. CODE 104.406(A))

Petitioner seeks an adjusted standard from 35 Ill. Adm. Code 216.361, 35 Ill. Adm. Code 216.103, and 35 Ill. Adm. Code 216.104. Section 216.361 provides in full:

Section 216.361. Petroleum and Petrochemical Processes

- a) No person shall cause or allow the emission of a carbon monoxide waste gas stream into the atmosphere from a petroleum or petrochemical process unless such waste gas stream is burned in a direct flame afterburner or carbon monoxide boiler so that the resulting concentration of carbon monoxide in such waste gas stream is less than or equal to 200 ppm corrected to 50 percent excess air, or such waste gas stream is controlled by other equivalent air pollution control equipment approved by the Agency according to the provisions of 35 Ill. Adm. Code 201.
- b) Notwithstanding subsection (a), any existing petroleum or petrochemical process using catalyst regenerators of fluidized catalytic converters equipped for in situ combustion of carbon monoxide, may emit a carbon monoxide waste gas stream into the atmosphere if the carbon monoxide concentration of such waste gas stream is less than or equal to 750 ppm corrected to 50 percent excess air.
- c) Notwithstanding subsection (a), any new petroleum or petrochemical process using catalyst regenerators of fluidized catalytic converters equipped for in situ combustion of carbon monoxide, may emit a carbon monoxide waste gas stream into the atmosphere if the carbon monoxide concentration of such waste gas stream is less than or equal to 350 ppm corrected to 50 percent excess air.

The Board promulgated 35 Ill. Adm. Code 216.361 in 1972. *See* Opinion and Order of the Board, R 71-023, at p. 4 – 255 (April 13, 1972) (Section 216.361 was identified as Rule 206(c) in the original rulemaking). However, the Board’s removal of the SMB provisions in Part 201—as a practical matter and in light of the history of these provisions related above—makes Section 216.361 applicable to Petitioner’s Joliet Refinery for the first time since the promulgation of the regulation. Petitioner therefore requests that the Board consider the effective date of the amendments, which is July 25, 2023, as the effective date for the purposes of Petitioner’s Petition for an adjusted standard.

As part of its requested adjusted standard, Petitioner proposes corresponding revisions to Sections 216.103 and Section 216.104, governing definitions and incorporations by reference, respectively. Section 216.103 provides:

The definitions contained in 35 Ill. Adm. Code 201 and 211 apply to this Part.

Section 216.104 provides:

The following materials are incorporated by reference: non-dispersive infrared method, 40 CFR 60, Appendix A, Method 10 (1982).

As explained herein, Petitioner's requested adjusted standard incorporates provisions of NESHAP Subpart UUU into Section 216.361.

IV. REGULATION OF GENERAL APPLICABILITY TO IMPLEMENT THE CLEAN AIR ACT (35 ILL. ADM. CODE 104.406(B))

The Board promulgated 35 Ill. Adm. Code 216.361 in 1972 as a regulation of general applicability to ensure that the State meets new national ambient air standards set in the CAA Amendments of 1970. *See* Opinion and Order of the Board, R 71-023, at p. 4 – 255 (April 13, 1972).⁹ On page 5 of its Opinion and Order in R 23-18 dated July 20, 2023, the Board reiterated that the removal of the SMB provisions from Parts 201, 202 and 212 was required to be adopted by the CAA.

V. LEVEL OF JUSTIFICATION REQUIRED FOR THIS ADJUSTED STANDARD (35 ILL. ADM. CODE 104.406(C))

The regulations from which ExxonMobil seeks an adjusted standard do not specify a level of justification. Therefore, the level of justification specified by Section 28.1(c) of the Act applies:

- (1) factors relating to the petitioner are substantially and significantly different from the factors relied upon by the Board in adopting the general regulation applicable to the petitioner;
- (2) the existence of those factors justifies an adjusted standard;
- (3) the requested standard will not result in environmental or health effects substantially and significantly more adverse than the effects considered by the Board in adopting the rule of general applicability; and
- (4) The adjusted standard is consistent with any applicable federal law. 415 ILCS 5/28.1(c).

⁹ Section 216.361 was identified as Rule 206(c) in the 1972 final rulemaking.

415 ILCS 5/28.1(c). ExxonMobil must also justify all the requested adjustments consistent with Section 27(a) of the Act. 415 ILCS 5/28.1(a) (2006). Section 27(a) of the Act requires the Board to consider the following factors in promulgating regulations:

[T]he Board shall take into account the existing physical conditions, the character of the area involved, including the character of surrounding land uses, zoning classifications, the nature of the existing air quality, or receiving body of water, as the case may be, and the technical feasibility and economic reasonableness of measuring or reducing the particular type of pollution.

415 ILCS 5/27(a).

VI. DESCRIPTION OF THE NATURE OF PETITIONER'S ACTIVITIES (35 ILL. ADM. CODE 104.406(D))

The Joliet Refinery (ID No. 197800AAA) is located at 25915 S. Frontage Road, Channahon, Illinois (Will County). The facility was built in 1972 and has been in operation for over 50 years. The facility has approximately 625 employees and also supports on average about 250 contractors. The Joliet Refinery has a capacity of about 275,000 barrels per day and operates a single FCCU.

The relevant pollution control equipment already in use at the Joliet Refinery are carbon monoxide (CO) boilers, which are pollution control devices for steady-state operations. During periods of SMB, the CO boilers are bypassed for process safety reasons (*see infra* Section X for discussion of the applicable process safety standards). Petitioner is not aware of any control equipment options available for the Joliet Refinery to comply with the standards in Section 216.361, as applicable, during periods of SMB given the physical limitations of the FCCU.

The most recent CAAPP Permit for the Joliet Refinery, which addresses allowable emissions from the facility, was issued by the Illinois EPA on August 15, 2000 and revised via

minor modification on December 31, 2002.¹⁰ As discussed herein, relative to emissions authorized in the current operating permit, there are no increases in emissions expected to occur as a result of issuance of the requested adjusted standard.

VII. DESCRIPTION OF EFFORTS TO COMPLY (35 ILL. ADM. CODE 104.406(E))

FCCUs (and, as a result, refineries) cannot be operated without periods of SMB. As described herein, Petitioner is unable to comply with the standards in Section 216.361, as applicable, during periods of SMB given the physical limitations of FCCUs and process safety reasons (*see infra* Section X for discussion of the applicable process safety standards).

VIII. NARRATIVE DESCRIPTION OF PROPOSED ADJUSTED STANDARD (35 ILL. ADM. CODE 104.406(F))

A. Adjusted standard revisions to 35 Ill. Adm. Code 216.361

1. Overview

Part 216 of the Board's rules addresses CO emissions. 35 Ill. Adm. Code Part 216. The CO standards are organized by categories of sources: fuel combustion emission sources, incinerators, petroleum refining and chemical manufacture, and primary and fabricated metal products. 35 Ill. Adm. Code 216, Subparts B, C, N, and O. The provisions in Part 216 only contain CO standards – they do not contain requirements for monitoring, testing recordkeeping or reporting. *See id.* The federal NESHAP standards at 40 CFR 63 Subpart UUU are more comprehensive. The standards in Subpart UUU are based on Maximum Achievable Control Technology (“MACT”) and provide requirements for continuous monitoring, testing, recordkeeping and report. 40 CFR 63, Subpart UUU. Under NESHAP Subpart UUU, CO is

¹⁰ Although ExxonMobil has applied to renew the CAAPP Permit, the Illinois EPA has not taken action on the renewal application.

regulated as a surrogate for organic HAP species, as good combustion results in the elimination of CO and organic HAP.

2. Proposed Adjusted Standard Revisions

Petitioner's proposed adjusted standard revises the language of Section 216.361 of the Board's rules governing CO emissions from petroleum and petrochemical processes. Section 216.361(a) prohibits causing or allowing the emission of a CO waste gas stream into the atmosphere unless such waste gas stream is burned in a direct flame afterburner or CO boiler so that the resulting concentration of CO in such waste gas stream is less than or equal to 200 ppm corrected to 50% excess air. 35 Ill. Adm. Code 216.361(a). The CO standard Section 216.361(a) for petroleum and petrochemical processes is unachievable for the Joliet Refinery during periods of SMB. Removing the SMB provisions leaves the Joliet Refinery with no choice other than seeking case-by-case determinations during SMB events (which is an unworkable framework), unless revised language for periods of SMB is included in Section 216.361. Petitioner proposes in Section 216.361 revisions to the CO standards for petroleum and petrochemical processes that would apply during periods of SMB. Additionally, in conjunction with the proposed revisions to Section 216.361, Petitioner proposes revisions to Sections 216.103 and Section 216.104, governing definitions and incorporations by reference, respectively. Petitioner proposes the following revisions to Section 216.361, with added language indicated with underlining:

Section 216.361 Petroleum and Petrochemical Processes

- a) No person shall cause or allow the emission of a carbon monoxide waste gas stream into the atmosphere from a petroleum or petrochemical process unless such waste gas stream is burned in a direct flame afterburner or carbon monoxide boiler so that the resulting concentration of carbon monoxide in such waste gas stream is less than or equal to 200 ppm corrected to 50 percent excess air, or such waste gas stream is controlled by other equivalent

air pollution control equipment approved by the Agency according to the provisions of 35 Ill. Adm. Code 201.

- b) Notwithstanding subsection (a), any existing petroleum or petrochemical process using catalyst regenerators of fluidized catalytic converters equipped for in situ combustion of carbon monoxide, may emit a carbon monoxide waste gas stream into the atmosphere if the carbon monoxide concentration of such waste gas stream is less than or equal to 750 ppm corrected to 50 percent excess air.
- c) Notwithstanding subsection (a), any new petroleum or petrochemical process using catalyst regenerators of fluidized catalytic converters equipped for in situ combustion of carbon monoxide, may emit a carbon monoxide waste gas stream into the atmosphere if the carbon monoxide concentration of such waste gas stream is less than or equal to 350 ppm corrected to 50 percent excess air.
- d) Notwithstanding subsections (a) through (c), during periods of startup and hot standby, any new or existing petroleum catalytic cracking units can elect to comply with subsections (a) through (c) or the alternate limitation for these operating modes in 40 CFR 63 Subpart UUU Tables 9, 10, 14, and 41 and 40 CFR 63.1565(a)(5), 40 CFR 63.1570(c) and (f), 40 CFR 63.1572(c) and 40 CFR 63.1576(a)(2) and (d).

Petitioner proposes revisions to Section 216.361 by adding a new subsection (d). The proposed new subsection (d) states that, notwithstanding the generally applicable CO standard in subsection (a), an alternative limitation can apply during periods of startup and hot standby. Specifically, the alternative limitations proposed to be incorporated by reference are from the NESHAP for Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units at 40 CFR 63, Subpart UUU. The provisions from NESHAP Subpart UUU that Petitioner proposes to incorporate by reference are as follows:

- i) 40 CFR 63.1565(a)(5)

Section 63.1565(a)(5) provides the requirements for organic HAP emissions from catalytic cracking units. Section 63.1565(a)(5) states:

(a) *What emission limitations and work practice standards must I meet? You must:*

(5) On or before the date specified in § 63.1563(d), you must comply with one of the two options in paragraphs (a)(5)(i) and (ii) of this section during periods of startup, shutdown and hot standby:

(ii) You can elect to maintain the oxygen (O₂) concentration in the exhaust gas from your catalyst regenerator at or above 1 volume percent (dry basis) or 1 volume percent (wet basis with no moisture correction).

By incorporating this provision, Petitioner intends to provide the Joliet Refinery the option of complying with the oxygen concentration standard in 40 CFR 63.1565(a)(5)(ii) during startup or hot standby in lieu of the CO standards currently in 35 Ill. Adm. Code 216.361.

ii) 40 CFR Part 63, Subpart UUU, Table 9

Table 9 of NESHAP Subpart UUU provides the operating limits for organic HAP emissions from catalytic cracking units. Row 3 of Table 9 states:

For each new or existing catalytic cracking unit . . .	For this type of continuous monitoring system . . .	For this type of control device . . .	You shall meet this operating limit . . .
3. During periods of startup, shutdown or hot standby	Any	Any	Meet the requirements in § 63.1565(a)(5).

Row 3 of Table 9 governs periods of startup, shutdown, or hot standby. By incorporating Table 9, Petitioner intends to provide the Joliet Refinery the option of complying with the oxygen concentration standard in 40 CFR 63.1565(a)(5)(ii) during startup or hand standby in lieu of the CO standards currently in 35 Ill. Adm. Code 216.361.

iii) 40 CFR 63.1570(c)

Section 63.1570(c) provides the requirement to operate and maintain the source and associated air pollution control equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions. Section 63.1570(c) states:

(c) At all times, you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether a source is operating in compliance with operation and maintenance requirements will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

Petitioner proposes to incorporate this provision in order to mirror the SMB permit conditions concerning the duty to minimize emissions during SMB periods. Additionally, USEPA's criteria for developing AELs requires that the AEL include a requirement that the frequency and duration of operation in startup or shutdown mode are minimized to the greatest extent practicable, and that the facility is operated in a manner consistent with good practice for minimizing emissions.

iv) 40 CFR 63.1570(f)

Section 63.1570(f) requires the submittal of reports for each instance when the SSM provisions are not met. Section 63.1570(f) states:

(f) You must report each instance in which you did not meet each emission limitation and each operating limit in this subpart that applies to you. This includes periods of startup, shutdown, and malfunction. You also must report each instance in which you did not meet the work practice standards in this subpart that apply to you. These instances are deviations from the emission limitations and work practice standards in this subpart. These deviations must be reported according to the requirements in § 63.1575.

By incorporating this provision, Petitioner intends for the Joliet Reinfery to be required to submit a report to Illinois EPA Bureau of Air Compliance Section for each instance in which the facility did not meet the oxygen concentration standard in 40 CFR 63.1565(a)(5)(ii) and Table 9 during startup or hot standby.

v) 40 CFR 63.1572(c)

Section 63.1572(c) requires the installation and operation of a continuous parameter monitoring system. Section 63.1572(c) states:

(c) Except for flare monitoring systems, you must install, operate, and maintain each continuous parameter monitoring system according to the requirements in paragraphs (c)(1) through (5) of this section. For flares, on and after January 30, 2019, you must install, operate, calibrate, and maintain monitoring systems as specified in §§ 63.670 and 63.671. Prior to January 30, 2019, you must either meet the monitoring system requirements in paragraphs (c)(1) through (5) of this section or meet the requirements in §§ 63.670 and 63.671.

(1) You must install, operate, and maintain each continuous parameter monitoring system according to the requirements in Table 41 of this subpart. You must also meet the equipment specifications in Table 41 of this subpart if pH strips or colormetric tube sampling systems are used. You must meet the requirements in Table 41 of this subpart for BLD systems. Alternatively, before August 1, 2017, you may install, operate, and maintain each continuous parameter monitoring system in a manner consistent with the manufacturer's specifications or other written procedures that provide adequate assurance that the equipment will monitor accurately.

(2) The continuous parameter monitoring system must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of four successive cycles of operation to have a valid hour of data (or at least two if a calibration check is performed during that hour or if the continuous parameter monitoring system is out-of-control).

(3) Each continuous parameter monitoring system must have valid hourly average data from at least 75 percent of the hours during which the process operated, except for BLD systems.

(4) Each continuous parameter monitoring system must determine and record the hourly average of all recorded readings and if applicable, the daily average of all recorded readings for each operating day, except for BLD systems. The daily average must cover a 24-hour period if operation

is continuous or the number of hours of operation per day if operation is not continuous, except for BLD systems.

(5) Each continuous parameter monitoring system must record the results of each inspection, calibration, and validation check.

This provision requires the installation and operation of a continuous parameter monitoring system. The Joliet Refinery operates a continuous parameter monitoring system, an oxygen content sensor, which demonstrates compliance with the oxygen concentration limit in 40 CFR 63.1565(a)(5)(ii) and Table 9 during periods of startup or hot standby.

vi) 40 CFR Part 63, Subpart UUU, Table 10

NESHAP Subpart UUU, Table 10 provides requirements for the continuous monitoring systems for organic HAP emissions from catalytic cracking units. Table 10, Row 3 states:

For each new or existing catalytic cracking unit . . .	And you use this type of control device for your vent . . .	You shall install, operate, and maintain this type of continuous monitoring system . . .
3. During periods of startup, shutdown or hot standby electing to comply with the operating limit in § 63.1565(a)(5)(ii)	Any	Continuous parameter monitoring system to measure and record the concentration by volume (wet or dry basis) of oxygen from each catalyst regenerator vent. If measurement is made on a wet basis, you must comply with the limit as measured (no moisture correction).

This provision requires the installation and operation of a continuous parameter monitoring system. The Joliet Refinery operates a continuous parameter monitoring system and an oxygen

content sensor, which demonstrates compliance with the oxygen concentration limit in 40 CFR 63.1565(a)(5)(ii) and Table 9 during periods of startup or hot standby.

vii) 40 CFR Part 63, Subpart UUU, Table 14

NESHAP Subpart UUU, Table 14 provides the requirements for continuous compliance with operating limits for organic HAP emissions from catalytic cracking units. Table 14, Row 3 states:

For each new or existing catalytic cracking unit . . .	If you use. . .	For this operating limit . . .	You shall demonstrate continuous compliance by . . .
3. During periods of startup, shutdown or hot standby electing to comply with the operating limit in § 63.1565(a)(5)(ii).	Any control device	The oxygen concentration limit in § 63.1565(a)(5)(ii)	Collecting the hourly average oxygen concentration monitoring data according to § 63.1572 and maintaining the hourly average oxygen concentration at or above 1 volume percent (dry basis).

The above provision provides how the Joliet Refinery will demonstrate continuous compliance with the oxygen concentration limit in 40 CFR 63.1565(a)(5)(ii).

viii) 40 CFR 63.1576(d)

40 CFR 63.1576(d) references the continuous compliance requirements during startup, shutdown, and hot standby. Section 63.1576(d) states:

(d) You must keep records required by Tables 6, 7, 13, and 14 of this subpart (for catalytic cracking units); Tables 20, 21, 27 and 28 of this subpart (for catalytic reforming units); Tables 34 and 35 of this subpart (for sulfur recovery units); and Table 39 of this subpart (for bypass lines) to show continuous compliance with each emission limitation that applies to you.

Petitioner proposes to incorporate this provision in order to incorporate the continuous compliance requirements of Table 14, Row 3, as discussed in the above subsection.

ix) 40 CFR Part 63, Subpart UUU, Table 41

NESHAP Subpart UUU, Table 41 provides the requirements for installation, operation, and maintenance of continuous parameter monitor systems. Table 41, Row 10 states:

If you use . . .	You shall . . .
3. Oxygen content sensors ²	Locate the oxygen sensor so that it provides a representative measurement of the oxygen content of the exit gas stream; ensure the sample is properly mixed and representative of the gas to be measured.
	Use an oxygen sensor with an accuracy of at least ± 1 percent of the range of the sensor or to a nominal gas concentration of ± 0.5 percent, whichever is greater.
	Conduct calibration checks at least annually; conduct calibration checks following any period of more than 24 hours throughout which the sensor reading exceeds the manufacturer's specified maximum operating range or install a new oxygen sensor; at least quarterly, inspect all components for integrity and all electrical connections for continuity; record the results of each calibration and inspection.

² This does not replace the requirements for oxygen monitors that are required to use continuous emissions monitoring systems. The requirements in this table apply to oxygen sensors that are

continuous parameter monitors, such as those that monitor combustion zone oxygen concentration and regenerator exit oxygen concentration.

This provision provides the operation and maintenance requirements for the oxygen content sensors.

x) 40 CFR 63.1576(a)(2)

Section 63.1576(a)(2) requires a variety of records concerning SSM events to be maintained. Section 63.1576(a)(2) states:

(a) You must keep the records specified in paragraphs (a)(1) through (3) of this section.

(2) The records specified in paragraphs (a)(2)(i) through (iv) of this section.

(i) Record the date, time, and duration of each startup and/or shutdown period for which the facility elected to comply with the alternative standards in § 63.1564(a)(5)(ii) or § 63.1565(a)(5)(ii) or § 63.1568(a)(4)(ii) or (iii).

(ii) In the event that an affected unit fails to meet an applicable standard, record the number of failures. For each failure record the date, time and duration of each failure.

(iii) For each failure to meet an applicable standard, record and retain a list of the affected sources or equipment, an estimate of the volume of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(iv) Record actions taken to minimize emissions in accordance with § 63.1570(c) and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

In proposing to incorporate these provisions, Petitioner intends for the Joliet Refinery to be required to maintain records of the date, time, and duration of each startup period for which the facility elected to comply with the oxygen concentration limit in Section 63.1565(a)(5)(ii). In the event that the FCCU fails to meet the oxygen concentration limit in Section 63.1565(a)(5)(ii)

during startup or hot standby, the facility would be required to record the number of failures, including the date, time, and duration of each failure. Additionally, for each failure to meet the oxygen concentration limit in Section 63.1565(a)(5)(ii) during startup or hot standby, the facility would be required to record and retain a list of the affected sources or equipment (i.e., the FCCU), an estimate of the volume of each regulated pollutant emitted over any emission limit, and a description of the method used to estimate the emissions. Lastly, the facility would be required to record actions taken to minimize emissions in accordance with 40 CFR 63.1570(c) and any corrective action taken. The inclusion of these recordkeeping requirements are intended to satisfy USEPA's AEL criterion requiring that the owner or operator's actions during startup or shutdown periods are documented by properly signed, contemporaneous operating logs or other relevant evidence.

3. Hot standby

As proposed by Petitioner, the existing standards in Section 216.361 would continue to be the CO standards applicable during normal operation. Petitioner proposes to incorporate by reference the above NESHAP Subpart UUU provisions so that the Joliet Refinery can have the option to comply with the Subpart UUU provisions during periods of startup and hot standby.

USEPA understood the concerns with meeting the generally applicable MACT standard during periods of startup and hot standby. Petitioner acknowledges that the prior SMB provisions in 35 Ill. Adm. Code Part 201 did not address hot standby. Hot standby is a mode of FCCU operation which is implemented in response to a malfunction or breakdown situation. Hot standby can be used when there is a unit upset that takes another unit down and the FCCU can be paused without having to shut the unit completely down. Hot standby avoids a subsequent cold start, which can have higher CO emissions and has more associated process safety risks. USEPA

recognized hot standby as another mode of source operation by including provisions applicable during hot standby periods in NESHAP Subpart UUU. Therefore, it is appropriate that the proposed adjusted standard addresses periods of both startup and hot standby.

B. Revisions to 35 Ill. Adm. Code 216.103 and 216.104

In conjunction with the proposed revisions to Section 216.361, Petitioner proposes amendments to Sections 216.103 and Section 216.104, governing definitions and incorporations by reference, respectively. Specifically, Petitioner proposes to revise Sections 216.103 and 216.104 as follows, with added language indicated with underlining::

Section 216.103 Definitions

The definitions contained in 35 Ill. Adm. Code 201 and 211 apply to this Part. The definitions for “catalytic cracking unit” and “hot standby” in 40 CFR 63.1579 apply to Section 216.361(d) of this Part. The definition of “startup” in 40 CFR 63.2 applies to Section 216.361(d) of this Part.

Section 216.104 Incorporations by Reference

The following materials are incorporated by reference: non-dispersive infrared method, 40 CFR 60, Appendix A, Method 10 (1982); 40 CFR Part 63, Subpart A (2022); 40 CFR Part 63, Subpart UUU (2022).

Petitioner is proposing to incorporate provisions of NESHAP Subpart UUU into Section 216.361, as discussed above. The Subpart UUU provisions proposed to be incorporated include the terms “catalytic cracking unit,” “hot standby,” and “startup.” Neither Part 201 nor Part 211 of the Board’s air regulations include definitions for “catalytic cracking unit” or “hot standby.” Part 211 does include a definition for the term “start-up.” 35 Ill. Adm. Code 211.6310. However, this definition differs from the definition of “startup” under Subpart UUU. Therefore, Petitioner proposes to define the term consistent with the Subpart UUU provisions it proposes to incorporate.

Petitioner proposes to amend Section 216.103 of the Board’s regulations to reference the definitions of “catalytic cracking unit” and “hot standby” contained in NESHAP Subpart UUU,

and the definition of “startup” contained in the NESHAP General Provisions in NESHAP Subpart

A. These definitions are as follows:

“Catalytic cracking unit” definition in 40 CFR 63.1579:

Catalytic cracking unit means a refinery process unit in which petroleum derivatives are continuously charged; hydrocarbon molecules in the presence of a catalyst suspended in a fluidized bed are fractured into smaller molecules, or react with a contact material suspended in a fluidized bed to improve feedstock quality for additional processing; and the catalyst or contact material is continuously regenerated by burning off coke and other deposits. The unit includes, but is not limited to, the riser, reactor, regenerator, air blowers, spent catalyst or contact material stripper, catalyst or contact material recovery equipment, and regenerator equipment for controlling air pollutant emissions and equipment used for heat recovery.

“Hot standby” definition in 40 CFR 63.1579:

Hot standby means periods when the catalytic cracking unit is not receiving fresh or recycled feed oil but the catalytic cracking unit is maintained at elevated temperatures, typically using torch oil in the catalyst regenerator and recirculating catalyst, to prevent a complete shutdown and cold restart of the catalytic cracking unit.

“Startup” definition in 40 CFR 63.2:

Startup means the setting in operation of an affected source or portion of an affected source for any purpose.

Petitioner also proposes to revise Section 216.104 to incorporate by reference NESHAP Subpart A and Subpart UUU. As discussed above, sections of both NESHAP Subpart A and NESHAP Subpart UUU are referenced in Petitioner’s proposed adjusted standard revision to Section 216.361.

IX. DESCRIPTION OF THE IMPACT OF PETITIONER'S ACTIVITIES ON THE ENVIRONMENT (35 ILL. ADM. CODE 104.406(G))

Petitioner seeks an adjusted standard for CO to apply during periods of SMB so that the Joliet Refinery can continue to operate in compliance with a CO emission standard during periods of SMB. As explained above, the proposed adjusted standard for CO is based on the federal

MACT standards in NESHAP Subpart UUU. The Joliet Refinery is already subject to NESHAP Subpart UUU and meets the emission standards referenced in this Petition. In addition, as described above, the CAAPP permit for the Joliet Refinery allowed the FCCU to continue to operate during periods of SMB in spite of the CO limit of Section 216.361. No increases in emissions, therefore, are expected to occur as a result of issuance of the requested adjusted standard. Thus, the adjusted standard will not result in any adverse harm to the environment.

As part of compliance with federal NESHAP and NSPS rules, the Joliet Refinery has a CO continuous emissions monitoring system (“CEMS”) that collects continuous emissions data during all periods of operation, including periods when the CO boilers are bypassed. As such, these “worst-case emissions” for all operating scenarios are already reported and captured in the Illinois emission inventory. If the Board grants this adjusted standard, there should be no impact on reported emissions relative to today.

Additionally, below are a few facts on CO emissions in Illinois based on the most recent 2020 Annual Air Quality Report:¹¹

- Illinois has never had any portions of the state designated as nonattainment for CO, and has no violating CO monitors for either the 1-hour (35 ppm) or 8-hour (9 ppm) CO National Ambient Air Quality Standards (“NAAQS”).
- The CO NAAQS allows for one exceedance per year. 40 CFR 50.8(a)(1)-(2).
- Most recent Illinois data shows the highest monitor’s worst daily high 1-hour and 8-hour CO NAAQS readings are dramatically below the NAAQS (5% and 16% of the standards, respectively).

¹¹ The report is publicly available on Illinois EPA’s website at <https://www2.illinois.gov/epa/topics/air-quality/air-quality-reports/Pages/default.aspx>.

- The petroleum refinery CO emissions (as described earlier, FCCU emissions are monitored and quantified using CO CEMS, including non-steady-state periods of operation) are a small fraction of the Illinois point source inventory, only 4.1%.

Including mobile source and other inventory sectors, the petroleum refinery CO emissions are an extremely small fraction of the Illinois inventory, only 0.2% (based on 2016 emissions). *See* Lake Michigan Air Directors Consortium (“LADCO”), “Attainment Demonstration Modeling for the 2015 Ozone NAAQS, Technical Support Document,” Table 4-2 (Sep. 21, 2022).¹² Given the above, Petitioner’s proposal would have no impact on “worst case” FCCU emissions reported today.

Finally, the current emissions are a very small fraction of the state’s inventory (approximately two one-thousandths). ExxonMobil used AERMOD to conduct screening modeling of impacts using continuous emission monitoring system (“CEMS”) data from recent startup events to conservatively estimate ambient impacts during these events. The incremental emission impacts during startups were less than 3% and 6% of the 1-hour and 8-hour standards, respectively. These emissions in addition to worst-case background (as detailed above) will not cause an exceedance of either of the CO standards.

X. STATEMENT OF JUSTIFICATION (35 ILL. ADM. CODE 104.406(H))

A. MACT Background

The adjusted standard proposed by Petitioner comes from NESHAP Subpart UUU that was promulgated by USEPA in December 2015. *See Petroleum Refinery Sector Risk and Technology*

¹² The Technical Support Document is publicly available on LADCO’s website at https://www.ladco.org/wp-content/uploads/Projects/Ozone/ModerateTSD/LADCO_2015O3_ModerateNAASIP_TSD_21Sep2022.pdf.

Review and New Source Performance Standards, 80 Fed. Reg. 75178 (Dec. 1, 2015).¹³ The amendments relating to SSM were proposed in response to the Sierra Club Petition and to address USEPA's concerns regarding general SSM exemptions. *Id.* at 75184. Specifically, USEPA removed the SSM exemption provisions or references from NESHAP Subpart UUU and inserted alternative emission standards during periods of SSM. *Id.* USEPA explained:

In proposing the standards in this rule, the EPA has taken into account startup and shutdown periods and, for the reasons explained below, we are proposing alternate standards for those periods for a few select emission sources. We expect facilities can meet nearly all of the emission standards in Refinery MACT 1 and 2 during startup and shutdown, including the amendments we are proposing in this action. For most of the emission sources, APCD are operating prior to process startup and continue to operate through process shutdown.

For Refinery MACT 1 and 2, we identified three emission sources for which specific startup and shutdown provisions may be needed. First, as noted above, most APCD used to control metal HAP emissions from FCCU under Refinery MACT 2 (e.g., wet scrubber, fabric filter, cyclone) would be operating before emissions are routed to them and would be operating during startup and shutdown events in a manner consistent with normal operating periods, such that the monitoring parameter operating limits set during the performance test are maintained and met. However, we recognize that there are safety concerns associated with operating an ESP during startup of the FCCU, as described in the following paragraphs. Therefore, we are proposing specific PM standards for startup of FCCU controlled with an ESP under Refinery MACT 2.

During startup of the FCCU, "torch oil" (heavy oil typically used as feed to the unit via the riser) is injected directly into the regenerator and burned to raise the temperature of the regenerator and catalyst to levels needed for normal operation. Given the poor mixing of fuel and air in the regenerator during this initial startup, it is difficult to maintain optimal combustion characteristics, and high CO concentrations are common. Elevated CO levels pose an explosion threat due to the high electric current and potential for sparks within the ESP. Consequently, it is common practice to bypass the ESP during startup of the FCCU. Once torch oil is shut off and the regenerator is fueled by catalyst coke burn-off, the CO levels in the FCCU regenerator off-gas will stabilize and the gas can be sent to the ESP safely.

¹³ This Federal Register is publicly available on the U.S. Government Information website at <https://www.govinfo.gov/content/pkg/FR-2015-12-01/pdf/2015-26486.pdf>.

As mentioned previously, “torch oil” is injected directly into the regenerator and burned during FCCU startup to raise the temperature of the regenerator and catalyst to levels needed for normal operation. During this period, CO concentrations often will exceed the 500 ppm emissions limit due to the poor mixing of fuel and air in the regenerator. The emissions limit is based on CO emissions, as a surrogate for organic HAP emissions, and the emission limit is evaluated using a 1-hour averaging period. This 1 hour averaging period does not provide adequate time for short-term excursions that occur during startup to be offset by lower emissions during normal operational periods.

Based on available data during normal operations, ensuring adequate combustion (indicated by CO concentration levels below 500 ppmv) minimizes organic HAP emissions. Low levels of CO in the exhaust gas are consistently achieved during normal operations when oxygen concentrations in the exhaust gas exceed 1-percent by volume (dry basis). Thus, maintaining an adequate level of excess oxygen for the combustion of fuel in the FCCU is expected to minimize organic HAP emissions. Emissions of CO during startup result from a series of reactions with the fuel source and are dependent on mixing, local oxygen concentrations, and temperature. While the refinery owner or operator has direct control over air blast rates, CO emissions may not always directly correlate with the air blast rate. Exhaust oxygen concentrations are expected to be more directly linked with air blast rates and are, therefore, more directly under control of the refinery owner or operator. We are proposing an excess oxygen concentration of 1 volume percent (dry basis) based on a 1-hour average during startup. We consider the 1-hour averaging period for the oxygen concentration in the exhaust gas from the FCCU to be appropriate during periods of FCCU startup because air blast rates can be directly controlled to ensure adequate oxygen supply on a short-term basis.

Petroleum Refinery Sector Risk and Technology Review and New Source Performance Standards, 79 Fed. Reg. 36880, 36943 (June 30, 2014).¹⁴

USEPA understood the concerns with meeting the generally applicable MACT standard during periods of startup and hot standby. Therefore, it is appropriate that the alternative emission limitation and standards under NESHAP Subpart UUU would apply to periods of startup and hot standby under Section 216.361.

¹⁴ This Federal Register is publicly available on the U.S. Government Information website at <https://www.govinfo.gov/content/pkg/FR-2014-06-30/pdf/2014-12167.pdf>.

B. Seven Criteria for Alternative Emissions Limitations

In the June 12, 2015 SSM final action, USEPA recognized that there are approaches to address emissions during SSM events that are consistent with the requirements of the Clean Air Act. 80 Fed. Reg. 33840, 33844 (June 12, 2015). USEPA explained that, “SIPs may, rather than exempt emissions during SSM events, include emission limitations that subject those emissions to alternative numerical limitations or other technological control requirements or work practice requirements during startup and shutdown events, so long as those components of the emission limitations meet applicable CAA requirements.” *Id.* USEPA reiterated that alternative requirements applicable during periods of SSM must be “narrowly tailored and take into account considerations such as the technological limitations of the specific source category and the control technology that is feasible during startup and shutdown” in order to be approvable. *Id.* at 33913. USEPA also recognized that it may be appropriate to establish alternative emission limitations for modes of source operation other than startup and shutdown, but the same seven criteria should be utilized. *Id.*

In the sections below, Petitioner walks through each of the seven criteria as justification for Petitioner’s proposed adjusted standard amendments.

1. The revision is limited to specific, narrowly defined source categories using specific control strategies (e.g., cogeneration facilities burning natural gas and using selective catalytic reduction).

Petitioner’s proposed amendments to Part 216 are limited to specific, narrowly defined source categories using specific control strategies. The proposed amendments are limited to an FCCU as defined in the federal MACT standard. The FCCU at the Joliet Refinery is controlled by CO boilers during steady-state operation.

Under NESHAP Subpart UUU, the generally applicable CO standard applicable to FCCUs is CO emissions from the FCCU regenerator or CO boiler serving the FCCU must not exceed 500 ppmv (dry 1-hour basis). 40 CFR 63.1565(a)(1); 40 CFR 63, Subpart UUU Table 8. During periods of startup, shutdown, or hot standby, a source can elect to comply with the alternative standard of maintaining the oxygen concentration in the exhaust gas of the FCCU regenerator at or above 1 volume percent (dry basis) or 1 volume percent (wet basis with no moisture correction). 40 CFR 63.1565(a)(5).

The Illinois regulations at Section 216.361 provide a more stringent generally applicable CO standard of 200 ppm corrected to 50% excess air. 35 Ill. Adm. Code 216.361(a). As proposed by Petitioner, the existing 216.361 standards would continue to be the CO standards applicable during normal operation. USEPA understood the concerns with meeting the MACT standard during periods of startup and hot standby, and Petitioner requests that the Board recognize those same concerns here. Thus, it is appropriate that the alternative emission limitation and standards under NESHAP Subpart UUU would apply to periods of startup and hot standby under Section 216.361.

2. Use of the control strategy for this source category is technically infeasible during startup or shutdown periods.

CO emissions from an FCCU are the result of incomplete combustion when coke deposits are burned off the circulating catalyst in the FCCU regenerator. As with any type of combustion, the factors that influence complete combustion include time, temperature, and turbulence. During normal operations, a typical FCCU operates in either full burn mode or in partial burn mode with CO emissions controlled by a CO boiler. Under either of these scenarios, good combustion is achievable and CO emissions can be minimized. When operating normally, an FCCU is essentially in a thermodynamic balance as the heat from combusting the coke deposits is utilized

in cracking the feed to the unit. However, during startup, there is no feed to the unit and no coke combustion. For the unit to operate properly and safely, it first must be brought up to the proper operating temperature. This is done through the combustion of torch oil. When combusting torch oil and bringing the unit up to temperature, elevated CO emissions occur. Depending on how long the FCCU had been shut down prior to the startup (i.e., how much it has cooled off), the startup can take hours or even days to safely reach the proper operating temperature. It is not technically feasible to meet the CO standard during this startup period.

More specifically, the FCCU at the Joliet Refinery uses CO boilers to control CO. Typically, the FCCUs will startup in full burn mode and the source will bypass the CO boiler during startup. This is because of safety and reliability concerns – starting up a FCCU in full burn mode through CO boilers is generally not safe or reliable. These concerns were detailed in comments submitted to USEPA during the NESHAP Subpart UUU rulemaking:

Comment: Several commenters stated that the EPA should provide alternate standards for startups of FCCU equipped with CO boilers and for any FCCU during periods of shutdown and hot standby. The commenters stated that the EPA incorrectly assumes that refiners are able to safely and reliably start up their FCCU with flue gas boilers in service and meet the normal operating limit of 500 ppm CO. They claimed that most refiners are unable to reliably start up their FCCU with flue gas boilers in service due to the design of the boiler and the fact that many boilers are not able to safely and reliably handle the transient FCCU operations that can occur during startup, shutdown, and hot standby. One commenter stated that FCCU built with CO boilers experience issues with flame stability due to fluctuating flue gas compositions and rates when starting up and shutting down. Accordingly, the commenter stated, startup and shutdown activities at FCCU using a boiler as an APCD are not currently meeting the Refinery MACT 2 standard of 500 ppm CO on a 1-hour basis, and this level of control does not qualify as the MACT floor. The commenter gave examples of facilities where FCCU, including those equipped with post-combustion control systems, do not consistently demonstrate compliance with a 500 ppm CO concentration standard during all startup and shutdown events.

Commenters stated that reliable boiler operation is critical to the overall refinery steam system and refineries must avoid jeopardizing boiler operation to prevent major upsets of process operations. A major upset or site-wide shutdown could

result in flaring and emissions of HAP far in excess of that emitted while bypassing the CO boiler.

Commenters stated that combustion of torch oil in the FCCU regenerator during startup is one of the primary reasons the CO limit cannot be met during these operations. Torch oil is also used during shutdown to control the cooling rate (and potential equipment damage) and during hot standby and, thus, the normal CO standard cannot be met at these times either. Hot standby is used to hold an FCCU regenerator at operating temperature for outages where a regenerator shutdown is not needed and to avoid full FCCU shutdowns. Full cold shutdown also increases personnel exposures associated with removing catalyst and securing equipment. Additionally, this can produce additional emissions over maintaining the unit in hot standby. Commenters claimed that because of the variability of CO during torch oil operations, it is not possible for the EPA to establish a CAA section 112(d) standard for startup and shutdown activities at FCCU because refineries cannot measure a constant level of emissions reductions.

The commenters recommended expansion of the proposed standard of greater than 1-percent hourly average excess regenerator oxygen to all FCCU, including units with fired boilers. These commenters suggested that maintaining an adequate level of excess oxygen for the combustion of fuel in the regenerator is the best way to minimize CO and organic HAP emissions from FCCU during these periods.

Response: After reviewing the comments and discussing CO boiler operations with facility operators, we agree that the 1-percent minimum oxygen limit should be more broadly applicable to FCCU startup and shutdown regardless of the control device configuration and have revised the final rule accordingly.

80 Fed. Reg. 75178, 75220-75221 (Dec. 1, 2015).

As explained above, starting up an FCCU in full burn mode through CO boilers is generally not safe or reliable. Also, as explained above and recognized by USEPA, the generally applicable CO limit is simply not achievable during startup periods. It is technically infeasible to meet these CO limits during startup periods.

Similarly, FCCUs can experience elevated CO emissions during hot standby. As with startup, during hot standby the unit is typically not receiving feed and torch oil is combusted to maintain heat within the unit. It is not technically feasible to control CO emissions during hot standby operations.

Malfunctions may result if a refinery attempts to limit CO emissions versus the priority focus on the complete and full combustion of oil feedstocks while transitioning to full operations. During this period, the potential for uncombusted hydrocarbon is a critical concern. The consequences of this material finding a source of ignition can be very serious. Examples of refinery incidents where this has occurred include February 18, 2015 explosion at the ExxonMobil Torrance, California refinery ESP (Chemical Safety Board investigation report available at <https://www.csb.gov/exxonmobil-refinery-explosion-/>) as well as the April 26, 2018 explosion at the Husky Energy refinery in Superior, Wisconsin (Chemical Safety Board investigation information available at <https://www.csb.gov/husky-energy-refinery-explosion-and-fire>). In response to CSB recommendations, industry has developed key work practice standards to address the safe operations during these periods as well as holding seminars and trainings on this very issue, to ensure the health and safety of employees at the facilities during these technically complex procedures.

Without the proposed adjusted standard, the Board's removal of the SMB provisions from Parts 201, 202, and 212 ignores known process safety hazards as well as sets emission limitations that are in direct opposition to "Recognized and generally accepted good engineering practices" (RAGAGEP) for these sources. While OSHA originally coined the terminology, RAGAGEP involves the application of engineering, operating or maintenance activities derived from engineering knowledge and industry experience based upon the evaluation and analyses of appropriate internal and external standards, applicable codes, technical reports, guidance, or recommended practices or documents of a similar nature.¹⁵ USEPA's Risk Management Program

¹⁵ Recognized and Generally Accepted Good Engineering Practice (RAGAGEP) | AIChE

(40 CFR Part 68) and OSHA's Process Safety Management (29 CFR Part 1910) specifically direct refineries to adhere to RAGAGEP to ensure the safe operation of their facilities.

As currently written, the Board has placed the Joliet Refinery in a position where it must make an untenable operating decision. It must attempt to startup or go into hot standby with a known process safety hazard with potentially serious consequences in direct conflict with RAGAGEP or remain shut down until Illinois EPA has approved alternative operating conditions and emission limitations. This scenario is completely avoidable as industry and USEPA have already aligned on the proper and safe operating conditions and emission limitations for FCCU startup and hot standby. These procedures and operation conditions have been safely used by all U.S. refineries since 2016.

3. The alternative emission limitation requires that the frequency and duration of operation in startup or shutdown mode are minimized to the greatest extent practicable.

FCCUs are the primary gasoline-making units in petroleum refineries and operate year-round to provide essential products. Sources with FCCUs have planned startup and shutdowns for periodic maintenance events (multi-year turnaround cycle). Each startup of a FCCU after a maintenance event is unique, depending on what, if any, other units are down for maintenance.

Petitioner is proposing to incorporate the general duty to minimize emissions under NESHAP Subpart UUU, which states, in part:

At all times, you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. . . .

40 CFR 63.1570(c). As such, Petitioner's proposed alternative emission limitation includes a requirement to minimize emissions at all times, including during startup. Furthermore, it is to each

refinery's benefit to complete startup as quickly as possible. The FCCU is a critical operating unit for a refinery. When an FCCU is down or not operating normally, refineries typically operate the entire plant at significantly reduced production rates or not at all. Lost production and the economic consequences are a strong incentive to minimum startup time. Therefore, there is an inherent goal to minimize the time of startup as much as is safely practicable, which in turn minimizes emissions during startup.

It is important to note that FCCU startups and shutdowns are infrequent events. FCCUs typically have run lengths between 5-7 years between major maintenance activities (i.e., turnarounds). Unplanned FCCU shutdowns and startups are related to rare but known root causes of weather events, power failures, or unexpected equipment failures. It would be unusual for a refinery to experience more than a single FCCU startup/shutdown sequence in a given year. These startup sequences typically last from 2-4 days and the period of elevated CO concentrations is actually a small subset of that period (e.g., 24-36 hours).

4. As part of its justification of the SIP revision, the state analyzes the potential worst-case emissions that could occur during startup and shutdown based on the applicable alternative emission limitation.

In the 2015 SIP Call final rule, USEPA included a response to comments that provided further clarity on the information required for an approvable alternative emissions limitation.

USEPA explained:

The EPA does not agree with the comment that suggests “worst-case modeling” would always be needed to show that a SIP revision establishing alternative emission limitations for startup and shutdown would not interfere with attainment or reasonable further progress. The nature of the technical demonstration needed under section 110(l) to support approval of a SIP revision depends on the facts and circumstances of the SIP revision at issue. The EPA will evaluate SIP submissions that create alternative emission limitations applicable to certain modes of operation such as startup and shutdown carefully and will work with the states to assure that any such limitations are consistent with applicable CAA requirements. Under certain circumstances, there may be alternative emission limitations that necessitate

a modeling of worst-case scenarios, but those will be determined on a case-by-case basis.

80 Fed. Reg. 33840, 33867 (June 12, 2015).

It is Petitioner's understanding that other states either do not have CO standards for FCCUs or they exempt units subject to federal regulations. *See, e.g.*, Indiana regulations at 326 IAC 9-1-1(b)(1), (b)(5), and 9-1-2; *see, e.g.*, California - Bay Area Air Quality Management District regulations at 9-10-305 (explicitly exempting periods of startup, shutdown, and curtailed operation (<30%)).¹⁶ Therefore, the 200 ppm CO limit in Section 216.361 is unique to Illinois.

With respect to emission impacts of the alternative CO standard proposed by Petitioner, the Joliet Refinery already currently has FCCU SMB relief provisions in its operating permit and currently relies on the excess emission authorization. *See* sections 7.3.3(j) and 7.3.3(k) of the Joliet Refinery CAAPP Permit. Under these provisions, the Joliet Refinery is authorized to continue operation of the FCCU in violation of the 200 ppm corrected to 50% excess air emission limit in 35 Ill. Adm. Code 216.361(a). Continued operation is only allowed during malfunction or breakdown if it is necessary to prevent risk of injury to personnel or severe damage to equipment. Also, as discussed in Section IX, *supra*, if the Board grants this adjusted standard for the Joliet Refinery, there should be no impact on "worst case" FCCU reported emissions relative to today.

5. The alternative emission limitation requires that all possible steps are taken to minimize the impact of emissions during startup and shutdown on ambient air quality.

USEPA's discussion of the MACT alternative emission limitation in the NESHAP Subpart UUU rulemaking supports this criterion. USEPA explained that bypassing the CO boiler during

¹⁶ The Indiana regulations referenced are available at http://iac.iga.in.gov/iac/iac_title?iact=326. The BAAQMD regulations referenced are publicly available at https://www.baaqmd.gov/~media/dotgov/files/rules/refinery-rules-definitions/rg0910_20211103-pdf.pdf?la=en&rev=6e3872940d924000b45ea05f05b5a309.

startup of the FCCU ensures adequate combustion, which minimizes organic hazardous air pollutant (“HAP”) emissions. 79 Fed. Reg. 36880, 36943 (June 30, 2014). USEPA explained:

Low levels of CO in the exhaust gas are consistently achieved during normal operations when oxygen concentrations in the exhaust gas exceed 1-percent by volume (dry basis). Thus, maintaining an adequate level of excess oxygen for the combustion of fuel in the FCCU is expected to minimize organic HAP emissions.

Id. USEPA further explained:

Comment: The commenters recommended expansion of the proposed standard of greater than 1-percent hourly average excess regenerator oxygen to all FCCU, including units with fired boilers. These commenters suggested that maintaining an adequate level of excess oxygen for the combustion of fuel in the regenerator is the best way to minimize CO and organic HAP emissions from FCCU during these periods.

Response: After reviewing the comments and discussing CO boiler operations with facility operators, we agree that the 1-percent minimum oxygen limit should be more broadly applicable to FCCU startup and shutdown regardless of the control device configuration and have revised the final rule accordingly.

80 Fed. Reg. 75221.

Petitioner is proposing to incorporate by reference the MACT 1% by volume (dry basis or wet basis with no moisture correction) alternative emission limitation into Section 216.361 during periods of startup and hot standby. Petitioner’s proposal will minimize the impact of emissions of CO and HAP during startup on ambient air quality.

- 6. The alternative emission limitation requires that, at all times, the facility is operated in a manner consistent with good practice for minimizing emissions and the source uses best efforts regarding planning, design, and operating procedures.**

Petitioner is proposing to incorporate the general duty to minimize emissions under NESHAP Subpart UUU into Section 216.361. The general duty to minimize emissions under NESHAP Subpart UUU states, in part:

At all times, you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner

consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. . . .

40 CFR 63.1570(c).

7. **The alternative emission limitation requires that the owner or operator's actions during startup periods are documented by properly signed, contemporaneous operating logs or other relevant evidence.**

The NESHAP Subpart UUU provisions that Petitioner is proposing to incorporate into Section 216.361 address this criterion. 40 CFR 63.1572(c) requires the operation of a continuous parametric monitoring system ("CPMS") for oxygen in the FCCU regenerator exhaust. The CPMS must meet the requirements of 40 CFR 63.1572(c) and Tables 10 and 41 of NESHAP Subpart UUU (including recording a value at a minimum frequency of 15 minutes). Petitioner is also proposing to incorporate the applicable recordkeeping provisions in 40 CFR 63.1576(a)(2) and (d). Specifically, Section 63.1576(a)(2)(i) requires the source to record the date, time, and duration of each startup period for which the source elected to comply with 40 CFR 63.1565(a)(5)(ii).

C. Level of Justification for Adjusted Standard

This Petition also demonstrates that the level of justification for an adjusted standard pursuant to Section 28.1 of the Act has been met. The level of justification specified by Section 28.1(c) of the Act applies:

- (1) factors relating to the petitioner are substantially and significantly different from the factors relied upon by the Board in adopting the general regulation applicable to the petitioner;
- (2) the existence of those factors justifies an adjusted standard;
- (3) the requested standard will not result in environmental or health effects substantially and significantly more adverse than the effects considered by the Board in adopting the rule of general applicability; and

- (4) The adjusted standard is consistent with any applicable federal law. 415 ILCS 5/28.1(c).

415 ILCS 5/28.1(c). The above discussion demonstrates: that factors relating to the Petitioner are substantially and significantly different from others when the recent changes to Parts 201, 202 and 2012 made the CO limits of Section 216.361 applicable to the Joliet Refineries FCCU during periods of SMB; that those factors justify the proposed adjusted standard; that the requested adjusted standard will not result in substantially and significantly more adverse environmental or human health effects; and that the adjusted standard is consistent with the CAA. ExxonMobil also notes that compliance by the Joliet Refinery, in the absence of the adjusted standard, is neither technically feasible nor economically reasonable, consistent with Section 27(a) of the Act. *See* 415 ILCS 5/27(a). The Board, therefore, should approve the requested adjusted standard, pursuant to Section 28.1(c) of the Act and 35 Ill. Adm. Code Section 104.428.

XI. CONSISTENCY WITH FEDERAL LAW (35 ILL. ADM. CODE 104.406(I))

For all of the reasons discussed above, the Board may grant the proposed adjusted standard consistent with federal law. No additional procedural requirements for Board action are required under the CAA.

XII. PETITIONER'S RIGHT TO A HEARING (35 ILL. ADMIN. CODE 104.406(J))

Petitioner waives a hearing on this Petition.

XIII. DOCUMENTS RELIED UPON (35 ILL. ADMIN. CODE 104.406(K))

Significant information provided to the Board in R 23-18 supports this Petition. In particular, Petitioner requests that the Board incorporate the February 6, 2023 Pre-Filed Testimony of Kelly Thompson and David R. Wall regarding IERG's FCCU proposal and the American Petroleum Institute's February 6, 2023 testimony in support of IERG's FCCU proposal.

XIV. CONCLUSION

For the foregoing reasons, Petitioner ExxonMobil Oil Corporation hereby requests that the Board issue an adjusted standard consistent with the proposal above.

Dated: August 14, 2023

Respectfully submitted,

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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)	
)	
PETITION OF EXXONMOBIL)	AS 23 - ____
OIL CORPORATION FOR)	(Adjusted Standard – Air)
ADJUSTED STANDARD FROM)	
35 ILL. ADM. CODE 216.361,)	
35 ILL. ADM. CODE 216.103, AND)	
35 ILL. ADM. CODE 216.104)	

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NOW COMES, Eric E. Boyd, Edward A. Cohen, and Timothy B. Briscoe, of Thompson Coburn LLP, and hereby enter their appearance as attorneys for the Petitioner, ExxonMobil Oil Corporation, in the above-captioned matter.

Dated: August 14, 2023

Respectfully submitted,

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