Regulatory Analysis

Title 326 Indiana Department of Environmental Management
LSA Document #25-204

I. Description of Rule

This section should include an overview of the proposed rulemaking, background, and high-level justification. Topics to address include (as applicable):

a. History and Background of the Rule – On October 26, 2015, the United States Environmental Protection Agency (U.S. EPA) published a final rule in the Federal Register (FR) lowering the National Ambient Air Quality Standards (NAAQS) for ozone from 75 parts per billion (ppb) to 70 ppb (80 FR 65291). Ozone is one of the six criteria air pollutants established by the Clean Air Act and is known for being hazardous to human health and the environment.

During the 2018 to 2020 period, design values in the Chicago area, including the northern townships of Lake and Porter counties, remained above the 70 ppb 2015 8-hour NAAQS for ozone. Subsequently, on October 7, 2022, U.S. EPA changed the nonattainment status for the Chicago area from “marginal” nonattainment to “moderate” nonattainment, effective November 7, 2022 (87 FR 60897).

The Clean Air Act requires States with moderate nonattainment areas to implement reasonably available control technologies (RACT) for sources that emit NOx and volatile organic compounds. Specifically, section 182(f) requires RACT for major sources of NOx. Section 302 defines major stationary sources as any facility which has the potential to emit 100 tons per year of any air pollutant. NOx gases are most often produced during the combustion of fossil fuels. NOx, along with volatile organic compounds, are precursor emissions to ozone.

NOx RACT requirements are described by U.S. EPA in the "NOx Supplement" notice titled, "State Implementation Plans; Nitrogen Oxides Supplement to the General Preamble; Clean Air Act Amendments of 1990 Implementation of Title I; Proposed Rule," published November 25, 1992 (57 FR 55620). In the NOx Supplement notice EPA defines RACT as the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility. According to U.S. EPA, when setting NOx RACT standards, states should consider the total cost, total emission reductions, and cost effectiveness of controls needed to achieve the emission limits or equipment standards.

On October 17, 2023, U.S. EPA published a final rule, finding that eleven states, including Indiana, failed to submit State Implementation Plan (SIP) revisions required by the Clean Air Act (88 FR 71757). Specific to Indiana, U.S. EPA determined that the state failed to submit NOx RACT for major sources in the Chicago area, which encompasses the northern townships of Lake and Porter counties. U.S. EPA requires that IDEM make this SIP submission within 18 months of November 17, 2023.

If IDEM fails to amend the SIP by this deadline, U.S. EPA will impose what is known as an "offset sanction" in accordance with 40 CFR § 52.31(e)(1). This sanction requires a 2:1 ratio of emission reductions to be achieved within the nonattainment area to offset emissions from new or modified major facilities. If the SIP is not appropriately amended within six months of the offset sanction, then U.S. EPA will impose highway sanctions in accordance with 40 CFR 52.31(e)(2). These sanctions would withhold an average of $183.7 million annually in federal transportation funding from Lake and Porter counties.

In response to U.S. EPA's finding, the IDEM began consulting with every major stationary source in the affected region. The agency sought information on control technologies already in place at the relevant major stationary sources and which control technologies could be implemented, if reasonably practicable. Sources provided relevant data to IDEM for the agency to develop rules that impose reasonable NOx RACT requirements.

Specifically, IDEM's outreach to affected sources included source-specific collaboration with all potentially affected sources in the small portions of Lake and Porter counties in nonattainment, which is reflected in the minimal controls that may apply to just two sources. Affected Indiana sources that have seen similar NOx RACT efforts in other states are supportive of IDEM's approach as the least burdensome among affected states. In addition to hosting a series of conference calls and Teams meetings to discuss what was required of the area, IDEM met with each affected source individually in advance of requesting a RACT analysis. Once IDEM received the RACT analyses, additional consultation has been ongoing with each source to ensure effective communication and to minimize the potential burden on affected sources.

This rulemaking provides an enforceable mechanism that satisfies U.S. EPA's SIP requirements for NOx RACT. Specifically, this rulemaking imposes a presumptive NOx RACT requirement that is applicable to all sources with the exception of eleven facilities—eight in Lake County and three in Porter County—that have a specified NOx RACT. IDEM worked extensively with each affected unit and U.S. EPA to ensure that the state remains in compliance with the Clean Air Act while avoiding overly burdensome requirements on local sources.

b. Scope of the Rule – This rule's scope is relatively narrow. The rulemaking would add a new rule at 326 IAC 10-7, and this rule's provisions would only apply to major stationary sources in Lake and Porter counties. Section 302 of the Clean Air Act defines major stationary sources as any facility which has the potential to emit 100 tons per year of any air pollutant.

c. Statement of Need – This rule is federally required. Failure to promulgate this rule by May 2025 will result in "offset sanctions" which require a 2:1 ratio of emission reductions from new or modified major facilities. Failure to promulgate this rule by November 2025 will result in highway sanctions, which would withhold an average of $183.7 million annually in federal transportation funding from Lake and Porter counties. Finally, it is necessary to bring major stationary sources in the Chicago nonattainment area into compliance with the Clean Air Act. NOx emissions contribute to the formation of ozone, which can be harmful to respiratory health.

d. Statutory Authority for the Proposed Rule – IDEM's general rulemaking authority may be found at IC 13-14-8-1 and IC 13-14-8-7. Authority for this rulemaking may also be found at IC 13-17-3-4, which requires the Environmental Rules Board to adopt rules "necessary to the implementation of the federal Clean Air Act."

e. Fees, Fines, and Civil Penalties – This rule does not impose any fines, fees, or penalties.

II. Fiscal Impact Analysis

This section should include a discussion of the impact of the proposed rulemaking on State and local government expenditures and revenues. Topics to address include (as applicable):

a. Anticipated Effective Date of the Rule – Fall 2025

b. Estimated Fiscal Impact on State and Local Government – If this rule is not promulgated by November 2025, then U.S. EPA then will impose highway sanctions in accordance with 40 CFR 52.31(e)(2). These sanctions would withhold an average of $183.7 million annually in federal transportation funding from Lake and Porter counties.

c. Sources of Expenditures or Revenues Affected by the Rule – If this rule is not promulgated by November 2025, then U.S. EPA then will impose highway sanctions in accordance with 40 CFR 52.31(e)(2). These sanctions would withhold an average of $183.7 million annually in federal transportation funding from Lake and Porter counties.

III. Impacted Parties

This rulemaking will impact forty-six permitted sources in Lake and Porter counties. These sources are defined as "major stationary sources" under the Clear Air Act because they have the potential to emit more than 100 tons of NOx. Additionally, this rulemaking would impact any new source that has the potential to emit more than 100 tons of NOx, or any source that is modified in such a way that it could emit more than 100 tons of NOx.

IV. Changes in Proposed Rule

This rulemaking would add a new rule at 326 IAC 10-7. An overview of the changes found in each section of this new rule can be found in the chart below:

Citation	Contents
326 IAC 10-7-1	Enumerates which sources are subject to this rulemaking.
326 IAC 10-7-2	Defines specific terms in the rule.
326 IAC 10-7-3	Applies general requirements, such as monitoring and tune-up requirements, to all sources subject to the rule.
326 IAC 10-7-4	Applies a general, or presumptive, NOx limit and RACT.
326 IAC 10-7-5	Provides rules for affected sources in the event they propose an emission averaging program in lieu of the applicable emissions limitations.
326 IAC 10-7-6	Provides rules and required information for sources to conduct engineering studies in the event they claim a limit is infeasible or unreasonable.
326 IAC 10-7-7	List of sources that are exempt from the rule.
326 IAC 10-7-8	Places source-specific limitations on specified facilities in Lake and Porter counties. There are eleven of these sources.
326 IAC 10-7-9	Provides compliances deadlines for sources subject to the rule.

326 IAC 10-7-10	Provides compliance methods for sources subject to the rule.

V. Benefit Analysis

a. Estimate of Primary and Direct Benefits of the Rule – The primary direct benefit of this rulemaking is that it will bring the state into compliance with the Clean Air Act and prevent the federal government from imposing highway sanctions on Lake and Porter counties. Such sanctions could cost the area $183.7 million annually in federal transportation funding.

Furthermore, reducing NOx emissions reduces the formation of ozone. Ozone is one of six criteria air pollutants identified by U.S. EPA and is particularly hazardous to human health. Specifically, ozone can exacerbate respiratory disease and is particularly harmful to children and the elderly.

b. Estimate of Secondary or Indirect Benefits of the Rule – The secondary benefit of this rule is that it requires sources to survey their emissions and evaluate technologies that may make processes more efficient.

c. Estimate of Any Cost Savings to Regulated Industries – None beyond the savings associated with avoiding the substantial costs of failing to submit a SIP, as discussed further below.

VI. Cost Analysis

a. Estimate of Compliance Costs for Regulated Entities – This rule is required by federal law; therefore, any costs resulting from compliance with the rule must be attributed to that federal law not the state rule. Furthermore, the net cost of this rulemaking is negligible in light of the substantial financial burdens to the State and the regulated community that would result from not adopting this rule. As discussed elsewhere, failure to amend Indiana's rule and submit a NOx RACT SIP revision to U.S. EPA would result in the withholding of $183.7 million annually in federal transportation funding for Lake and Porter County. Beyond these sanctions, Indiana's continued noncompliance with federal law would force U.S. EPA to impose a Federal implementation plan (FIP) to address the Clean Air Act's NOx RACT requirements. Such a FIP could result in Indiana's regulated entities bearing much higher compliance costs if U.S. EPA required the installation of additional control equipment. Considering the severe consequences of not acting, this rulemaking actually saves the State and the affected sources money.

Regardless, as detailed below, IDEM evaluated the costs of compliance with federal law. The costs and effectiveness of NOx control techniques depend on a number of factors, such as, the type of fuel combusted, the size of the process or combustion equipment and its utilization, the surrounding structures (retrofit requirements) modifications necessary to accommodate the control equipment, and certain regulatory control requirements .[1] It

[1] For example, a selective catalytic reduction control on a 150 million Btu per hour (mmBtu/hr) capacity, field-erected watertube commercial/industrial boiler may cost 1,560 to 1,780 dollars per ton NOx removed ($/ton) when

is generally cheaper to control a large and more in-use process with large baseline NOx emissions. The costs can also be reduced by achieving a part of the required emission reductions with the application of cheaper controls, such as boiler modifications. The cost effectiveness analysis for control techniques requires only two inputs, namely emission reductions in tons per year and control strategy cost in dollars per year.

IDEM used U.S. EPA's top-down approach to determining the feasibility of control technology where the most stringent control available for a similar or identical source or source category is identified. This control option is used to establish the RACT emission limitation, unless the applicant can demonstrate (and IDEM agrees) that it is not "achievable" due to technical infeasibility or not being cost effective and potentially having other adverse environmental or energy consequences of implementing the technology. If the top control alternative is eliminated, then the next most stringent level of control is evaluated. This process continues until the RACT is selected.

Generally, the actual cost, emission reduction, and cost-effectiveness levels that an individual source will experience in meeting the NOx RACT requirements will vary from unit to unit and from area to area. These factors will differ from unit to unit because the sources themselves vary in age, condition, and size, among other considerations. U.S. EPA's general RACT guidance urges States to judge the feasibility of imposing specific controls based on the economic and technical circumstances of the particular unit being regulated. In many cases, these factors are not the same in all States since the specific NOx RACT emission limitations and averaging times will differ from State to State. U.S. EPA's presumptive NOx RACT levels for certain utility boilers are based on capabilities and problems which are general to the industry on a national basis. States may adopt statewide NOx RACT levels which are more stringent than the U.S. EPA levels based on statewide industry conditions. For these reasons, a single cost, emission reduction, or cost-effectiveness figure cannot fully describe the NOx RACT requirement.

Although there is not a bright line that U.S. EPA relies on for RACT cost-effectiveness, IDEM chose $5,000 per ton as a threshold for the draft rule. IDEM reviewed the cost-effectiveness thresholds that other states relied on to address NOx RACT and determined that Ohio's threshold was the most conservative that U.S. EPA considered "approvable". The cost-effectiveness thresholds that IDEM reviewed ranged from $5,000 per ton, up to $14,000 per ton of NOx reduced.

In general, IDEM relied on affected sources to conduct their own analysis of RACT using this cost-effectiveness threshold of $5,000 per ton to $14,000 per ton of NOx reduced, which is the most conservative threshold approved by U.S. EPA. Those studies were provided to IDEM in mid-2024, and the agency relied on them to determine RACT limits for the units assessed.

Only two affected sources would be required to apply new controls under the draft rule, and each are fairly unique. W.R. Grace has already planned to replace burners for its sodium silicate furnace and this draft rule would simply accelerate this timeline by less than one year—this was part of the facility's unit-specific RACT analysis. Its estimated

combusting distillate oil, and 2,060 to 2,350 $/ton when combusting natural gas. The same cost on a 50 mmBtu capacity packaged watertube boiler may cost $5,200 to 5,890 $/ton for distillate oil and 4,830 to 5,480 $/ton for natural gas.

expenses associated with replacing its burners are roughly $1.6 million, but these expenses are easily discounted by the substantial cost of Indiana losing highway funding and becoming subject to a FIP as well as the fact W.R. Grace already planned to replace its burner regardless of this rulemaking. Cleveland Cliffs Indiana Harbor plant is the only potentially affected source that did not conduct a unit-specific RACT analysis, but IDEM's analysis found that low-NOx burners for its boiler #8 would be cost-effective. The source did not have concerns over this analysis, as it is part of the iron production plant that has been idled for over a decade. Similar to W.R. Grace, Cleveland Cliffs would take on replacement costs, roughly $4.65 million, but again these costs are negligible considering the cost of not undertaking this rulemaking action and the fact the new burners would be used in a part of the facility that is not tied to production. The source also has suggested it may retire the boiler because it is not essential to its operations.

In other words, even the two contributions to total cost are significantly less than originally estimated and pale in comparison to the costs of inaction by the State. The draft rule and underlying technical analysis further reflects feedback from these affected sources.

In addition to the unit specific limits determined by the sources and IDEM, the draft rule includes presumptive limits for common units (natural gas boilers, diesel generators, etc.). These limits derived from a cost-effectiveness analysis conducted by the Ohio EPA for its SIP, which is the country's most recent SIP completed addressing NOx RACT for areas classified as "moderate". However, Ohio relied heavily on cost-effective analyses conducted by other states to support its presumptive limits. Prior to relying on the presumptive limits from Ohio's research, IDEM engineers reviewed the assumptions closely and determined them to be an appropriate characterization of RACT for the source types addressed. IDEM staff then shared the presumptive limits being considered with the affected sources in Lake and Porter Counties to seek input. IDEM also provided sources with the opportunity to identify concerns with the presumptive limits, and to provide alternative limits for units that would have difficulty meeting the proposed presumptive limits. In several instances, IDEM revised the presumptive limit deriving from Ohio to accommodate the concerns of affected sources. **All affected sources expect to be able to comply with the draft presumptive limits without additional cost or controls.**

In short, the costs resulting from this rule are created by federal law. Still, IDEM thoroughly analyzed potential compliance costs and worked extensively with regulated sources to ensure that any NOx RACT control imposed would meet the requirements of the Clean Air Act but not overburden local sources. Altogether, this rule would require just two sources in Lake and Porter County to apply new controls to their facilities. The costs of these controls would fall within the $5,000 per ton to $14,000 per ton threshold. All other affected sources can comply for free by meeting presumptive limits. These costs are negligible in light of the costs of not doing this rulemaking and the especially high costs likely to result from the imposition of a FIP.

b. Estimate of Administrative Expenses Imposed by the Rules – Administrative expenses may result from the rule but would be negligible. Except for two affected

sources, all entities subject to this rule can achieve compliance by adhering to presumptive limits, which will not require additional costs or controls. These sources currently monitor their emissions units for compliance with applicable emissions limits. The sources already have in place robust monitoring and reporting practices handled by experienced staff. How and when they report their emissions will change slightly under this rule, but the sources typically work with consultants who generate those calculations for them and already would have been engaged to conduct this type of work. Therefore, this rule will not impose additional administrative costs beyond those the sources already incur under current regulations.

Sources requiring additional emissions controls may experience minimal costs ensuring new or modified equipment is operating properly and in compliance. These costs are not easily quantified, but they may involve engaging current employees or outside contractors to manage the equipment replacement process and ensure the equipment is operating properly. Those costs are accounted for in the estimates noted above for the two affected facilities. Again, these costs are discounted by the fact Indiana is required by federal law to undertake this rulemaking action and the financial consequences resulting from failing to update Indiana's SIP through this rulemaking action.

c. The fees, fines, and civil penalties analysis required by IC 4-22-2-19.6 – This rulemaking does not include any fine, fees, or civil penalties.

d. If the implementation costs of the proposed rule are expected to exceed the threshold set in IC 4-22-2-22.7(c)(6) – The implementation and compliance costs of this rule would not exceed those required by federal law. Accordingly, IDEM has determined that the combined implementation and compliance costs of the proposed rule would not exceed one million dollars ($1,000,000) for businesses, units, and individuals over any two (2) year period.

VII. Sources of Information

Sources subject to this rule provided IDEM with data on technologies currently employed at facilities and the potential costs associated with RACT. Additionally, IDEM corresponded with the Ohio Environmental Protection Agency, which imposes similar requirements. A list of sources relied on is below.

- *NOx Emissions Control Costs for Stationary Sources Reciprocating Internal Combustion Engines in the NOx SIP Call States*, U.S. EPA, Aug. 11, 2000, available at: https://www.epa.gov/sites/default/files/2020-07/documents/pechan8-11.pdf.
- U.S. EPA, EPA AIR POLLUTION CONTROL COST MANUAL (6th Ed., 2002).
- Findings of Failure To Submit State Implementation Plan Revisions for Reclassified Moderate Nonattainment Areas for the 2015 Ozone National Ambient Air Quality Standards (NAAQS), 88 Fed. Reg. 71757 (effective November 17, 2023) (codified at 40 C.F.R. 52).
- Ohio Admin. Code Rule 3745-110 § 3.
- Memorandum from Dr. Kent Berry, Acting Director Air Quality Management Division, to Directors of Air, Radiations, and Toxic Divisions, *Cost-Effective Nitrogen Oxides (NOx) Reasonably Available Control Technology (RACT)*, (Mar. 16, 1994).

- Memorandum from G.T. Helms to Air Branch Chiefs, Regions I-X, *De Minimis Values For NOx RACT*, (Jan. 1, 1995).
- Multiple discussions with affected sources.

VIII. Regulatory Analysis

IDEM has determined that the rulemaking will have a positive fiscal impact on the state based on (1) the costs imposed on sources will be no more than is federally required, and (2) the amount of highway funding the state will lose if this rule is not promulgated far exceeds any costs imposed on sources.

IX. Contact Information of Staff to Answer Substantive Questions

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Additional Information for OMB and SBA Review

The following information is required for OMB and State Budget Agency (SBA) review but will not be published along with the regulatory analysis.

X. Redline Draft of Proposed Rules

Please provide a link or attachment to the proposed rule that includes a redline of the changes made by the proposed rule from existing regulations, or an alternative form of identifying changes approved in advance by OMB. This draft can include annotations with other sources of requirements as discussed in Section IV above.