New York Regulatory Update

Rules 212, 222, and 227: What You Need to Know

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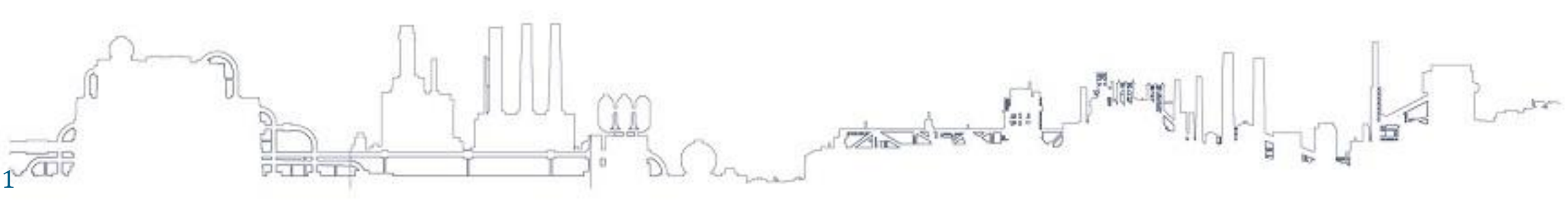

Agenda and Speakers

- **Rule 212:** Toxics Program for Facilities with Process Operations
- **Rule 222:** Regulations Pertaining to Distributed Generation Sources
- **Rule 227:** Revisions to Particulate Matter Emission Limits
- Q&A and Open Discussion

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NEW YORK STATE OF OPPORTUNITY
Department of Environmental Conservation

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RULE 212: TOXICS PROGRAM FOR FACILITIES WITH PROCESS OPERATIONS

- Rule Overview
- Who does it apply to?
- Submittal Requirements
- Compliance Demonstrations
- TBACT and Control Requirements

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PART 212: OVERVIEW

- Part 212 provides the regulatory language for NYSDEC to enforce emission restrictions from process operations for criteria and non-criteria pollutants.
- Last revised in June 2015 – increased focus on compliance in recent years
- Guidance for compliance demonstrations is given in DAR-1
- Applies to all facilities with process operations that are renewing or modifying their permits:
  - Title V Permits
  - State Facility Permits
  - Minor Facility Registrations
- Regulates the emissions of three contaminants:
  - Criteria Pollutants (NAAQS)
  - High Toxicity Air Contaminants (HTAC)
  - Other non-criteria / non-HTAC air contaminants

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PROCESS OPERATIONS AND EMISSION SOURCES

Process Operations:

"Any industrial, institutional, commercial, agricultural or other activity, operation, manufacture or treatment in which chemical, biological and/or physical properties of the material or materials are changed, or in which the material(s) is conveyed or stored without changing the material(s) if the conveyance or storage system is equipped with a vent(s) and is non-mobile, and that emits air contaminants to the outdoor atmosphere. A process operation does not include an open fire, operation of a combustion installation, or incineration of refuse other than by-products or wastes from a process operation(s)."

Process Emission Sources:

"Any apparatus, contrivance or machine, including any appurtenant exhaust system or air cleaning device capable of causing emissions of any air contaminant to the outdoor atmosphere from a process operation."

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PART 212: EXEMPTIONS

Facilities with process operations that are already regulated by other rules may be exempt from Part 212, as defined in Subpart 212-1.4. Some examples:

- Air pollutants emitted from a source regulated by a federal New Source Performance Standard (NSPS) are considered in compliance with Part 212
- Hazardous air pollutants emitted from a source regulated by a federal National Emission Standard for Hazardous Air Pollutants (NESHAP) are considered in compliance with Part 212 except those contaminants that are on the HTAC list.
- Temporary sources under Part 201-1.11
- Partially exempt sources listed in Subpart 212-1.4

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SUBMITTAL REQUIREMENTS

When renewing or modifying a facility's permit or registration, the applicant must precisely identify all air contaminants emitted from each applicable process emission source. The following information must be included:

- For air contaminants on the High Toxicity Contaminants (HTAC) list, yearly actual annual emissions for existing facilities or potential to emit (PTE) emissions for new ones
- The emission rate potential (ERP) of any non-HTAC contaminant emitted at a rate of more than 100 pounds per year at a facility
- Safety Data Sheets (SDS) must be made available upon request
- A description of all process operations at the facility and their associated emission sources with source characteristics

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SUBMITTAL REQUIREMENTS (CONT.)

All analyses required in support of the application:

- A proposed Environmental Rating proposal and the degree of air cleaning are required for each applicable contaminant.
- Potential Additional Analyses:
  - A Toxic Impact Assessment (TIA) using AERSCREEN or AERMOD
  - Best Available Control Technology (BACT) or Toxics Best Available Control Technology (TBACT) evaluation
  - Volatile Organic Compounds (VOC) or Nitrogen Oxides (NOx) Reasonably Available Control Technology (RACT) evaluation
- NYSDEC often uses permit renewals as an opportunity to require modeling demonstrations to show compliance with the 1-hour NO_2 and 24-hour and annual $PM_{2.5}$ NAAQS.

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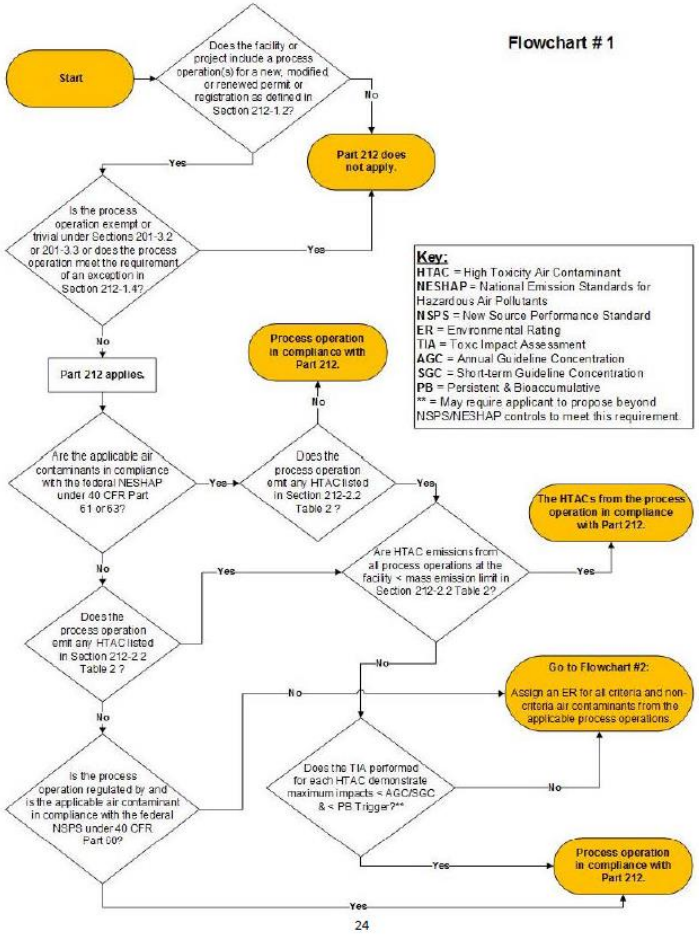
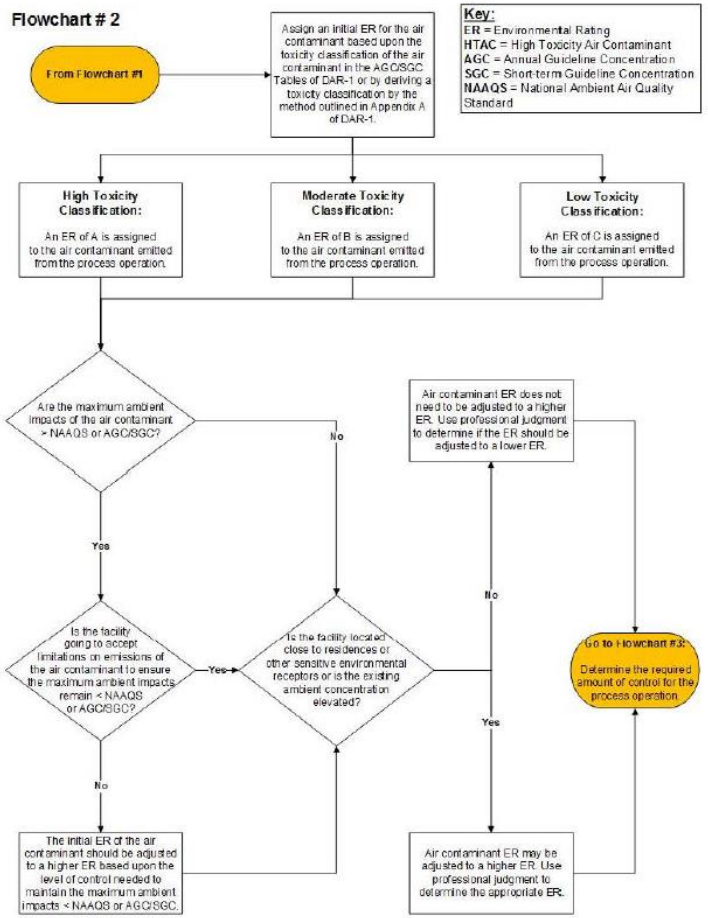
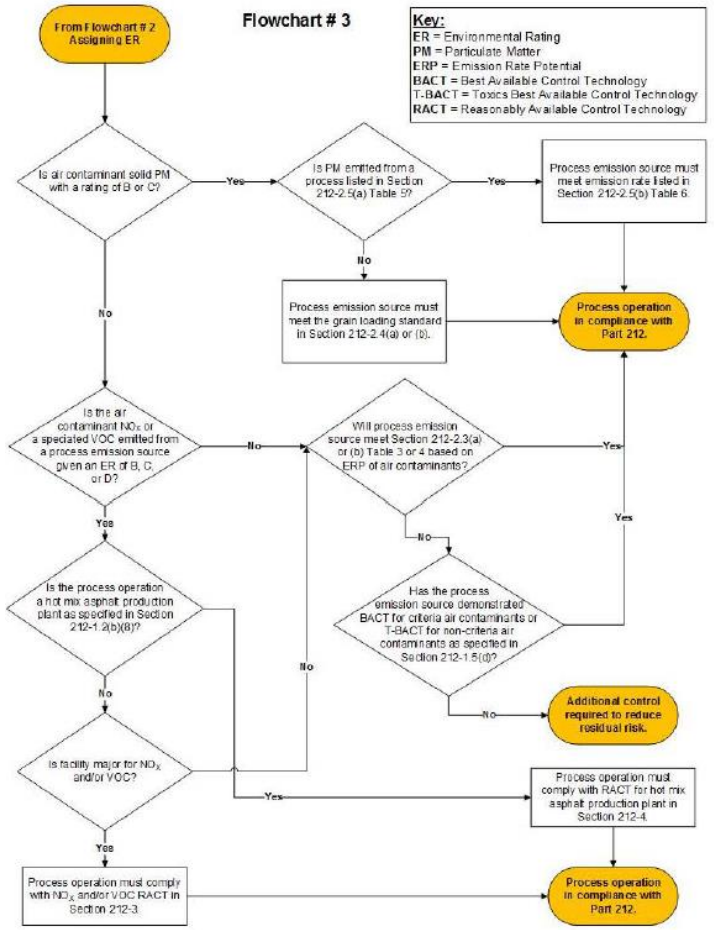
FUN WITH FLOWCHARTS!







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INITIAL REVIEW

For each contaminant emitted by a process operation subject to Part 212 and not exempted because other state or federal regulations apply:

- Is the contaminant an HTAC with emissions greater than the thresholds listed in the HTAC table? (Part 212-2.2 Table 2)
- If the contaminant is not listed in the HTAC table, are the total mass emissions of the contaminant greater than 100 pounds per year?

If the answer is no to both for all non-exempted contaminants, the process operation is in compliance with Part 212.

Otherwise, assignment of an Environmental Rating (ER) and a Toxic Impact Assessment using air dispersion modeling is required.

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ENVIRONMENTAL RATINGS

Each contaminant is assigned an initial ER of A, B, or C, representing: High, Moderate, or Low toxicity. A 4th category, D, is initially reserved for simple asphyxiants. There are 4 steps to assign an ER:

1. Determine an initial ER: If the toxic is on the HTAC table (212-2.2 Table 2), start with A. Otherwise, start with B.
2. Assess Air Quality Impacts using AERSCREEN or AERMOD. The ER assignment may be changed depending on whether or not the modeling produces concentrations above or below the AGC/SGC.
3. Determine the locations of sensitive receptors and the model-predicted impacts at those receptors to determine if the ER should be adjusted.
4. Assign the final ER for the air contaminant and determine any control requirements. Most toxics require only that the modeling demonstration shows model-predicted concentrations below the AGC/SGC.

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TOXIC IMPACT ASSESSMENT (TIA)

- Air quality modeling is performed against the Annual and Short-Term Guideline Concentrations
- AERSCREEN
  - Screening model – easier and quicker to use
  - AERSCREEN uses worst case meteorological conditions and often produces conservative results
  - No air-dispersion modeling protocol necessary for AERSCREEN studies
- AERMOD
  - Refined model – Requires representative meteorological data and other additional inputs
  - Produces more realistic results than AERSCREEN
  - NYSDEC requires and approved air dispersion modeling protocol before modeling is submitted, extending project timelines

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WHAT IF I CAN'T MODEL OUT?

There are several options to the applicant in the case that compliance with the AGC/SGC can't be demonstrated with air dispersion modeling. Depending on what operational limits will work for your facility:

- Take a permit limit to reduce the emissions of the problem contaminant to be less than the HTAC emissions threshold or 100 lb/ year for non-HTAC contaminants
- Take a permit limit to reduce the model-predicted concentrations to be below the AGC/SGC
- Apply modeling refinements to reduce concentrations: hours of operations limits, stack height adjustments, add control equipment, etc.
- Perform a BACT/TBACT analysis

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THE CHALLENGES

Successfully navigating the Part 212 flowcharts is not for the faint-hearted! Some of the challenges include:

- Identifying which pollutants are emitted by process operations
- Quantifying those emissions may be difficult: Published emissions factors are often very conservative
- Many of the emissions are from fugitive sources or vents which can be a challenging from a modeling point of view
- AERSCREEN is quick to run but very conservative: Often, AERMOD will be necessary to show compliance with the AGC/SGC's
- Any NO_2/$PM_{2.5}$ skeletons in your closet?

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SUMMARY

NYSDEC Part 212 applies to facilities with process operations and requires a compliance demonstration each time the facility's permit is renewed or modified.

In order to be ready:

- Review Part 212 to determine whether your process operation falls under this rule.
- Quantify your criteria and non-criteria pollution emissions. Compare them to the Part 212 HTAC table to determine which may be a challenge in a compliance demonstration.
- Know your renewal timelines and allow ample time to perform the compliance demonstration, especially if AERMOD may be required.

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RULE 222: REGULATIONS PERTAINING TO DISTRIBUTED GENERATION SOURCES

- Rule Overview
- Who Does The New Rule Apply To?
- Submittal Requirements
- Compliance Demonstration
  - Testing
  - Reporting

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6 NYCRR 222: DISTRIBUTED GENERATION SOURCES

- Rule Promulgated March 25, 2020
- Effective May 1, 2021, owners and operators of economic dispatch sources must meet new emissions standards under the rule
  - More stringent than original rule for compression ignition engines
- Beginning May 1, 2025, emissions standards become even more stringent for economic dispatch sources

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RULE 222 APPLICABILITY

- Applies to owners and operators of distributed generation sources classified as an economic dispatch source
  - Located in NYC metro area
  - Sources have a maximum mechanical output rating of 200 hp or greater
  - Potential to emit NOx is less than 25 tpy
- Distributed generation source is a stationary reciprocating or rotary internal combustion engine that feeds into the distribution grid or produces electricity for use at the facility or both
  - Includes, but is not limited to, emergency power generating stationary internal combustion engines and demand response sources
- Economic Dispatch Source is a distributed generation source that is intended to provide electricity for general use to a building (or structures) in place of electricity supplied by the distribution utilities. It does not include emergency generators.

EMISSIONS STANDARDS REQUIREMENTS

To Be Met By May 1, 2021

- Combustion turbines firing NG or oil, compression ignition engines and lean burn engines must be model year 2000 or newer or have a NOx emissions rate of less than or equal to 2.95 lb/MW-hr
- Rich burn engines must be equipped with three-way catalyst emissions controls
- Note the prior rule NOx emission limit for compression ignition engines was 2.3 g/bhp-hr which is equivalent to about 6.8 lb/MW-hr

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COMPLIANCE REQUIREMENTS

- Owner or operator of a distributed generation source must obtain a registration certificate or permit prior to operation as an economic dispatch source
- Owner or operator must notify the Department in writing by March 15, 2021 or 30 days prior to operating as economic dispatch source, whichever is later
- The following operational data must be kept on a monthly basis for a 5-year period:
  - Hours of operation
  - Type and quantity of fuel used or purchased
  - Electricity generated by economic dispatch source in kW-hr

EVEN MORE STRINGENT EMISSIONS STANDARDS IN 2025

Effective May 1, 2025, economic dispatch sources must meet the following emissions standards for NOx:

- Combustion turbines firing NG – 25 ppm on a dry volume basis corrected to 15% Oxygen
- Combustion turbine firing oil – 42 ppm on a dry volume basis corrected to 15% Oxygen
- Spark ignition engines firing NG – 1.0 g/bhp-hr

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2025 EMISSIONS STANDARDS CONTINUED

Effective May 1, 2025, economic dispatch sources must meet the following emissions standards for NOx:

- Compression ignition engines firing distillate (either soley or in combo with other fuels):
  - Nameplate rating less than 750 hp – 0.30 g/bhp-hr
  - Nameplate rating greater than or equal to 750 hp – 0.5 g/bhp-hr
- Emissions tests reports demonstrating compliance must be submitted to Department prior to operating as economic dispatch source on or after May 1, 2025

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RULE 222 SUMMARY

- If you are using your engines for demand response or peak shaving, this rule applies to you!
- The new rule is much more stringent than the old rule for diesel compression ignition engines to meet the 2.95 lb/MW-hr limit for NOx.
- Deadline for compliance, permitting and notification to the Department is coming up fast, so ensure that your engines meet the new emissions limits as soon as possible.

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RULE 227-1: REVISIONS TO PARTICULATE MATTER EMISSIONS LIMITS

- Rule overview
- Who does it apply to?
- Key rule changes
- Why is the rule change significant?
- Summary

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PART 227-1: OVERVIEW

- Proposed in October 2019. Last changed in 1971. Expected to be finalized in Q1 of 2021
- Strengthens filterable particulate matter (PM) emissions limits for fuel "combustion installations" (e.g., boilers, engines, turbines)
- Does not apply to combustion installations subject to a more stringent Federal PM emissions limit
- Expected to increase capital and operating costs for some facilities with combustion installations

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PART 227-1: KEY RULE CHANGES

- Revised PM limit
  - Previously varied with size of combustion source
    - For example: previously 0.6 lb/MMBtu (heat input) for combustion unit rated 10 MMBtu/hr heat input and 0.42 lb/MMBtu for combustion unit rated at 30 MMBtu/hr
  - Now 0.10 lb/MMBtu (heat input) for:
    - Combustion installations => 1 MMBtu/hr firing any amount of solid fuel (such as biomass); or
    - Combustion installations => 50 MMBtu/hr firing oil or oil in combination with other liquid or gaseous fuels
- Aggregation of combustion installations
  - Applies to combustion installations vented through the same stack
  - For example, two boilers rated at 0.5 MMBtu of heat input vented through same stack would trigger PM emission limit

PART 227-1: KEY RULE CHANGES

- Performance Testing
  - Initial compliance test:
    - Within 6 months of commencing operation of a new combustion installations
    - Within 2 years of the promulgation of the final rule for existing combustion installations
  - Periodic compliance tests (for solid fuels):
    - After the initial compliance test
    - At least once during the permit cycle
- Monitoring
  - Demonstrate compliance with opacity standards using:
    - Continuous Opacity Monitoring System (COMS),
    - U.S. EPA Test Method 9 visible emissions observations, or
    - “Testing with any other credible evidence"

PART 227-1: SIGNIFICANCE OF RULE CHANGE

- Rule change expected to reduce PM emissions
- Economic impacts to facilities
- Cost of emissions control equipment
  - NYSDEC: Electrostatic Precipitator (ESP) $60,000 - $175,000 for 10 MMBtu/hr boiler
  - Project experience indicates actual cost greater than $175,000
- Cost of performance testing
  - $5,000 – $10,000 for "Method 5" PM emissions testing

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SUMMARY

NYSDEC Part 227-1 applies to existing and proposed fuel combustion installations, may necessitate investments in emissions control equipment and will require expenditures in air emissions testing and monitoring.

In order to be ready:

- Evaluate if fuel combustion installations are exempt from Part 227-1.
- If not exempt, evaluate whether existing and/or planned fuel combustion installation PM emissions will be less than 0.10 lb/MMBtu without pollution control equipment.
- If pollution control equipment is needed to meet 0.10 lb/MMBtu, obtain quotes from control equipment vendors ASAP or consider other fuel combustion equipment that meets 0.10 lb/MMBtu without pollution control.
- If stack testing required, begin stack testing planning ASAP so time is on your side!

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Questions or Comments?

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