



New Jersey Department of Environmental Protection Air Toxics Program

Program Description and Development

In January 2018, the New Jersey Department of Environmental Protection (NJDEP) established the NJDEP Air Toxics Program, through its Resiliency, Air Toxics and Exemption (RATE) rule. RATE revised the reporting thresholds for Hazardous Air Pollutants (HAPs) subject to air permitting and consolidated the various HAP thresholds at New Jersey Administrative Code (N.J.A.C.) 7:27-17, Control and Prohibition of Air Pollution Toxic Substances. The Air Toxics Program combines control technology requirements and risk assessment to address emissions of air toxics from stationary sources, including certain CHP systems.



STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
AIR TOXICS IN NEW JERSEY

COURTESY OF NJDEP

HAPs are pollutants, in which exposure to them presents, or may present a threat to, adverse human health effects or adverse environmental effects. Before NJDEP's RATE rulemaking, the former HAP reporting thresholds had not been updated for 25 years. Accordingly, NJDEP updated the HAP reporting thresholds to incorporate the latest scientifically generated risk factors and exposure assessment techniques using toxicity data derived from updates to the EPA's Integrated Risk Information System, California Environmental Protection Agency (CalEPA) Toxicity Criteria Database, and the Agency for Toxic Substances and Disease Registry "Minimal Risk Levels for Hazardous Substances (MRLs)", as well as normalized air concentration percentiles determined using the EPA preferred model [AMS/USEPA Regulatory Model (AERMOD) modelling system] to generate impacts used to calculate the new HAP reporting thresholds.

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CHP systems are particularly affected by the RATE rule because NJDEP ended its general air permits for CHP in 2020, requiring a full air permitting process. The final rule increased the reporting thresholds for certain HAPs but lowered the threshold for 106 HAPs. For instance, the reporting threshold for formaldehyde was lowered from 400 lbs./yr. to 3.5 lbs./yr. and the reporting threshold for vinyl chloride was lowered from 40 lbs./yr. to 5 lbs./yr. While the adopted rules do not require additional testing beyond what the previous rules required, the reporting thresholds are used to determine which HAPs must be listed in air pollution control permits and may require prospective CHP systems to undertake extensive air quality modeling, compliance demonstration, and risk assessments that was not previously required.

Stakeholders and Key Decision Makers

NJDEP conducts a county level risk assessment of the 181 air toxics identified by EPA in the 2014 National Scale assessment, to identify the State's 14 *Chemicals of Concern* (see Table 1). In 2014, NJDEP formed an Industrial Stakeholder Group to consider rulemaking protocols and reporting requirements that balance efficiently using NJDEP's air program resources while achieving environmental objectives. The Stakeholder group included air quality permitting and enforcement staff, key regulated industries, and environmental representatives to provide diverse perspectives. The reporting thresholds discussed here came as a result of this stakeholder process. A subgroup of affected parties and facilities developed proposed regulatory amendments, which included updating the reporting thresholds for HAPs that is now in force.

TABLE 1, COURTESY OF NJDEP

2014 CHEMICALS OF CONCERN IN NEW JERSEY

| Pollutant | Number of Counties Above Health Benchmarks | Primary Emissions Source |
|-----------------------------|--|--------------------------|
| Acetaldehyde ⓘ | 21 | Background/Secondary |
| Benzene ⓘ | 21 | Mobile |
| 1,3-Butadiene ⓘ | 16 | Mobile |
| Carbon Tetrachloride ⓘ | 21 | Background |
| Chromium VI ⓘ | 3 | Point |
| Diesel Particulate Matter ⓘ | 21 | Mobile |
| Ethylene Oxide ⓘ | 16 | Point |
| Formaldehyde ⓘ | 21 | Background/Secondary |
| Hydrazine ⓘ | 1 | Point |
| Naphthalene ⓘ | 19 | Mobile |
| Nickel Compounds ⓘ | 5 | Mobile |
| Nitrobenzene ⓘ | 1 | Point |
| Tetrachloroethylene ⓘ | 1 | Nonpoint |
| Vinyl Chloride ⓘ | 1 | Point |

Summary of Program Results and Outcomes

Under New Jersey's Air Permitting Program, all air permit applicants must include HAP emissions for any equipment or source operation that exceed reporting thresholds in N.J.A.C. 7:27-17, as well as conduct a risk assessment for each HAP identified. Generally, all sources of air pollution require a permit in New Jersey. N.J.A.C. 7:27-8 requires minor facilities or major facilities without operating permits, which are significant sources of air emissions, to obtain a pre-construction permit and operating certificate. Formerly, certain CHP combustion turbines and CHP spark ignition reciprocating engines were able to obtain either general permits or general operating permits depending on whether the facility was a minor facility or a major facility.

In 2020, NJDEP announced the discontinuation of general permits for CHP at major and minor air facilities. NJDEP listed the reporting thresholds established in N.J.A.C. 7:27-17 as justification for the discontinuation. Because CHP systems are no longer eligible for the general permit, owners and operators that formerly qualified for the general permit must now obtain pre-construction permits and operating certificates that incorporate the provisions of the Air Toxics Program. These new provisions adversely impact compliance costs and timelines. Particularly impacted are larger projects as provisions are triggered by absolute levels of emissions, not emission rates. Large projects must undertake air dispersion modeling which is costly and time-consuming.

Lessons to Share

For this profile, we created an illustrative case for a new 2 MW spark ignition stationary reciprocating engine applying for a pre-construction permit. With the loss of the general permit, the illustrative 2 MW applicant will or is likely to face each step below:

- Calculating the facility's potential to emit for all air contaminants listed in NJAC 7:27-8 Appendix A, Table 1, as well as all HAPs listed in NJAC 7:27-17.9 to determine applicable permitting requirements. Collectively this includes almost 200 air contaminants.
- Documenting compliance with state-of-the-art (SOTA) pollution control techniques for any regulated air contaminant emissions exceeding the applicable SOTA thresholds.
- Performing an air quality impact analysis using dispersion modelling techniques in accordance with the Air Quality Permitting Programs' Technical Manual 1002 "Guidance on Preparing an Air Quality Modeling Protocol" at NJDEP's discretion for certain air contaminants. The air quality impact analysis may also include a subsequent health impact assessment for HAPs.
- Conducting a risk assessment for each listed HAP in accordance with NJDEP's risk assessment protocol outlined in Technical Manual 1003 "Guidance on Preparing a Risk Assessment Protocol for Air Contaminant Emissions."

Our development of an illustrative 2 MW applicant use case indicates that the new screening and modeling provisions may increase compliance costs. NJDEP must review and approve modeling protocols, which further increases the permitting process timeline. Bulleted items above apply to pre-construction permits only but may also be required for applicants subject to operating permit requirements under NJAC 7:27-22. Additionally, our illustrative example is not intended to be a comprehensive list of applicable air regulations, and owners and operators subject to Subchapter 8 or Subchapter 22 should consult NJDEP and EPA regulations for all applicable air permitting requirements.

Resources:

**New Jersey Administrative Code
Title 7, Chapter 27, Air Pollution Control:
N.J.A.C. 7:27-1 through 34**

<https://www.nj.gov/dep/aqm/rules27.html>

NJDEP Air Quality, Energy, and Sustainability
<https://www.state.nj.us/dep/aqes/index.html>

For More Information

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