

**BEFORE THE POLLUTION CONTROL BOARD
OF THE STATE OF ILLINOIS**

IN THE MATTER OF:)
)
NATURAL GAS-FIRED, PEAK-LOAD) R01- 10
ELECTRICAL POWER GENERATING)
FACILITIES (PEAKER PLANTS))

TESTIMONY OF STEPHEN F. NIGHTINGALE

My name is Steve Nightingale and I am the Manager of the Industrial Unit in the Bureau of Water's Permits Section at the Illinois Environmental Protection Agency. I have held this position for approximately six years. As manager of the Unit, I supervise a staff of eight engineers and review their completed permits for consistency and proper application of State and Federal regulations. Prior to managing the Industrial Unit, I worked in the Industrial Unit as an Environmental Protection Engineer for eight years. While working as an Environmental Protection Engineer, my function was to process applications and prepare permits for Agency issuance. The main function of the Industrial Unit is to review applications and issue permits for industrial facilities who wish to discharge wastewater directly or indirectly to waters of the State, provided all appropriate State and Federal regulations can be met. I graduated from the university of Missouri, Rolla, with a Bachelor of Science Degree in Civil Engineering. I am currently a licensed professional engineer in the State of Illinois. I have been with the Agency for just over fourteen years.

This testimony responds to the Governor's questions with regard to the impact of natural gas-fired peak load electrical power generating facilities (peaker plants) on water.

Initially, it must be stated that not all natural gas-fired peak load electrical generating facilities (peaker plants) produce a wastewater. However, wastewaters generated from peaker plants are currently subject to local, state, and Federal regulation. The following is an overview of the applicable state and federal regulations.

This testimony is intended to address peaker plants that are used during peak power demand to generate electricity. They are natural gas-powered turbines. The testimony does not include combined cycle operations where steam is used as part of the electricity generating process.

Wastewater generated from peaker plants will either be subject to the Federal National Pollutant Discharge Elimination System (NPDES) permit program or the State construction and/or operating permit program, depending on the actual wastewater disposal method. The Illinois EPA administers both permit programs.

Peaker plants that choose to dispose of their wastewater to surface waters will be required to obtain an NPDES permit in accordance with 40 CFR 122 and 35 Ill. Adm. Code 309. Permit limitations that will apply to these discharges will be the water quality limitations from 35 Ill. Adm. Code 302, the effluent limitations found in 35 Ill. Adm. Code 304, or other technology based limitations using “Best Professional Judgment” in accordance with 40 CFR 125.3. It has been determined that the surface discharges from these facilities are not subject to any Federal industrial categorical effluent guideline discharge limitation since steam is not generated in the process. As a result, actual permit limitations will be established on a permit-by-permit basis. In addition, any treatment equipment that must be installed with the purpose of reducing pollutants in the

wastewater will be subject to a construction authorization in accordance with 35 Ill. Adm. Code 309.154.

In accordance with 40 CFR 122, NPDES permits for storm water discharges during construction activities would be required if more than five acres are disturbed.

Plants that will discharge to a publicly owned treatment works (POTW) will be required to obtain a state construction and/or operating permit in accordance with 35 Ill. Adm. Code 309. Applicable limitations that will apply are those established by the local POTW, 35 Ill. Adm. Code 307, and the Federal general pretreatment regulations found in 40 CFR 403. This indirect discharge is not subject to any Federal Industrial categorical effluent guideline discharge limitation.

Although the information being presented here is for peaker plants, it should be noted that some combined cycle plants could also be considered peaker plants. In addition to the regulations outlined in this testimony, these combined-cycle plants would also be subject to the Federal effluent guideline discharge standards in 40 CFR 423. The difference between the two plants is the combined cycle generates steam to operate the turbine(s) and the simple peaker plant does not.

Those peaker plants that do not generate a wastewater are not subject to Illinois EPA, Bureau of Water permits. For those peaker plants generating a wastewater and thus, requiring permits, the BOW follows this procedure.

When an application for an NPDES permit for a surface water discharge is received and deemed complete, the application is reviewed for compliance with all appropriate rules and regulations. During the review process, the reviewing engineer establishes water quality limitations, as required under 35Ill. Adm. Code 302; technology

limits, as required under 35 Ill. Adm. Code 304; and other technology-based discharge limitations, as required using U.S. EPA “Best Professional Judgment” in accordance with 40 CFR 125.3. In most cases, the Illinois EPA expects permit limitations to be based on State water quality or State technology limitations.

During the Illinois EPA permit review process, the Bureau of Water will establish water quality limitations and technology-based limitations. Several steps are completed as part of the water quality evaluation. The numeric limitations will be established, mixing zones and zones of initial dilution evaluated, and a nondegradation evaluation performed. The nondegradation evaluation is performed in accordance with the draft Illinois EPA policy. The permit reviewer will also verify that the discharge location is not to a stream that has been identified in accordance with Section 303d of the Clean Water Act as an impaired water for the pollutants of concern. Once technology limitations are established the review engineer will include in the draft permit the more stringent of the water quality or technology based effluent limitations. The draft permit will also include appropriate monitoring requirements and special conditions to verify continued compliance with the regulations.

Upon completion of the Illinois EPA review process, a public notice/fact sheet and draft permit will be sent out on 15-day notice. The 15-notice goes to the applicant, Army Corps of Engineers and the appropriate Illinois EPA field office for comments. Upon completion of the 15-day notice and following any required changes or corrections, the public notice/fact sheet and draft permit will then go out on 30-day public notice. The 30-day public notice/fact sheet and draft permit goes to the applicant for review and posting, the local municipal clerk for posting, the U. S. Fish & Wildlife Service, and the

Illinois Department of Natural Resources. The Illinois EPA also sends the 30-day public notice/fact sheet and draft permit to a standard mailing list of interested people and groups. During this period of time, the general public has the opportunity to comment and/or request a public hearing to address concerns related to the discharge. The public hearing is also subject to the public notice process.

Upon completion of the public notice of the draft permit, and assuming no hearing is requested, all comments will be reviewed, appropriate changes made, and the permit will be issued.

If a public hearing is requested during the 30-day public notice period and the Illinois EPA determines there is significant public interest, a hearing will be public noticed and scheduled. The Illinois EPA staff will evaluate comments during the hearing and received during the comment period after the hearing, prior to final action by the Illinois EPA. A responsiveness summary will be developed to address comments and statements made during the hearing period. This document will be provided to individuals who commented upon the proposed permit and interested persons.

Some peaker plants require a construction authorization related to the NPDES permit. Treatment equipment that must be installed for the purpose of reducing pollutants in the wastewater to a level below NPDES permit limitations require a construction authorization in accordance with 35 Ill. Adm. Code 309.154. The Illinois EPA review process verifies that the equipment will be able to consistently meet the permit limitations.

Final action on the construction authorization will not be taken until the NPDES permit has completed the public notice period. By waiting for the end of this notice

period, any changes in limitations can be incorporated into the design prior to actual construction of the treatment equipment.

The State permit review process is followed when peaker plants propose to discharge to a POTW. Complete applications for discharge to POTWs are reviewed for compliance with limitations established by the local POTW, 35 Ill. Adm. Code 307, and for compliance with the Federal general pretreatment regulations found in 40 CFR 403. A permit will be issued if all applicable rules and regulations are met.

In accordance with 35 Ill. Adm. Code 309.224, applications shall be submitted to the Illinois EPA at least 90 days before the date on which the permit is required. The Illinois EPA must take final action within 45 days for discharges including domestic wastewater and requiring a fee under Section 12.2 of the Illinois Environmental Protection Act.

There are no provisions for Public Notice under the State construction and /or operating permit regulations.

Finally, I need to discuss the pollution generated from peaker plants. Wastewater generated from peaker plants will vary and is dependent on the type of plant designed. Waste streams that have been identified in permit applications submitted to the Illinois EPA include one or more of the following:

- Evaporative Cooling Water blowdown
- Cooling tower blowdown
- Reverse osmosis waste discharge
- Demineralization blowdown
- Filter backwash

- Chiller system water
- Various drains
- Sanitary waste

Several pollutants expected to be in the wastewater (excluding sanitary wastewater) are:

- Total suspended solids
- Total residual chlorine
- PH
- Temperature
- Total dissolved solids
- Calcium
- Magnesium
- Iron
- Manganese
- Sulfate
- Chloride
- Oil & grease
- Water conditioning chemicals for biofouling and corrosion control
- Radioactive isotopes in some areas

Although there may be some peaker plants that generate a wastewater that contains a thermal component, the quantity would be small as compared to other types of

power plants. As a result, these plants should be able to be operated in a way that is in compliance with appropriate discharge regulations.

The actual pollutants in the discharge will be dependent on the type of wastewater generated at a particular site.

The Illinois EPA expects that all sanitary wastewater would be discharged to a sanitary sewer.

My testimony has not addressed radioactive isotopes because they are to be under the jurisdiction of the Illinois Department of Nuclear Safety.

I have included as Illinois EPA Exhibit 18 an overview of information received by the Illinois EPA's Bureau of Water as part of the permit application process.

The Illinois EPA's Bureau of Water does not anticipate any adverse environmental impact on the waters of the State as a result of the discharges from peaker power plants, provided the appropriate permits are obtained and the established permit limitations met.

This concludes my testimony. I would be happy to address any questions.

Illinois Environmental Protection Agency

By: _____
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