

ILLINOIS POLLUTION CONTROL BOARD
January 10, 1985

IN RE:)
)
CITY OF SPRINGFIELD) PCB 84-74
SECTION 302.211(f))
PETITION)

MR. ALAN P. BIELAWSKI (ISHAM, LINCOLN & BEALE) APPEARED FOR THE CITY OF SPRINGFIELD.

MR. DAVID L. RIESER (ATTORNEY-AT-LAW) APPEARED FOR THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY.

OPINION AND ORDER OF THE BOARD (by B. Forcade):

On June 13, 1984, the City of Springfield ("City") submitted a petition for a Section 302.211(f) hearing to demonstrate that discharges of heated effluent from the Dallman Unit No. 3 have not caused and cannot be reasonably expected to cause significant ecological damage to the receiving waters. On August 13, 1984, the Illinois Environmental Protection Agency ("Agency") filed a recommendation, pursuant to 35 Ill. Adm. Code 106.104, that the Board make the requisite finding of no significant ecological damage. A hearing was held September 12, 1984, in Springfield. No citizen witnesses appeared.

This proceeding involves the thermal discharges to Lake Springfield from City's Lakeside and Dallman coal-fired electric generating facilities. In 1978, City petitioned this Board (PCB 78-23) for a site-specific thermal discharge limitation and petitioned (PCB 78-52) for a hearing to demonstrate that the then existing generating units caused no significant ecological damage. On September 21, 1978, the Board made the requisite finding of no significant ecological damage and established the following thermal discharge limitation (31 PCB 463):

It is the Order of the Pollution Control Board that:

- 1) The thermal discharge to Lake Springfield from the Lakeside plant shall not exceed 99° more than 5% of the hours in the 12-month period ending with any month and the discharge from the Dallman plant shall not exceed 99° more than 8% of the hours in the 12-month period ending with any month and at no time shall any discharge exceed 109°.

The Board noted, however, that the new Dallman Unit No. 3 had not commenced operations and that City would be required to demonstrate no significant ecological damage within 5 to 6 years after Dallman Unit No. 3 commenced operations. The instant petition is to make such a showing for Dallman Unit No. 3. Since the 1973 proceeding the nameplate generating capacity at Lakeside has been reduced, while Dallman has increased, as follows:

	<u>1978</u>	<u>1984</u>
Lakeside Generating Capacity in Megawatts	141	66
Dallman Generating Capacity in Megawatts	<u>160</u>	<u>352</u>
Total	301	418

Lake Springfield, located in Springfield, Illinois, was created in 1930 by damming Sugar and Lick Creeks, tributaries of the Sangamon River. Lake Springfield has a surface area of 4,234 acres, 57 miles of shoreline, and is the largest impoundment in Sangamon County. The lake encompasses a watershed of nearly 265 square miles. Lake Springfield is a multipurpose reservoir, providing the public water supply for the City of Springfield; recreational activities, such as boating, fishing, and swimming; and cooling water for City's electrical generating stations.

Lake Springfield is Y-shaped, having a major stem and two smaller arms receiving drainage from Sugar and Lick Creeks. The stem is oriented roughly north-south, and is divided into two sections with a constriction occurring at Lindsay Bridge. The northern basin (1200 acres) extends from Spaulding Dam to Lindsay Bridge. This is the deepest section with a maximum depth of 40 feet. The central area (1600 acres) extends from Lindsay Bridge to the Illinois Central Railroad Bridge and has a maximum depth of about 20 feet. The remainder of the lake west of Interstate 55, is oriented east-west and extends west of the Illinois Railroad Bridge. This section is shallow and receives drainage from both Sugar and Lick Creeks. Sugar Creek flows into a small north-south oriented arm. Lick Creek flows east-west and discharges directly into an east-west oriented arm.

City is charged with providing electricity for the metropolitan area of Springfield. It does so with the Lakeside and Dallman generating stations located on the northwest shore of the northern basin of Lake Springfield. The Lakeside plant's discharges are located near Spaulding Dam and mix directly with the main body of the lake. The Dallman plant discharges flows into a short canal and into a small cove before mixing with the main body of the lake. The Lakeside and Dallman discharges are separated by a peninsula.

Total generating capacity of currently operating units is 66 MW at Lakeside and 352 MW at Dallman. Illinois bituminous coal from the Turriss Mine in Elkhart, Illinois is used in all boilers. All boiler units use once-through condenser cooling. The combined

maximum flow rate and heat rejection are 738 cfs and 649.7 MBtu, respectively. Typical annual operation has been (1978-1982 average) 31 percent of capacity for Lakeside and 52 percent for Dallman. Summer operation (June, July, and August) has averaged 15 percent for Lakeside and 54 percent for Dallman. During the period July 1979 through September 1983, average monthly discharge temperatures were highest in July and August. Average monthly discharge temperatures for those two months at Dallman ranged from 91.9°F in August 1982 to 100.4°F in July 1983 and at Lakeside from 89.6°F in July 1981 to 99.7°F in July 1983.

Under 35 Ill. Adm. Code 302.211(f), City is required to demonstrate at hearing, "that discharges from that source has not caused and cannot reasonably be expected to cause significant ecological damage to the receiving waters." More detail on the type of information required for such a showing is contained in 35 Ill. Adm. Code Part 106, Subpart A. To comply with these requirements, City had three reports prepared:

1. 203(i)(5) Thermal Study of Lake Springfield, R.W. Beck and Associates, January, 1984 ("hereinafter the Beck Report")
2. Biological Surveys at Lake Springfield Near Dallman and Lakeside Generating Stations 1982-1983 Final Report, WAPORA, Inc., May 16, 1983 ("hereinafter the WAPORA Report")
3. Final Report 1983 Lake Springfield Fisheries Survey, Environmental Science and Engineering, Inc, December, 1983 ("hereinafter the ESE Report")

These reports and the testimony of three individuals were offered by City for the requisite showing.

The ESE Report evaluated monthly fisheries sampling at Lake Springfield from May through September 1983. Four sampling locations were chosen, all in the northern basin. Station No. 1 was in the Dallman thermal mixing zone along the western shore. Station No. 2 was approximately 1300 yards south of Station No 1, Station No. 3 was approximately 1000 yards east of Station No. 1 and along the eastern shore, and Station No. 4 was approximately 3000 yards south of Station No. 1 and near Lindsay Bridge. The purpose of the report was to characterize the fish community and identify seasonal and spatial trends in distribution relative to the heated effluent. The ESE Report contained essentially raw data on species diversity and number with few conclusions regarding thermal impact.

The WAPORA Report resulted from an ecological investigation during 1982 and early 1983 at the same four sampling locations previously identified. The objective was to identify major populations of fish, benthic macroinvertebrates, phytoplankton and zooplankton, as well as assess thermal impacts. The report compared current

results to studies of Lake Springfield in the early 1960's and early 1970's by others, as well as studies in other Illinois lakes. The WAPORA Report noted many ecological similarities between: current sampling and past sampling at Lake Springfield, current sampling and other similar lakes, and between Station No. 1 (presumably the most heavily impacted) and other sampling stations. However, the report cautioned:

"Throughout the 1982-83 sampling survey the Dallman Unit 33 was either not operating or operating at less than normal capacity. Thus, a worst case condition for thermal effects could not be demonstrated. Under greater generating capacity, the thermal effects noted during this study may have been greater" (WAPORA Report at 58).

The Beck Report contains substantial information on the generating units, heat dissipation models, plume studies, and anticipated future operating characteristics for both of City's facilities. The Beck Report included a review and summary of the ESE and WAPORA Reports as well as other studies. The Aquatic Biology Effects conclusion noted the similarities between present Lake Springfield populations and other Illinois reservoirs, similarities between 1982 populations (a year of mild meteorological conditions and plant operations) and 1983 populations (extreme meteorology and plant operations), as well as similarities between predicted worst case conditions and actual summer 1983 conditions (Beck Report at 6-11).

At hearing, City provided testimony by three people experienced in evaluating lake biology and ecology. They concluded that Lake Springfield is healthy, similar to other lakes in the area and thermal impacts from City's discharges have not and cannot be expected to have a significant adverse ecological impact.

On August 13, 1984, the Agency filed a recommendation which found the data from City to be thorough and accurate. The Agency agreed with City's conclusions and urged the Board to make the requisite finding of no significant adverse ecological impact.

Based on the foregoing, the Board concludes that the discharges from Dallman Unit No. 3 have not caused and cannot reasonably be expected to cause significant ecological damage to Lake Springfield. Therefore, City continues to be subject to the thermal effluent limitations of the September 21, 1978, Order.

This Opinion constitutes the Board's findings of fact and conclusions of law on this matter.

ORDER

1. The Board finds that the City of Springfield has complied with 35 Ill. Adm. Code 302.211(f), in that it has demonstrated that the thermal discharges from Dallman Unit No. 3 have not caused and cannot reasonably be expected to cause significant ecological damage.
2. The City of Springfield shall continue to comply with paragraph two of the Board's Order in PCB 78-23 and PCB 78-52 Consolidated, dated September 21, 1978.

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above Opinion and Order was adopted on the 10th day of January, 1985 by a vote of 5-0.

Dorothy M. Gunn
 Dorothy M. Gunn, Clerk
 Illinois Pollution Control Board