

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

In The Matter Of:	)	
	)	
SOUTHERN ILLINOIS POWER,	)	
COOPERATIVE,	)	
Petitioner,	)	
v.	)	PCB No. 2018-75
	)	(Thermal Demonstration – Water)
ILLINOIS ENVIRONMENTAL	)	
PROTECTION AGENCY,	)	
Respondent.	)	

NOTICE OF FILING

Don Brown  
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Illinois Pollution Control Board  
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PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Illinois Pollution Control Board an APPEARANCE and RECOMMENDATION OF THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, copies of which are herewith served upon you.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

By: /s/Stephanie Flowers  
Stephanie Flowers  
Assistant Counsel  
Division of Legal Counsel

DATED: 5/23/18  
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PROTECTION AGENCY,	)	
Respondent.	)	

**APPEARANCE**

The undersigned hereby enters her appearance as attorney in the above-titled proceeding on behalf of the Illinois Environmental Protection Agency.

By:           /s/ Stephanie Flowers            
Stephanie Flowers  
Assistant Counsel

DATED: 5/23/18  
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**RECOMMENDATION OF THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY**

NOW COMES the Illinois Environmental Protection Agency (“Agency”), by and through one of its attorneys, Stephanie Flowers, and in response to the Petition to Approve Alternative Thermal Effluent Limitations (“Petition”) filed with the Illinois Pollution Control Board (“Board”) on April 12, 2018 by Southern Illinois Power Cooperative (“SIPC” or “Petitioner”), pursuant to 35 Ill. Adm. Code 106.1100 et seq. (“Part 106, Subpart K”), submits the following recommendation.

**INTRODUCTION**

On April 12, 2018, SIPC filed the Petition asking the Board to grant alternative thermal effluent limitations for its discharges to the Lake of Egypt from the SIPC Marion Generating Station (“Marion Station”). The current thermal limitations are set forth as Special Condition 4 in the NPDES Permit No. IL 0004316 (“Permit”) issued to Marion Station.

The current thermal limitations set forth in the Permit issued to the Marion Station are imposed by:

A. Section 302.211(d) requiring that the maximum temperature rise above natural temperature must not exceed 5 degrees Fahrenheit. [35 Ill. Adm. Code 302.211(d)]; and,

B. Section 302.211(e) requiring that the water temperature at representative locations shall not exceed the maximum limits in the following table during more than one percent of the hours (87.6 excursion hours) in the 12 month period ending with any month (rolling 12-month period) and at no time exceeding the maximum limits by more than 3 degrees Fahrenheit:

Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
60	60	60	90	90	90	90	90	90	90	90	60	°F

[35 Ill. Adm. Code 302.211(e)].

Section 316(a) of the Federal Clean Water Act, 33 U.S.C. 1326, allows for an owner or operator to demonstrate that the effluent limitations for the facility's heated effluent are more stringent than necessary to "assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made." The Board incorporated this Federal Clean Water Act provision into 35 Ill. Adm. Code 304.141(c), which allows the Board to determine that alternative requirements may apply to a thermal discharge. The Petition was filed pursuant to the Board's procedures for requesting alternative thermal relief under Part 106, Subpart K. It seeks to demonstrate that the effluent limitations for the Marion Station's heated effluent set forth in the Permit are more stringent than necessary and to request alternative thermal requirements.

**BACKGROUND**

Marion Station is presently regulated with the general use temperature standards found at 35 Illinois Adm. Code 302.211. The facility discharges to Lake of Egypt at a point where 0 cfs of flow exists upstream of the outfall during critical 7Q10 low-flow conditions. The average flow rate is approximately 173,000 gpm (249 MGD) (see page 12 of Petition). Lake of Egypt is classified as a General Use Water. Lake of Egypt is not listed as a biologically significant stream in the 2008 Illinois Department of Natural Resources Publication *Integrating Multiple Taxa in a Biological Stream Rating System*, nor is it given an integrity rating in that document. Lake of Egypt, Waterbody Segment, RAL, is listed on the draft 2016 Illinois Integrated Water Quality Report and Section 303(d) List as impaired for fish consumption use with potential causes given as mercury and polychlorinated biphenyls. Aquatic life, public and food processing water supply, and aesthetic quality uses are fully supported. Lake of Egypt is not subject to enhanced dissolved oxygen standards.

**PETITIONER'S REQUESTED RELIEF**

As understood by the Agency, the Petition requests that, in lieu of the temperature water quality standards defined by Section 302.211, the thermal discharge to Lake of Egypt from the Marion Station be granted an alternative thermal effluent limitation that shall not exceed the following maximum temperatures, measured at the outside edge of the 26-acre mixing zone in Lake of Egypt, by more than 1 percent of the hours (87.6 excursion hours) in a 12-month period ending in any month and at no time exceed these maximum limits by more than 3 degrees Fahrenheit:

Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
72	72	72	90	90	101	101	101	101	91	91	72	°F

**AGENCY'S RECOMMENDATION**

The Agency, pursuant to Section 106.1145 of Part 106, Subpart K, recommends that the Board grant the relief requested by the Petitioner.

1. Petitioner previously filed a petition for alternative thermal effluent limitations on May 14, 2014. The Agency was in favor of approving the proposed thermal limits providing that Petitioner remedied a substantial list of shortcomings. However, the Board, in its November 20, 2014 Opinion and Order, denied the petition and cited many of the Agency's concerns as a basis for the ruling. The Board determined that SIPC did not include sufficient information for a low potential impact determination for four of the six biotic categories on Lake of Egypt. Specifically, SIPC did not appropriately justify that the thermal loadings would be "inconsequential" to the following biotic categories – habitat formers, macroinvertebrates and shellfish, phytoplankton, and zooplankton. Additionally, the Board agreed with the Agency's recommendations regarding the need for additional fish studies to strengthen the Representative Important Species (RIS) analysis.

Following the Board ruling, SIPC sought to fulfill these deficiencies and consulted with the Agency for guidance in doing so. SIPC agreed to implement the supplemental studies on phytoplankton, zooplankton/meroplankton, macroinvertebrate and shellfish, and habitat former biotic categories, as well as additional fish studies designed to address nuisance and thermally-sensitive RIS. SIPC received guidance from the Agency in the development of a draft study plan as well as the detailed plan of study, both of which were approved of by the Agency. Thus, the Petition currently before the Board is a product of SIPC's efforts in fulfilling the recommendations of the Board and the Agency.

The supplemental studies on additional biotic categories, provided in Exhibit B, confirmed that phytoplankton, zooplankton/meroplankton, benthic macroinvertebrates and shellfish, and habitat former communities have not been significantly impacted or altered by thermal discharges from SIPC, nor will they be impacted under the proposed thermal limits. Thus, the Agency no longer holds concerns regarding SIPC's determination that the proposed thermal limits are of "low potential impact" to these biotic categories. Likewise, the additional fish studies designed to address thermally sensitive (crappie) and nuisance (common carp) RIS have satisfied the Agency's concerns regarding this biotic category. Despite prior concerns regarding the health and abundance of the crappie population, the 2016 study has demonstrated that resident crappie are of excellent body condition (mean relative weight = 100), which is indicative of a healthy, unstressed population. The 2016 study also reported a similar age structure and greater growth rate of black crappie compared to previous studies. Temperature/dissolved oxygen monitoring conducted throughout the lake demonstrated that refuge from potentially stressful summer surface water temperatures is available for thermally sensitive taxa, which is corroborated by the healthy body condition and growth rates of resident crappie. Specific targeting of common carp, which was incorporated into the 2016 study due to its potential to become a nuisance species, only resulted in the collection of two organisms. Thus, the thermal discharges from SIPC have not led to the proliferation of nuisance species, nor are they expected to under the proposed thermal limits. The aquatic community in the lower lake zone, which receives thermal loadings from SIPC, is not dominated by heat-tolerant or nuisance species and does not markedly differ from the aquatic communities residing in the middle and upper lake zones. In fact, the only substantial differences amongst lake zones were the increased zooplankton productivity and greater fish abundance in the lower lake compared to the middle and upper lake zones. Thus, there is no evidence to suggest

that thermal loadings from SIPC are causing appreciable harm to any of the biotic categories studied.

Upon review of the Petition and supporting documents, the Agency finds that that SIPC has satisfied all Board and Agency requirements and has successfully demonstrated that the proposed alternative thermal effluent limitations will assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the Lake of Egypt.

2. The Agency believes that SIPC has met the requirements to justify a 316(a) demonstration. SIPC performed both a prospective and a retrospective analysis for the 316(a) demonstration, which can be found in Exhibit B.

The 316(a) demonstration's retrospective assessment shows a consistent fish community over the last 20 years suggesting that fish populations have adapted and thrived in the thermal environment of Lake of Egypt. (Petition 21) The consistent fish community also suggests that the lower trophic levels in the lakes, such as phytoplankton, epiphyton, macrophytes, zooplankton, and benthos are of sufficient quality and quantity to support the upper trophic levels (i.e. fish). (Petition 21) The results showed significantly more fish in the heated portion of the lake compared to the mid and upper lake zones. (Petition 21) Considering the potential for "stressed conditions," SIPC also conducted a predictive study to show that even under these potential, less typical conditions, the lake will continue to assure the protection and propagation of a balanced, indigenous community (BIC). (Petition 22) The analysis determined that SIPC's discharges pose little or no potential threat to the BIC in Lake of Egypt and makes certain that the proposed discharge will assure the protection and propagation of the BIC in Lake of Egypt. (Petition 22) Amec selected representative important species (RIS) appropriate for a lake that has been stocked

since its construction. (Petition 23) The RIS selected are Threadfin Shad, Gizzard Shad, Channel Catfish, Bluegill, White and Black Crappie, and Largemouth Bass. (Petition 22)

3. The Agency approved the "Detailed Plan of Study" on March 24, 2016 with two comments:

a. The Detail Study Plan has proposed to argue that Lake of Egypt is an area of low potential impact for Zooplankton and Meroplankton due to the discharge affecting only a relatively small portion of the receiving water body. The Agency does not object to making the argument that Zooplankton and Meroplankton are low potential impact; however, the Agency would like to review the argument as soon as it is complete, so if we do not agree, the field sampling season is not lost.

b. The Agency notes that only one year of field sampling is proposed. While the Agency believes that one year of field sampling may be sufficient to characterize the abundance/health of macroinvertebrate and shellfish, habitat formers, nuisance species (common carp), and thermally-sensitive species (white and black crappie), the Agency recognizes that the results of these studies will be highly dependent on the severity of ambient summer temperatures and precipitation. For example, an atypically cool, wet summer may not be amenable to conducting a successful demonstration of the thermal impacts, or lack thereof, from the facility. Unless the ambient conditions from the commencing year are deemed by the Applicant to be representative of a typical (or warmer) year, the Agency recommends that the Applicant consider conducting all field studies over the course of two years. Additionally, in line with the Agency's concerns regarding the availability of thermal refuge with sufficient dissolved oxygen concentrations for white and black crappie, the Agency recommends that the Applicant conduct the proposed plan for temperature and dissolved oxygen monitoring over the course of a minimum of two years, rather than one year.

The discussion on zooplankton and meroplankton can be found on pages 16-18 in EXHIBIT B, Appendix C “Evaluation of Site-Specific Thermal Standards at Marion Power Plant, AMEC Environmental & Infrastructure, Inc., October 2013.” The Agency agreed that the 2016 sampling season was representative of a typical year. The study on available temperature refuge with sufficient dissolved oxygen for white and black crappie can be found on page 15 in EXHIBIT B, Appendix B.

4. The Petitioner has met the requirements of Subpart K. The requirements of Subpart K are included in Part III of the Petition starting on page 7 of the Petition, including Exhibits. The Agency does not believe that any additional information is needed to supplement the 316(a) demonstration.
5. Illinois Department of Natural Resources (IDNR) and the USEPA were informed that SIPC submitted the Petition to the Board. On April 25<sup>th</sup>, IDNR and the USEPA were provided the link to the Board’s website and informed of the Agency’s May 29<sup>th</sup> deadline to provide a recommendation.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL  
PROTECTION AGENCY

By:           /s/Stephanie Flowers            
Stephanie Flowers  
Assistant Counsel  
Division of Legal Counsel

Dated: 5/23/18

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**CERTIFICATE OF SERVICE**

I, STEPHANIE FLOWERS, an attorney, do certify that I filed electronically with the Office of the Clerk of the Illinois Pollution Control Board the attached APPEARANCE and RECOMMENDATION OF THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY and will cause the same to be served upon the following persons on the service list electronically:

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