

ILLINOIS POLLUTION CONTROL BOARD  
June 8, 2000

CITY OF SPRINGFIELD, )  
 )  
 Petitioner, )  
 )  
 v. ) PCB 00-179  
 ) (Variance - Water)  
 ILLINOIS ENVIRONMENTAL )  
 PROTECTION AGENCY, )  
 )  
 Respondent. )

OPINION AND ORDER OF THE BOARD (by R.C. Flemal):

This matter comes before the Board upon a petition for variance filed by the City of Springfield (Springfield) on April 28, 2000. Springfield requests a variance for five years from 35 Ill. Adm. Code 302.206 as that section relates to dissolved oxygen (DO) in the Sangamon River. Section 302.206 states that DO "shall not be less than 6.0 mg/l during at least 16 hours of any 24 hour period, nor less than 5.0 mg/l at any time." 35 Ill. Adm. Code 302.206.

The variance is a prerequisite for the building of temporary dams in the Sangamon River Basin. These dams may become necessary because of the extreme drought conditions in the Springfield area. In order to get Army Corps of Engineer (Corps) approval for the dams, the Illinois Environmental Protection Agency (Agency) must certify that no water quality standards will be violated. Thus, Springfield and the Agency believe a variance from the DO standards is necessary to secure Agency certification and ultimately Corps approval for construction of temporary dams.

The Board's responsibility in this matter arises from the Environmental Protection Act (Act) (415 ILCS 5/1 *et seq.* (1998)). The Board is charged with the responsibility to "grant individual variances beyond the limitations prescribed in this Act, whenever it is found upon presentation of adequate proof, that compliance with any rule or regulation, requirement or order of the Board would impose an arbitrary or unreasonable hardship." 415 ILCS 5/35(a) (1998). The Agency is required to appear in hearings on variance petitions. 415 ILCS 5/4(f) (1998). The Agency is also charged with investigating each variance petition and making a recommendation to the Board as to the disposition of the petition. 415 ILCS 5/37(a) (1998).

The Agency filed its recommendation with the Board on May 31, 2000. The Agency recommends that the variance be granted, subject to conditions. Springfield filed a response to the Agency's recommendation on June 5, 2000.<sup>1</sup>

The Agency gave public notice of the variance as required by Section 37 of the Act (415 ILCS 5/37 (1998)). No persons objected to the variance or sought a hearing. Springfield also waived hearing. Pet. at 33. Accordingly, no hearing was held.

For the reasons presented herein, the Board finds that Springfield has presented adequate proof that compliance with the regulations at issue would result in the imposition of an arbitrary or unreasonable hardship. Accordingly, the variance will be granted, subject to conditions set forth in the attached order.

### BACKGROUND

Springfield owns and operates a water and electric utility, City Water Light and Power, serving the residents of Springfield and certain nearby areas. In addition to the City of Springfield, the water utility serves the Villages of Chatham, Grandview, Jerome, Leland Grove, Loami, Rochester, and Southern View; the Sugar Creek Public Water District and the Sherman-Williamsville Public Water Commission; and certain unincorporated areas adjacent to Springfield. Pet. at 1-2. The electric utility serves the City of Springfield plus the Villages of Chatham, Jerome, Leland Grove, and Southern View. Pet. at 2.

The population served by the water utility is approximately 157,500. Pet. at 2. The long-term average potable water supply pumpage is approximately 21 million gallons per day (MGD), with a maximum of 39.7 MGD. Pet. at 2. The electrical utility generated 18.55 gigawatt hours during 1999, with peak summer demand of 452 megawatts. Pet. at 2. The principal generating unit is a 441 megawatt coal-fired plant. Pet. at 2.

The prime source of water for the water utility is Lake Springfield. Pet. at 2. Lake Springfield is also the sole source of water for the electrical generating plant. Pet. at 2. Lake Springfield is located on the southeast and south sides of the City of Springfield. Pet. at 2. It has a drainage area of 265 square miles, and was constructed in 1935 by damming Sugar Creek, a local tributary of the Sangamon River. Pet. at 2. Lake Springfield also serves as a recreational area and as the site of a lake-side residential area.

During severe drought periods Lake Springfield provides an inadequate supply of water. Pet. at 2-3, 5. Springfield has accordingly prepared an emergency water supply plan, one element of which consists of temporary diversion of water from the Sangamon River into Lake Springfield. Pet. at 5. The latter involves building of temporary dams, which in turn requires permits from the Corps. Pet. at 7. As a condition of granting the permits, the Corps requires a

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<sup>1</sup> Springfield's petition for variance will hereinafter be referred to as "Pet. at \_\_\_"; the Agency's recommendation will be referred to as "Ag. Rec. at \_\_\_"; and Springfield's response will be referred to as "Res. at \_\_\_."

demonstration by Springfield that no water quality standards will be violated due to the presence of the dams. Pet. at 7. Springfield seeks the instant variance in light of projected drought conditions in summer 2000.

Springfield has twice previously faced the same situation, and has twice previously been granted variance relief similar to that requested here. The first variance was granted in City of Springfield v. IEPA (November 29, 1988), PCB 88-113. The second variance was granted in City of Springfield v. IEPA (December 16, 1993), PCB 93-135.<sup>2</sup> Springfield has moved that the records of the two previous variances be incorporated into the instant record, and contends that the exhibits and testimony presented in the two dockets remains true and correct. Pet. at 10. The motion to incorporate was granted by the Board's Hearing Officer, Steven Langhoff, on May 23, 2000.

Although the Corps issued the permits necessary to construct the dams during the term of both of the previous variances, in neither case did Springfield actually build the dams. Pet. at 8. Subsequent to November 29, 1988, the level of Lake Springfield never reached a point where the diversion provisions of the emergency water supply plan needed to be implemented. Pet. at 8.

#### STATUTORY AND REGULATORY FRAMEWORK

In determining whether any variance is to be granted, the Act requires the Board to determine whether a petitioner has presented adequate proof that immediate compliance with the Board regulations at issue would impose an arbitrary or unreasonable hardship. 415 ILCS 5/35(a) (1998). Furthermore, the burden is upon the petitioner to show that its claimed hardship outweighs the public interest in attaining compliance with regulations designed to protect the public. Willowbrook Motel v. IPCB, 135 Ill. App. 3d 343, 481 N.E.2d 1032 (1st Dist. 1977). Only with such a showing can the claimed hardship rise to the level of arbitrary or unreasonable hardship.

A further feature of a variance is that it is, by its nature, a temporary reprieve from compliance with the Board's regulations and compliance is to be sought regardless of the hardship which the task of eventual compliance presents an individual polluter. Monsanto Co. v. IPCB, 67 Ill.2d 276, 367 N.E.2d 684 (1977). Accordingly, except in certain special circumstances, a variance petitioner is required, as a condition to grant of variance, to commit to a plan which is reasonably calculated to achieve compliance within the term of the variance.

#### COMPLIANCE PLAN

Springfield has undertaken a number of actions to address its water shortage, and thereby eliminate the need for a DO variance. Among these have been programs to reduce

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<sup>2</sup> The variance granted in PCB 93-135 expired on December 17, 1998. Accordingly, no variance is currently in effect.

water demand. Springfield has also sought additional water supplies of both a short-term and long-term nature.

On May 2, 2000, Springfield adopted an ordinance that mandates water conservation as a method for reducing water demand. Pet. at 3. The full ordinance is in the record as an attachment to the Agency's Recommendation. Included in the conservation program are prohibitions against certain water uses and restrictions on the amounts of water use.

One of the facilities Springfield has constructed for short-term supply supplementation consists of a movable dam across the South Fork of the Sangamon River immediately east of Lake Springfield. Pet. at 3. During dry weather the dam is put in place and water is pumped from the pool behind the dam into Lake Springfield. Pet. at 3. The movable dam facility has been maintained in working condition and is operated periodically to supplement the Lake Springfield water supply. Pet. at 3. The South Fork facility is identical in concept to the action Springfield desires to carry out on the Sangamon River.

The principal option for long-term supply supplementation is the construction of a second lake. This lake, which has been named Hunter Lake, has been under consideration for some time. Pet. at 4. It is not anticipated that Hunter Lake will be completed during the requested five-year term of the instant variance. Pet. at 32-33.

### ENVIRONMENTAL IMPACT

Springfield does not anticipate that granting the requested relief would have any appreciable impact upon the environment of the Sangamon River as regards either the alteration of the streamflow or change in DO conditions occasioned by the proposed water diversion project.

Springfield describes the Sangamon River project as follows:

The proposed river diversion locations are at the confluence of the Sangamon River, the South Fork, and Sugar Creek. The topography of the Sangamon River and South Fork valleys would allow a temporary dam constructed at Sangamon River mile 85.24 before the confluence of Sugar Creek, to impound water in the river channels such that the existing pumping facilities at Lake Springfield could be utilized. A secondary structure blocking the low flow arm of the South Fork River would also be installed. The top elevation of the structures would be 525 feet MSL. The effect of the structures would create a pool extending approximately 5.2 miles upstream of the dam on the Sangamon River and approximately 6 miles up the South Fork to the existing pump facilities near Lake Springfield. The depth of the pool at the Sangamon River structure would be twelve (12 feet). At some points along the pool created, the river bank is broken at a level less than 525 MSL, and the Petitioner will require flowage easements to be obtained from approximately 32 parcel owners. These locations are typically inundated

when the rivers are bank full. One property owner has consented. Pumping would begin upon completion of the temporary dams, subject to available river discharge quantities (Record 88-113, Tr. 158-161). The temporary dams would be removed upon resumption of normal lake levels (see Exhibit 2 for average monthly lake levels). Pet. at 6.

If the temporary dams are constructed, Springfield proposes that they be operated such that a downstream release of 41 cubic feet per second (cfs) be maintained. Pet. at 11. 41 cfs is equivalent to 31 to 100 percent of the projected available stream flow in the Sangamon River during an 18-month drought event. Pet. at 11.

Springfield has had its consulting engineers conduct DO modeling of the Sangamon River both with and without the presence of the temporary channel dam. Under low flow conditions the analyses showed virtually no difference in the DO patterns downstream of the dam. Pet. at 13. The analyses did indicate an increase in DO downstream from the dam due to the presence of the proposed cascade aerator. Pet. at 13. Moreover, downstream DO concentrations were enhanced over a broad range of impoundment influent DO concentrations at the diversion facility spillway. Pet. at 13.

The Board has previously reviewed the DO situation presented by Springfield's proposal. In particular, in docket PCB 88-113 the Board observed:

Presence of the dams during the cold weather months should have relatively little likelihood of inducing DO problems either upstream or down stream from the dams. Oxygen solubility is inversely proportional to water temperature, which allows the DO of cold water, unless the water is severely disturbed by pollution, to be well above standard.

A different DO circumstance prevails during the warm weather months. Then the typically elevated water temperatures can limit DO solubility to near that of the DO standard. Moreover, algal populations tend to be higher in warm waters, and algal respiration alone can produce sufficient oxygen demand to cause DO concentrations to fall near or below the standard. A further strain can be placed on the DO if the stream discharges are also low due to the lower rates of reaeration which are associated with sluggish stream flow. Thus, most of the DO concern regarding Springfield's proposal is centered on the possible negative impact at times of warm weather low-flow.

Data collected by both Springfield and the Agency do show that the DO standard in the Sangamon River is not now consistently met at warm weather low-flow. The detailed cause of this circumstance is not resolvable from the instant record. However, there is substantial reason to believe that the cause is related to natural conditions of temperature, biotic activity, and low flow, rather than to the impact of pollution. Lowest observed DO concentrations in fact occur when the waters are warmest, the algal net consumption of oxygen is at its maximum, and flows are low.

Springfield contends that emplacement of the two dams would not cause a significant negative impact on the existing DO situation. As evidence for this conclusion Springfield notes that sampling in the pools upstream from two existing channel dams on the Sangamon River in the vicinity of Springfield during low river stages has not revealed any endemic DO problems. Similarly, analysis of DO in the pool formed by the existing South Fork dam have not revealed any violations of the DO standard. Springfield further suggests that the deeper water maintained in the proposed pools would provide for a dampening of the large diel DO swings witnessed in the shallow free-flowing reaches, and thus inhibit rather than promote violations of the DO standard in the new pools.

Springfield further contends that DO would not be adversely affected below the proposed Sangamon River dam. Analyses using a Streater-Phelps model indicate virtually no difference in DO patterns at low flow with or without the proposed dam. The exception exists for the river segment immediately below the proposed Sangamon River dam, where DO concentrations are projected to be higher under the with-dam scenario due to reaeration at the dam. Springfield reaches a similar conclusion based on diel field sampling. City of Springfield v. IEPA (November 29, 1988), PCB 88-113, slip op. at 6-7 (footnotes and citations omitted).

### HARDSHIP

The Agency agrees that continued compliance at all times with 35 Ill. Adm. Code 302.206 by Springfield would impose a substantial, arbitrary and unreasonable hardship. Ag. Rec. at 6-7. The Agency bases this conclusion on its belief that the standard is not potentially capable of being achieved under all circumstances during the life of the actual project for which the variance is requested. Ag. Rec. at 7. The Agency also bases this conclusion on its belief that compliance with the DO standard may potentially not exist under drought conditions. Ag. Rec. at 7.

### CONSISTENCY WITH FEDERAL LAW

The Agency observes that there are no applicable federal laws or regulations which preclude granting the instant variance request. Ag. Rec. at 7.

### DISCUSSION

#### Finding of Arbitrary or Unreasonable Hardship

As the Board has observed previously, this matter:

is unusual among matters before the Board in that [it] involves not a weighing of the cost of a pollution control facility versus the environmental gain which accrues from its presence, but rather a weighing of two matters of public injury. On the one hand there is the injury which would be suffered by Springfield's citizens in the absence of an adequate water supply; on the other hand there is the injury which would be suffered by the public environment of the Sangamon River. City of Springfield v. IEPA (November 29, 1988), PCB 88-113, slip op. at 9-10.

As the Board has also previously observed, it believes that Springfield faces a substantial hardship if it cannot proceed with its plans for securing an emergency water source for its residents and other customers who rely upon it. This hardship stems not only from the inconvenience associated with a less-than-abundant water supply, but more critically from the health and safety risks plus economic losses which are associated with an inadequate public water supply. City of Springfield v. IEPA (November 29, 1988), PCB 88-113, slip op. at 10.

While the Board recognizes that Springfield's circumstances may cause environmental stresses to be placed on the Sangamon River, the Board also recognizes that Springfield has offered a program which appears to provide for prudent mitigation of these additional stresses. Thus, based on the facts before it, the Board concurs with the Agency's analysis, and finds that Springfield would suffer an arbitrary or unreasonable hardship if denied the requested relief. Accordingly, the variance will be granted, subject to conditions as the policies of the Act require.

#### Conditions

Both parties observe that construction of Hunter Lake, the long-term solution to Springfield's water shortages, may require more than five years for completion. Pet. at 32-33; Ag. Rec. at 9. Nevertheless, both parties also are aware that variances of terms longer than five years are not permitted under the express terms of the Act (415 ILCS 5/36(b) (1998)). Ag. Rec. at 9; Resp. at 1. For the latter reason, the Board will grant the variance for a term of five years.

The Agency recommends and Springfield agrees that any temporary dams actually built during the pendency of this variance be removed when normal lake levels return. Ag. Rec. at 12; Pet. at 6. Normal lake levels are the monthly average lake levels, as listed in Petition Exhibit 2. Inasmuch as environmental conditions in the Sangamon River are expected to be modified by the presence of the temporary dams, the Board agrees that it is necessary that the dams be removed when they are no longer necessary to support supplementing flow into Lake Springfield.

Springfield proposes that a minimum release of 41 cfs be maintained from the dams. Pet. at 11. The Agency recommends that this be a condition attached to the variance. Because the conclusion that

the dams will produce minimum downstream environmental impact is predicated on maintaining at least this discharge level, the Board agrees and will so condition the variance.

Springfield observes that many of the more prized fish species migrate away from low dissolved oxygen waters. Pet. at 22. On this basis Springfield contends that fish lost due to presence of the dams “would have negligible value”. Pet. at 22. The Agency disagrees, and recommends that the Board add a condition to the variance that Springfield be required to mitigate any fish kills with the Illinois Department of Natural Resources. Ag. Rec. at 13. Consistent with Springfield’s prior two variances, the Board will impose such a condition.

In the variance granted in City of Springfield v. IEPA (December 16, 1993), PCB 93-135, the Agency requested, but the Board declined, to require that Springfield supplement Lake Springfield with recirculated clarification pond water. This water is generated at Springfield’s electrical utility. The Agency continues to request that the instant variance be so conditioned. The Agency believes that such supplementation may lessen the need or duration of damming the Sangamon River. Ag. Rec. at 10.

Springfield indicates that it has met with the Agency, and that a mutually acceptable scenario for the supplementation has been developed. Pet. at 31-32. Springfield nevertheless observes that its ability to actually accomplish the supplementation requires a construction permit as well as modification of its NPDES permit. Resp. at 2. The Agency would issue both permits. Springfield requests that any condition regarding supplementation with the recirculated clarification pond water “be tempered or made contingent upon [the Agency] actually issuing the NPDES permit modification and the construction permit, timely installation by [Springfield] of the necessary facilities, and [Springfield’s] ability to operate the discharge in accordance with any terms and conditions of the permit.” Resp. at 3.

The Board believes that supplementation with the recirculated clarification water is appropriate to achieving minimum environmental impact. The Board also agrees that the condition needs to address Springfield’s concerns regarding the permits. The Board will so condition the grant of variance.

The Agency observes that Springfield does not have all the easements it needs to install the temporary dams or to flood areas upstream from the dams. Ag. Rec. at 10. It expresses the concern “that a delay in obtaining the necessary easements to build the dams and the flowage easements could very well delay the construction of the dams, possibly at a crucial time for maintaining the water levels in Lake Springfield.” Ag. Rec. at 11. On this basis, the Agency recommends that the Board add as a condition to the variance that “Petitioner shall proceed as expeditiously as possible with obtaining the necessary easements to be able to build the dams and obtain the necessary flowage easements.” Ag. Rec. at 11.

Springfield contends that the issue of easements is not a proper condition for the Board to impose. Resp. at 3. The Board agrees, and accordingly declines to add this condition. The Board sees no nexus between the condition and the environmental consequences of granting



variance from the DO standard. Whether Springfield has or does not have the easements necessary to construct the dams, and whether Springfield moves expeditiously or otherwise in obtaining easements, is not an issue properly before this Board.

In the past variances granted to Springfield, the Board has conditioned the grant of variance with a requirement that Springfield monitor DO conditions both above and below the Sangamon River dam, and with a requirement that mandatory water conservation measures remain in place as long as the temporary dams are in place. The Agency recommends that these conditions also be present in the instant variance. The Board agrees, and will so condition the grant of variance.

Lastly, the Agency recommends that the grant of variance contain a condition that Springfield develop and seek from its City Council approval of a "more restrictive water use ordinance and other more stringent conservation measures that will be required in the event of a continuation of a drought". Ag. Rec. at 12. While the Board appreciates the Agency's recommendation, the Board will not condition the grant of this variance on the implementation of more restrictive water conservation measures. Rather, the Board believes that the manner in which Springfield regulates the water use of its constituents is, at this time, best left to Springfield's discretion.

This opinion constitutes the Board's findings of fact and conclusions of law in this matter.

#### ORDER

City of Springfield (Springfield) is hereby granted a variance from 35 Ill. Adm. Code 302.206 as it relates to dissolved oxygen in the Sangamon River, subject to the following conditions:

1. This variance expires on June 8, 2005, or upon Springfield receiving a second water supply source, whichever occurs first.
2. Springfield shall remove any temporary dams constructed (one on the Sangamon River and one of the South Fork River) when normal lake level, described in Petition Exhibit 2, returns.
3. Mandatory conservation measures must remain in effect as long as the dams remain in place. The measures may be withdrawn only when the temporary dams are actually removed from the rivers.
4. Springfield shall assure a minimum release of 41 cubic feet per second of water from the Sangamon River dam.
5. Springfield shall mitigate any losses of fish with the Illinois Department of Natural Resources if a fish kill would occur as a result of placement of dams.

6. Springfield shall conduct monitoring for dissolved oxygen at stations located both above and below the dam to be installed on the Sangamon River and above the dam to be installed on the South Fork of the Sangamon River. Springfield shall submit the results of such monitoring to the Illinois Department of Natural Resources, Division of Water Resources and the Illinois EPA on a monthly basis or upon request.
7. Springfield is required during extreme drought events to supplement the water levels in the Lake Springfield water supply by discharging its recirculated clarification pond water back into Lake Springfield. Springfield shall obtain the necessary authorization from the Agency to construct and operate a facility to recirculate the clarification pond water.

If Springfield chooses to accept this variance, within 45 days of the grant of the variance, Springfield must execute and forward the attached certificate of acceptance and agreement to:

Ken Rogers, Manager  
Compliance Assurance Section  
Illinois Environmental Protection Agency  
Division of Water Pollution Control  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, Illinois 62794-9276

Once executed and received, that certificate of acceptance and agreement shall bind Springfield to all terms and conditions of the granted variance. The 45-day period shall be held in abeyance during any period that this matter is appealed. Failure to execute and forward

the certificate within 45 days renders this variance void. The form of the certificate is as follows:

CERTIFICATION

I (We), \_\_\_\_\_, hereby accept and agree to be bound by all terms and conditions of the order of the Pollution Control Board in PCB 00-179, dated June 8, 2000.

\_\_\_\_\_  
Petitioner

\_\_\_\_\_  
Authorized Agent

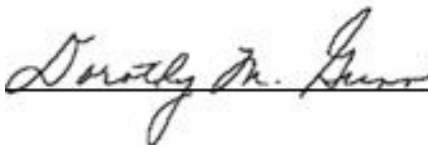
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Title

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Date

IT IS SO ORDERED.

Section 41 of the Environmental Protection Act, (415 ILCS 5/41 (1998)), provides for the appeal of final Board orders to the Illinois Appellate Court within 35 days of the date of service of this order. Illinois Supreme Court Rule 35 establishes such filing requirements. See 172 Ill. 2d R 335; see also 35 Ill. Adm. Code 101.246, Motions for Reconsideration.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, do hereby certify that the above opinion and order was adopted on the 8th day of June 2000 by a vote of 7-0.



Dorothy M. Gunn, Clerk  
Illinois Pollution Control Board