ILLINOIS POLLUTION CONTROL BOARD
June 21, 1990

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| ILLINOIS POWER COMPANY (Clinton Power Station), Petitioner, | ) | |
| v. | ) | PCB 89-213 (Variance) |
| ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, Respondent. | ) | |

SHELDON A. ZABEL, ESQ. AND ERIC L. LOHRENZ, SCHIFF HARDIN AND WAITE, ATTORNEYS-AT-LAW, APPEARED ON BEHALF OF PETITIONER; AND

KATHLEEN C. BASSI, ESQ., ATTORNEY-AT-LAW, APPEARED ON BEHALF OF RESPONDENT.

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

This matter comes before the Board on a petition for extension of variance, filed on December 21, 1989 by Illinois Power Company ("IPC"). IPC seeks a three-year extension of the variance granted in PCB 88-97, 100 PCB 177 (June 22, 1989), which granted relief from the thermal effluent limitations imposed upon the discharge from IPC's Clinton Power Station ("Station") in Clinton, Illinois. That variance will expire on October 1, 1990. IPC seeks an extension of the variance until October 1, 1993. IPC requests the additional time to compile information and to file a petition for permanent relief from thermal effluent limitations applicable to its Clinton facility. The applicable regulation governing the temperature of IPC's discharges is current Section 302.211, Temperature, 35 Ill. Adm. Code 302.211.

Procedural History

This variance extension is based on the request for variance in PCB 88-97 filed by IPC on June 3, 1988. The variance was granted on June 22, 1989 and provided relief from the thermal standards set forth in PCB 81-82, which relief would expire on October 1, 1990. The Board's Opinion and Order of June 22, 1989 is incorporated by reference pursuant to the Board's Order of January 11, 1990 in this proceeding, PCB 89-213.

The petition for extension of variance was filed December 21, 1989. The Illinois Environmental Protection Agency ("Agency") filed its recommendation on January 22, 1990, in favor

of the requested relief, but with a shorter time-frame for gathering data and filing for site-specific relief. IPC filed its First Amendment to the Petition for Extension of Variance on February 22, 1990, along with a waiver of hearing and supporting affidavits, as required by 35 Ill. Adm. Code 104.124. The Agency filed its Response to First Amendment to Petition for Extension of Variance and a Motion for Decision without Hearing on March 2, 1990. The Agency reaffirmed its earlier recommendation and did not object to the waiver of hearing.

The Facility

IPC is a public utility based in Decatur, Illinois. Its service territory includes approximately 15,000 square miles. IPC employs approximately 4,600 people, and provides electrical service to an estimated 543,000 customers. IPC owns and operates a nuclear-fueled electrical generating station located in Clinton, Illinois. The Station is designed to produce 933 net megawatts of electricity. In conjunction with construction of the Clinton Power Station, IPC constructed Clinton Lake, which has a total surface area of 5,000 acres. This artificial cooling lake was formed by damming two streams, Salt Creek and its north fork, downstream of their confluence. Water is withdrawn from one arm of the lake to cool the condensers and discharged into the other arm. The previously granted variance concerned the thermal effluent limitations imposed upon this discharge.

Background

In the Board's Opinion and Order of August 14, 1975, In the Matter of Water Quality and Effluent Standard Amendments, Cooling Lake, 18 PCB 381, R75-2, the Board established a thermal effluent limit for the Clinton Power Station of 96°F, subject to the variance conditions specified in IPC v. IEPA, 18 PCB 241, PCB 75-31 (July 31, 1975). The effluent standard was modified by the Board under the combined dockets R80-17 and PCB 81-82 on May 28, 1981 in IPC v. IEPA, 41 PCB 501, PCB 81-82. The Board also granted IPC a provisional variance from the limits set in PCB 81-82, since IPC was unable to meet the limit of 99°F for a maximum of 44 days within a twelve-month period because of a pump failure. IPC v. IEPA, 91 PCB 169, PCB 88-118 (Aug. 4, 1988).

The Board's June 22, 1989 Opinion and Order in PCB 88-97, describes much of IPC's history before the Board, dating back to 1980 for this facility. In response to a 1980 petition from IPC, pursuant to 35 Ill. Adm. Code 302.211, the Board issued its Order dated May 28, 1981, providing that the daily average temperature of discharges should not exceed 99°F during more than 12 percent of the hours in a twelve-month period (i.e., 44 days) and at no time should temperatures exceed 108.3°F. IPC v. IEPA, PCB 88-97, 100 PCB 177, 178 (June 22, 1989), citing IPC v. IEPA, PCB 81-82, 42 PCB 145 (June 25, 1981); IPC v. IEPA, PCB 81-82, 41 PCB 501

(May 28, 1981). Finding in 1987 that discharge temperatures were higher than anticipated for the power levels being experienced, IPC concluded that thermal limits would preclude full power operation of the Station as may be required during dry and hot summer conditions. Consequently, IPC sought a variance in PCB 88-97, which would increase the number of days to 90 days in a calendar year where the daily average temperature could exceed 99°F. Further, assuming the same monitoring point, IPC sought to increase the maximum allowable temperature level to 110.7°F. In that proceeding, the Agency recommended the grant of variance, but disagreed with IPC as to the extent of relief and as to the possible environmental impact. The Agency also requested that the Board condition the variance on IPC's filing a site-specific petition by April 1, 1991.

Section 104.121(f) of the Board's regulations, 35 Ill. Adm. Code 104.121(f), requires that an applicant for a variance submit a compliance plan since the contemplated relief is only temporary. IPC's plan to achieve compliance in PCB 88-97 was to gather data and submit a request for permanent site-specific relief. IPC had expected to submit its site-specific petition by March of 1990. Other compliance alternatives were considered, but rejected by IPC as too costly. One plan involved $13.5 million to $16.3 million in capital expenditures and another plan to derate (operate below capacity) would have involved a revenue loss of $76.6 million. IPC v. IEPA, 100 PCB 177, 180, 181. Although atypical as a compliance plan, the Board found that seeking site-specific relief would be acceptable and explained its rationale as follows:

> The prospect of filing for site-specific regulatory relief does not obviate the need for a compliance plan in a variance proceeding, however, the Board has recognized that some factual circumstances prompt some flexibility regarding this requirement. (Anderson Clayton Foods v. IEPA, PCB 84-147 (January 24, 1985).) The Board has granted a variance in the absence of a concrete compliance plan where more information regarding new technology needed to be gathered in order to recommend methods of compliance or, alternatively, regulatory changes. (Id.) Similarly, the Board granted a variance even though a petitioner did not present a compliance plan where the technology did not exist for petitioner to reasonably reach compliance. (Mobil Oil Company v. IEPA, PCB 84-37 (September 20, 1984).) The Board concluded that the conducting of research aimed at finding a means of coming into compliance could be accepted as a compliance

> plan. (Id.) Lastly, the Board has recognized a rare exception to the compliance plan requirement where the variance requested is of a limited duration, the environmental impact is minimal and petitioner has made good-faith efforts to remain in compliance. (General Motors Corp. v. IEPA, PCB 86-195 (February 19, 1987).)
>
> The Board concludes that, under the instant circumstances, the lack of a concrete compliance plan does not bar the granting of a variance. IPC has experienced conditions at the Station substantially different than those predicted in prior models and, as discussed below, has demonstrated that the expected adverse environmental impact resulting from its proposed limitations is minimal and temporary. Moreover, the parties agree and the evidence demonstrates that it is not reasonable to expect IPC to immediately comply with the current thermal limits.
>
> IPC v. IEPA, PCB 88-97, 100 PCB 177, 181.

The Board found that immediate compliance by IPC would involve an arbitrary and unreasonable hardship since IPC would be required to "derate" or cut back its operations to less than full design capacity. The Board also found that the higher thermal limitation would have minimal environmental effect for the short time periods involved. The Board granted the variance from the thermal limitations which had been imposed by the Board Order of May 28, 1981 in PCB 81-82, subject to the following conditions, which, notably, did not include requiring the filing of a site-specific petition. The relevant conditions were:

1. This variance begins June 22, 1989 and expires on October 1, 1990;

2. The daily average temperature of discharges at the second drop structure of the discharge flume shall not exceed 99 degrees Fahrenheit during more than 90 days in a twelve-month period and shall at no time exceed 110.7 degrees Fahrenheit during a fixed calendar year running from January 1 through December 31; and

3. IPC shall monitor the temperature of water discharged from Clinton Lake to Salt Creek on at least a daily basis.

IPC v. IEPA, PCB 88-97, 100 PCB 177, 187, 188.

Discussion

The variance granted in PCB 88-97 from the thermal standards established in PCB 81-82 was intended to give IPC an opportunity to collect data during the summer of 1989 while operating at full power and to prepare statistical thermal data and environmental information. This information was to be submitted as part of IPC's petition for site-specific relief. The filing of the petition was planned for March of 1990. The site-specific relief was expected to request the same thermal standards as the variance provided. IPC v. IEPA, PCB 88-97, 100 PCB 177, 180. However, in its petition for extension, IPC asserts that curtailed operations and unusual weather conditions in 1989 prevented the accumulation of accurate data to achieve this goal. The Agency essentially agrees and for this reason both parties support an extension of the variance.

IPC would like to have the time to collect data through the summer of 1991 and to report its findings to file its site-specific petition, and to make its thermal demonstration, pursuant to 35 Ill. Adm. Code 302.211(f), by the fourth quarter of 1992. Extending the variance until October of 1993 would be intended to allow the Board time to rule on the site-specific petition. The Agency recommends that IPC should be required to complete its compilation of data and file its site-specific petition by June of 1992 instead of the fourth quarter of 1992.

In support of its position, IPC's petition describes the unanticipated events of 1989 which prevented the preparation of meaningful data for the site-specific petition. As one example, sustained 100% power was not reached until August 8, 1989. Furthermore, prior to August 8, 1989, the Station was inoperative for five separate periods. The time-frames and circumstances were as follows:

a) Jan. 1 - May 28 first refueling outage;

b) June 1 - June 21 failure of seal on reactor coolant recirculation pump;

c) June 28 - June 30 transformer mechanical problem;

d) July 14 - July 26 condenser expansion joint failure; and

e) July 31 - Aug. 8 failure of relief valve on high pressure heater.

Outages described above resulted in much lower monthly average power levels for May through August of 1989 compared with 1988,

and temperatures were accordingly lower. Maximum daily average discharge flume temperatures (flume being an artificial channel or chute for a stream of water) for June, July, and August of 1989 were 95°F, 104°F and 99°F compared with the higher 1988 temperatures of 100°F, 106°F, and 108°F, respectively. Additionally, on only 9 days in those months in 1989 did the average daily discharge flume temperature exceed 99°F. In contrast, there were 50 such days in 1988. IPC summarized this information in its Table I, as follows:

Clinton Power Station
IPC's Table I
Comparison of Selected Station Operating Data

| | Capacity: Monthly Average Power Levels (%) | | Monthly Average Discharge Flume Temperatures (°F) | |
|---|---|---|---|---|
| Month | 1988 | 1989 | 1988 | 1989 |
| May | 75 | 3 | 81.7 | 64.1 |
| June | 88 | 14 | 93.6 | 78.0 |
| July | 88 | 53 | 101.2 | 89.0 |
| August | 85 | 67 | 103.0 | 92.6 |

| | Maximum Daily Average Discharge Flume Temperatures (°F) | | No. of Days on Which Average Daily Discharge Flume Temperatures Exceeded 99°F | |
|---|---|---|---|---|
| Month | 1988 | 1989 | 1988 | 1989 |
| May | 92 | 79 | 0 | 0 |
| June | 100 | 95 | 3 | 0 |
| July | 106 | 104 | 23 | 7 |
| August | 108 | 99 | 24 | 2 |
| Standard per Variance: | 110.7 | 110.7 | 90/yr. | 90/yr |

IPC's Table II, reproduced below, shows that, at four different sites on Clinton Lake, 1988 lake temperatures were consistently higher than 1989 lake temperatures. This data reflects both milder weather and operating at lower levels of output in 1989 due to the several outages at the Station. The sites are marked on a map included in the petition, and they do not include the point of discharge. See Pet., Fig. 1.

Clinton Power Station
Table II
Comparison of 1988 and 1989 Monthly Average
Clinton Lake Temperatures (°F) at Selected Sites

| | Site 4 | | Site 8 | | Site 12 | | Site 16 | |
|---|---|---|---|---|---|---|---|---|
| Month | 1988 | 1989 | 1988 | 1989 | 1988 | 1989 | 1988 | 1989 |
| May | 64.8 | 62.2 | — | 62.4 | 69.1 | 63.0 | 66.9 | — |
| June | 76.1 | 74.1 | — | 75.4 | 81.1 | 76.5 | 80.2 | 77.5 |
| July | 81.3 | 79.7 | — | 81.3 | 85.5 | 82.8 | 85.6 | 82.2 |
| August | 83.1 | 79.0 | — | 79.9 | 87.4 | 82.4 | 85.5 | 81.5 |

Site 4: Near station cooling water intake structure
Site 8: Near dam
Site 12: Offshore from Mascoutin State Park beach
Site 16: East of the Illincis Route 48 bridge

The next refueling outage is planned for spring to September of 1990. IPC anticipates operating at 71% - 92% power during the summer of 1990 in connection with the planned refueling outage. Consequently, IPC asserts that reduced operations would distort the data necessary for IPC to evaluate the effects of the discharge on the aquatic community of sustained high discharge temperatures and to record short-term maximum temperatures. Pet., Fig. 2 and Affidavit of T.L. Davis, p. 2 and Revised Fig. 2.

The above information and Tables support IPC's assertion that:

> IPC has already determined, based in part upon the data set forth in Tables I and II, that the lake temperature data from the summer of 1989 are unrepresentative of those expected during normal operation in a warm summer, and do not contribute significantly to IPC's assessment of the biological effects of higher temperatures at Clinton Lake. Further, based on the expected operational constraints for the Station during the summer of 1990 (see 7 above), IPC anticipates that lake temperature data from the summer of 1990 also will be unrepresentative of design operations.
>
> Pet., p. 6.

Hardship

The Agency agrees with IPC that to deny the extension of the variance granted in PCB 88-97 would impose an arbitrary and unreasonable hardship on IPC. In the absence of the requested relief, IPC states the hardship as follows:

> IPC may be forced to derate at the Station, at significant cost to IPC, even though to do so would result in only a minimal, at best, environmental benefit to the aquatic community. In addition, IPC is constrained by the presently applicable thermal limits from obtaining additional site-specific data to support a thermal standard for Clinton Lake.
>
> Pet., p. 7.

The Agency notes that the unanticipated reduction in power levels in 1989 frustrated the principal purpose of the variance, i.e., to enable IPC to gather representative data. The Board finds that the hardship established by the record in PCB 88-97 is ongoing. The significant costs of immediate compliance noted in the earlier proceeding would also apply to the present circumstances. The Board finds that the delays in gathering data are not self-imposed, and immediate compliance would result in arbitrary and unreasonable hardship.

Environmental Impact

In its petition, IPC asserts that the thermal effluent discharge produces minimal environmental effects. Pet., p. 8. The Agency responded that it has no contrary information, but that:

> the Agency reserves the right to revisit this variance extension and the underlying variance should it become apparent that an increased number of days at 99°F is having an impact on the lake which is not at this time anticipated.
>
> Agency Recom., p. 4.

The Agency expressed concern that since there are only 92 days between June 1 and August 31, this "means, effectively, that IPC's thermal limit at Clinton Lake is 110.7°F." Agency Recom., p. 4. This assertion may somewhat overstate the problem since September might also involve days of high temperatures. However, the Board agrees that some negative environmental impact could result. For this reason, the Agency's request at page 5 of its Recommendation warrants special attention:

> [T]he Agency does not understand why IPC requires over a year to compile and evaluate the biological data it anticipates gathering in the summer of 1991. It would seem more reasonable to require IPC to have gathered, compiled and evaluated its data by June, 1992, and to file its petition for site-specific rule at that time.
>
> Agency Recom., p. 5.

The Board notes that in PCB 88-97, the record supported a finding of minimal environmental impact. The variety and quantity of fish was acceptable, and sport fishing conditions were favorable. However, the record was somewhat deficient in exploring the impact on the broad spectrum of aquatic life. Relying on that record, which is uncontroverted here, the Board finds that the risk of adverse environmental impact appears modest and extending the variance would not pose significant environmental risk. However, more detailed biological data should be developed as quickly as possible.

Timing of Relief Requested

The requested variance is intended to supply the above data for the summers of 1990 and 1991. How quickly that data should be made available is disputed by the parties.

The Board is persuaded that the affidavit of James A. Smithson, Supervisor-Biological Program of IPC, supports a finding that the necessary biological and thermal data could not reasonably be submitted by the Agency's suggested date in June of 1992. The Board construes the Agency's use of the phrase "by June, 1992" to mean that IPC should gather data and file its site-specific petition by June 1, 1992. IPC asserts that to do so would require "sacrificing accuracy and quality" in the report of biological data. See Affidavit, J. Smithson, p. 2. IPC asserted through the aforementioned affidavit that sampling would still be taken in December of 1991 and that the biological evaluation to be performed would be similar to a report, which required approximately 20% overtime per week for about six months by its biological staff. Supra, p. 2. To shorten this time-frame would require hiring more staff or excessive overtime. Supra, p. 3. IPC, therefore, maintains that the appropriate deadline would be in the fourth quarter of 1992.

The Board construes IPC's references to completing its reports and filing for permanent relief as well as making its thermal demonstration "until" or "by the fourth quarter of 1992" as meaning that, sometime between October 1 and December 31, 1992, IPC will submit all thermal and biological data along with

its petition for permanent relief and its thermal demonstration pursuant to 35 Ill. Adm. Code 302.211(f).

The Board finds that October 1, 1992 is an appropriate date by which IPC must compile and submit the report covering all months through December, 1991. This allows 9 months in 1992 to prepare the report, which, even with some overtime or hiring of additional personnel, appears reasonable. The Board will not impose the June, 1992 deadline based on the affidavits presented by IPC, even though it acknowledges the general dissatisfaction expressed by the Agency. The Board finds that the possibility of any risk of environmental harm should be assessed as early as possible and, therefore, chooses the beginning rather than the end of the fourth quarter. If IPC's petition for permanent relief is filed by October 1, 1992, the extension of variance will continue automatically until October 1, 1993, which date was suggested by both IPC and the Agency.

Consistency with Federal Law

Both IPC and the Agency maintain that the Board may grant the relief requested by IPC or recommended by the Agency consistent with the Clean Water Act. (33 USC sec. 1251 et seq.)

Conclusion

The hardship demonstrated in the variance proceeding, the minimal environmental effects, and the unique circumstances of the 1989 and 1990 operating conditions support the requested extension of variance. The Board finds that adequate proof has been presented that immediate compliance with the thermal limits entered in PCB 81-82 would continue to impose an arbitrary or unreasonable hardship upon IPC. Accordingly, the variance will be extended subject to the conditions outlined in the Order below.

The Board notes that its findings in this proceeding for extension of variance are not binding on any future proceeding for site-specific relief. The Board also notes that IPC may wish to consider the alternative of an adjusted standard. The permanent relief contemplated in paragraph two of today's Order could take the form of either a site-specific rulemaking or an adjusted standard. The Board, again, directs that in future proceedings, IPC address the environmental impact of the thermal discharges on invertebrates and other vertebrates as well as sport fish. See IPC v. IEPA, PCB 87-17, 100 PCB 177, 184.

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

ORDER

Illinois Power Company is hereby granted an extension of the variance granted in PCB 88-97, Board Opinion and Order of June 22, 1989 from the thermal limitations imposed in the Board's Order of May 28, 1981 (PCB 81-82) for its Clinton Power Station subject to the following conditions:

1. This extension of variance begins October 1, 1990 and expires on October 1, 1992;

2. If IPC submits a petition for permanent relief not later than October 1, 1992, this extension of variance shall expire on October 1, 1993;

3. The daily average temperature of discharges at the second drop structure of the discharge flume shall not exceed 99 degrees Fahrenheit during more than 90 days in a twelve-month period and shall at no time exceed 110.7 degrees Fahrenheit during a fixed calendar year running from January 1 through December 31;

4. IPC shall monitor the temperature of water discharged from Clinton Lake to Salt Creek on at least a daily basis; and

5. Within forty-five (45) days of today's Order, Petitioner shall execute and forward to:

Illinois Environmental Protection Agency
Enforcement Programs
2200 Churchill Road
Springfield, IL 62794-9276

a Certificate of Acceptance and Agreement to be bound to all terms and conditions of the granted variance. This forty-five (45) day period shall be held in abeyance for any period during which this matter is being appealed. If the Petitioner fails to execute and forward the agreement within a forty-five (45) day period, the variance shall be null and void. The form of Certification shall be 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 89-213, dated June 21, 1990.

_____
Petitioner

_____
Authorized Agency

_____
Title

_____
Date

Section 41 of the Environmental Protection Act, Ill. Rev. Stat. 1987, ch. 111½, par. 1041, provides for appeal of final Orders of the Board within 35 days. The Rules of the Supreme Court of Illinois establish filing requirements.

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 21st day of June, 1990, by a vote of 7-0.

Dorothy M. Gunn

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board