BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

SIERRA CLUB, NATURAL RESOURCES DEFENSE COUNCIL, PRAIRIE RIVERS NETWORK, and ENVIRONMENTAL LAW & POLICY CENTER Petitioners, v. ILLINOIS ENVIRONMENTAL PROTECTION AGENCY and MIDWEST GENERATION, LLC Respondents.	)	PCB 2015-189 (Third Party NPDES Appeal)

NOTICE OF ELCTRONIC FILING

To:

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PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Pollution Control Board Respondent, Midwest Generation, LLC's Cross-Motion for Summary Judgment and Combined Memorandum in Opposition to Petitioners' Motion for Summary Judgment and in Support of its Cross-Motion for Summary Judgment, a copy of which is herewith served upon you.

Dated: December 10, 2015

MIDWEST GENERATION, LLC

By: /s/ Susan M. Franzetti

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CERTIFICATE OF SERVICE

I, the undersigned, certify that I have served the attached Respondent, Midwest Generation, LLC's Cross-Motion for Summary Judgment and Combined Memorandum in Opposition to Petitioners' Motion for Summary Judgment and in Support of its Cross-Motion for Summary Judgment, by U.S. Postal Service by First Class Mail, postage prepaid, upon the following persons:

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SIERRA CLUB, NATURAL RESOURCES DEFENSE COUNCIL, PRAIRIE RIVERS NETWORK, and ENVIRONMENTAL LAW & POLICY CENTER Petitioners, v. ILLINOIS ENVIRONMENTAL PROTECTION AGENCY and MIDWEST GENERATION, LLC Respondents.	)	PCB 2015-189 (Third Party NPDES Appeal)

RESPONDENT MIDWEST GENERATION, LLC'S CROSS-MOTION FOR SUMMARY JUDGMENT

Pursuant to 35 Ill. Adm. Code 101.500, 101.508 and 101.516, Respondent, MIDWEST GENERATION, LLC ("MWGen"), by its attorneys, hereby respectfully moves the Illinois Pollution Control Board (the "Board") to enter summary judgment in favor of MWGen and against the Petitioners, SIERRA CLUB, NATURAL RESOURCES DEFENSE COUNCIL, PRARIE RIVERS NETWORK AND ENVIRONMENTAL LAW & POLICY CENTER ("Petitioners" or the "Environmental Groups") because there is no genuine issue of material fact and the Petitioners have not carried their burden to prove that the National Pollutant Discharge Elimination System ("NPDES") permit, as issued to the MWGen Waukegan Station would violate the Illinois Environmental Protection Act ("Act") or Board regulations.

Therefore, MWGen is entitled to summary judgment in its favor as a matter of law and the NPDES permit should be upheld. In support of this Cross-Motion for Summary Judgment and in opposition to the Petitioners' Motion for Summary Judgment, MWGen has filed a combined memorandum of law.

Dated: December 10, 2015

Respectfully submitted,

MIDWEST GENERATION, LLC

By: /s/ Susan M. Franzetti

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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

SIERRA CLUB, NATURAL RESOURCES DEFENSE COUNCIL, PRAIRIE RIVERS NETWORK, and ENVIRONMENTAL LAW & POLICY CENTER Petitioners, v. ILLINOIS ENVIRONMENTAL PROTECTION AGENCY and MIDWEST GENERATION, LLC Respondents.	)	PCB 2015-189 (Third Party NPDES Appeal)

MIDWEST GENERATION, LLC'S COMBINED MEMORANDUM IN OPPOSITION TO PETITIONERS' MOTION FOR SUMMARY JUDGMENT AND IN SUPPORT OF ITS CROSS-MOTION FOR SUMMARY JUDGMENT

NOW COMES, Respondent, MIDWEST GENERATION, LLC ("MWGen") by counsel, and requests that the Illinois Pollution Control Board (the "Board") deny the Motion for Summary Judgment filed by the petitioners, SIERRA CLUB, NATURAL RESOURCES DEFENSE COUNCIL, PRAIRIE RIVERS NETWORK AND ENVIRONMENTAL LAW & POLICY CENTER (the "Environmental Groups" or "Petitioners"), in that there exist no genuine issues of material fact and that the Petitioners have failed to sustain their burden of proving that the National Pollutant Discharge Elimination System ("NPDES") permit, as issued, would violate the Illinois Environmental Protection Act ("Act") or Board regulations. The Petitioners' failure to sustain this burden entitles MWGen to judgment as a matter of law, and the NPDES permit must be upheld. In response to Petitioners' Motion for Summary Judgment, and in support of its Cross-Motion for Summary Judgment, MWGen states as follows:

I. INTRODUCTION

The Petitioners challenge the Illinois Environmental Protection Agency's (the "Agency") renewal of NPDES Permit IL 0002259. This permit governs wastewater discharges at the Waukegan Generating Station ("Waukegan Station"), including the thermal effluent discharge and the Station's compliance with federal regulations concerning cooling water intake structures.

The Petitioners have not shown that they are entitled to judgment as a matter of law. In fact, their brief repeatedly misidentifies or misinterprets the applicable laws and regulations. In several instances, they make arguments that they failed to preserve in the underlying permit proceedings, as required by the Act. 415 ILCS 5/40(e). They seem to argue, wrongly, that Article XI of the Illinois Constitution entitles them to disregard the Act's requirements.

The Agency complied with the Clean Water Act ("CWA"), Illinois law, and this Board's regulations by permitting the Waukegan Station to discharge thermal effluent at levels that the Board has already authorized pursuant to the requirements for granting alternative thermal effluent limitations ("AELs"). Indeed, the record shows that the Waukegan Station now discharges a significantly reduced thermal load than it did when the Board determined in the late 1970's that the discharge causes virtually no ecological damage. The United States Environmental Protection Agency ("USEPA") conducted a close review of the final draft NPDES permit and offered no objection to the Agency's decision to include the Board-approved AEL standard.

The Environmental Groups insist that the Agency failed to comply with new procedural regulations set forth in Subpart K of 35 Illinois Administrative Code which govern the renewal of AELs in NPDES permits, consistent with the requirements of CWA § 316(a). However, these regulations went into effect in 2014, and the Environmental Groups offer no legal justification

for why these new rules should govern a permit renewal application that was filed in 2005 and was nearing completion when these rules were adopted by the Board. In any event, even if those new procedural rules did apply, those rules authorized the Agency to renew the Waukegan Station's thermal AEL based on the factual information contained in the permit record.

The Agency also complied with CWA § 316(b) in deciding to renew the permit. Although the USEPA finalized new § 316(b) regulations in the final months of this permit renewal process, it wisely carved out an exception for permitees who filed their renewal applications before the effective date in October 2014. *See* 40 C.F.R. § 125.98(b)(6). Pursuant to this exception, the Agency properly exercised its best professional judgment to assess that the Waukegan Station's intake cooling structure represents the interim best technology available. This decision relied on extensive historical studies showing that the intake structures do not cause significant ecological disruption, as well as a more recent study confirming those findings. In reviewing and approving the renewed permit, the USEPA also found that the Agency exercised its best professional judgment consistent with the requirements of the regulations.

Despite bearing the burden of proof in this appeal, the Environmental Groups' Motion for Summary Judgment does not contain a single citation to the § 125.98(b)(6) exception that governs the Waukegan Station's NPDES Permit's § 316(b) Special Condition. They instead make arguments based largely on regulations that clearly do not apply to this permit renewal. The evidence in the record fully supports the Agency's determination—it relied on extensive historical studies, and utilized a more recent study confirming that the earlier findings remain true today.

II. STANDARD OF REVIEW

"[S]ummary judgment 'is a drastic means of disposing of litigation,' and therefore it should be granted only when the movant's right to the relief 'is clear and free from doubt.'" *Des Plaines River Watershed Alliance v. IEPA*, PCB 04-88, slip op. at 17 (Apr. 19, 2007) (quoting *Dowd & Dowd, Ltd. v. Gleason*, 181 Ill. 2d 460, 483 (1998)). "[S]ummary judgment is appropriate when there is not any genuine issue of fact and the record demonstrates a clear right to judgment as a matter of law." *Dynergy Midwest Gen., Inc.*, PCB No. 13-17, slip op. at 12 (citing 35 Ill. Adm. Code 101.516(b)). If "the movant's right to relief is clear and free from doubt," then the Board should grant summary judgment. *Des Plaines River Watershed Alliance*, PCB 04-88, slip op. at 17 (quoting *Gauthier v. Westfall*, 639 N.E.2d 994, 999 (Ill. App. Ct. 1994)).

Both the Act and the Board's regulations require that the Board's review of permit appeals be limited to the administrative record. 415 ILCS 5/40(e); 35 Ill. Adm. Code 105.214(a). Accordingly, where, as here, the administrative record in a permit appeal demonstrates that there is no genuine issue of material fact and the moving party is entitled to judgment as a matter of law, summary judgment is appropriate. *City of Quincy v. IEPA*, PCB 08-86, slip op. at 31 (Jun. 17, 2010). MWGen submits that the administrative record meets this standard and it is entitled to summary judgment in its favor.

III. BURDEN OF PROOF

"Section 40(e)(3) of the Act unequivocally places the burden of proof on the petitioner, regardless of whether the petitioner is a permit applicant or a third-party." *Prairie Rivers Network v. IEPA and Black Beauty Coal Co.*, PCB 01-112, slip op. at 8 (Aug. 9, 2001) (citing 415 ILCS 5/40(e)(3)). In a third-party challenge to a NPDES permit, the third party must prove

that "the issuance of the permit violates the Act or Board's regulations." *NRDC v. IEPA and Dynergy Midwest Gen., Inc.*, PCB 13-17, at 36 (Jun. 5, 2014). "IEPA's decision to issue the permit in this instance must be supportable by substantial evidence. This does not, however, shift the burden away from the petitioner, who alone bears the burden of proof in this matter." *Prairie Rivers Network*, PCB 01-112, slip op. at 9 (citing *Waste Mgmt., Inc. v. IEPA*, PCB 84-45, PCB 84-61, PCB 84-68 (November 26, 1984) (consolidated)). Additionally, in examining what constitutes "substantial evidence" for purposes of administrative decisions, the Board has stated that "the main inquiry is whether on the record the agency could reasonably make the finding." *Waste Management, Inc.*, PCB 84-45, slip op. at 9.

IV. STATUTORY AND REGULATORY BACKGROUND

A. Alternative Thermal Standards Under Illinois Law and the Clean Water Act

In 1972, the Board promulgated 35 Ill. Adm. Code 302.211(f), a rule requiring owners or operators of a source of heated effluent to demonstrate in a hearing before the Board that the discharge from that source had not caused and cannot reasonably be expected to cause significant ecological damage to the receiving waters. [1] Dischargers were required to make these heated-effluent demonstrations in a hearing to the Board not less than five nor more than six years after the effective date of the regulations (or, in the case of new discharges, five to six years after commencement of operations). (Id.)

[1] Section 302.211(f) was originally numbered as Water Pollution Rule 203(i)(5). Because the rule has not been materially changed before or after it was renumbered, the current citation will be used throughout this brief, to avoid confusion.

Federal law also regulated thermal discharges. Section 316(a) of the CWA[2] allowed for dischargers to obtain an AEL by demonstrating that their discharges were not environmentally harmful.[3]

> With respect to any point source otherwise subject to the provisions of section 1311 of this title or section 1316 of this title, whenever the owner or operator of any such source, after opportunity for public hearing, can demonstrate to the satisfaction of the Administrator (or, if appropriate, the State) that any effluent limitation proposed for the control of the thermal component of any discharge from such source will require effluent limitations more stringent than necessary to assure the projection 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 Administrator (or, if appropriate, the State) may impose an effluent limitation under such sections for such plant, with respect to the thermal component of such discharge (taking into account the interaction of such thermal component with other pollutants), that will assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on that body of water.

CWA § 316(a) (codified at 33 U.S.C. § 1326(a)).

In 1972, the CWA was amended to establish the NPDES program, requiring dischargers to obtain permits from the USEPA. Pub. L. 92–500 (codified at 33 U.S.C. § 1342). The CWA allowed for individual states to administer their own permit programs, so long as the USEPA

[2] Although the CWA was known at the time as the Federal Water Pollution Control Act, this detail is set aside for clarity.

[3] Although the Act also allows for variances, and AELs are sometimes called "variances," these are two different legal provisions, with different standards. *See in re procedural Rules for Alternative Thermal Effluent Limitations*, R:13-20, slip op. at 6-7 (Feb. 20, 2014) ("The federal use of the term 'variance' differs from the use of the term 'variance' in Section 35 of the Act. Compare 40 C.F.R. § 122.2 to 415 ILCS 5/35 (2012)."). For instance, while state variances require a showing of how the permitted facility will return to compliance with the applicable thermal standard and the cost of compliance alternatives, these requirements are absent from CWA § 316(a) and its regulations. *See id.*

determined that each state program would meet federal criteria. CWA § 402(b) (codified at 33 U.S.C. § 1342(b)). The USEPA would retain the power to review and object to any NPDES permit issued by a state program. CWA § 402(d)(2); 40 C.F.R. § 123.44(d)(2).

In 1977, the State of Illinois applied under CWA § 402(b) for authority to administer the local NPDES permit program. IEPA, *Application for Authority to Administer the NPDES Program* (July 1977) (attached as Attachment A to Exhibit A). In seeking to assure the USEPA that federal thermal discharge standards would be maintained, Illinois noted that it had already begun regulating such discharges under 35 Ill. Adm. Code 302.211(f), which, like CWA § 316(a), worked on a results-based standard and ignored technological feasibility and economic hardship as factors. (Id. at 27) The State further asserted that it had adopted new procedures at 35 Ill. Adm. Code 304.141(c)[4] to connect the § 302.211(f) procedure to the federal standards: "The Agency proposes that the demonstration requirements found in 40 C.F.R. Part 122 and the supporting technical documents be utilized in the determination of an alternative thermal standard pursuant to [35 Ill. Adm. Code 304.141(c) and § 302.211(f))]."). (Id.) The new provision allowed § 302.211(f) heated-effluent demonstrations to be incorporated into NPDES permits as § 316(a) AELs:

> The standards of Chapter 3 [of the Board's Water Pollution Regulations] shall apply to thermal discharges unless, after public notice and opportunity for public hearing, in accordance with Section 316 of the [CWA] and applicable federal regulations, the Administrator and the Board have determined that different standards shall apply to a particular thermal discharge.

See *in re: NPDES Regulations*, R73-11, -12, at app'x p. 9 (Aug. 9, 1974).

[4] At the time, 35 Ill. Adm. Code 304.141(c) was codified at Water Pollution Rule 410(c). Because this language was not changed when it was recodified, all references will be to the current citation to avoid confusion.

On October 23, 1977, the USEPA approved the Agency and Board to administer the NPDES program within Illinois. This administration was to be conducted in a manner consistent both with federal law and with a Memorandum of Agreement signed between the agencies. NPDES Memorandum of Agreement (May 12, 1977) (attached as Exhibit B).

In the decades following this delegation, the Agency and Board have treated heated effluent demonstrations as a one-time requirement that is not required to be repeated with each permit renewal. This was a reasonable inference: An AEL is a Board-created water quality standard that the NPDES permit must reflect. 35 Ill. Adm. Code 302.211(f), 303.500. Nothing in CWA § 316(a), federal regulations, or Illinois regulations specifically requires an AEL to be rejustified during each permit renewal. Nor did the USEPA require Illinois to adopt an explicit renewal requirement as a condition of taking over the NPDES program, even though Illinois had treated § 302.211(f) heated-effluent demonstrations as having no expiration date and openly planned to use those demonstrations to satisfy CWA § 316(a).[5]

For years the USEPA gave state regulators across the country a substantial amount of discretion in how they administered the CWA § 316(a) requirements. As the USEPA noted in an October 1992 study:

> The concept of Section 316(a) varies significantly between States and between Regions. A State can write both WQS and mixing zone dimensions for thermal pollutants in such a way that virtually no power plant will need to apply for a Section 316(a) variance. In some States, plants in operation before a certain time have been grandfathered and are excused from performing a Section 316(a) demonstration.

[5] Indeed, if § 302.211(f) or § 304.141(c) had contained a silent renewal requirement, this would have significantly burdened the Board—not only would they have to preside over the initial demonstration hearing, they would also need to preside over every NPDES permit renewal with an AEL.

USEPA, *Review of Water Quality Standards, Permit Limitations and Variances for Thermal Discharges at Power Plants*, EPA Doc. 831-R92001, at 6-7 (Oct. 1992) (attached as Exhibit C).

In 2008, the USEPA indicated that it was no longer satisfied with the amount of variation in how states enforce CWA § 316(a). (R:1128) Most importantly, it declared that it now was of the opinion that § 316(a) AELs expire with each NPDES permit, and so needed to be rejustified with each permit renewal. (R:1130) The USEPA found it "essential" for state administrators to obtain as much information "as necessary" to demonstrate that the AEL protected local ecology. (Id.) "Such information may include a description of any changes in facility operations, the waterbody, or the BIP since the time the [AEL] was originally granted. (Id.)

In practice, however, the USEPA did not require immediate compliance with this new interpretation.[6] For instance, when the Agency modified an NPDES permit for the Ameren Coffeen Power Station in 2011 (an action requiring USEPA review,) the USEPA observed that the permit incorporated an AEL that had not been renewed in the manner outlined in the Hanlon memo during the previous permit cycle. (R:1011) But instead of exercising its power to object to the permit modification, the USEPA simply encouraged the Agency to address these questions during the station's next renewal cycle. *See* CWA § 402(d)(2); 40 C.F.R. § 123.44(d)(2). (R:1007)

[6] This was appropriate: As an interpretive rule, the Hanlon Memo lacked the force and effect of law. *See Perez v. Mortgage Bankers Ass'n*, No. 13-1041, slip op. at 6 (Mar. 9, 2015) ("The absence of a notice-and-comment obligation makes the process of issuing interpretive rules comparatively easier for agencies than issuing legislative rules. But that convenience comes at a price: Interpretive rules 'do not have the force and effect of law and are not accorded that weight in the adjudicatory process.'") (quoting *Shalala v. Guernsey Mem. Hosp.*, 514 U.S. 87, 99 (1995)). The Environmental Groups suggest that 40 C.F.R. § 125.72 gives the memo some legal weight. (Mot. for S.J., at 19 n.2) Actually, that provision only requires the discharger (not the Agency) to "consider" USEPA guidance, and only in the specific context of conducting a demonstration study.

Neither the Board nor the Agency took immediate action to revise Illinois regulations to reflect the USEPA's interpretive rule. During this time, Region 5 did not notify the Agency of any deficiencies in its administration of AELs the NPDES program. (Ex. B, at 19).

But in 2013 the Agency found that other circumstances would require new rules to cover thermal discharges. The Board had recently ruled that it could no longer follow its prior practice of allowing dischargers seeking to make a heated-effluent demonstration to use the procedures created for adjusted standards. *In re Petition of Exelon Generation*, AS 13-1, slip op. at 4-5, (Oct. 18, 2014). Because the heated-effluent demonstrations did not have specific procedures, they had to proceed under the default site-specific rulemaking procedures. *See* 415 ILCS 5/27(a).

In response, on June 20, 2013, the Agency proposed new procedural rules for thermal AELs to be codified at 35 Ill. Adm. Code Part 106, Subpart K and Section 304.141(c). (Hereinafter, "Subpart K") In developing new procedural rules for thermal AELs, the Agency created specific rules for their renewal, including an early screening process "where the Agency can evaluate whether the conditions on which the prior relief was based have changed." R12-20, *Agency Statement of Reasons*, at 10 (June 20, 2013) (attached as Exhibit A):

> **Section 106.1180 Renewal of Alternative Thermal Effluent Limitations**
>
> a) The permittee may request continuation of an alternative thermal effluent limitation granted by the Board, pursuant to this Subpart, as part of its NPDES permit renewal application.
>
> b) Any application for renewal should include sufficient information for the Agency to compare the nature of the permittee's thermal discharge and the balanced, indigenous population of shellfish, fish, and wildlife at the time the Board granted the alternative thermal effluent limitation and the current nature of the petitioner's thermal discharge and the balanced, indigenous population of shellfish, fish, and wildlife. The permittee should be prepared to support this comparison with

> documentation based upon the discharger's actual operation experience during the previous permit term.
>
> c) If the permittee demonstrates that the nature of the thermal discharge has not changed and the alternative thermal effluent limitation granted by the Board has not caused appreciable harm to a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is made, the Agency may include the alternative thermal effluent limitation in the permitee's renewed NPDES permit.
>
> d) If the nature of the thermal discharge has changed materially or the alternative thermal effluent limitation granted by the Board has caused appreciable harm to a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is made, the Agency may not include the thermal relief granted by the Board in the permitee's renewed NPDES permit. The permittee must file a new petition and make the required demonstration pursuant to this Subpart before the alternative thermal effluent limitation may be included in the permittee's renewed NPDES permit.

35 Ill. Adm. Code 106.1180.

The Agency explained that it was creating "a process for streamlined renewal of alternative thermal effluent limitations," (Ex. A, at 10) and that this new provision had arisen in the context of the 2008 Hanlon Memo and the Agency's efforts to "work[] with U.S. EPA Region V to review the status of Illinois electric generation facilities and their thermal discharges to ensure consistency with Section 316(a) of the Clean Water Act." (Id. at 4).

Section 304.141(c) was not substantively changed, although it was modified to cross-reference the procedures in Subpart K and reflect the USEPA's disengagement from heated-effluent demonstrations following the 1977 NPDES-program delegation. *In re Procedural Rules for Alternative Thermal Effluent Limitations*, R13-20, Opinion and Order, at 18-19, 37 (Feb. 20, 2014).

With minor modifications to the Agency's proposed language, Subpart K was adopted by the Board on February 20, 2014. It became effective six days later. *See* 38 Ill. Reg. 6086 (Feb. 20, 2014).

B. Clean Water Act Section 316(b) and the Final Phase II 316(b) Rule

Although Illinois law also regulates intake structures under 35 Ill. Adm. Code 306.201, the regulation is quite general, and CWA § 316(b) is the primary driver. Section 316(b) states:

> **Cooling water intake structures**
> Any standard established pursuant to section 1311 of this title or section 1316 of this title and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.

CWA § 316(b) (codified at 33 U.S.C. § 1326(b)).

The USEPA has only recently begun establishing regulations under CWA § 316(b).[7] After promulgating rules governing new facilities in 2001, 66 Fed. Reg. 65256 (Dec. 18, 2001) ("Phase I"), the USEPA moved to regulate existing facilities in 2004, 69 Fed. Reg. 41576 (July 9, 2004) ("Phase II"). But on July 9, 2007—after Phase II had already gone into effect—the USEPA suspended enforcement of the Rule following an adverse decision issued by the Second Circuit. *Riverkeeper, Inc. v. EPA*, 475 F.3d 83 (2d Cir. 2007). The USEPA instructed its regional administrators to follow an interim approach while the Phase II rules were reworked: "[A]ll permits for Phase II facilities should include conditions under section 316(b) of the Clean Water Act developed on a Best Professional Judgment basis." (R:144).

[7] An earlier effort to establish impingement/entrainment regulations was struck down in 1977. *See Appalachian Power Co. v. Train*, 566 F.2d 451, 457 (4th Cir. 1977) (remanding section 316(b) regulations on procedural grounds).

The Phase II rules were finally reissued in 2014. 79 Fed. Reg. 48300 (Aug. 15, 2014). In issuing the new regulation, the USEPA acknowledged that, unavoidably, the new rule would become effective late in the permit cycle for many facilities. This could be problematic, as compliance with the new rules required large amounts of lead time. For instance, the rules required that larger facilities conduct multi-year ecological studies to help their permitting authority determine what site-specific controls are necessary. 40 C.F.R. § 122.21(r)(9) (requiring dischargers withdrawing 125 MGD or more to prepare an entrainment characterization study based on "a minimum of two years of entrainment data collection").

This problem did not escape the USEPA's notice: "[S]ome States have invested considerable effort in developing and implementing section 316(b) permits. This final regulation at § 125.98(b) . . . allows the [state administrator] flexibility where there are ongoing permit proceedings . . . ." 79 Fed. Reg. at 48380. To address this concern, the USEPA established a lower, "interim BTA" standard, which allowed state administrators to set permit conditions on a site-specific basis. 40 C.F.R. § 125.94(h). Mid-renewal NPDES permits would be subject to these reduced requirements, which were essentially identical to the interim standards applied while the Phase II rules were revised after the *Riverkeeper* decision:

> In the case of any permit issued after October 14, 2014, and applied for before October 14, 2014 . . . . The Director must establish interim BTA requirements in the permit on a site-specific basis based on the Director's best professional judgment in accordance with § 125.90(b) and 40 C.F.R. 401.14.

40 C.F.R. § 125(b)(6). The provision also empowered the issuing authority to require the permittee to produce demonstration studies in anticipation of their next permit renewal:

> In the case of any permit issued after October 14, 2014, and applied for before October 14, 2014 the Director may include permit conditions to ensure that the Director will have all the information under 40 C.F.R. 122.21(r) necessary to establish

> impingement mortality and entrainment BTA requirements under § 125.94(c) and (d) for the subsequent permit.

Id.

V. STATEMENT OF FACTS

In 1977 Commonwealth Edison, then the owner of the Waukegan Station, petitioned the Board for an AEL under 35 Ill. Adm. Code § 304.141(c) for the station's thermal discharge. The AEL would limit the Waukegan Station to the existing generating capacity of the plant, which then had four generating units capable of generating 1016 MW of electric power. (R:1-3, 203, 1115) The Agency supported this request. (R:2)

Based on expert testimony backed by data compiled by two environmental consulting firms, the Board found "virtually no damage . . . to the Lake Michigan environment as a result of thermal discharges from [Waukegan Station]" and ordered that the station's permit be modified to include the AEL. (R:2) The Board did not set any expiration date or renewal requirements in its order, docketed at PCB 77-82. It further noted that the USEPA had reviewed and approved the AEL under CWA § 316(a). (R:1) The USEPA approved the AEL a few months before the NPDES program was delegated to Illinois—thus the AEL here is unusual, in that it was approved by both the USEPA and the Board.

The following month, the Board determined that ComEd had made a sufficient showing of minimal ecological damage to comply with 35 Ill. Adm. Code 302.211(f). (R:1115-16). Because § 304.141(c) incorporates the § 302.211(f) standard, the Board's decision to approve the thermal AEL in PCB 77-82 had essentially also found that the requirements of § 302.211(f) were satisfied. Nonetheless, the Board convened a new hearing docketed at PCB 78-72, -73 (consolidated) to resolve some ambiguities from the record of the previous decision. (R:1115) The Board's assessment was not changed by the new evidence: "It is the Opinion of the Board

that [Waukegan Station has] not caused and cannot be reasonably expected to cause significant ecological damage to receiving waters." (R:1116)

Around this time, ComEd obtained an NPDES permit that complied with the requirements of CWA § 316(b). The Agency relied on multiple studies conducted for ComEd in the mid-70s, showing that the cooling water intake structures at the Waukegan Station had minimal environmental impact. (R:1152-67) A review of the Board's decisions shows that it did not revisit the question of the Station's AEL relief after granting the relief in 1978.

MWGen timely applied to renew the Waukegan Station NPDES permit on January 21, 2005. (R:25) Its then-existing NPDES permit, issued in 2000 (the "2000 NPDES Permit"), was due to expire on July 31, 2005. (R:1119) The 2000 NPDES Permit included the AEL as a special condition applicable to the Station's thermal discharge. (R:1124) The MWGen renewal application used the standard USEPA forms, as required by 35 Ill. Adm. Code 309.103(a)(1). (R:31-111) The cover letter submitting the renewal application requested several changes to the 2000 Permit, including the discontinuation of thermal monitoring. (R:27, 1120)

The MWGen 2005 NPDES permit renewal application also provided updated information on the thermal discharge from effluent monitoring results over the preceding years. For example, it provided the maximum daily effluent temperatures (118.5 °F winter and 95.8 °F summer), the maximum 30-day effluent temperatures (65.1 °F during the winter and 79.8 °F during the summer) along with long term average values of 58.9 °F winter and 71.0 °F summer). (R:42)

MWGen supplemented its January 2005 renewal application with a proposed information collection plan (PIC), as then required by 40 C.F.R. § 125.86(c)(2)(iii) (2005). (R:109-11, 1204-36) In an October 16, 2004 letter to the Agency, MWGen had previously requested adequate time to collect the information required by the then-existing Section 316(b) Phase II

rule, (R:4,) and expressly requested that until the Phase II rule requirements were incorporated into its NPDES permit, it "be allowed to continue to operate its cooling water intake as [the Station] had in the past" because its operation was not causing "any adverse environmental impacts to Lake Michigan." (R:5) The PIC included the results of initial impingement/ entrainment studies commissioned by MWGen. The studies produced very similar results to the results obtained in the 1975-76 ComEd studies: Both studies determined that 97% of the impinged fish were alewifes, a low-value species. (R:1216, 1231) MWGen subsequently updated this proposed plan in an August 8, 2006 e-mail to the Agency and informed the Agency that it had been conducting impingement and entrainment monitoring at all of its affected sites (which included the Waukegan Station) for at least two years during the period 2003-2006. (R:112)

The Agency permit writer, after reviewing previous permits and permit notes, agreed to remove the thermal monitoring requirement. (R:116-24) The permit writer justified this decision by noting that the Board's ruling in PCB 78-72, -73 did not require thermal monitoring. (R:124) On February 23, 2007, the Agency sent MWGen a tentative draft of the renewed permit —the draft incorporated the AEL using language that was identical to the language in the 2000 NPDES Permit. (R:140) The Agency also granted MWGen more time to conduct the CWA § 316(b) demonstration studies required by the USEPA's Phase II rules (which had not yet been suspended.) (Id.)

On December 2, 2011, the Agency issued the first public draft of the NPDES permit. (R:185) The draft mistakenly removed all reference to the AEL, requiring Waukegan Station to meet the Lake Michigan thermal standards in 35 Ill. Adm. Code 302.507. (Id.) The draft also renewed the thermal monitoring requirement, even though the permit writer had previously advised MWGen that this requirement would be removed. (R:177) Although the notice discussed

several modifications the Agency had made to the permit, it did not mention the major change in thermal discharge standards. (See R:172)

One modification that the Agency did discuss was the revision of the special condition governing CWA § 316(b) compliance to reflect the new federal standards following the USEPA's suspension of the Phase II rules. (R:185) The revised condition called for MWGen to follow through on the study it outlined in its PIC in advance of the subsequent permit renewal. (R:185-86) The language anticipated that the USEPA might issue its Phase II rules during the permit term, and so allowed for the permit to be automatically modified in that event. (R:186)

MWGen promptly objected to the draft, citing the Agency's noncompliance with the tentative-draft notice requirements of 35 Ill. Adm. Code 309.108(d)(1) and 309.109(a). (R:199) MWGen also stressed the permit's new thermal effluent standards flew in the face of the Board's AEL determination in PCB 77-82 and the multiple studies supporting that determination. (R:201) Indeed, by 2011, those studies probably *overestimated* the risks posed by the Waukegan Station: MWGen submitted significant evidence showing that in the intervening years, two of the four generating units at WGS had been shut down, reducing the plant's generating capacity from 1016 MW to 742 MW. (R:205, 619, 880)

In response to the Agency's request, MWGen further supplemented the information presented to justify the continuation of the AEL by providing the Agency with information comparing the heat rejection rate of the Waukegan Station in 1978 and in 2012, showing a significant reduction of 39% since 1978, and a comparison of the water flow rate, showing a similarly significant reduction of 37%. (R:239-40) MWGen provided a copy of the 1974 ComEd letter to USEPA that provided a summary of the evidence supporting its § 316(a) AEL request. (R:241, 492) MWGen also attached a recent 2009 United States Geological Survey study of prey

fish populations in Lake Michigan. The authors of the study, which had sampled fish populations in the vicinity of the Waukegan Station discharge as well as other areas, attributed recent declines to more recent developments in poor fish recruitment, habitat loss, and predation. (R:222, 231-32)

In correspondence between MWGen and the Agency permit writer concerning the second draft NPDES permit, the permit writer conceded that the thermal discharge requirements should reflect the 1978 variance. (R:271) On October 16, 2012, the Agency transmitted a revised tentative draft of the permit to MWGen.[8] (R:1168) Citing PCB 77-82, the new draft reinstated the AEL, subject to the condition that MWGen prepare and execute a study reevaluating the conclusions of the PCB 77-82 studies. (R:1183) The special condition for CWA § 316(b) compliance was unchanged. (R:185-86, 1184)

The Environmental Groups submitted comments insisting that the Agency was legally required to exclude the AEL from the permit and instead incorporate the general thermal water quality standards from 35 Ill. Adm. Code 302.507. (R:473) The Environmental Groups insisted, for the first time, that the AEL had "expired in the early 1980s" and that the Agency had been required to obtain new studies on the thermal loading before including the AEL in the permit. (R:474) The Environmental Groups further commented that the Agency's authority to include AELs in renewed permits was "unclear" because "the applicable regulations refer only to the

[8] The Environmental groups suggest that MWGen was given special treatment because it was allowed to recommend language for the condition. (Mot. for S.J., at 10) This ignores what MWGen was requested to submit to the Agency: permit conditions mandating new studies for the subsequent renewal of the AEL. This condition was not a concession to MWGen. The Agency was *required* to base Waukegan Station's permit on the water quality standards set by the Board—in this case, the AEL. The Agency lacked legal authority to condition the AEL on commitments by MWGen to perform future acts. Although MWGen ultimately acceded to this request and took the opportunity to recommend language, this was hardly a "win" for MWGen.

Board's authority to grant such variances." (R:475) The letter only briefly touched on the § 316(b) provisions of the draft permit, expressing unspecified skepticism. (R:473)

The Agency issued a fourth draft of the permit in February 2013. (R:251) It did not change the CWA § 316(a) or § 316(b) provisions. (R:264-65)

Subsequently, by e-mail dated July 10, 2013, the Agency requested, and MWGen provided, additional information regarding the cooling water intake structures at the Waukegan Station. (R:511-12) The information included a detailed description of the cooling water intake structure. It described the passage of cooling water through the intake canal, into the embayment, through two intakes (one for each of the two operating Units 7 and 8), and the fact that bar racks are located in front of traveling screens at each intake. (R:512) It went on to describe each component of the screenhouse (i.e, fixed trash bars, through-flow traveling screens, and a high-pressure wash-water system); the screens configuration (#12 gauge wire with 3/8-inch openings); and the orientation of the traveling screens. (Id.) The cooling water intake structures description also included a detailed description of each of the pump systems for Units 7 and 8. (Id.)

A public hearing was conducted on July 21, 2013. (R:660) In response to public hearing questions and comments, the Agency confirmed that the omission of the AEL provisions from the 2011 draft permit was an error because the 1978 Board order granting the AEL remained in effect. (R:665) The Agency reiterated that the AEL had been reflected in all previous NPDES permits after it was originally granted in the 1970's. (R:668) The Agency further confirmed that it had reviewed the thermal studies information from 1975 and 1976 "and determined that there have not been any changes at the facility which would result in additional heat being discharged into the lake." (R:665-66) In addition, the IEPA referenced the fact that "Unit 6, rated at 100 MW, was removed from service on December 21, 2007, thus, decreasing the heat load."

(R:666; *see also* R:662). The IEPA noted that it was requiring additional aquatic, biological and thermal mixing zone studies in the permit for review by the Agency during the next permit cycle. (R:668, 676, 679)

IEPA also provided a detailed description of the cooling water intake structures at the Waukegan Station and summarized the 1975/1976 § 316(b) studies showing that of the millions of fish larvae and eggs collected during these studies, only three species were identified: alewife, rainbow smelt and common carp. (R:666-67) The Agency also cited the PIC studies conducted in 2005 as a source it utilized in exercising its best professional judgment and provided a review of the changes in the Lake Michigan aquatic community since 1978. (R:770) It noted that most of the large-scale changes were the result of declines in lake productivity, resulting in "less available nutrients/energy to move through the food web." (R:673) The declines in productivity and also lower trophic levels species composition "have been largely attributed to effects of invasive species (*e.g.*, zebra and quagga mussels, and spiny and fish hook water fleas,)" not to thermal conditions. (Id.) The declines in productivity were cited as the likely contributing factor to declines in yellow perch and alewife populations. (Id.) The Agency obtained this information from the Illinois Department of Natural Resources (R:618).

On August 18, 2014, the Agency submitted a draft of the final permit to the USEPA. (R:594) Three months later, the USEPA responded: "Based on our review and discussions with your staff, EPA would not object to the permit and the permit can be issued in accordance with the Memorandum of Agreement and pursuant to the Clean Water Act." (R:620) The USEPA did include a recommendation, reminding the Agency of the new interpretation of CWA § 316(a) that the USEPA had adopted in the Hanlon Memo. (R:620, 622) The USEPA also noted that "Special Condition 7 provides the best professional judgment Best Technology Available

determination for the cooling water intake structure as required by [CWA] § 316(b)." (R:622) The USEPA's only comment on the § 316(b) conditions raised a procedural concern: The Special Condition contained a provision for self-modification, and the USEPA instead thought that such modifications had to be done through a formal permit modification process. (Id.)

The Agency concluded that the renewal conditions it included for the AEL complied with CWA § 316(a) and adopted the USEPA's recommended change to the § 316(b) condition. (R:637-38) The Agency reissued the permit on March 25, 2015. (R:683)

On April 29, 2015, a collection of environmental groups, including the Sierra Club, the NRDC, the Prairie Rivers Network, and the ELPC filed a "Petition for Administrative Review of an NPDES Permit Issued by the Illinois Environmental Protection Agency" with the Board, challenging the renewal of the permit.

VI. ARGUMENT

A. The Environmental Groups have abandoned their only viable basis for standing.

In their motion for summary judgment, the Environmental Groups abandon their argument that they have standing to bring this third-party appeal under 415 ILCS 5/40(e). (*Compare* Petition, at 2-3, *with* Mot. for S.J., at 12-13) This may be in recognition of the fact that their petition lacks an affirmative demonstration that the Environmental Groups raised these issues in their comments to the Agency, as required by law. *Id.* at 5/40(e)(2)(A). "The Board has consistently, and recently, held that to have standing in an NPDES permit appeal as a third-party petitioner under Section 40(e)(2) of the Act, . . . a petitioner must show that he or she raised the issues contained in the petition during the public comment period." *American Bottom Conservancy v. IEPA*, PCB 06-171, slip op. at 5 (Sept. 21, 2006).

By failing to demonstrate in their petition that they preserved their arguments below, the Environmental Groups impermissibly shift to the Board and respondents the burden of identifying whether the Environmental Groups' appellate arguments are contained in the public comments in the permit record. Indeed, this review would show that several of the issues raised in this appeal were never raised during the permitting process, especially those arguments related to the retroactive application of Subpart K.

Recognizing this deficiency, the Environmental Groups' Motion for Summary Judgment instead cites Article XI, § 2, of the Illinois Constitution as their sole basis for standing in this matter. (Mot. for S.J., at 12-13). There is no precedent for using Article XI, § 2, as a ground for standing to challenge an NPDES permit appeal. In fact, the Illinois Supreme Court has ruled that Article XI does not confer standing in an NPDES permit appeal. *Landfill, Inc. v. PCB*, 74 Ill.2d 541, 559 (1978) (holding that Art. XI, § 2, does not create an extrastatutory right to challenge permits before the Board); *see also Prairie Rivers Network v. PCB*, 781 N.E.2d 372 (Ill. App. Ct. 2002) (same).

Even if the Board were governed by Article XI, § 2, the Environmental Groups' own pleadings show that they do not have constitutional standing. Article XI, § 2, gives standing to an individual to bring an environmental action for a grievance common to members of the public, but only in cases where the individual's right to a "healthful environment" has been infringed. *Glisson v. City of Marion*, 720 N.E.2d 1034, 1044 (Ill. 1999) ("[T]he framers of the 1970 Constitution viewed article XI as a response to the issue of environmental pollution and its effect on human health, and as granting standing to an individual to enforce the right to a 'healthful environment.'"). Purely ecological harms are not a legally cognizable basis for standing, because they do not directly affect public health. *See id.* (finding no standing for individual to enforce

Illinois Endangered Species Act, 520 ILCS 10/1 et seq.). The injuries alleged by the Environmental Groups—ecological impacts from thermal discharges and impingement/entrainment of aquatic life by cooling intake structures—do not impact human health, and so Article XI, § 2, does not empower them to bring this suit. (See Mot. for S.J., at 5-8)

B. The Renewal of the Alternative Thermal Effluent Limitations for the Waukegan Station Was Not in Violation of the Act.

1. The Waukegan Station NPDES Permit was renewed under the permit renewal procedures that preceded Subpart K.

Under the rules in effect when MWGen applied to renew the Waukegan Station's NPDES Permit, no affirmative demonstrations were required to include the AEL in the renewed permit. For decades before the adoption of Subpart K, the Agency renewed permits containing AELs without repeated, and redundant, heated-effluent demonstrations. The AELs were water quality standards created by the Board; the Agency was required to base NPDES permits on those standards. *See* 35 Ill. Adm. Code 309.143. Illinois fully disclosed this approach to the USEPA when the NPDES program was delegated to the State, and there is no evidence that, prior to 2008, the USEPA ever raised an objection to this approach, even though each renewed permit was transmitted to the USEPA for review. CWA § 402(d)(2);); 40 C.F.R. § 123.44(d)(2); 35 Ill. Adm. Code 309.105(d). Thus, based on the Board's decision to create an AEL for the Waukegan Station, the Agency could (and was required to) include that AEL in the renewed permit using its general power to administer the Illinois NPDES program. 35 Ill. Adm. Code Pt. 309, Subpart A.

The Environmental Groups suggest that even before the promulgation of Subpart K (which added non-retroactive criteria for renewing AEL provisions), the note at the end of

40 C.F.R. § 125.72 barred the Agency from including the AEL in the renewed permit.[9] (Mot. for S.J., at 19) But this note is directed at permitees who used predictive studies to satisfy CWA § 316(a)'s demonstration requirement—typically planned facilities that cannot conduct a study "based on the discharger's actual operation experience" because they are not yet operational. *See Ameren Energy Generating Co. v. IEPA*, PCB 09-38, slip op. at 5 (Mar. 18, 2010) ("[P]redictive studies are appropriate for new sources, facilities discharging only for an evaluation period, facilities discharging into waters that were previously despoiled, and facilities making major operational changes.") (internal quote omitted). The note advises dischargers to treat AELs based on predictive studies as provisional—regulators are likely to demand that the studies' assumptions be confirmed through operational testing once the discharges begin.

Waukegan Station did not perform predictive studies: It performed operational studies as the discharges were occurring, in the manner described in 40 C.F.R. § 125.73(c). The § 125.72 advisory note was not meant for Waukegan Station, and even if it were, the station followed this advice long ago by submitting operational studies to the Board.

The Environmental Groups' position that the note *mandates* new studies to be conducted every five years is groundless. (Mot. for S.J., at 19) The USEPA made this language advisory because it knew it would not be appropriate or feasible for permitees to prepare new thermal studies for every renewal. Such a requirement would be unreasonable in a case like this, where the permittee dramatically reduced its thermal discharges in the years since the last successful heated effluent demonstration. Although the Environmental Groups claim to find support in the

[9] The note reads "At the expiration of the permit, any discharger holding a section 316(a) variance should be prepared to support the continuation of the variance with studies based on the discharger's actual operation experience."

Hanlon Memo and an Inspector General's[10] report, neither source says that the § 125.72 note is mandatory, nor that it applies to dischargers who have already performed and submitted operational studies. (Mot. for S.J., at 19, citing R:489, 1017). They also insist that comments from a Region V officer support their position—in fact, the comments merely confirm that the note is advisory, which is why Region V did not object to the Waukegan Station's NPDES permit renewal. (Id., citing R:1011)

2. Subpart K was not intended to retroactively apply to NPDES permit renewal applications filed before February 26, 2014.

Many of the Environmental Groups' arguments assume, without justification, that Subpart K governed the inclusion of the Waukegan Station AEL in the renewed NPDES permit. (Mot. for S.J., at 24-25) This is the first time that they have offered this theory. (See R:471-507; 995-1005; 1128-31) Petitioners did not make any effort to submit their Subpart K arguments to the Agency prior to the issuance of the Waukegan Station permit.

There is no support for retroactive application in Subpart K or in Illinois law. Nothing in the text of Subpart K indicates that it was intended to apply retroactively.[11] This silence means that the rule is prospective: "As a general matter it is clear that prospective application of statutes is to be preferred to retroactive, or retrospective, application." *Rivard v. Chicago Fire Fighters Union, Local No. 2*, 522 N.E.2d 1195, 1198 (Ill. 1988); *see also Landgraf v. USI Film Products*, 511 U.S. 244, 263-64 (1994) ("Retroactivity is disfavored in the law.").

By the time Subpart K was promulgated, MWGen had already completed every act Illinois law required of it to obtain a permit renewal. Illinois law (and common sense) would

[10] The Inspector General of the USEPA is not empowered to set agency policy or issue policy guidance. *See* 40 C.F.R. § 1.29.

[11] The rulemaking record for Subpart K, R:13-20, is also devoid of any intent on the part of the Agency or the Board for the rules to apply retroactively.

reject any interpretation of Subpart K that silently imposed new application requirements on applications that not only had already been submitted, but where the issuance of the renewed permit was nearing the close of the permit issuance process. Although the law has a greater tolerance for retroactive procedural rules, Subpart K was substantive in nature. "A statute has a retroactive impact when it impairs rights a party possessed when he acted . . . or imposes new duties with respect to transactions already completed." *In re Commitment of Derry*, 913 N.E.2d 604, 606 (Ill. App. 2009) (citing *Commonwealth Edison Co. v. Will Cnty. Collector*, 749 N.E.2d 964, 971 (Ill. 2001)).

Simply put, at the time Subpart K became effective, MWGen was in the home stretch of an almost decade-long permit renewal process. To now say that the process should have been scrapped and started from scratch would be a colossal waste of state resources (this waste would be multiplied if applied to every other permit renewal that predates Subpart K) for which there is no support in the language of Subpart K.

3. Alternatively, the Agency complied with the substantive requirements of Subpart K.

Section 106.1180 of the Subpart K regulations requires the Agency to determine whether the nature of the thermal discharge has materially changed and whether the discharge has caused material harm to the environment. 35 Ill. Adm. Code 106.1180(c). The Agency's conclusion that the discharge has not materially changed was correct. The Environmental Groups concede that the administrative record shows that the only change to the discharge since PCB 77-82 was a decrease in the thermal output of the Waukegan Station. (Mot. for S.J., at 28) The Board previously found that the thermal discharges at full capacity do not cause significant ecological harm, and the USEPA approved ComEd's original request for a § 316(a) AEL on the same operating capacity condition. (R:1) The Environmental Groups nevertheless suggest that the

subsequent reductions in thermal loading due to the shutdown of two generating units at the Station could be a material change because the decrease might be harmful to aquatic life. (Mot. for S.J., at 28) The Environmental Groups provide no support for this speculation, and nothing in the record supports their newfound concern that MWGen might not be discharging *enough* heat into Lake Michigan.[12] The Agency did not need to conduct elaborate studies to evaluate the commonsense idea that a gradual reduction in heated effluents will not harm the BIP.

The Environmental Groups insist that Subpart K creates a mandatory requirement that permit-holders formally apply for renewal of an AEL in their initial permit renewal application or forever lose their right to renew. (Mot. for S.J., at 24-25) Nothing in the plain language of Subpart K § 106.1180 creates such a requirement. While § 106.1180(a) does say that the permitee's "application for renewal should include sufficient information" for the Agency to assess whether the nature of the thermal discharge has changed, it contains no restrictions on how or when that information is conveyed to the Agency. The existence of this strict renewal rule is further belied by the Board's requirement that permittees apply using USEPA-generated forms that themselves do not have a space for requesting renewal of an AEL. *See* 35 Ill. Adm. Code 309.103(a)(1). (R:29-100)

Further, the record shows that MWGen's permit renewal application *did* request renewal of the AEL. MWGen gave the Agency notice that it was requesting renewal by asking for the end of thermal monitoring—a request that would make no sense in the absence of the continuation of the AEL. (R:27) This was a reasonable way of notifying the Agency of the renewal request. In fact, the Agency understood the request this way at the time the application

[12] The Environmental Groups make no suggestion that the MWGen's decreased loading increases the risk of cold shock, and there is no evidence in the record that would support such an argument.

was submitted: It decided to end thermal monitoring when it issued the initial draft renewed permit for comment in 2007, citing the continued effect of the AEL. (R:124, 140)

The absence of any mention of the AEL from the MWGen cover letter that accompanied its initial permit renewal application itself made MWGen's position clear. The letter specifically identified MWGen's requested changes to the permit in this renewal cycle. (R:25-28) The Agency correctly understood that MWGen was requesting the renewal of any unmentioned conditions from the previous NPDES permit.

In any event, MWGen explicitly requested a continuation of the AEL in its December 12, 2012 comment letter. (R:199-235) And MWGen presented significant evidence justifying the continuation of the thermal variance in the renewed permit, including recent Lake Michigan data collected by the USGA, MWGen, and other sources. (R:221-38, 1204-36) The data showed that the rises and falls in fish populations since the 1970's did not correlate with activity at Waukegan Station. The authors of those studies attributed the declines to other events that correlated with the data, such as increased predation, invasive species, and habitat loss. The Environmental Groups' swipe that MWGen's explicit request "could hardly be characterized as an 'application'" basically concedes that no applicable law or regulation specifies the form that the AEL renewal request must take. (Mot. for S.J., at 25)

4. The Environmental Groups are barred from collaterally attacking the 2000 NPDES Permit renewal, in which the Agency properly renewed the AEL.

The Environmental Groups insist that the Agency could not renew the AEL because, although the AEL appears in the 2000 NPDES Permit, the provision was legally void, thus preventing any renewal of the AEL in 2005. (Mot. for S.J., at 22-23) The Environmental Groups concede that "[t]he opportunity to challenge the Agency's issuance of [an AEL] in 2000 has

obviously long passed," yet they immediately, and without explanation, follow this statement with a challenge to the issuance of the AEL on this very basis. (Id. at 23)

This challenge is barred by the Act, which requires that third-party permit appeals be brought within 35 day from the date of issuance. 415 ILCS 5/40(e)(1). The Environmental Groups appear to argue, without citation, that because this is a collateral attack on the 2000 permit renewal, housed inside a timely attack on the 2015 permit renewal, the 35-day restriction does not apply. Section 5/40(e)(1) has no collateral attack exception: "As a general principle, a condition imposed in a previous permit, which is not appealed to the Board, may not be appealed in a subsequent permit." *Phillips 66 Company v. IEPA*, PCB 12-101, slip op. at 25 (Mar. 21, 2013).

In any event, even assuming that Petitioners' argument is not an impermissible collateral attack on the 2000 NPDES Permit, their contention that the Agency lacked the authority to renew NPDES permits containing AELs is unfounded. They misinterpret 35 Ill. Adm. Code 304.141(c) by insisting it requires the Board to approve all AEL renewals. (Mot. for S.J., at 23) They also misunderstand the history of § 304.141(c), which only applies to one-time heated effluent determinations and has never once been used to renew an AEL in the decades since this rule took effect. [13] All AELs were incorporated into renewed permits by the Agency pursuant to its general powers to administer the NPDES permit program and its obligation to base NPDES permits on standards set by the Board—the AEL being one such standard. 35 Ill. Adm. Code Pt. 309,

[13] Indeed, the Board's involvement in the NPDES permitting program has historically been limited to setting general standards and deciding permit appeals. *See Landfill, Inc. v. PCB,* 74 Ill.2d 541, 557 (1978) ("The Board's principal function is to adopt regulations defining the requirements of the permit system. . . . The need for a technical staff capable of performing independent investigations dictates that the job of administering the permit system be entrusted to the Agency rather than the Board.").

Subpart A. The Environmental Groups provide no evidence that the USEPA has *ever* exercised its statutory power to object to the Agency's use of its regulatory powers in this way.

Nor does anything in the plain language of § 304.141(c) refer to renewals. The Environmental Groups appear to argue that the renewal requirement is implied by the general fact that NPDES permits need to be renewed. (Mot for S.J., at 19) But this reasoning ignores the fact that § 304.141(c) *predates* Illinois administration of the NPDES program. See *in re NPDES Regulations*, R73-11, -12 (Sept. 30, 1976) (putting § 304.141(c) into effect before delegation of federal NPDES powers). Furthermore, if § 304.141(c) did govern renewals, then one would expect the Board to modify the rule when it created Subpart K § 106.1800, which specifically and solely empowers the Agency to oversee thermal AEL renewals. Yet when Subpart K was created, the Board made no substantive changes to § 304.141(c), indicating that there was no conflict between the two provisions because § 304.141(c) has nothing to do with NPDES permit renewals.

5. Subpart K does not prohibit the Agency from renewing AELs issued before 2014.

The Environmental Groups' argument that Subpart K prohibits the Agency from renewing AELs created prior to 2014 is frivolous. (Mot. for S.J., at 24) The plain language of 35 Ill. Adm. Code 106.1180(a) states that the permittee can request continuation of any AEL granted by the Board, so long as they follow the rules contained in Subpart K:

> The permittee may request continuation of an alternative thermal effluent limitation granted by the Board, pursuant to this Subpart, as part of its NPDES permit renewal application.

Id. The Environmental Groups' reading would only make sense if there was no comma in between "Board" and "pursuant." But there is a comma, making the Groups' theory that

"pursuant to this Subpart" modifies the word "granted" syntactically incorrect. (It clearly modifies the word "request.") Furthermore, nothing in the nine-month rulemaking process for Subpart K, docketed at PCB R13-20, provides the slightest indication that the Board intended to invalidate all pre-2014 AEL determinations. If the Board or Agency had intended to completely upend the Illinois NPDES program in this way, it would have said so.

The Agency properly exercised its discretion under Subpart K to reissue the permit. The record shows that there has been no material change to the Waukegan Station's operations since this Board established the AEL. In fact, Petitioners concede that the loading has been dramatically reduced from levels that the Board already found to be benign. The final permit includes conditions that go well beyond what Subpart K requires: MWGen is now obligated to conduct additional data collection and studies to confirm that their thermal effluent is not responsible for recent declines in fish biomass. (A conclusion already supported by multiple contemporary studies in the record.)

C. The Environmental Groups have not met their burden to prove that the permit violates CWA § 316(b).

1. The Environmental Groups ignore the controlling provision of the Phase II Rule.

Although they bear the burden of proof in this appeal, the Environmental Groups do not discuss the regulation that sets the standard for permitting conditions regarding the Waukegan Station's cooling water intake structure, 40 C.F.R. § 125.98(b)(6), nor do their arguments discuss the interim BTA standard contained in that provision, which expressly applies to this renewed permit. (See Mot. for S.J., at 30-37) This is not excused by the Petitioners' curt discussion of BTA standards. (Id. at 35) The "interim BTA" standard was meant to be a separate, more deferential standard for a limited group of § 316(b) permits, including those "issued after October 14, 2014, and applied for before October 14, 2014." (The standard also applies to certain

facilities where "the facility could require a lengthy period of time to design, construct, and implement [entrainment] control technologies." 79 Fed. Reg. 48424, 48360 (Aug. 15, 2014).) The Waukegan Station permit falls into this regulatory category. It was applied for before October 14, 2014, (R:25,) and was issued after October 14, 2015, (R:683.)

The Environmental Groups have not identified the authority that would entitle them to judgment as a matter of law, and so cannot obtain summary judgment. *See* 35 Ill. Adm. Code 101.516(b); *see also* Ill. Sup. Ct. R. 341(h)(7) ("Points not argued are waived and shall not be raised in the reply brief, in oral argument, or on petition for rehearing."); 35 Ill. Adm. Code 101.100(b) ("[T]he Board may look to the Code of Civil Procedure and the Supreme Court Rules for guidance when the Board's procedural rules are silent."). Furthermore, the Groups waived any argument that the Agency violated § 125.98(b)(6) by failing to raise this objection during the permitting process. 415 ILCS 5/40(e)(2)(A).

Neither the preamble to, nor the language of, the Phase II Rule provides a detailed explanation of or the criteria to be applied in making the interim BTA judgment. The standard seems to reflect the commonsense idea that BTA determinations for permitees caught midstream by the final rule should reflect the practical problems of requiring technological upgrades before the completion of studies determining whether ecological harm is being caused by the existing technology. It would be unjust to require MWGen to elaborate on this standard when the Environmental Groups already waived any argument on this point through silence.

Rather than discuss the applicable regulation, the Environmental Groups instead argue that the Agency failed to comply with the application requirements in 40 C.F.R. § 122.21(r). (Mot. for S.J., at 31-34) But these requirements do not govern this permit application, which was filed almost a decade before § 122.21(r) went into effect. The USEPA agrees that the § 122.21(r)

provisions were inapplicable; they did not reference these provisions at all in their comments on the final permit. (R:622) In creating the new CWA § 316(b) rule, the USEPA explicitly desired that the new rule not disrupt ongoing permit processes. Instead, it sought a "common sense framework, putting a premium on public input and flexibility for facilities to comply." USEPA, *Press Release: EPA Finalizes Standards to Protect Fish, Aquatic Life from Cooling Water Intakes* (May 19, 2014) (attached as Exhibit D). This is why the language of 40 C.F.R. § 125.98(b)(6) makes clear that the § 122.21(r) application requirements do not apply to applications filed before 2014: Why else would § 125.98(b)(6) empower state administrators to require the permitee to *begin* collecting the information needed for § 122.21(r) in anticipation of the *next* permit renewal?

The Environmental Groups offer no basis for their assumption that § 122.21(r) was intended to apply retroactively because the plain text of the final rule refutes any such argument. By discussing an irrelevant regulation, and completely ignoring the applicable interim BTA standard, they have waived their challenge to the § 316(b) provisions of the permit. The Agency had ample support for its determination that the Waukegan Station met the interim BTA standard.

2. Even if BTA, rather than interim BTA, were the correct standard, the Agency's determination met that standard.

The Environmental Groups seize on a clerical error in Special Condition 7: The Agency cites to 40 C.F.R. § 125.3, the general rule for technology-based treatment requirements, even though its determination actually applied the BTA standard from § 401.14.[14] The Environmental

[14] The Environmental Groups do not argue that the Agency was somehow bound by this mistake. Illinois law generally regards citation errors as harmless in the absence of a substantive impact. *In re Marriage of Sobol*, 796 N.E.2d 183, 188 (Ill. App. Ct. 2003) ("[W]hile the trial court applied the wrong statute, it did not apply the wrong legal standard."); *see also Dolan v.*

Groups' contention that Special Condition 7 had to "establish technology-based effluent limits to minimize adverse environmental impact" per § 125.3 makes no sense, because § 125.3 is not the applicable regulation. (Mot. for S.J., at 35-36) Cooling water intake structures do not generate *effluent*. *See Riverkeeper, Inc. v. USEPA*, 358 F.3d 174, 186 (2nd Cir. 2004) ("Congress did not . . . choose to include intake structures in those sections of the [CWA] that deal specifically with effluents. Instead, cooling water intake structures are *suorum generum*, regulated pursuant to a separate—and terse—section concerned more generally with the uniqueness of heat as a pollutant."). This is why 40 C.F.R. § 125.98(b)(6) specifies that the BTA be in accord with § 401.14, a rule specific to intake structures and mirroring the standard established in CWA § 316(b).[15] The Agency did not err in declining to apply § 125.3 standards that do not—and could not—govern cooling water intake structures.

The Agency exercised its Best Professional Judgment in accord with 40 C.F.R. § 401.14 in determining that the cooling water intake structure at Waukegan Station meets the equivalent of BTA. The USEPA said so in its comments on the draft permit. (R:622) The BTA standard

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O'Callaghan, 2012 IL App (1st) 111505 (1st Dist. 2012) ("O'Callaghan's citation to the wrong rule in his notice of appeal does not deprive this court of jurisdiction."); *Morris v. Ameritech Ill.*, 785 N.E.2d 62, 71 (Ill. App. Ct. 2003) ("Even if the trial court reasoned incorrectly or based the dismissal on the wrong statute, we may affirm the trial court's judgment on any basis supported by the record"); *People v. Dismore*, 342 N.E.2d 151, 154 (Ill. App. Ct. 1975) ("[T]he State submits that the defect here of citing the wrong statute in the complaint was merely a formal defect which did not prejudice the defendant. We agree.").

[15] The rule reads:

> **§ 401.14 Cooling water intake structures.**
> The location, design, construction and capacity of cooling water intake structures . . . shall reflect the best technology for minimizing adverse environmental impact, in accordance with the provisions of part 402 of this chapter.

Part 402 was withdrawn in 1979, 44 Fed. Reg. 32956 (June 7, 1979), but "the regulation at § 401.14, which reiterates the statutory requirement, remains in effect."76 Fed. Reg. 22174, 22179 (Apr. 20, 2011).

requires the Agency to "determine[] whether appropriate studies have been performed, whether a given facility has minimized adverse environmental impact, and what, if any, technologies may be required." 69 Fed. Reg. 41576, 41584 (July 9, 2004) (describing system of case-by-case BTA permits applied prior to 2014). The Agency decided to renew the permit based on extensive impingement studies that had been relied on for decades without objection from the USEPA. (R:770, 1157-65). The decision also rested on a recent preliminary survey that showed that the aquatic life being impinged at the intake were almost entirely low-value alewives (the same percentage found in the earlier studies.) (R:770, 1215-16; 1231) Because these studies showed that the environmental impact of the intake structure had already been minimized, no further analysis of available technologies was needed.

The Environmental Groups insist that the Agency could not have made a valid BTA determination because it was unaware of what technology existed at Waukegan Station. (Mot. for S.J., at 36) This is incorrect; the Agency talked at length about the intake structure both at the 2014 public hearing and in the responsiveness survey. (R:666, 769-70) Nor did the Agency turn a blind eye to the declines in prey fish populations: It acknowledged the losses, but determined that the reductions had been attributable to causes other than thermal temperatures, particularly the introduction of invasive species. (R:673) This conclusion was amply supported by the record, including exhibits filed by the Environmental Groups. (R:1042, 1053)

VII. CONCLUSION

Petitioners' challenge to the renewal of the Waukegan Station's NPDES Permit is without any legal merit. They repeatedly misinform the Board about the governing laws and regulations. When the applicable laws and regulations are properly applied, the permit record supports a finding that there is no genuine issue of material fact and the conclusion that the

Agency issued the permit consistent with applicable law and regulations. Petitioners have failed to carry their burden to show that the Permit's issuance was in violation of the Act.
Further, all of the evidence in the administrative record shows that the Waukegan Station's thermal AEL was properly reflected in its NPDES Permit, consistent with state law, federal law, and longstanding Agency practice. Although the new substantive requirements did not govern this application, the Agency's determination that the Waukegan Station's thermal effluent had not materially changed would have satisfied Subpart K's renewal provision. 35 Ill. Adm. Code 106.1180(c). The permit also requires new studies to reconfirm the prior finding that the Waukegan Station thermal discharge causes no appreciable harm. Similarly, regarding the cooling water intake structures provision of the permit, the Agency requested and received the necessary information from MWGen to exercise its judgment in making the interim BTA finding required in the CWA § 316(b) Phase II rules for permit renewals of this time period.

The Environmental Groups are asking the Board to ignore its own procedural rules, upend the Illinois NPDES program, and saddle itself with new responsibilities in administering routine permit approvals, all for no ecological benefit. Their request should be denied. Contrary to the Petitioners' implications otherwise, the Agency did not fail to carry out its obligations to enforce applicable federal and state laws for the protection of the environment and neither of the challenged permit conditions are in violation of the Act or Board regulations.

Because there is no genuine issue of material fact and because the Petitioners cannot sustain their burden of proving that the NPDES permit, as issued, would violate the Act or Board regulations, MWGen requests that the Board: 1) deny Petitioners' Motion for Summary Judgment; (2) grant summary judgment in MWGen's favor; and 3) grant such other further relief as the Board deems just and appropriate.

Dated: December 10, 2015

Respectfully submitted,

MIDWEST GENERATION, LLC

By: /s/ Susan M. Franzetti

Of counsel:

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EXHIBIT A

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	R13- 20
	)	(Rulemaking- Water)
PROCEDURAL RULES FOR	)	
ALTERNATIVE THERMAL	)	
EFFLUENT LIMITATIONS	)	
UNDER SECTION 316(a) OF THE	)	
CLEAN WATER ACT: PROPOSED	)	
NEW 35 ILL. ADM. CODE PART 106,	)	
SUBPART K AND AMENDED	)	
SECTION 304.141(c)	)	

ORIGINAL

NOTICE OF FILING

PLEASE TAKE NOTICE that I have filed today with the Illinois Pollution Control Board Illinois EPA's MOTION FOR ACCEPTANCE; APPEARANCES; CERTIFICATE OF ORIGINATION; STATEMENT OF REASONS; and PROPOSED AMENDMENTS TO 35 ILL. ADM. CODE PARTS 106: SUBPART K AND SECTION 304.141(c), a copy of which is herewith served upon you.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: _____
Deborah J. Williams
Assistant Counsel
Division of Legal Counsel

DATED: 6/17/13

1021 N. Grand Ave. East
P.O. Box 19276
Springfield, IL 62794-9276
(217) 782-5544

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R13- 20
PROCEDURAL RULES FOR	)	(Rulemaking- Water)
ALTERNATIVE THERMAL	)	
EFFLUENT LIMITATIONS	)	
UNDER SECTION 316(a) OF THE	)	
CLEAN WATER ACT: PROPOSED	)	
NEW 35 ILL. ADM. CODE PART 106,	)	
SUBPART K AND AMENDED	)	
SECTION 304.141(c)	)	

MOTION FOR ACCEPTANCE

NOW COMES the Illinois Environmental Protection Agency ("Illinois EPA"), by and through its attorneys, and pursuant to 35 Ill. Adm. Code 102.106, 102.200, and 102.202, moves the Illinois Pollution Control Board to accept the Illinois EPA's proposal for the adoption of a proposed new Subpart K to 35 Ill. Adm. Code Part 106 and proposed amendments to Section 304.141(c).

This regulatory proposal includes:

1) Notice of Filing;

2) Appearances of Attorneys for the Illinois EPA;

3) Certification of Origination;

4) Statement of Reasons (including list of attachments and documents relied on);

5) Attachments to the Statement of Reasons;

6) Proposed Amendments;

7) Certificate of Service;

8) Computer disc containing Proposed Amendments.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: _____

Deborah J. Williams
Assistant Counsel
Division of Legal Counsel

DATED: 6/17/13

1021 N. Grand Ave. East
P.O. Box 19276
Springfield, IL 62794-9276
(217) 782-5544

THIS FILING IS SUBMITTED ON RECYCLED PAPER

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R13- 20
PROCEDURAL RULES FOR	)	(Rulemaking- Water)
ALTERNATIVE THERMAL	)	
EFFLUENT LIMITATIONS	)	
UNDER SECTION 316(a) OF THE	)	
CLEAN WATER ACT: PROPOSED	)	
NEW 35 ILL. ADM. CODE PART 106,	)	
SUBPART K AND AMENDED	)	
SECTION 304.141(c)	)	

APPEARANCE

The undersigned hereby enters her appearance as an attorney on behalf of the Illinois Environmental Protection Agency.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: _____
Deborah J. Williams
Assistant Counsel
Division of Legal Counsel

DATED: 6/17/13

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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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EFFLUENT LIMITATIONS	)	
UNDER SECTION 316(a) OF THE	)	
CLEAN WATER ACT: PROPOSED	)	
NEW 35 ILL. ADM. CODE PART 106,	)	
SUBPART K AND AMENDED	)	
SECTION 304.141(c)	)	

CERTIFICATION OF ORIGINATION

NOW COMES the ILLINOIS ENVIRONMENTAL PROTECTION AGENCY ("Illinois EPA"), by one of its attorneys, and pursuant to 35 Ill. Adm. Code 102.202(i), the Illinois EPA certifies that the regulatory proposal in the above captioned matter amends the most recent version of Parts 106 and 304 of the Illinois Pollution Control Board's regulations, as published on the Board's website.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: _____

Deborah J. Williams
Assistant Counsel
Division of Legal Counsel

DATED: 6/17/13

1021 N. Grand Ave. East
P.O. Box 19276
Springfield, IL 62794-9276
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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R13-20
PROCEDURAL RULES FOR	)	(Rulemaking- Water)
ALTERNATIVE THERMAL	)	
EFFLUENT LIMITATIONS	)	
UNDER SECTION 316(a) OF THE	)	
CLEAN WATER ACT: PROPOSED	)	
NEW 35 ILL. ADM. CODE PART 106,	)	
SUBPART K AND AMENDED	)	
SECTION 304.141(c)	)	

STATEMENT OF REASONS

NOW COMES the Illinois Environmental Protection Agency ("Illinois EPA"), by and through its counsel, and hereby submits this Statement of Reasons to the Illinois Pollution Control Board ("Board") pursuant to Sections 13, 26, and 28 of the Environmental Protection Act ("Act") (415 ILCS 5/13, 26, and 28) and 35 Ill. Adm. Code 102.202 in support of the attached proposed regulations.

I. INTRODUCTION

The Illinois EPA proposes that the Board adopt a new Subpart K of Part 106. This proposed rulemaking is intended to establish procedural rules for establishing alternative thermal effluent limitations under Section 316(a) of the Clean Water Act and 35 Ill. Adm. Code 304.141.

II. STATUTORY BACKGROUND

Section 316(a) of the Clean Water Act provides a unique procedure for relief from thermal effluent limitations or water quality standards that is different from the procedures applicable for all other categories of point sources and types of pollutants. That provision states that:

> With respect to any point source otherwise subject to the provisions of section 1311 of this title or section 1316 of this title, whenever the owner or operator of any such source, after opportunity for public hearing, can demonstrate to the satisfaction of the Administrator (or, if appropriate, the State) that any effluent limitation proposed for the control of the thermal component of any discharge from such source will require effluent limitations more stringent than necessary to assure the projection 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 Administrator (or, if appropriate, the State) may impose an effluent limitation under such sections for such plant, with respect to the thermal component of such discharge (taking into account the interaction of such thermal component with other pollutants), that will assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on that body of water.

33 U.S.C. §1326. Relief under Section 316(a) of the Clean Water Act is sometimes referred to as an alternative effluent limitation or a "316(a) Variance."

In October 1977, Illinois received delegation of the National Pollutant Discharge Elimination System ("NPDES") permit program. In the requesting delegation of this program, the Agency explained how Section 316(a) of the Clean Water Act would be implemented in Illinois:

> A special provision to implement 40 C.F.R. Part 122, Thermal Discharges, which sets forth the procedure prescribed by Section 316(a) of the FWPA, is contained in Rule 410(c) of Chapter 3. Rule 410(c) allows the Board to determine that an alternative thermal standard, other than that found in 40 CFR Part 122 and Chapter 3, should apply to a particular thermal discharge.
>
> The concept of reviewing the effect of a thermal discharge on a receiving stream is not a recent addition to the Board's Water Pollution Regulations. Rule 203(i)(5), which became effective on April 7, 1972, requires that owners or operators of a source of heated effluent which discharges 0.5 billion BTU per hour or more demonstrate in a hearing before the Board that the discharge from that source has not caused and cannot reasonably be expected to cause a significant ecological damage to the receiving waters. Upon failure to prove the above, the Board will order that appropriate corrective measures shall be taken. The Agency proposes that the demonstration requirements found in 40 CFR Part 122 and the supporting technical documents be utilized in the determination of an alternative thermal standard pursuant to Rule 410(c) and Rule 203(i)(5).

See, Attachment A, State of Illinois Application for Authority to Administer the NPDES Program (July 1977) at p. 27. Since this program approval document was submitted, each of the referenced regulations has been re-codified. The federal Section 316(a) regulations were originally found in Part 122 and have been moved to 40 C.F.R. §§125.70, 125.71, 125.72 and 125.73 (40 C.F.R. Part 125 subpart H). Attachment B. The Board's former rule 410(c) is now found in 35 Ill. Adm. Code 304.141(c), and Rule 203(i)(5) refers to the Heated Effluent Demonstration procedures found in 35 Ill. Adm. Code 302.211(f) – (i) and Part 106 of the Board's procedural rules.

The former Rule 410(c) and the current 35 Ill. Adm. Code 304.141(c) states as follows:

> The standards of this Chapter shall apply to thermal discharges unless, after public notice and opportunity for public hearing, in accordance with Section 316 of the CWA and applicable federal regulations, the Administrator and the Board have determined that different standards shall apply to a particular thermal discharge.

Heated Effluent Demonstrations were to be conducted not less than 5 and not more than 6 years after the adoption of Rule 203(i)(5). Nevertheless, throughout the 1970s and 1980s (and even in a few cases into the 1990s), the electric generating industry came before the Board to fulfill the obligations under the Board's Heated Effluent Demonstration regulations. During these proceedings, some facilities simply made the required demonstration that no harm was being caused by their effluent without asking for Board relief. In other cases, dischargers used the heated effluent demonstration proceedings (as anticipated in the NPDES delegation submittal) to obtain thermal relief from the Board's regulations under Section 316(a) of the Clean Water Act and 35 Ill. Adm. Code 304.141(c).

On October 28, 2008, the Director of the Office of Water Management at the United States Environmental Protection Agency ("U.S. EPA") sent a memorandum to the regional offices discussing the requirements of Section 316(a) of the Clean Water Act and expressing the goal of consistent compliance with these requirements across the various regions. In that document, U.S. EPA states that "A 316(a) thermal variance is an NPDES permit condition. It, therefore, expires along with the permit. A permittee may request a renewal of its 316(a) thermal variance prior to the expiration of the permit." Attachment C. Since the issuance of this memorandum, the Agency has been working with U.S. EPA Region V to review the status of Illinois electric generation facilities and their thermal discharges to ensure consistency with Section 316(a) of the Clean Water Act.

III. PURPOSE

This rulemaking comes to the Board as a result of the Agency's review of recent Board opinions in AS 13-1 and PCB 13-31. *In the Matter of: Petition of Exelon Generation, LLC, Under 35 Ill. Adm. Code 304.141(c) for Alternative Thermal Standards, Quad Cities Nuclear Generating Station*, AS 13-1 and *Exelon Generation LLC (Quad Cities Nuclear Generation Station) v. Illinois EPA*, PCB 13-31. Those proceedings began when Exelon Generation, LLC ("Exelon") filed a Petition to Approve Alternative Thermal Standards pursuant to Section 316(a) of the Clean Water Act and 35 Ill. Adm. Code 304.141(c) on September 20, 2012. The petition sought relief from the thermal water quality standards and mixing zone requirements otherwise applicable in the Mississippi River found in 35 Ill. Adm. Code 302.102 and 303.331. The requested relief would have authorized the discharge of heated cooling water from Exelon's Quad Cities Nuclear Generation Station under Section 316(a). The Board docketed the petition as AS 13-1 and issued an opinion and order on October 18, 2012, directing petitioner to file an

amended petition satisfying the procedural requirements for an adjusted standard by December 19, 2012, or the case would be dismissed. The Board also gave Exelon the option of filing for relief through a site-specific rulemaking proceeding. The Board found that:

> Petitioner has requested, for its own Station only, a set of thermal standards different from those generally applicable thermal standards. For the reasons discussed below, the Board finds that that the Board is empowered to grant the requested relief under the Environmental Protection Act (Act) 415, ILCS 5/1 *et seq.* But, the Board does not believe that, *without a prior rulemaking process*, the Board can create a specific procedure for proceedings under Section 304.141(c) comparable to other specific procedures in Part 106 or as established in its Part 106 procedural rules. AS 13-1 (October 18, 2012) Slip. Op. at 4.

Prior to AS 13-1, the Agency held the opinion that the Board was able to grant relief under Section 316(a) of the Clean Water Act and 35 Ill. Adm. Code 304.141(c) without procedural rules specifically addressing these matters. This belief was based on the recognition that the Board had done so in the past. See, *In the Matter of: 401(c) Petition for Dresden Nuclear Station*, PCB 79-134 (July 9, 1981); *In the Matter of: Alternative Thermal Effluent Limitations for Electric Energy, Inc. Joppa Generating Station*, PCB 77-124 (September 1, 1977) and *In the Matter of: Proposed Determination of Thermal Standards for Zion and Waukegan Generating Stations*, PCB 77-82 (August 3, 1978). Even though AS13-1 was the second time the Board had ordered that a Petitioner satisfy the Adjusted Standard procedural requirements to obtain Section 316(a) relief, it had not been clear to the Agency that the Board held the position that no procedures existed for granting relief under Section 316(a) of the Clean Water Act and 35 Ill. Adm. Code 304.141(c).[1] As a result of U.S. EPA's focus on review of prior Section 316(a) relief and the Board's determination that it lacks authority to hear petitions

[1] The Agency does not interpret that the relief ultimately granted in *Petition of Commonwealth Edison Company for Adjusted Standard from 35 Ill. Adm. Code 302.211(d) and (e)*, AS 96-10 (October 3, 1996) as an alternative effluent limit pursuant to Section 316(a) of the Clean Water Act and 35 Ill. Adm. Code 304.141(c) but rather as a thermal limitation which ensures that Midwest Generation achieves compliance with General Use temperature standards downstream of the Interstate 55 bridge.

for Section 316(a) relief without specific procedural rules addressing this type of proceeding, the Agency developed this procedural rulemaking proposal for inclusion in Part 106 of the Board's procedural rules.

IV. PROCEDURAL RULEMAKING

Under the Environmental Protection Act, the Board shall adopt "procedures which . . . are necessary or appropriate to enable the State of Illinois to implement and participate in the National Pollutant Discharge Elimination System (NPDES) pursuant to and under the Federal Water Pollution Control Act." 415 ILCS 5/13(b) (2010). Section 26 of the Act provides:

> The Board may adopt such procedural rules as may be necessary to accomplish the purposes of this Act. In adopting such rules the Board shall follow the rulemaking procedures of the Illinois Administrative Procedure Act.

415 ILCS 5/26. Under the Illinois Administrative Procedure Act, an administrative agency is not required to hold a public hearing before publishing first notice of the rule in the Illinois Register, but shall hold a hearing during the first notice period if there is public interest in the rule or a public hearing would facilitate the submission of views and comments that would not otherwise be submitted. See 5 ILCS 100/5-40. The Board's statutory requirement to hold a hearing before adopting a substantive rule does not apply to procedural rules.[2]

Under Section 304.141(c), thermal limits contained in the Board's regulations apply unless the Board, in accordance with the Clean Water Act and applicable federal regulations, determines that different standards should apply. 35 Ill. Adm. Code 304.141(c). In this procedural rulemaking, the Illinois EPA has integrated the existing federal regulations in 40

[2] *See,* 415 ILCS 5/27(b) ("[B]efore the adoption of any proposed rule not relating to administrative procedures. . . the Board shall . . . conduct at least one public hearing."); 415 ILCS 5/28 ("No substantive regulation shall be adopted, amended or repealed until after a public hearing"); In the Matter of Procedural Rules for Review of Petitions for Temporary Landfill Ban Waivers Under Section 95 of the Electronic Products Recycling and Refuse Act: New 35 Ill. Adm. Code106 Subpart J, R 12-21 (February 2, 2012) ("Because the Board is not required to hold a public hearing on proposed amendments to its procedural rules (415 ILCS 5/26, 27, 28 (2010)), the Board does not now intend to hold a hearing on these proposed rules.")

C.F.R. Part 125 (2012) with the typical procedures found in the Board's procedural rules. The Illinois EPA does not believe its proposed rules contain substantive regulations because Section 304.141(c) currently requires the Board to follow the federal regulations. Therefore, the Illinois EPA requests that the Board not hold hearings on this regulatory proposal before moving to first notice.

V. THE ILLINOIS EPA'S PROPOSAL

The following is a section-by-section summary of the Illinois EPA's proposal.

Subpart K: Alternative Thermal Effluent Limitations Pursuant to Section 316(a) of the Clean Water Act and 35 Ill. Adm. Code 304.141(c)

This Subpart establishes procedural rules for those seeking alternative thermal effluent limitations from the Board. This purpose is described in Section 106.1100.

Section 106.1105 General

This Section describes the type of relief available under the Clean Water Act, the parties to any proceeding pursuant to this Subpart and the filing and service requirements. The Agency consulted with 35 Ill. Adm. Code 106.300(b) and (c) when drafting this section.

Section 106.1110 Definitions

The Illinois EPA had proposed general definitions derived from the Act, other Board regulations and 40 C.F.R. §125.71. The terms "Alternative thermal effluent limitations," "Representative important species," and "Balanced, indigenous community" are borrowed directly from the federal regulations.

Section 106.1115 Early Screening

Under this Section, the petitioner is required to submit early screening information to the Agency before filing a petition with the Board. This is identical in substance to the federal

requirements found in 40 C.F.R. § 125.72(a) except the Agency has proposed that the petitioner submit a proposed representative important species list to the Agency.

Section 106.1120 Detailed Plan of Study

This Section provides for the submittal of a detailed plan of study to the Agency after the establishment of the representative species list, but before the study is conducted or submitted to the Board. This Section is modeled after 40 C.F.R. §125.72(b) and (e). Subsection (g) has been added to the federal requirements to clarify that after the Agency completes its review of the plan of study, the Petitioner would be expected to complete the studies prior to submittal of a petition to the Board.

Section 106.1125 Initiation of Proceeding

This Section provides that a proceeding is initiated under Subpart K by filing a petition with the Board and serving the Agency.

Section 106.1130 Contents of Petition

These proposed requirements for the contents of a petition to the Board are taken from two sources: 40 C.F.R. §125.72(b) and (e) and the relevant informational requirements established by the Board for Heated Effluent Demonstration proceedings in Section 106.202(a). The Agency has also added to subsection (c) of this Section the requirement to submit "a summary of compliance or non-compliance with thermal requirements at the facility in the past five years."

Section 106.1135 Petiton Notice Requirements

Both Section 316(a) of the Clean Water Act and Section 304.141(c) of the Board rules provide that alternative thermal effluent limitations under Section 316(a) may only be granted

after public notice and opportunity for a public hearing. This Section was drafted to address that requirement and is modeled after Section 104.408(b) of the Board's procedural rules.

Section 106.1140 Proof of Petition Notice Requirements

This Section provides a process for the petitioner to demonstrate that it has complied with the public notice requirements in the preceding section. It was modeled after Section 104.410 of the Board's rules for adjusted standard proceedings.

Section 106.1145 Recommendation and Response

In order to facilitate the Board's decision making process, the Agency has drafted this Section which requires the Agency to provide a recommendation to the Board within 45 days of filing of a petition under this Subpart.

Section 106.1150 Request for Public Hearing

This Section provides the procedures for the public to request that a hearing be held on a petition for an alternative thermal effluent limitation.

Section 106.1155 Notice and Conduct of Hearing

This Section provides the criteria for granting a public hearing and the procedures for conducting and providing public notice of the hearing.

Section 106.1160 Burden of Proof

This Section provides the criteria for the Board's decision by identifying the burden of proof. The language for this Section is taken generally from 40 C.F.R. §125.72 and §125.73.

Section 106.1165 Evidentiary Matters

The Section references the additional Board procedural rules to be applied to proceedings under this Subpart.

Section 106.1170 Opinion and Order

This Section identifies the information to be included in the Board's order and the duration of relief granted.

Section 106.1175 Post-Hearing Procedures

This Section references the additional Board procedural rules to be applied to proceedings under this Subpart. The proposed rule language also would provide a mechanism for the Agency to bring to the Board's attention a formal U.S. EPA objection to an alternative thermal effluent limitation granted pursuant to this Subpart.

Section 106.1180 Renewal of Alternative Thermal Effluent Limitations

This Section provides a process for streamlined renewal of alternative thermal effluent limitations granted pursuant to this Subpart. The Agency's proposal provides for a screening process where the Agency can evaluate whether the conditions on which the prior relief was based have changed.

Section 304.141 NPDES Effluent Standards

The proposed amendments to subsection (c) of this Section include a cross-reference to the new Subpart K and update the language to reflect the delegation of permitting authority to Illinois EPA rather than USEPA.

VI. TECHNICAL FEASIBILITY AND ECONOMIC REASONABLENESS

Section 27 of the Act requires the Board to consider the technical feasibility and economic reasonableness of all rulemaking proposals. Because this proposal is a non-substantive, procedural rule there would be no need to implement additional treatment technologies if the rules were adopted. For this reason, the Agency's proposed changes are technically feasible and economically reasonable. Failure to establish procedural rules to allow relief from otherwise applicable thermal effluent standards pursuant to Section 316(a) of the

Clean Water Act could result in the requirement to install cooling technologies at potentially large costs by the affected facilities.

VII. AFFECTED FACILITIES AND OUTREACH

This proposal would impact any facility with a thermal effluent limit that seeks to demonstrate such effluent limit is more stringent than necessary to protect a balanced, indigenous population of fish, shellfish and wildlife. In general, the affected industry is the steam electric generating industry whether nuclear or coal fired. The universe of sources that may seek to avail themselves of these procedures is estimated to be approximately 25 power plants. The need to respond to the Board's opinions did not allow for an extensive period of outreach as would be conducted with a substantive rulemaking proposal. However, the Agency did submit drafts of the rulemaking proposal to U.S. EPA Region V for comments and a copy of the proposal was also shared with representatives of the electric generating industry and environmental groups in advance of this filing.

VIII. SYNOPSIS OF TESTIMONY

Because this is a non-substantive, procedural rulemaking, and a hearing is not required, the Agency will not be providing testimony. In the event the Board has questions on the proposal, the Agency will make appropriate staff available to address the Board's questions and concerns.

IX. PUBLISHED STUDY OR RESEARCH REPORT

Section 102.202(e) of Title 35 of the Illinois Administrative Code requires the regulatory proposal to include "[a] descriptive title or other description of any published study or research report used in developing the rule." Neither a research report nor a published study was used in developing this rule. Therefore, the requirement of Section 102.202(e) is inapplicable.

X. CONCLUSION

WHEREFORE, the Illinois EPA respectfully requests the Board to adopt the Illinois EPA's proposed regulation in its entirety as submitted.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: _____
Deborah J. Williams
Assistant Counsel
Division of Legal Counsel

DATED: 6/17, 2013

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P.O. Box 19276
Springfield, IL 62794-9276
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ATTACHMENT A

Illinois Environmental Protection Agency

Application for Authority to Administer the NPDES Program

STATE OF ILLINOIS

APPLICATION FOR AUTHORITY TO ADMINISTER THE NPDES PROGRAM

SUBMITTED
JULY, 1977

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APPENDIXES

STATE OF ILLINOIS

OFFICE OF THE GOVERNOR

CHICAGO 60601

JAMES R. THOMPSON
GOVERNOR

July 8, 1977

Mr. George R. Alexander, Jr.
Regional Administrator
Region V
U.S. Environmental Protection Agency
230 South Dearborn
Chicago, IL 60604

Dear Mr. Alexander:

With this letter, I am submitting the application of the State of Illinois for authority to administer the National Pollutant Discharge Elimination System (NPDES) permit program within Illinois, pursuant to the provisions of Section 402(b) of the Federal Water Pollution Control Act Amendments of 1972.

The State's submission includes: (1) a description of the legal and administrative structure of the Illinois agencies concerned with water pollution control; (2) a description of the State's program for issuing and enforcing NPDES permits; (3) the Memorandum of Agreement between the Illinois EPA and USEPA; (4) the Attorney General's statement that the laws of the State provide adequate authority to carry out the described program; and (5) certain supplementary and background material.

I hope that the U.S. Environmental Protection Agency will be able to approve the Illinois program in the near future. If there are any questions, please raise them with Dr. Leo M. Eisel, Director, Illinois Environmental Protection Agency.

Sincerely,

Original signed by Governor
July 8, 1977

James R. Thompson
GOVERNOR

JRT:ab

enclosure

INTRODUCTION

In support of its request for approval of its program for the issuance of permits under the National Pollutant Discharge Elimination System, pursuant to Section 402(b) of the Federal Water Pollution Control Act Amendments of 1972, the State of Illinois is submitting the material included in this document. The submission includes the following:

1. A description of the structure of the Illinois environmental program and implementing agencies.

2. A description of the National Pollutant Discharge Elimination System (NPDES) as Illinois proposes to administer it, including the procedures for issuance of NPDES permits, monitoring compliance with the terms and conditions of those permits, and enforcement of permit requirements.

3. A statement of the funding and manpower which Illinois proposes to devote to the carrying out of the NPDES program.

In addition, there are included a statement by the Attorney General on the adequacy of state law to carry out the NPDES program, the Memorandum of Agreement between Illinois and the U.S. Environmental Protection Agency concerning the details of the transfer, and copies of the relevant legislation, adopted regulations of the Illinois Pollution Control Board, and other supplementary material.

The Illinois submission has been prepared in accordance with the requirements of the Federal Water Pollution Control Act of 1972 and implementing federal regulations, and with the assistance of personnel of Region V of the U.S. Environmental Protection Agency, whose assistance is most gratefully acknowledged.

Following preliminary review of the Illinois submission, Region V will schedule a public hearing on the question of whether or not the Illinois NPDES program should receive federal approval. A final decision is required within 90 days following the submission.

I.

ILLINOIS ENVIRONMENTAL STRUCTURE

State government in Illinois has possessed statutory authority and responsibility for protecting the quality of the waters of the State since the enactment of the Sanitary Water Board Act in 1929. A state permit system for the construction and operation of wastewater treatment facilities has been in existence since the early 1930's. However, with the enactment of the Environmental Protection Act in 1970 and of the new Constitution of the State of Illinois in the same year, with its nationally significant environmental article (Article XI), the emphasis of state government in Illinois on environmental issues was substantially increased. The Environmental Protection Act was nationally recognized as a model of state legislation in the environmental field and many of its original features have been adopted in other states.

The Environmental Protection Act established three related state agencies concerned with environmental issues: the Environmental Protection Agency (the Agency), the Illinois Pollution Control Board (the Board), and the Institute for Environmental Quality (the Institute). Both the Agency and the Board will be involved in the administration of the NPDES program.

The Agency is designated by statute as the State's water pollution control agency for purposes of the Federal Water Pollution Control Act. In that role, it is the recipient of program grant funds under Section 106 of the Act, it certifies the Illinois water quality standards to USEPA, as required under Section 303 of the Act, and it will bear

the primary responsibility for administration of the NPDES permit program, as described in this submission. The Agency is responsible for issuance of permits, where required by state law or Board regulation, for monitoring and surveillance to determine compliance with the requirements of the state law, the applicable Board regulations, and permit requirements, and for preparing and presenting to the Board or the courts evidence of violation of any such requirements. The director of the Agency is appointed by the governor for a two-year term. By far the majority of Agency employees are non-partisan career state employees whose conditions of employment are established by the state's personnel code.

The Agency's present Table of Organization (Appendix F) does not require change to implement NPDES. The present sections of the Division of Water Pollution Control will remain, and the administration of the Illinois NPDES program will be carried out primarily within the following existing sections of that division:

Division Manager's Office

Field Operations Section

Permit Section

Planning and Standards Section

Variance and Technical Analysis Section

The administration of the program will also utilize eight persons within the Division of Enforcement Programs of the Agency.

The NPDES related functions of each of these sections is described briefly below:

The Enforcement Programs Division, which consists of lawyers (technical advisors) and clerical support, will have four basic functions to perform in the NPDES permit program, as follows:

1. Preparation and initiation of formal Agency enforcement actions, including the preparation and referral of enforcement case files to the appropriate prosecuting authorities, and assistance to such authorities during the preparation and trial of enforcement cases;

2. Preparation of the Agency case in permit denial appeals for action by the Illinois Attorney General (adjudicatory hearings) before the Pollution Control Board;

3. Preparation of the Agency recommendation and the Agency case in support of its recommendation in petitions for variance which, if granted, will require Agency issuance or modification of an NPDES permit; and,

4. Provision of advice to the various sections of the Division of Water Pollution Control to ensure that the NPDES permit program complies with applicable federal and state statutes and regulations.

The Division Manager's Office contains the Division Records Unit where the master files are kept on all dischargers. It is also responsible for providing information to the Data Processing Division.

The Field Operations Section's support to the NPDES permits program consists of the following:

1. Provision of information to the Permits Section as necessary for drafting NPDES permit conditions for individual dischargers;

2. Provision of technical assistance to communities and to wastewater treatment plant operators where necessary to explain NPDES permit conditions and to helping the dischargers meet NPDES permit requirements;

3. Provision of assistance as necessary to the compliance schedule monitoring program;

4. Review, validation and quarterly reports as necessary for the discharge monitoring report program; and,

5. Follow-up action as necessary for enforcement where violation of NPDES conditions have been discovered.

The Permits Section of the Division is responsible for review of all NPDES permit applications and issuance or modification of NPDES permits, including drafting of public notices, fact sheets, notices of public hearings, and conduct of public hearings.

The Planning and Standards Section is responsible for review of facilities and basin plans as they may affect the terms of NPDES permits. All NPDES permits issued by the Agency for discharges located in areas covered by approved 208 plans will be consistent with all terms and conditions of those 208 plans.

The Variance and Technical Analysis Section will assist the Permits Section in the review of modifications to NPDES permits which may be requested by permittees. It will apply the type of analysis or review used in preparing the Agency's response to variance petitions.

Organizational units of the Agency, other than those in the Division of Water Pollution Control, and Enforcement Programs, will have certain support functions in carrying out the NPDES program. They include the following:

The Director's Office, through the Manager of Enforcement Programs, will exercise control over the enforcement policies and strategies of the Agency, including the enforcement of NPDES permit requirements.

The Data Processing Division will provide data processing support, including storage and retrieval of compliance schedule information, self-monitoring reports, forecasts of reports coming due, and compliance and violation information and preparation of reports, including the quarterly report of permit violations required by 40 CFR 124.44(d).

The Division of Laboratory Services will provide laboratory support to the Agency's monitoring and enforcement efforts, including testing of effluent and water quality samples taken by Agency field staff.

The Public Affairs staff of the Agency will provide assistance in the Agency's efforts to encourage meaningful public participation in the State's water pollution control program.

The Pollution Control Board of the State of Illinois consists of technically-qualified members, appointed by the Governor for three-year terms.

The Board is now fully staffed. Biographical information about the five present members is provided in Appendix H of this submission. As Appendix H shows, Board members include:

An engineer with extensive experience in pollution abatement (Mr. Dumelle);

An agronomist with a Ph.D. in agronomy (Mr. Satchell);

An attorney with a degree in industrial engineering who has experience with private industry and a state environmental regulatory agency (Mr. Young);

An engineer with experience in combustion engineering (Mr. Werner); and

An attorney and engineer with experience in private industry and with a public interest group (Mr. Goodman)

Past appointments to the Board have included engineers, attorneys, and other persons with technical expertise in fields related to pollution abatement.

All present Board members are in compliance with the conflict of interest provisions of Section 304(h)(2)(D) of the FWPCA and implementing regulations of 40 CFR 124.93, as presently interpreted by the Administrator of USEPA.

The Board, after public hearing, promulgates regulations for the implementation of the Environmental Protection Act. These regulations include, in the field of water pollution control, water quality standards, effluent standards, permit requirements, including specific requirements for mining and agricultural operations, classification standards for bodies of water, and the implementing regulations for the NPDES program. Copies of Board regulations which are concerned with water pollution abatement are included as Appendix B to this submission. In addition to its role as promulgator of environmental regulations, the Board acts as an administrative tribunal to hear cases brought by the Agency or by others charging violation of the Environmental Protection Act or implementing regulations. The Board is empowered to order remedial action and to assess civil penalties when it finds a violation, and these powers have been upheld by the Illinois Supreme Court. To the extent allowed by federal law, the Board may also grant variances from its regulations when it finds that compliance will cause an arbitrary or unreasonable hardship.

All public hearings conducted by the Board, whether regulatory or adjudicatory, are listed in the Environmental Register, published on a

regular schedule by the Board and distributed free of charge to persons requesting it. Participation by interested members of the public is invited in all such hearings. In addition, Board meetings are listed in the Register and are open to the public. Proposed regulations appear in the Register for public comment in writing. Records of Board regulatory and adjudicatory proceedings, with minimal exceptions required to protect confidential information and trade secrets, are open to the public and may be inspected and copied.

The Institute for Environmental Quality is a research and education organization. The Institute advises the Agency and the Board in the development of new regulatory proposals, including regulations dealing with the State's water pollution control program. The Institute has made major contributions to the public hearing processes by which the State's water quality and effluent standards were adopted. It provides the administrative structure for state-sponsored research and demonstration projects in areas of concern to the water pollution control effort. The Institute has contributed heavily toward the establishment of centers of expertise in subjects related to the environment at several state universities and research institutions, and it develops environmental education programs for use in the State's elementary and secondary schools.

Other state offices and agencies, not established by the Environmental Protection Act, also play roles in the State's environmental control system. They include the offices of the Attorney General, the Department of Registration and Education, the Department of Mines and Minerals,

the Department of Public Health, and certain interstate and international agencies. A chart depicting the relationships among the various State agencies appears on page 12 of this submission. A brief description of the activities of those whose responsibilities impinge on the administration of the proposed NPDES program appears below.

As the constitutional legal counsel of the State of Illinois, the Attorney General plays an important role in litigation related to environmental affairs. He represents the Agency in enforcement, variance and permit denial cases brought before the Board or in court, as well as acting as its counsel when it is named as a defendant. In addition, he may bring environmental cases to the Board or to court as the representative of the People of the State of Illinois.

The State Water Survey, the State Geological Survey, and the State Natural History Survey are included in the Department of Registration and Education. All three are scientific research organizations whose expertise is of value to the Agency in fulfilling its responsibilities. The Agency expects to utilize the geological and hydrological expertise of the Surveys, especially in dealing with such problems as the control of injection wells for the underground disposal of liquid wastes. The Agency has the explicit authority to regulate injection wells which receive waste, and for several years the Agency has administered a program requiring permits for such wells. The program has consistently required detailed, periodic reports from the well operators. Although the program is presently functioning within the Agency's Division of Land Pollution Control, its future functioning will be in complete consonance with the requirements of 40 CFR 124. The State Water Survey conducts intensive

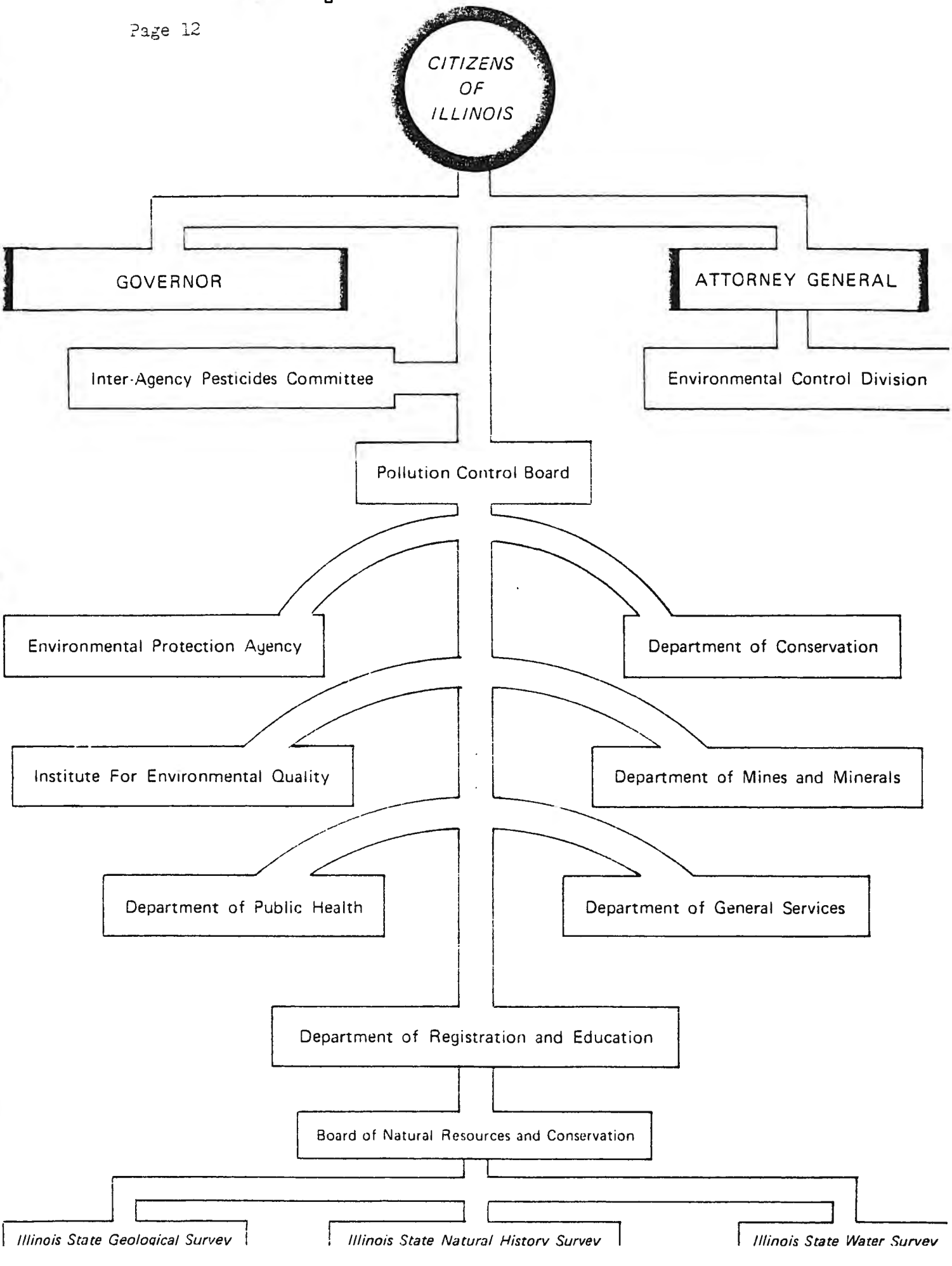
water quality monitoring surveys, the results of which will be used by the Agency in developing basin plans and permit conditions based on waste load allocations where required to preserve or achieve applicable water quality standards.

The Department of Mines and Minerals has primary jurisdiction over pollution problems resulting from petroleum production operations. The Department maintains active surveillance to assure that waters of the State are not polluted by crude oil or brine from oil fields, and has the authority to shut down any oil production facility which may be causing such pollution. Injection wells operated in conjunction with petroleum production are regulated by the Department under a permit system administered by it, although other injection wells require permits from the Agency.

The Department of Public Health engages in several activities which are directed toward prevention of the public health problems which may result from inadequate sewage treatment and resulting water pollution. In particular, the Department administers the Private Sewage Disposal Licensing Act, which regulates small, private sewage disposal systems which are not generally within the scope of the Agency's jurisdiction.

The Department also licenses mobile home parks, youth camps, recreational camps, and migrant labor camps to assure, among other things, that proper disposal of sewage and solid waste is provided. Where any facility subject to regulation by the Department requires an NPDES permit, the permit will be issued by the Agency.

The Department of Public Health is also responsible for control over activities involving the use of radioactive material; however, NPDES permits with provisions governing the discharge of radioactive wastes into the waters of the State will be issued by the Agency under authority of Section 39(b) of the Environmental Protection Act.



II.

ISSUANCE OF PERMITS

The Illinois Environmental Protection Act and the Regulations of the Illinois Pollution Control Board state that all discharges for which NPDES permits are required under applicable federal legislation and regulations are required to have NPDES permits under state law as well. Section 39(b) of the Environmental Protection Act authorizes the Agency to issue NPDES permits for the discharge of contaminants from point sources into navigable waters (all as defined in the Federal Water Pollution Control Act Amendments of 1972) or into any well.

The Permits Section of the Division of Water Pollution Control of the the Agency will issue all NPDES permits in the State of Illinois except for NPDES permits for discharges from public water supplies, which will be issued by the Permits Section of the Division of Public Water Supplies under the guidance of the Permits Section of the Division of Water Pollution Control. Other duties of the Permits Section include review of infiltration/inflow analysis, preliminary engineering reports on proposed construction, mine permits, determinations to restrict sewer extensions, issuance of state permits for facilities which do not require NPDES permits, issuance of construction authorizations for facilities requiring NPDES permits, and other duties dealing with sewage and industrial wastes. Also, with the approval of NPDES authority by the Administrator the State will begin issuance of permits in accordance with Chapter 5, Livestock Regulations. (See Appendix B)

Since the Sanitary Water Board was formed in 1929 as a part of the Illinois Department of Public Health, state permits have been required for the construction of sewage treatment facilities, sewers and lift stations. Records are available for municipal and industrial treatment works constructed since that time. After the passage of the Illinois Environmental Protection Act in 1970, many of the functions of the Sanitary Water Board were transferred to the Agency.

The scope of the work was enlarged to include the issuance of permits for operation, as well as for construction, of all industrial, municipal, and semipublic treatment works, sewers, lift stations and wastewater sources.

With federal approval of the Illinois NPDES permit program, the Illinois Pollution Control Board (the Board) is required by Section 13(b)(1) of the Environmental Protection Act to discontinue the state operating permit requirement for direct dischargers required to obtain an NPDES permit. This will eliminate unnecessary duplication because an NPDES permit serves essentially the same purpose as a state operating permit. The Board has modified its rules and regulations to conform to the changes required by the Federal Water Pollution Control Act Amendments of 1972 (FWPCA). Part of these regulations are currently in effect; the rest of the regulations have been adopted and filed with the Secretary of State in accordance with Illinois law, and will become effective once the Agency is authorized by the Administrator to administer the NPDES permit program.

An overall view of the procedures for the processing of NPDES permits is shown on page 24. The detailed description of these procedures, with reference to Chapter 3 of the Board's regulations, is as follows:

1. Application forms will be provided by the Agency and will include the same information the NPDES application required on forms promulgated by USEPA. In addition, the Agency may require additional information, if necessary to determine whether the discharge will be in compliance with applicable requirements, as provided by Rule 902. Copies of all permit forms to be used by the Permits Section of the Division of Water Pollution Control, including those used in the NPDES program, are included in Appendix J.

2. The application is logged in by the Agency, assigned a log number, and assigned to a review engineer in the Permits Section.

3. Applications will, under normal circumstances, be processed on a first-in, first-out basis. Applications from major dischargers and other significant new sources may be processed out of order, or changes may be made to accommodate requests for public hearings.

4. The application is then reviewed to determine:

   a. Whether the appropriate applications have been submitted, as required by 40 CFR Section 124.21.

   b. Whether any additional information is required under Rule 902(a).

c. Whether the signatures are in accordance with 40 CFR Section 124.24 and Rule 902(h).

d. Whether any other data is needed from the applicant or if a site visit is needed (Rule 903).

If all required information was not received, the reviewing engineer will request the additional information or arrange for a site visit. If the applicant refuses to submit additional information, the permit will either be issued on the basis of the information currently before the Agency or will be denied, and the applicant so notified (Rule 903).

5. Once the review described above has been completed, and the application is determined to be administratively complete, a copy of the application will be sent to the District Engineer of the appropriate district of the U.S. Corps of Engineers in accordance with Rule 904. The Agency reviewing engineer will then ascertain whether the following determinations can be made concerning the proposed permit:

a. That the discharge, if in compliance with the conditions of the proposed permit, will be in compliance with 40 CFR Section 124.42, which sets forth the federal requirements establishing the terms and conditions of NPDES permits, including effluent limitations, standards of performance, toxic and pretreatment requirements, requirements arising from planning decisions, and requirements arising from the imposition of state standards, which may be stricter than federal standards. The full list of terms and conditions which may be included in an NPDES permit appears in Rule 910.

a. The draft permit will be prepared in accordance with Rule 910. Effluent limitations will be established in accordance with 40 CFR Sections 124.42, 43, 44 and 45. Forms are shown in Appendix J.

b. The public notice will be prepared in accordance with 40 CFR Section 124.32 and Rule 906 (See Appendix B).

c. The fact sheet, when required, will be drafted in accordance with 40 CFR Section 124.33 and Rule 907 (See Appendix B).

8. The permit documents will be printed, and the mailing list will be determined.

9. After printing, the permit documents will be mailed to the USEPA and all other persons and government agencies as required in Rules 906, 907, and 908 and 40 CFR Sections 124.32, 33 and 34.

10. Following public notice, thirty days will be given for receipt of public comments (Rule 906(b)). However, 90 days will be allowed for the receipt of comments from USEPA for treatment works in classes and categories for which review has not been waived in accordance with Section 402(d)(3) of the FWPCA.

11. Following the close of the comment period all comments will be reviewed. If a permit is requested which would violate Rule 902(j), the permit will be denied. If changes are made based on comments received, another draft permit will be prepared, public notice of the revised proposed permit will be issued if the changes are significant, and unless the Regional Administrator has waived his right to object to issuance, the revised proposed permit will be sent to USEPA for comment prior to issuance.

12. If the Agency determines that there is a significant degree of public interest in a proposed permit or group of permits, the Agency will hold a public hearing in accordance with Rule 909 and 40 CFR Section 124.37.

13. If after the public hearing the draft permit is changed, a copy of the proposed permit will be sent to the USEPA prior to issuance. If objection is made by USEPA, the permit will be changed to take into account the objections. This procedure will be followed until the Regional Administrator waives his right to object to issuance as provided in Section 402(d)(3) of the FWPCA.

14. If objections are made during the comment period or if changes are made to the permit based on receipt of the comments from the public, the draft permit will be changed as necessary to reflect significant objections and then issued. If no public comments are received during the 30-day comment period, the permit will be issued as drafted.

15. Appeals of Agency NPDES permit decisions are subject to the provisions of Rules 911 and 912 of Chapter 3 and Rule 502(b) of the Board's Procedural Rules. An applicant may appeal a permit denial or a permit condition to which he objects by filing with the Clerk of the Board a petition for review of the Agency's action. Any person, other than the applicant, who participated in or requested a public hearing concerning the issuance or denial of an NPDES permit may also contest the final decision of the Agency by filing a petition with the Clerk in the same manner as the applicant. The effective date of a permit denial or grant is the date the Agency takes final action with regard to the permit application. That effective date will remain the same until changed by appropriate order of the Pollution Control Board or a court of competent jurisdiction.

16. Any person, including the Agency, whether or not that person has participated in the proceedings related to the original issuance of the permit, may file a complaint before the Board seeking modification, suspension, or revocation of the permit for "cause," in accordance with Rule 912 of Chapter 3, Water Pollution, and Part III of Chapter 1, Procedural Rules, of the Board. "Cause" includes but is not limited to the following:

a. Violation of any term or condition of the permit;

b. Obtaining a permit by misrepresentation or failure to disclose fully all relevant facts; or

c. A change in any circumstance that mandates either a temporary or permanent reduction or elimination of the permitted discharge.

17. Except for issuance of permits to those classes of dischargers for which the Regional Administrator has waived his right to object, a permit which is modified by the Agency pursuant to a Board order will be submitted by the Agency to USEPA for comment before it is issued, as required by Section 402(d) of the FWPCA. (See Appendix E, page 6).

Special conditions will be included in NPDES permits as necessary to provide that the requirements of state and federal law are met. Standard conditions will be included in all permits as shown in Attachment H to the NPDES permit form, as included in Appendix J.

All NPDES permit issuance activities will be conducted in accordance with the following priorities:

1. Discharges endangering public health
2. Expiring major discharge permits
3. Significant modifications to major discharge permits
4. New major discharge permits

5. Expiring minor discharge permits

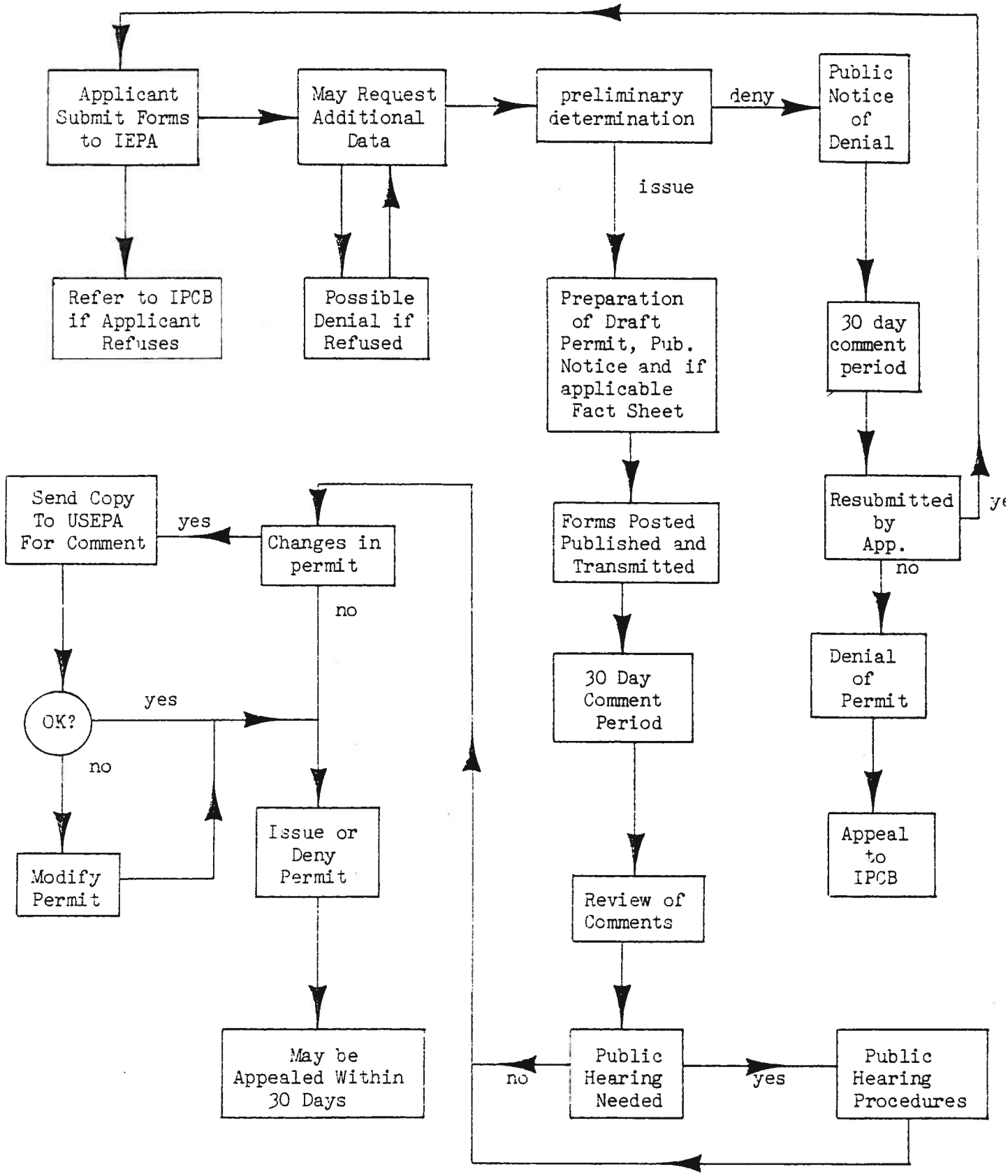
6. Significant modifications to minor discharge permits

7. New minor discharge permits

8. Other modifications

9. Termination of permits

NPDES FLOW CHART



OTHER PERMITS

The Agency will continue to issue permits for sewers, lift stations, certain pretreatment works and any treatment works or wastewater sources in the State which do not require NPDES permits. These will be handled by the same staff that issues the NPDES permits. Regulations governing the issuance of non-NPDES permits for the purpose of water pollution control are included as subpart B of Part IX of Chapter 3. The forms and instructions for application for these permits are also shown in Appendix J.

PUBLIC INSPECTION OF PERMIT DOCUMENTS

Permit applications, supporting material, fact sheets, proposed and issued permits, quarterly reports of noncompliance, and other documents generated in the NPDES program are available to the public for inspection and copying in accordance with the Agency's policy on inspection and copying of documents (Appendix L). For local planning commissions working on areawide plans information will be provided without charge by the Agency to assist those commissions in their planning activities.
Most NPDES documents will be available for public inspection and copying both at the regional offices and at the Agency's Springfield headquarters.

THERMAL DISCHARGES

A special provision to implement 40 CFR Part 122, Thermal Discharges, which sets forth the procedure prescribed by Section 316(a) of the FWPCA, is contained in Rule 410(c) of Chapter 3. Rule 410(c) allows the Board to determine that an alternative thermal standard, other than that found in 40 CFR Part 122 and Chapter 3, should apply to a particular thermal discharge.

The concept of reviewing the effect of a thermal discharge on a receiving stream is not a recent addition to the Board's Water Pollution Regulations. Rule 203(i)(5), which became effective on April 7, 1972, requires that owners or operators of a source of heated effluent which discharges 0.5 billion BTU per hour or more demonstrate in a hearing before the Board that the discharge from that source has not caused and cannot reasonably be expected to cause a significant ecological damage to the receiving waters. Upon failure to prove the above, the Board will order that appropriate corrective measures shall be taken. The Agency proposes that the demonstration requirements found in 40 CFR Part 122 and the supporting technical documents be utilized in the determination of an alternative thermal standard pursuant to Rule 410(c) and Rule 203(i)(5).

III.

MONITORING COMPLIANCE WITH PERMIT CONDITIONS

The objectives of the Illinois NPDES permit compliance monitoring program are (1) to insure that all dischargers or potential dischargers to the waters and boundary waters of the State are in compliance with all applicable state and federal laws, statutes, and regulations, and with the conditions established by the discharger's NPDES permit; and (2) to communicate with the dischargers, to explain and clarify the monitoring and reporting conditions of NPDES permits and the compliance requirements of state and federal statutes, and to provide technical assistance to dischargers through training and certification programs for wastewater treatment plant operators.

A Compliance Monitoring Unit will be established within the Division of Water Pollution Control Field Operations Section. This unit will be located in the Springfield office. It will be responsible for evaluating and tracking discharge monitoring reports, compliance schedule reports, and industrial users and pretreatment reports from dischargers. Notices to dischargers who have failed to adequately report or dischargers who have reported violations will originate from the Compliance Monitoring Unit. Whenever feasible from an economic standpoint, telephone calls will be utilized to remind dischargers of reporting requirements. The Compliance Monitoring Unit will be the repository of all reports required by NPDES permits. For purposes of carrying out its duties of sorting and screening reports and contacting dischargers regarding reports, the Compliance Monitoring Unit will maintain necessary records, work sheets, files and logs.

The Illinois NPDES compliance monitoring program will utilize as input information obtained from six sources: (a) public monitoring (citizen complaints); (b) the discharger's self-monitoring activities and reports; (c) Agency data as derived from Agency grant, permit and enforcement activities; (d) Agency monitoring of central files and records; (e) contacts with treatment plant operators in training and certification activities; and (f) Agency monitoring of chemical and biological parameters through field surveillance.

Public Monitoring

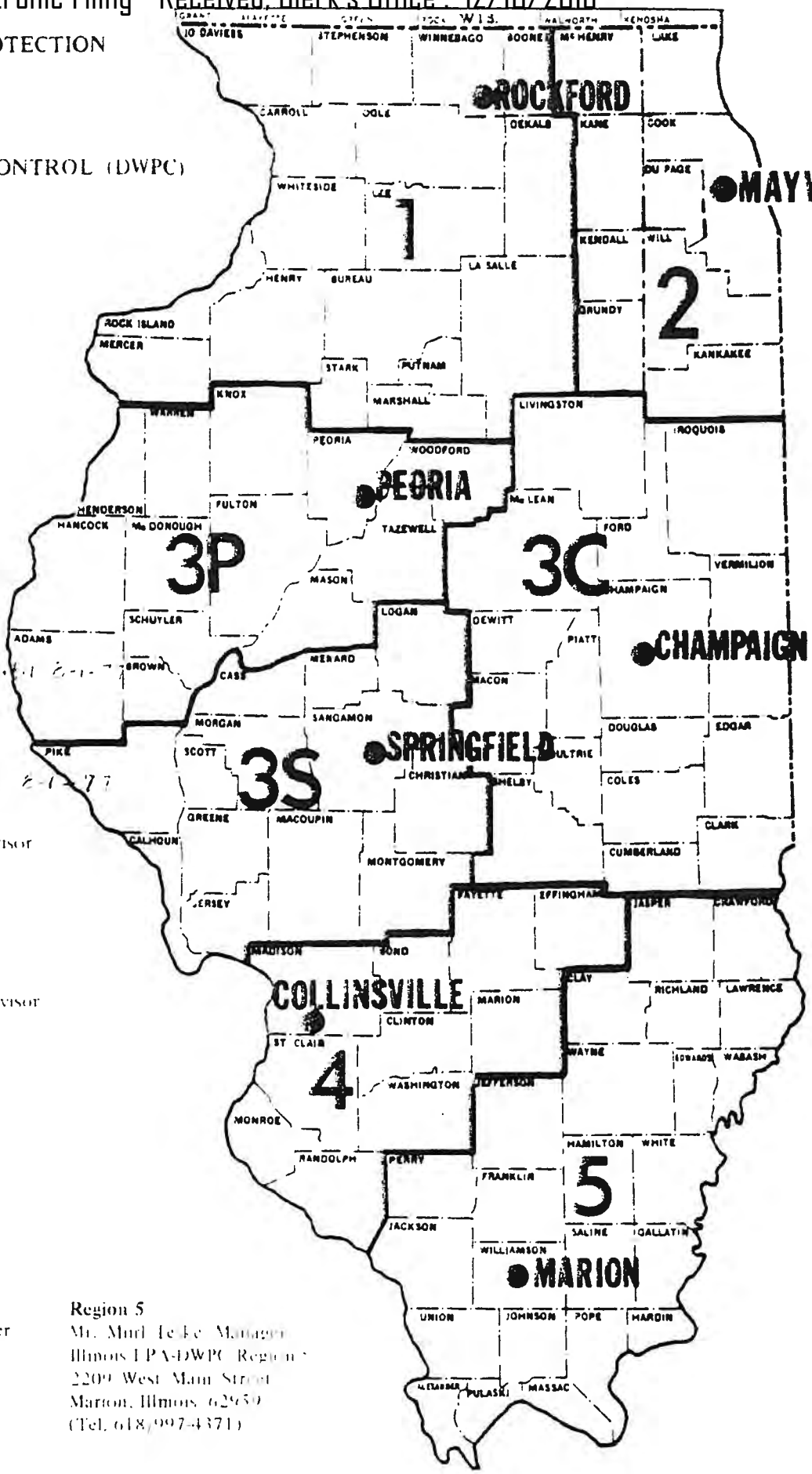
Public monitoring of NPDES permit holders is conducted both by those living in the immediate vicinity of the discharger and by environmental organizations. These two groups report their findings to the Agency and to other administrative agencies through citizen complaints.

Citizen complaints received or referred to the Agency are recorded and, if initial review indicates a complaint of substance, the complaint is sent for investigation to the supervisor of the appropriate Agency regional field office. (A list of the regional supervisors, including addresses and telephone numbers, and a map showing the territories covered by each of the regional offices, appears on page 30 of this submission.) The same procedure is followed for written complaints, telephone calls, and personal visits by complainants.

On occasion, the citizen complaints are received directly by a regional office. These complaints are recorded in the regional office.

ILLINOIS
ENVIRONMENTAL PROTECTION
AGENCY (EPA)

DIVISION OF
WATER POLLUTION CONTROL (DWPC)



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Illinois EPA-DWPC Region 1
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Illinois EPA-DWPC Region 2C
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Region 3S
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Illinois EPA-DWPC Region 5
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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

WATER POLLUTION CONTROL REGIONS

SURVEILLANCE PERSONS ASSIGNED DUTY AS LIVESTOCK WASTE MANAGEMENT PERSONNEL

I Ron Mills
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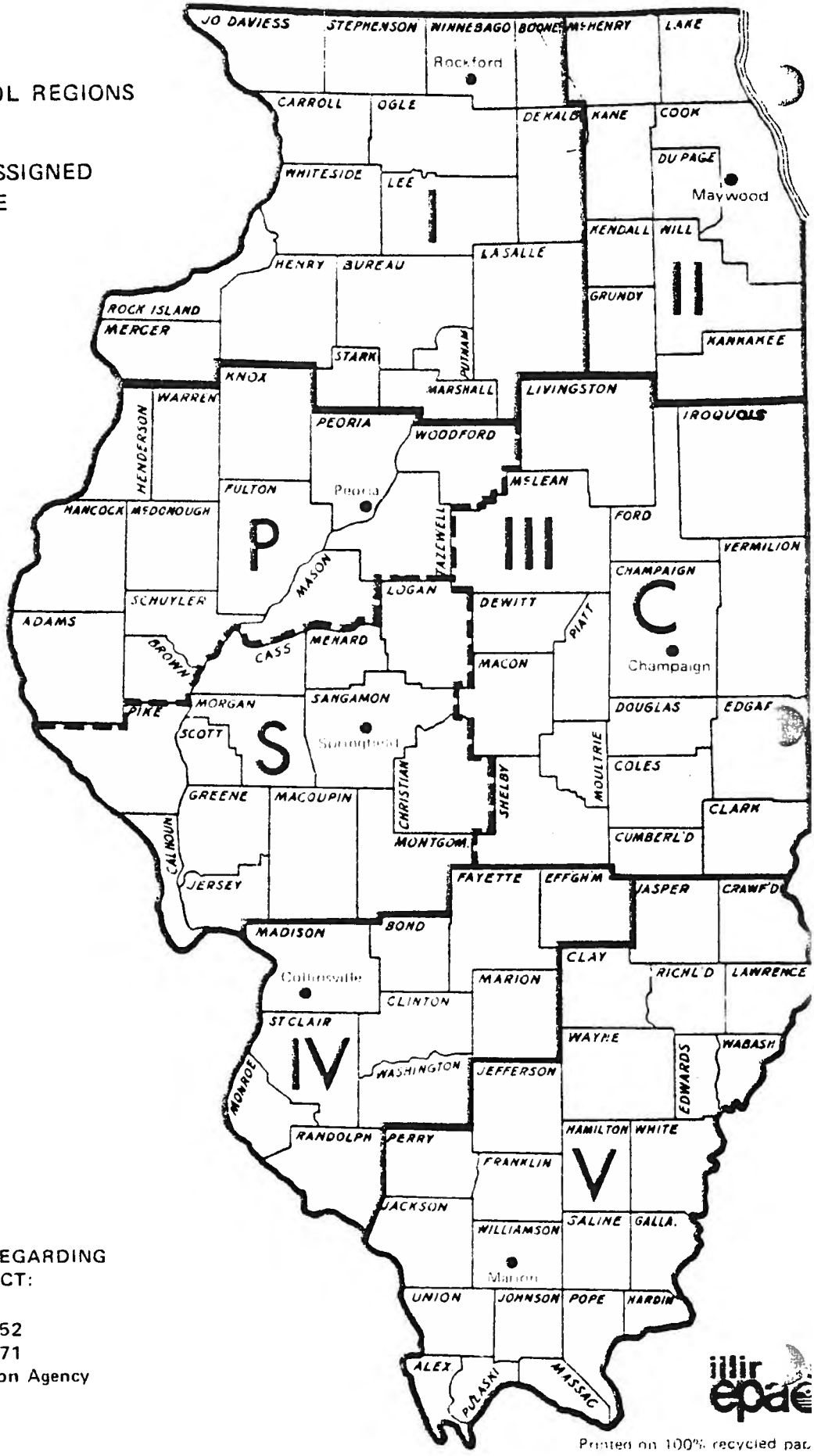

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Investigation of citizen complaints against NPDES permittees is conducted in the same manner as investigation initiated by the Agency. The type of investigation is determined by the regional supervisor. In general, if a periodic full compliance monitoring inspection has been recently completed or is not scheduled for some time to come, a reconnaissance survey will be conducted to check on the specific complaint.

The investigations conducted in response to citizen complaints are focused on the quality of the effluent and its compliance with the NPDES permit and on the status of the improvements, if any, required by the NPDES compliance schedule. The results of the investigation are recorded and utilized in a report or response to the complainant.

The handling of apparent violations which may be uncovered during investigations of citizen complaints is in accord with the Agency's NPDES enforcement program. (See Section IV). In general, following the inspection, an informal letter and a copy of the inspection report are sent to the discharger. If a periodic compliance monitoring inspection has recently been completed, the report of that inspection will also be included. If the letter reports an apparent violation, Form 1A or 1B will be used (Appendix K).

Self-Monitoring by the Discharger

Discharger self-monitoring will consist of three elements:

1. The discharge monitoring report (DMR),
2. The compliance schedule report, and
3. Any other special reports which may be required by the terms of the permit.

The discharge monitoring report is completed by the discharger and is based on its measurement of flow and laboratory analyses of effluent, as required by its NPDES permit. The report is submitted on forms (USEPA form T-40, or as revised) furnished by the Agency. For most dischargers, these reports are to be compiled monthly and mailed quarterly to the Compliance Monitoring Unit and to the USEPA regional office. For the USEPA-Agency agreed list of major dischargers, the permit will require that these reports be mailed monthly to the Agency's Compliance Monitoring Unit in Springfield and quarterly to the USEPA, so that prompt action may be taken on reported violations. This agreed list appears in each year's Program Plan and the current list appears in Appendix C.

The DMRs are reviewed for accuracy and reliability, and for indication of violations. Violations are detected through comparison of the report with a master file for each discharge of NPDES conditions and effluent requirements. A separate master file of violations reported in DMR's serves as a record of the reports until electronic data processing (EDP) support becomes available. It will provide a brief historical summary of instances of noncompliance with measured parameters. It will be kept for the period of time required by the federal law and is available for public inspection.

When EDP support becomes available, the reports will be keypunched at least quarterly and returned to the regional office for filing. The EDP system will be used to generate quarterly noncompliance reports to the USEPA, for managerial control purposes, and to allow follow-up in cases of missing or inadequate DMR's. Until EDP is available, a manual system will be used for these purposes.

Whether a manual system or an automated system is in use, a form letter (compliance inquiry) will be the normal first step used to investigate and resolve instances of DMR non-reporting by dischargers or the reporting to the permittee of effluent discharge violations noted in the DMR's or both. If a compliance monitoring survey is required, one is made by regional staff. These visits also may be used to give instruction on DMR reporting mechanics, laboratory analyses, or operation of the plant itself.

Review of DMR's from the list of major dischargers will be given special attention. These dischargers will be required to submit monthly rather than quarterly reports, and this requirement will be included as a condition of the permit. These DMR's will be evaluated monthly upon receipt and if an apparent violation is found, either an inquiry letter will be mailed within five days of discovery of the violation; or, if there have been other violations, other appropriate enforcement action will be taken in accordance with the procedures described in Part IV of this submission and Appendix E (the Memorandum of Agreement).

When DMR's are not received from a discharger when due, Form 1-C (Appendix K) (request for DMR) will be sent. When a DMR has been received, and the Agency decides to notify the discharger of noncompliance indicated in the report, Form 1-L (Appendix K) may be sent. Any DMR may be transmitted from the central office to the regional office with a request for an investigation prior to enforcement action.

Discharger reports of compliance with permit compliance schedules are sent to the Agency's Springfield office. The regional office serves as a second information source, to confirm the accuracy of discharger reports, and as an investigative arm.

Compliance schedule reports sent to the Agency are reviewed for completeness and for possible violations. If the report is incomplete, an inquiry letter is sent to the discharger in order to complete the report and to ascertain reasons for the incompleteness. A copy of the inquiry is sent to the regional office for addition to the regional master file on violations.

Agency Data

The Agency's Division of Water Pollution Control's Grants and Permits Sections and the Enforcement Programs Division maintain contact with the Compliance Monitoring Unit through the copying or forwarding of data pertaining to compliance schedules.

Agency Monitoring of Central Files

The Compliance Monitoring Unit has established a manual tickler file, in which compliance schedule requirements for each permit are entered as received. From this file a monthly report of compliance schedule status is prepared for use in sending out inquiries in case of missing or inadequate compliance schedule reports, or in taking further enforcement action, in accordance with the procedures described in Part IV, Enforcement.

The Permits Section will include with new NPDES permits a package of preprinted compliance schedule event reporting forms which

the permittee will complete and return as required by the permit. Copies of the completed forms returned by permittees will be kept in Springfield and in the appropriate regional offices.

If the report shows an apparent violation, a compliance inquiry (Form 1-E, Appendix K) is usually sent to determine the reason. More stringent enforcement may of course be taken. If an adequate explanation is not provided in response to the compliance inquiry, Form 1-F may be sent or Enforcement Programs is notified so that further enforcement steps may be taken. Enforcement is coordinated with the regional supervisors to enable concurrent action on all NPDES permit violations, some of which may not be apparent from the reporting systems.

Training and Certification Activities

The Operator Certification and Training Unit maintains operator certification files which are utilized to monitor both the individual operator's certification status and the certification status at wastewater treatment facilities. Although records are updated on an ongoing routine basis, the files are audited periodically by direct contact with the operator or treatment facility.

The unit coordinates and cooperates with field personnel in monitoring and enforcement activities. The Grants Section is also informed of the certification status at specific treatment facilities to the extent that information applies to final grant inspections and payments.

Through coordination of certification records and workforce analysis activities, the development and administration of certification examinations, the evaluation of certification procedural rules and policies, and the development and carrying out of training activities are facilitated.

Agency Compliance Monitoring

The Agency's own activities in monitoring of compliance include water quality monitoring, effluent monitoring, and facilities inspections.

Water quality is monitored for chemical, biological, and physical characteristics of the waters through the use of 226 fixed monitoring stations. Biological surveys are also used for this purpose. The biological surveys are generally of an investigative nature with locations selected to support an enforcement activity or to verify chemical data and to measure the results of treatment improvements. To the extent that they are available and helpful, biological surveys may also be used in support of basin planning activities.

The fixed station network is maintained by the Field Operations Section of the DWPC. The stations are usually sampled monthly by technicians. The samples are collected and analyzed in Agency laboratories with the results of the analyses reported to the regional offices. Regional staff review the data for compliance with water quality standards. They may in this way detect changes which can be attributed to a specific discharger. When water quality degradation appears which can be traced to an identifiable discharger, additional investigation, such as a reconnaissance survey of the facility, may be conducted.

The biological surveys, while generally conducted for purpose of water quality monitoring, may occasionally result in detection of violations for specific discharges. Violations noted through biological surveys are subject to enforcement procedures in the same manner as other violations.

The Agency also operates an effluent sampling program to supplement the water quality monitoring program. The samples of effluent from principal pollutant point source discharges are collected and reviewed together with DMR's. Occasionally samples collected by a discharger will be split and analyzed concurrently by the discharger and the Agency.

The Agency operates four laboratories -- in Chicago, Champaign, Springfield, and Marion -- at which effluent and water quality samples are analyzed in accordance with the procedures mandated by 40 CFR 136 and any amendments adopted pursuant to Section 304 (g) of Public Law 92-500. Agency laboratory procedures include comprehensive quality assurance and quality control programs, including the use of spike samples, split-sample analyses with USEPA and discharger laboratories, and other procedures. Special care is taken to maintain tight control over sample identities and chain of custody so that problems are not encountered in use of laboratory results in enforcement.

The reports of analyses are submitted to the regional supervisors for review and included in reports made to dischargers and responses to citizen complaints, as well as for enforcement. By comparing the laboratory data with effluent requirements as stated in the NPDES permits, detection of effluent violations and the triggering of further compliance activity are possible.

The Agency believes that all violations shown on self-monitoring reports should be subject to enforcement action. However, the facility inspection is also an important monitoring tool leading

to enforcement action. The facility inspection may be of two types, the reconnaissance survey and the complete compliance monitoring inspection.

The reconnaissance survey is conducted for a specific purpose: to review a specific problem which may have been detected by effluent monitoring, citizen complaint, or water quality monitoring, or by request of the discharger. Requests from the discharger often result in the Agency's providing specific recommendations to correct a violation.

The compliance monitoring inspection is a thorough inspection and review of the discharger's facility and includes a review of the Agency's effluent sampling data and the discharger's self-monitoring reports, and a complete engineering inspection of treatment units and waste handling systems.

Priorities for conducting facility inspections and for determining the necessity for enforcement surveys are set annually during the program plan process, as required by 40 CFR 35, subpart B.

The reconnaissance survey is utilized to provide continuing communication with dischargers during periods between compliance monitoring inspections. Major emphasis is on determining compliance with the discharger's NPDES permit or to determine, in some cases, whether the discharger holds or has applied for an NPDES permit.

The results of all surveys are reported to the discharger. If the reports show an apparent violation, a compliance inquiry is sent (Form 1-A or 1-B, Appendix K). The report may also include Agency recommendations and other information.

The information describing compliance or noncompliance with NPDES requirements which is obtained from facility inspections is recorded on a compliance status report and reviewed by the regional supervisor and an Agency technical advisor at the monthly enforcement conference as described in Section IV.

The conduct of compliance monitoring inspections is a coordinated effort with USEPA in Chicago so that the resources available in that office may be utilized to gain the best possible coverage of Illinois facilities. To this end, a standard inspection report form will be utilized when conducting these surveys. Survey reports are exchanged between USEPA in Chicago and the Agency as the surveys are conducted. Agency copies of inspection reports are kept on file both in the appropriate regional office and in Springfield.

Compliance status reports are prepared monthly and quarterly by Regions in cooperation with technical advisors, as described in Part IV. The quarterly report includes information such as the status of major dischargers currently in violation of any discharge limits or schedule dates, bypass notifications, industrial users and pretreatment reports, as well as other required information. The quarterly report is to be assembled and forwarded to the Compliance Monitoring Unit office by the 12th of the month following the end of the quarter; and to USEPA, Region V, by the 20th of the month.

ENFORCEMENT OF NPDES PERMIT REQUIREMENTS

The Illinois NPDES enforcement program will ensure that all discharges to the waters of the State comply with all terms and conditions of NPDES permits issued to the dischargers and with all applicable state and federal statutes and regulations.

Section 12(f) of the Illinois Environmental Protection Act prohibits any person from causing, threatening or allowing the discharge of any contaminant into the waters of the State without an NPDES permit or in violation of any term or condition of such permit. Section 12(f) also provides that an NPDES permit issued by the Administrator of the USEPA is deemed to be a permit issued by the Agency. It is the intent of the Agency that all violations of permit conditions be pursued with an appropriate enforcement remedy until compliance is achieved.

The organizational elements of the Illinois NPDES permit enforcement program include the Field Operations Section of the Division of Water Pollution Control, the Enforcement Programs Division and the Office of the Attorney General.

The regional managers of the Field Operations Section are responsible for initial informal contacts where apparent violations are discovered resulting from inspections. Such action will normally consist of sending a compliance inquiry to the discharger (See Forms 1A-1F, Appendix K) and determining the adequacy of the response.

If the regional manager receives no response to a compliance inquiry within the specified time limit, if the response is in any way unsatisfactory, or if a compliance inquiry is inappropriate, a staff member of the Enforcement Programs Division, in cooperation with the regional manager, determines the nature of further action to be taken. This staff person is referred to as a technical advisor under the Personnel Code of the State of Illinois. In all cases these "technical advisors" are attorneys licensed to practice law in Illinois.

The Enforcement Programs Division includes eight technical advisors as well as clerical staff assigned to support the Division of Water Pollution Control. Of this staff, five are assigned specifically as advisors to the five regional managers. A compliance status report (Form 2, Appendix K) is prepared monthly at each regional Office, and is reviewed at a monthly meeting between the regional manager, his staff, and the technical advisor assigned to the region. These meetings are held at the regional offices where complete files on each discharger's history are available.

At the monthly regional conference, violations, including DMR violations and violations of compliance schedules, will be considered for referral for legal action in accordance with established priorities and available resources.

If further investigation is necessary or desirable to establish the existence or extent of a violation, the technical advisor provides definite guidance on the information to be obtained.

At the conclusion of the monthly regional enforcement meeting, the regional manager completes the monthly compliance status report to show the actions undertaken. Copies of this report are maintained in Springfield headquarters and reviewed regularly by the manager of Enforcement Programs and the division manager.

As soon as a decision is reached to take enforcement action, the Enforcement Programs Division opens an Agency enforcement file and assigns the file to an Agency technical advisor who is usually assigned to the region in which the violation occurred.

The technical advisor supervises any additional investigations which may be conducted to improve the quality of proof of the violations being charged or to secure proof of continuing or additional violations.

In order to assure management control over the NPDES permit enforcement program, the Enforcement Programs Division prepares a monthly report of the enforcement status of all violators against which enforcement action is being taken.

The monthly compliance status report and the monthly enforcement status report, as well as the quarterly report of violations prepared by the Agency pursuant to 40 CFR 124.44 (a) and PCB Rule 910 (b)(6), are public documents. The compliance status reports will be available for public inspection in the Agency's Springfield headquarters and in the originating regional offices; the enforcement status reports are available from the Enforcement Programs Division in Springfield and Maywood; the quarterly report will be available for public inspection in the Agency's Springfield and Chicago offices.

On determination that an enforcement case should be prosecuted, the case file is presented to the Manager, Enforcement Programs Division for review and approval by the Director. After approval, the enforcement case is referred to the Chief of the Environmental Control Division of the Illinois Attorney General's office, who assigns an assistant attorney general to prosecute the case.

If the Agency and the assistant attorney general agree that the evidence is sufficient to sustain the alleged violations, a complaint is drafted, approved by the Director, and filed. The Attorney General's office represents the Agency in all subsequent litigation in the matter.

If a permittee requests modification of the terms or conditions of a permit (including a schedule of compliance), the Agency may make such a modification within the limits established by applicable state and federal statutes and regulations. Modification of a schedule of compliance must be consistent with Rule 913 of the Board's regulations, which limits the total of any extension or series of extensions of a schedule of compliance to 90 days beyond the original final compliance date. Further extensions require a variance from the Board, as stated in Rule 914 of Chapter 3 of the Board's regulations.

If a discharger seeks modification of a permit condition which would require an exemption from Board-adopted regulations (other than compliance dates) a variance is also required and can be granted only within the limits of the applicable federal law and regulations (Rule 914).

Variances will be granted by the Board, pursuant to Title 9 of the Environmental Protection Act, only on the basis of arbitrary or unreasonable hardship, and the burden of proof rests with the petitioner for variance. The procedures governing variance proceedings appear in Part IV of the Board's Procedural Rules (Appendix B of this submission). Until the Administrator waives his right of review of NPDES permits in Illinois, as provided in Section 402 (e) of the FWPCA, an NPDES permit which is modified as the result of a Board order in a variance proceeding will be subject to review by USEPA, as provided by Section 402(d) of the FWPCA.

In all cases in which the discharger proposes a permit modification which requires a variance, if the discharger and the Agency can arrive at an agreement on an appropriate modification, that agreement will be presented to the Board either in the Agency's recommendation or in a proposed agreed order. The "agreed order" approach may also be used if a permit is to be modified as the result of the decision in an enforcement proceeding.

Permit modifications not requiring Board orders (e.g., extensions of schedules of compliance for less than 90 days, or monitoring, sampling or reporting requirements) may be made by Agency action. In such cases, the appropriate regional manager, assigned technical advisor, and Permit Section engineer will participate in the decision. The Agency will issue public notice and reissue the modified permit as if it were a new permit.

Until the Regional Administrator waives his right to object to the issuance of permits in Illinois, in accordance with Section 401(d)(3) of the Federal Water Pollution Control Act Amendments of 1972, proposed modified permits will be submitted to USEPA before issuance, in accordance with the regulations and the Memorandum of Agreement (Appendix E).

There are special statutory provisions in the Environmental Protection Act which provide additional remedies in the case of violations which may result in "circumstances of substantial danger to the environment or to the public health of persons or to the welfare of persons where such danger is to the livelihood of such persons." (Section 43).

In such cases, the Act provides that the State's Attorney or the Attorney General, upon request of the Agency or on his own motion, may institute a civil action for an immediate injunction to halt the discharge or other activity causing or contributing to the danger or to require such other action as may be necessary.

Cases of this type will be referred to the Attorney General's office without regard to the procedural steps described in this submission. Telephone clearances and approvals will be made, in accordance with the Agency's emergency procedures, which have been approved by USEPA as part of the Agency's water pollution control program plan as required by Section 106(a)(2) of the FWPCA. The Region V office of USEPA will also be promptly notified of all such actions so that it may take action under Section 504 of the FWPCA.

In addition to the injunctive relief provided by Section 43 of the Act, the Agency possesses the authority, under Section 34 of the Act, to seal any equipment or facility which is contributing to an emergency condition which creates an immediate danger to health. Provision is made for a hearing before a Board member and a qualified hearing officer, or for injunctive relief to determine whether the seal should be removed.

The Agency's Division of Water Pollution Control has not found it necessary to utilize the provisions of Section 34 and does not anticipate doing so in the course of administering the NPDES program. However, no problems are expected if circumstances should arise in which a Section 34 seal is the appropriate remedy.

The Agency, in cooperation with representatives of Region V, has developed a system of enforcement priorities which will enable it to carry out an enforcement program with the maximum environmental impact and deterrent effect possible with the resources at its command.

1. Those which cause imminent danger to public health;

2. Major dischargers (those which appear on the list in Appendix G) which do not meet the compliance schedules included in their permits or do not provide progress reports as required;

3. Major dischargers which do not meet the effluent limitations (either interim or final limitations) which are included in their permits or do not provide self-monitoring reports as required;

4. Other significant dischargers (those in the size range immediately below the major dischargers or those with problem discharges) which do not meet or properly report on compliance schedule requirements;

5. Minor dischargers which do not meet effluent limitations or provide self-monitoring reports as required;

6. All others.

An effective enforcement tool against municipal dischargers that will augment NPDES compliance activities is the sanitary sewer extension ban. Authority to impose sanitary sewer extension restrictions is provided by Rule 604 of Chapter 3 of the Board's Regulations. Under this rule, the Agency imposes partial or complete restriction on new sewer extensions in a community when the publicly owned treatment works approaches or exceeds its design capacity. The Agency may also impose sewer extension restrictions on a publicly owned treatment works if its effluent does not meet applicable limits even though it may have not reached its design capacity.

All of the organizational elements are in place to carry out the described enforcement program, and the funding expected from State appropriations as augmented by federal grants is expected to be fully adequate to do so.

V.

FUNDING AND MANPOWER

Table 1, page 49, sets forth the resources and manpower which the Agency proposes to use to administer the NPDES program during a twelve month period. Table 2, page 51, details the 1978 budget (by line item) of the Division of Water Pollution Control, which has the major responsibility for the program.

During the initial shakedown of the administration of this program some of the manpower requirements will be provided by contractual help. The number of people to be on contract is not included in this budget analysis.

Table 3, page 52, details the number of positions, personnel code classifications, and estimated time of each person, for each position with NPDES related responsibilities. Further details concerning the qualifications requested for each position title are set forth in Appendix I.

TABLE 1

FY 78 BUDGET FOR NPDES PROGRAM ADMINISTRATION

Cost	Permanent Headcount	Budget Amount
Division Direct		
Field Operations Section	50.3	$1,012,019
Permits Section	15.7	302,082
Variance Section	4.65	103,102
Enforcement	9.66	190,215
Division Indirect		
Division Manager's Office (including Records Unit)	6.0	220,328
Word Processing	2.0	28,655
Division Total	88.9	1,856,401
Federal Funds		869,661
General Revenue Funds		986,740
Other Agency Direct		
Division of Laboratory Services	24.1	570,360
Division of Information Systems	5.0	51,200
Office of the Manager of Environmental Programs	.25	6,000

Agency Indirect	
Computed at a rate of 15.5%	385,113
Agency Total	$2,868,974

Table 2

Division of Water Pollution Control

Line Item Summary

	State General Revenue Funds	Federal 106 Grant Funds	Total
Personnal Services and Fringe Benefits	$762,685	$697,621	$1,460,306
Contractual	86,728*	165,131	251,859
Travel	64,563	-	64,563
Commodities	8,895	4,252	13,147
Equipment	2,500	2,657	5,157
Operation of Auto Equipment	10,974	-	10,974
Telecommunications	50,395	-	50,395
Total	$986,740	$869,661	$1,856,401

* Includes occupancy charges

Other state agencies and branches of government have budgeted funds and effort to support the water pollution control effort and therefore support the NPDES program administration. The major contributing agencies or branches of government include the Attorney General's Office, the Pollution Control Board, the Institute for Environmental Quality, the Department of Mines and Minerals, the Department of Registration and Education, and the Department of Public Health. The amount of funds contributed by these governmental bodies toward the administration of an NPDES program cannot be readily or accurately determined; therefore, no representation is made in this application. Suffice it to state that their contribution is significant and continuous.

Table 3

NPDES Staffing

Section	Pos. Title	No. of Positions Involved	No. of Man-Yrs Devoted to NPDES
Mgrs. Office	EME I	1	.4
	EPE V	1	
	EPE IV	1	.6
	EPS IV	1	
	EPA	1	1.0
	Adm. Clerk	1	.2
	Clerk V	2	1.0
	Sec. I	1	.4
	CS III	1	.4
	CT III	1	1.0
	Clk III	2	.5
	Clk II	1	.5
			6.0
Var. & Tech.	EPE V	1	.85
Analysis	EPE IV	1	.1
	EPE III	2	2.0
	EPS III	1	1.0
	CT III	1	.7
		6	4.65

Enforcement	EA IV	2	1.33	
	EA III	3	3.0	
	EA II	2	2.0	
	EA I	1	1.0	
	LI II	1	.33	
	OS III	1	1.0	
	OS II	1	1.0	
			9.66	
Field Operations	EPE VI	3	1.631	1.6
	EPE V	6	3.311	3.3
	EPE IV	5	2.534	2.5
	EPE III	9	4.816	4.8
	EPE II	6	3.612	3.6
	EPE I	4	2.408	2.4
	EPS IV	1	1.0	1.0
	EPS III	5	3.408	3.4
	EPS II	5	2.408	2.4
	EPS I	6	2.408	2.4
	EPT II	6	4.18	4.2
	EPT I	5	3.35	3.4
	EPA	2	1.204	1.2
	AB IV	1	-	

AB III	2	-	
AB II	3	-	
AA I	1	.427	.4
Clerk IV	1	-	
CS III	6	3.437	3.4
CS II	2	1.204	1.2
CT III	4	2.806	2.8
CT II	6	3.408	3.4

Section	Pos. Title	No. of Pos. Involved	Denoted NPDES	
Permits	EPE VI	1	.6	
	EPE IV	5	2.95	
	EPE III	6	2.68	
	EPE II	6	2.95	
	EPE I	6	2.94	
	CS III	1	.6	
	CT II	5	3.0	
			15.7	
Admin. Support	Clk V	2	1.0	
Word Processing	Corresp.	3	1.2	
	CT III	1	.4	
			2.6	
Unclassified Personnel brought from other Sections			2.3	2.9
Total Staff				50.3

EME: Environmental Management Engineer

EPE: Environmental Protection Engineer

EPA: Environmental Protection Assistant

CS: Clerk Stenographer

CT: Clerk Typist

EPS: Environmental Protection Specialist

TA: Technical Advisor (at former)

LI: Legal Investigator (paralegal)

EPT: Environmental Protection Technician

AB: Aquatic Biologist

AA: Administrative Assistant

ADDITIONAL ATTACHMENTS REMOVED

EXHIBIT B

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

MEMORANDUM OF AGREEMENT

BETWEEN THE

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

AND THE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION V

I. GENERAL

This Memorandum of Agreement (hereinafter, "Agreement") establishes policies, responsibilities and procedures pursuant to 40 CFR 124 and defines the manner in which the National Pollutant Discharge Elimination System (NPDES) Permit Program will be administered by the Illinois Environmental Protection Agency (hereinafter, the "State") and reviewed by the United States Environmental Protection Agency (hereinafter, "USEPA").

This Agreement defines the intended working relationships, roles and responsibilities of the respective agencies in the administration of the NPDES program in Illinois and does not constitute a binding, enforceable contractual agreement between the parties.

As used in this Agreement, the term "Act" shall mean the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500). The term "enforcement actions" shall be specifically defined in the annual State program plan submitted under Section 106 of the Act but shall include, as a minimum, warning letters, notices of violations, notice of compliance conference, notice of enforcement and enforcement cases filed before the Illinois Pollution Control Board or in State or Federal court.

This Agreement, and any subsequent written modification hereto, shall take effect after it is signed by the State and the Regional Administrator, and on the date it is approved by the Administrator of USEPA. Either the State, Regional Administrator, or Administrator of USEPA may initiate action to modify the Agreement. Any modification must be in writing, signed by the State and the Regional Administrator, and approved by the Administrator of USEPA.

The Agreement shall be reviewed jointly at least annually by the State and Regional Administrator during the preparation of the annual State Water Pollution Control Program Plan (hereinafter, "State Program Plan"), as required by Section 106 of the Act.

The State will administer the NPDES Permit Program consistent with the currently effective provisions of: the Act, applicable adopted Federal regulations, priorities contained in the annually approved State Program Plan, and this Agreement. It is the duty of USEPA to oversee the State's administration of the NPDES Permit Program on a continuing basis to assure that such administration is consistent with this Agreement, the State Program Plan, and all applicable requirements embodied in current regulations, policies and Federal law.

USEPA will, upon request, assign one staff representative to work at the State offices in Springfield for a mutually agreeable period of time in order to expedite the transition of State personnel into efficient and demonstrated administrative procedures. Thereafter USEPA will designate a staff person to work with the State as required to provide timely interpretations of Federal requirements and to provide necessary coordination for proper implementation of the Agreement.

When workload is such that available State resources do not permit timely accomplishment of the work intended under this Agreement, the State may request USEPA assistance and by mutual agreement the work will be shared for a mutually agreeable period of time.

The level of program financial support to the State from Section 106 grants is expected to remain relatively unchanged from fiscal year 1976 into the future. Any year to year decrease in funding level to the State will lead to automatic renegotiation of this Agreement by USEPA and the State. If a new Agreement cannot be reached within 90 days of USEPA notification to the State of a revised State Section 106 allotment, this Agreement shall be void 180 days thereafter.

II. POLICIES

The State is responsible for the issuance, modification, reissuance, compliance monitoring and enforcement of all NPDES permits in the State, except for those permits applicable to Federal facilities. USEPA will retain responsibility for the issuance, modification, reissuance, compliance monitoring and enforcement of NPDES permits to federal facilities; however, none will be issued which purport to violate substantive state environmental standards except in instances of national security. The strategies and priorities for issuance, compliance monitoring and enforcement of permits as established in this Agreement shall be further delineated in the annual State Program Plan prepared pursuant to Section 106 of the Act. If requested

by either party, meetings will be scheduled at reasonable intervals between the State and USEPA to review specific operating procedures, resolve problems or discuss mutual concerns involving the administration of the NPDES Permit Program.

Recognizing the impact of major dischargers on the waters of the State, both the State and USEPA agree that major dischargers as a group shall receive priority in all NPDES activities. Major dischargers are those mutually defined by the State and the Regional Administrator as those dischargers which have a high potential for violation of water quality standards or which are required to install substantial pollution abatement equipment.

In accordance with priorities established in this Agreement and the annual State Program Plan, the State will:

1. Expeditiously process and issue all required NPDES permits and provide ongoing, timely and adequate review of permits;

2. Comprehensively evaluate and assess compliance with compliance schedules, effluent limitations and other permit conditions in accordance with mutually understood and agreed upon priorities and procedures; and,

3. Maintain a vigorous enforcement program and take timely and appropriate enforcement action in every case where in the State's opinion such action is warranted.

Discharges endangering public health will receive immediate and paramount attention.

The State Director and the Regional Administrator hereby agree to maintain a high level of cooperation and coordination between State and USEPA staffs in a partnership to assure successful and effective administration of the NPDES Permit Program. In this partnership, USEPA will provide to the State on a continuing basis technical and policy assistance on permit matters.

III. PERMIT REVIEW AND ISSUANCE

The State is responsible for drafting, public noticing, issuing, modifying, reissuing, and terminating NPDES permits and shall do so in accordance with 40 CFR 124.31 and 124.32.

Upon receipt of proposed permits and other information specified in Chapter VI A (1) of this Agreement, USEPA shall promptly review and submit to the State its approval, comments, objections or recommendations on the proposed permit. It is Regional policy to attempt to process each request for approval within 30 days. If no comment is received by the State within 90 days, the State may assume that USEPA has no objection to the issuance of the NPDES Permit.

If a proposed NPDES Permit is modified as a result of the public notice or public hearing, a revised copy of the proposed NPDES permit will be transmitted to the Regional Administrator, Attention: NPDES Permit Branch, together with a copy of all significant statements received from the public notice, and where a public hearing is held, a summary of all objections, together with a request for approval to issue the NPDES permit. In lieu of a summary, the State may provide a verbatim transcript of the entire public hearing.

Except for those permits for which the Regional Administrator has waived rights of review, no NPDES permit will be issued by the State until it receives a letter from the Regional Administrator approving such issuance or no comment is received by the State from USEPA within 90 days of receipt of the proposed permit by USEPA.

The Regional Administrator waives the right to object to the issuance of any NPDES permit except for the following classes of discharges:

(1) major dischargers;

(2) publicly-owned treatment works servicing primarily domestic wastes, which serve more than 10,000 population;

(3) other discharges with a daily average discharge of more than 0.1 MGD;

(4) discharges of uncontaminated cooling water with a daily average discharge of more than 1.0 MGD;

(5) discharges which directly affect the waters of any other state; and,

(6) discharges which contain toxic pollutants in toxic amounts.

After six months of delegation of permit authority to the State, the Regional Administrator will formally evaluate the effectiveness of state operation of the program. If he concludes that the state is not operating the program acceptably, he will outline, in writing, specific deficiencies in the program and a suggested schedule consistent with available resources for correcting the deficiencies. If after six months the Regional Administrator concludes that the State is operating the program in an acceptable manner, the above waiver shall be modified, at a minimum, to the following:

The Regional Administrator waives the right to object to the issuance of any NPDES permit except for the following classes of discharges:

(1) major dischargers;

(2) publicly-owned treatment works or privately-owned treatment works servicing primarily domestic wastes, which serve more than 10,000 population;

(3) publicly - or privately-owned water purification plants serving more than 10,000 population;

(4) other discharges with a daily average discharge of more than 1.0 MGD;

(5) discharges of uncontaminated cooling water with a daily average discharge of more than 1.0 MGD;

(6) discharges which directly affect the waters of any other state; and,

(7) discharges which contain toxic pollutants in toxic amounts.

The Regional Administrator will not object to the issuance of any NPDES permit on the basis of his construction of State law or regulations different from that adopted by the State in any of the following ways:

(1) Formal order by the Illinois Pollution Control Board pursuant to a regulatory, enforcement, variance or permit appeal proceeding;

(2) Formal order by any State court.

(3) Administrative determinations by the Agency made under authority contained in the Illinois Environmental Protection Act or Illinois Pollution Control Board Regulations.

The State agrees, consistent with the requirements of the Act, that permits as issued shall contain the more stringent of the State of Federal requirements.

However nothing herein shall preclude the Regional Administrator from formally objecting to any proposed permit issuance, modification, termination or revocation whether such permit action is performed by a State regulatory, administrative or judicial tribunal or agency, which is in conflict with any applicable federal law or regulation or any provisions of a federally approved 208 plan or federally approved or promulgated water quality standard. The State shall supply the information itemized below at the time administratively complete applications with draft permits and public notice are forwarded to the Regional Office of Region V or when requested by the Regional Administrator:

a. A statement that the daily average discharge for categories (4) and (5) above, or population for categories (2) and (3) above, are known and do not exceed the amounts and conditions authorized by the above waiver; and

b. Each specific point of discharge is identified as to the geographic location together with the name of the receiving water.

Each public notice issued by the State for permits covered by the waiver shall include the following statement:

> "Pursuant to the waiver provisions authorized by 40 CFR 124.46, this proposed permit is within the class, type and size for which the Regional Administration, Region V, has waived his right to review, object or comment on this proposed permit action."

The foregoing does not include waiver of receipt of complete copies of NPDES applications, draft permits, public notices of permit applications (and any required fact sheets), notices of public hearings, and copies of all final NPDES permits issued. In addition, the foregoing does not include a waiver of the obligation to transmit complete

copies of NPDES applications and of NPDES reporting forms to the national data bank, (or equivalent information available to the national data bank in machine readable form) nor the right to receive copies of notices to the State from any publicly-owned treatment works, as detailed in 40 CFR 124.45(d) and (e).

The foregoing waiver shall not be construed to authorize the issuance of permits which do not comply with applicable provisions of Federal laws, rules, or regulations, nor to relinquish the right of the Regional Administrator to petition the State for review of any action or inaction because of violation of Federal laws, rules, or regulations.

The Regional Administrator will continue to receive copies of all issued NPDES permits on which he has waived his authority to review. These will be transmitted to the Regional Administrator by the State similarly to all other issued permits specified in the Agreement.

There is included as a part of the annual State Program Plan a major dischargers list which includes those dischargers, mutually defined by the State and USEPA, as a group of dischargers plus any additional dischargers that have a high potential for violations of water quality standards or which are required to install substantial pollution abatement equipment. The major dischargers list shall be used for the purpose of defining that group of dischargers which shall receive priority in all NPDES activities. The major dischargers list may be modified at any time upon mutual agreement.

IV. COMPLIANCE MONITORING

The State will operate a timely and effective compliance monitoring system (ADP and/or manual) to track compliance with permit conditions. For purposes of this Agreement, the term compliance monitoring shall refer to all efforts associated with assuring full compliance with NPDES permit conditions. Compliance monitoring shall focus first on major dischargers in accordance with the priorities and time frames for compliance tracking as established in this Agreement and as further delineated in the annual State Program Plan.

A. Schedule Dates.

The State will track the submittal of information for all date-related permit conditions. When required performance is not achieved, appropriate enforcement actions will be initiated by the State. The State will conduct a timely and substantive review of all date-related permit conditions and reports received and evaluate the permitee's compliance status.

This review will be conducted so as to assure that any violation by a major discharger is acted upon by the State's initiation of an appropriate enforcement action, if warranted, within thirty (30) days of the date a date-related report is due to the State. Priorities will also be specified in the annual State Program Plan.

B. Review of Self-Monitoring Reports

The State will operate a tracking system to determine if: (1) the required self-monitoring reports are submitted; (2) the submitted

reports are complete; and (3) the permit conditions are met. When required reports are not submitted, appropriate enforcement actions will be initiated by the State to prevent a recurrent problem, and, if possible, to obtain past data. The State will conduct a timely and substantive review of all self-monitoring reports received, and evaluate the permittee's compliance status. This evaluation will be uniform and consistent and will take into account frequency, severity, and analytical error in determining where limitations have been exceeded. This review will be conducted so as to assure that any violation by a major discharger is acted upon by the State's initiation of an appropriate enforcement action, if warranted, within thirty (30) days of the date a report is due to the State. Priorities for reviewing self-monitoring reports and for initiating enforcement action will also be specified in the annual State Program Plan.

C. Facility Inspections.

1. Sampling Surveys

A sampling survey is performed to assess permittee compliance with all NPDES permit conditions and is defined to include, but not necessarily to be limited to, effluent sampling and an assessment of a facility's monitoring and analysis program. Surveys at Federal facilities will be conducted by USEPA and the State will be invited to participate in those surveys. The State and Regional Office will develop a mutually agreeable annual list of permittees to be sampled as a part of the annual State Program Plan. Modifications may be incorporated into the list with concurrence of both parties. Except

at Federal facilities, the State will be given the first opportunity to perform all sampling surveys. The USEPA will be given adequate notice and opportunity to participate in surveys performed by the State.

USEPA or the State may determine that additional sampling surveys are necessary to monitor compliance with issued NPDES permits. If USEPA makes a determination that additional sampling surveys are necessary or appropriate, it shall notify the State of such determination and request the State to conduct those sampling surveys. In cases where the State chooses not to conduct the sampling survey in accordance with USEPA requests, USEPA may then conduct the survey itself, keeping the State fully informed of plans and results.

2. Compliance Evaluation Inspection

Compliance Evaluation Inspections are designed to verify that the Permittee is meeting permit requirements for records maintenance, operation and maintenance, compliance schedule, self monitoring, reporting, and other items as appropriate, that are defined in the "NPDES Compliance Evaluation Inspection Manual." Limited effluent sampling may be incorporated into any compliance evaluation inspection based on the judgment of the inspector. Compliance evaluation inspections at Federal facilities will be conducted by USEPA and the State will be invited to participate in those surveys. The State and USEPA will develop by mutual agreement an annual list of permittees

to be the subject of compliance evaluation inspections as a part of the annual State Program Plan. Modifications may be incorporated into the list with concurrence of both parties. The State will be given the first opportunity to perform all compliance evaluation inspections except at Federal facilities. The USEPA will be given adequate notice and opportunity to participate in compliance evaluation inspections performed by the State.

USEPA or the State may determine that additional compliance evaluation inspections are necessary to monitor compliance with issued NPDES permits. If USEPA makes a determination that additional compliance evaluation inspections are necessary or appropriate, it shall notify the State of such determination and may request the State to conduct those compliance evaluation inspections. In cases where the State chooses not to conduct the compliance inspection in accordance with USEPA requests, USEPA may then conduct the survey itself, keeping the State fully informed of plans and results.

D. Other

1. Survey Reports

All compliance evaluation inspections and sampling survey reports on major dischargers shall be available for review within forty-five (45) days of the date of the inspection or survey. Each report will be thoroughly reviewed by the State to determine what, if any, enforcement action shall be initiated. Any necessary enforcement actions

will be initiated within seventy-five (75) days of the date of the inspection or survey. Priorities for the review of these inspections and surveys and for initiating enforcement action will also be specified in the annual State Program Plan.

2. Information Requests

Whenever either party requests information concerning a specific discharger for a specific reason and the requested information is available from the files, that information will be provided within a reasonable time. If the requested information is not so available, the party to whom the request was directed shall promptly notify the requester.

V. ENFORCEMENT

The State is responsible for taking timely and appropriate enforcement action against persons in violation of compliance schedules, effluent limitations and all other permit conditions for all NPDES permits except for Federal facilities. This includes violations detected by State or Federal surveys. In instances where the USEPA determines that the State has not initiated timely and appropriate enforcement action against a NPDES Permit violation, USEPA shall proceed with any or all of the enforcement options available under Section 309 of the Act, 33 U.S.C. 1319.

Prior to proceeding with federal enforcement action against a NPDES violator, and for the purpose of providing notice only, USEPA shall inform the State that federal enforcement action is to be initiated forthwith. This notification shall be in the form of a telephone or written communication, by USEPA to the Director of the Illinois Environmental Protection Agency or his designee, and, except in the exercise by USEPA of its emergency power under Section 504 of the Act, 33 U.S.C. 1364, such notification shall be provided in all of federal enforcement action regardless of the existence or extent of previous communication between USEPA and the State on the matter. In the usual case, it is expected that preliminary staff discussions will take place between USEPA and State representatives before initiation of federal enforcement action.

Nothing in this Agreement shall preclude the USEPA from appropriate exercise of its powers under Section 504 of the Act, 33 U.S.C. 1364.

Failure by the State to initiate appropriate enforcement action against a major discharger within thirty (30) days of the date a date-related report is due to the State or within thirty (30) days of the date a report on effluent limitations is due to the State may be the basis for USEPA's determination that the State has failed to take timely enforcement action.

VI. REPORTING AND TRANSMITTAL OF INFORMATION

A. The State shall submit the following information to the USEPA as frequently as noted below:

ITEM DESCRIPTION	FREQUENCY OF SUBMISSION
1. A copy of all proposed NPDES permits and modifications thereto placed on public notice, including fact sheets and permit applications if not previously submitted	As Public Noticed
2. Copy of all issued NPDES permits	As Issued
3. A list of NPDES permits processed during the previous month, including the name, location, permit number, and date for every permit public noticed, issued, reissued, modified, denied or terminated	Monthly-by the 5th working day of each month
4. A list of facilities scheduled for sampling surveys and/or compliance evaluation inspections	Annually in State Program Plan
5. Proposed revisions to the schedule of sampling surveys and compliance evaluation inspections	As needed
6. A list of sampling surveys and compliance evaluation inspections performed during the previous quarter for major dischargers	Quarterly
7. Copies of all sampling survey and compliance evaluation inspection reports and data and transmittal letters to permittees for all major dischargers	Within 75 days of survey (45 days to prepare report, plus 30 days to act on report.)
8. Copies of all sampling survey and compliance evaluation inspection reports and data and transmittal letters to permittees for minor dischargers	As requested
9. Copies of the Compliance Evaluation Inspection Report Form generated during the compliance evaluation and maintenance inspections of major municipal plants	Within 75 days of survey (45 days to prepare report, plus 30 days to act on report).
10. For all dischargers, a listing of significant permit non-compliances arising from scheduled dates and/or effluent reports showing facility name, location, permit number, description of violation, and State actions (proposed or actual), and mitigating circumstances	Quarterly
11. Copies of all enforcement actions	As issued

12. Copies of all formal enforcement actions against minor NPDES permittees	As issued

B. USEPA shall transmit the following information to the State:

ITEM DESCRIPTION	FREQUENCY OF SUBMISSION
1. A list of sampling surveys and compliance evaluation inspections at which USEPA intends to conduct a joint survey or inspection with the State	Annually in State Program Plan
2. Proposed revisions to the schedule of sampling surveys and compliance evaluation inspections	As needed
3. Copies of all USEPA sampling surveys and compliance evaluation inspection reports and data	Within 45 days of survey
4. Notification of the commencement of Federal enforcement and the actions being taken	As initiated
5. A review of the State administration of the NPDES Permit Program based on State reports, meetings with State officials and file audits	As needed

VII. PROGRAM REVIEW

The Regional Administrator will assess the State's administration of the NPDES Program on a continuing basis to determine compliance with the Act, adopted Federal regulations and the State Program Plan by examination of the following:

1. Proposed and issued permits;

2. Reports submitted to the Regional Administrator by the State, as required by 40 CFR 124 and this Agreement;

3. State enforcement actions; and

4. Comments concerning the State's administration of the program which may be received by the Regional Administrator from the public, other states, other federal agencies, and local agencies. Copies of all such comments will be provided to the Director, unless previously communicated by the commenting party to the State.

Submission of information from the State to the Regional Administrator shall be accomplished in a manner consistent with this Agreement, the State Program Plan, applicable portions of 40 CFR 124 and other agreed upon procedures.

Additionally, the Regional Administrator may request, and the State will submit, specific information necessary for a comprehensive evaluation of the State's administration of the NPDES Permit Program.

USEPA is responsible for assuring that the NPDES Permit Program administered by the State is consistent with all requirements of this Agreement, the State Program Plan, and applicable Federal policies and regulations, including 40 CFR 124. To fulfill this responsibility USEPA shall:

1. Review the information transmitted from the State to assure that all the requirements of Chapter VI of this agreement are met.

2. Meet with State officials from time to time to observe the data handling, permit processing, and enforcement procedures, including both manual and ADP processes.

3. Examine in detail the files and documentation at the State Agency of selected facilities to determine: (a) that permits are processed and issued consistent with Federal requirements; (b) the ability of the State to discover permit violations when they occur;

(c) the timeliness of State reviews; (d) the adequacy of State selection of appropriate enforcement actions; (e) the timeliness and effectiveness of the State action. These detailed file audits shall be conducted by USEPA in the State offices as needed. The State shall be notified in advance of the audit so that appropriate State officials may be available to discuss individual circumstances and problems with USEPA. The facilities to be audited need not be revealed to the State in advance. A copy of the audit report shall be transmitted to the State when available, and marked "Attention: Director of the Illinois Environmental Protection Agency."

4. Determine the need for and hold public hearings on the State's operation of the NPDES permit and enforcement program.

5. Review the State's public participation policies, practices and procedures as they relate to administration of the NPDES Permit Program.

The State is responsible for evaluating USEPA's discharge of its responsibilities under the Act, federal regulations, this Agreement, and the approved State Program Plan on at least an annual basis. The results of this evaluation will be made available to the Regional Administrator who will cause a response to be prepared indicating actions USEPA intends to take to remedy any problems.

In the event USEPA determines that elements of the State's administration of the NPDES Permit Program are in any way deficient or inconsistent with this Agreement, the State Program Plan, applicable regulations, statutes, and policies, the USEPA shall notify the State in writing of those inconsistencies or other deficiencies. The State shall respond in writing within thirty (30) days. The USEPA

shall inform the State in writing of its determination that noted inconsistencies or deficiencies have been rectified.

VIII. INDEPENDENT POWERS

Nothing in this Agreement shall be construed to limit the authority of the USEPA to take action pursuant to Sections 308, 309, 311, 402, 504, or other Sections of the Act.

Nothing in this Agreement shall be construed to limit the authority of the State to take action pursuant to applicable sections of the Act, including Sections 505 and 510.

IX. EXPIRATIONS

To reflect the true partnership between the State and USEPA, this Agreement shall continue in effect until terminated by the State or USEPA, which termination shall be effective sixty (60) days following written notification of either party to the other.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

By _____

Date: 5/06/77

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V

By _____

Date: _____

Approved:

_____
Administrator
United States Environmental Protection Agency

Date: MAY 12 1977

My approval herein is based upon the understanding that this Agreement is subject to amendment, to reflect any comments received during the public hearing and comment period.

MM:mt/SP1-21

MODIFICATION TO NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

MEMORANDUM OF AGREEMENT BETWEEN THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY AND THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, REGION V

The Memorandum of Agreement approved May 12, 1977, by the Administrator of the United States Environmental Protection Agency between the Illinois Environmental Protection Agency (hereinafter, the "State") and the United States Environmental Protection Agency (hereinafter, "USEPA"), Region V is hereby modified as follows:

The State will administer the NPDES permit program with respect to Federal facilities and has shown that it has the authority to enter and inspect Federal facilities. The State is responsible for the issuance, modification, reissuance, compliance monitoring and enforcement of all NPDES permits in Illinois, including permits applicable to Federal facilities.

All references in the Memorandum of Agreement which have the effect of retaining responsibility to USEPA Region V over Federal facilities have no force or effect after the effective date of this Modification. Nothing in this Modification shall be construed to limit the authority of USEPA to take action pursuant to Sections 308, 309, 311, 402, 504, or other Sections of the Act. This Modification will become effective upon approval of the Administrator.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

By _____

Date: 11/21/78

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V

By _____

Date: DEC 7 1978

Approved:

/S/ JODE BERNSTEIN

Assistant Administrator for Enforcement
United States Environmental
Protection Agency

Date: 9/20/79

MODIFICATION TO NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM MEMORANDUM OF AGREEMENT BETWEEN THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY AND THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, REGION V

The Memorandum of Agreement approved May 12, 1977, by the Administrator of the United States Environmental Protection Agency between the Illinois Environmental Protection Agency (hereinafter, the "State") and the United States Environmental Protection Agency (Hereinafter, "USEPA"), Region V is hereby modified as follows:

The State having shown that it has the authority to issue NPDES general permits to cover categories of discharges shall issue these permits in accordance with 40 CFR 122.59, 123.74 and 123.75 (May 19, 1980, Rules and Regulations). Nothing in this Modification shall be construed to limit the authority of USEPA to take action pursuant to Sections 308, 309, 311, 402, 504, or other Sections of the Act. This Modification will become effective upon approval of the Administrator.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

By _____

Date: May 28, 1982

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION V

By _____

Date: _____

Approved:

_____

Assistant Administrator for Enforcement

United States Environmental Protection Agency

Date: _____

RM:bjm/4331C/24

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

(217) 782-5544

May 24, 2000

Ms. Jo Lynn Traub, Director
Water Division
United States Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3590

Dear Ms. Traub:

Enclosed you will find the addendum to the National Pollutant Discharge Elimination System (NPDES) Memorandum of Agreement (MOA) between the State of Illinois and the USEPA. On May 23, 2000, Director Thomas V. Skinner signed the document for the Illinois EPA.

The Illinois Attorney General's Office will send a certification to the USEPA under separate cover.

The Illinois EPA appreciates the opportunity to work with the USEPA in resolving the issues identified in the November 12, 1999 letter and the return of the MOA after signature by Francis X. Lyons. If you have any questions regarding the MOA or this letter, please contact Connie Tonsor or Toby Frevert. Mr. Frevert may be reached at 217/ 782- 1654.

Sincerely,

Connie L. Tonsor

Connie L. Tonsor
Associate Counsel

cc: Christine Bucko
David Pfeifer

Addendum
to the
National Pollutant Discharge Elimination System
Memorandum of Agreement
Between the
State of Illinois
and the
United States Environmental Protection Agency
Region 5
Concerning Illinois' Great Lakes Water Quality Standards
and Implementation Procedures

The federal Water Quality Guidance for the Great Lakes System (guidance), 40 CFR Part 132, contains the minimum water quality standards, antidegradation policies, and implementation procedures for the Great Lakes system to protect human health, aquatic life, and wildlife. The Great Lakes states and tribes were required to adopt provisions consistent with (as protective as) the guidance for their waters within the Great Lakes system. The Illinois Pollution Control Board adopted Great Lakes system water quality standards and implementation procedures on December 18, 1997 and August 19, 1999, and these rules became effective on December 24, 1997 and August 26, 1999. The Illinois Environmental Protection Agency (Illinois EPA) adopted implementation procedures on February 20, 1998, and these rules became effective on February 20, 1998.

The United States Environmental Protection Agency Region 5 (USEPA) and the Illinois EPA enter into this Addendum to their National Pollutant Discharge Elimination System (NPDES) Memorandum of Agreement to ensure that Illinois' rules concerning water quality standards and implementation procedures are implemented in a manner consistent with the guidance.

This Addendum only applies to those portions of Illinois' NPDES program applicable to the Great Lakes System within Illinois. A portion of Lake Michigan is the only water of the system within Illinois.

1. **Chemical-specific reasonable potential**

Illinois' rules at 35 Ill. Adm. Code 309.141(h)(4)(A) contain a procedure to be used to determine "preliminary effluent quality" (PEQ) for purposes of determining whether there is a reasonable potential for the discharge of a specific chemical to cause or contribute to causing exceedances of water quality standards. Illinois' rules at 35 Ill. Adm. Code 309.141(h)(4)(B) set forth an alternative procedure for determining PEQ. Illinois EPA has discretion to not impose WQBELs in permits where one would otherwise be required under the procedures for deriving PEQs specified in 35 Ill. Adm. Code 309.141(h)(4)(A) in certain circumstances where there are ten or less results of facility-specific effluent data. Illinois EPA will always impose a WQBEL where one would be required using the procedures specified at 35 Ill. Adm. Code 309.141(h)(4)(A) where there are ten or fewer pieces of facility-specific effluent data or will ensure that there are always at least ten data points available prior to permit reissuance for the reasonable potential analysis.

2. **Whole effluent toxicity reasonable potential**

Illinois' rules at 35 Ill. Adm. Code 352.530 contain a procedure to be used to determine PEQ for purposes of determining whether there is a reasonable potential for a discharge to cause or contribute to causing exceedances of water quality standards pertaining to whole effluent toxicity (WET). Illinois' rules at 35 Ill. Adm. Code 352.550(c) set forth an alternative procedure for determining PEQ when determining WET reasonable potential. Illinois EPA has discretion to not impose WQBELs in permits where one would otherwise be required under the procedures for deriving PEQs in determining WET reasonable potential specified in 35 Ill. Adm. Code 352.530 in certain circumstances where there are ten or less results of facility-specific WET data. Illinois EPA will always impose a WQBEL in NPDES permits where one would be required using the procedures specified at 35 Ill. Adm. Code 352.530 where there are ten or less pieces of facility-specific WET data or will ensure that there are always at least ten data points available prior to permit issuance or reissuance for the reasonable potential analysis.

3. **Mixing Zone Demonstrations**

Illinois' rules at 35 Ill. Adm. Code 309.141(h)(5)(A) & (C) provide that no mixing zones shall be allowed for discharges into tributaries of the Lake Michigan Basin, and default mixing zones shall be applied for discharges into the Open Waters of Lake Michigan, unless a discharger submits a mixing or dispersion study to justify its request for an alternative mixing zone. Illinois EPA will allow use of mixing zones for discharges into tributaries of the Lake Michigan Basin only under 35 Ill. Adm. Code 309.141(h)(5)(A), and shall allow use of alternative mixing zones in lieu of the default mixing zones set forth in 35 Ill. Adm. Code 309.141(h)(5)(C), only where the requirements set forth in Paragraph F of Procedure 3 in Appendix F to 40 CFR Part 132 pertaining to use of alternative mixing zones have been met.

4. **Noncontact Cooling Water Exemption**

A. 35 Ill. Adm. Code 352.440(a) states that Illinois EPA may require a water quality-based

effluent limitation based on an acute aquatic criterion for a substance or acute whole effluent toxicity when information is available to indicate that such a limit is necessary to protect aquatic life, unless the substance or whole effluent toxicity is due solely to its presence in the intake water. Illinois EPA will always require a water quality-based effluent limitation based on an acute aquatic criterion for a substance or acute whole effluent toxicity when information is available indicating that such a limit is necessary to protect aquatic life unless the substance or whole effluent toxicity is due solely to its presence in the intake water.

B. 35 Ill. Adm. Code 352.440(b) states that if a substance is present at elevated levels in the noncontact cooling water wastestream due to improper operation and maintenance of the cooling system, the wastestream must be evaluated under the reasonable potential procedures in 35 Ill. Adm. Code 352 Subpart D. Illinois EPA considers pollutants added to a wastestream through corrosion and erosion to be elevated levels of pollutants due to improper operation and maintenance within the meaning of 353.440(b). Consequently, Illinois EPA will always evaluate reasonable potential for the wastestream under the procedures for evaluating reasonable potential under 35 Ill. Adm. Code 352 Subpart D if a pollutant is present at elevated levels due to corrosion and erosion.

C. Illinois EPA interprets 35 Ill. Adm. Code 352.440(b) through 35 Ill. Adm. Code 352.440(d) as authorizing it to undertake a reasonable potential analysis and issue water quality-based effluent limitations based on wildlife or human health criteria or values or chronic aquatic life criteria or values when considering discharges consisting of once through noncontact cooling water. Illinois EPA will utilize its reasonable potential procedures in determining whether there is a need for a WQBEL based on wildlife or human health criteria or values or chronic aquatic life criteria or values, and will impose WQBELs based on those criteria or values whenever those reasonable potential procedures indicate that a WQBEL is needed.

5. **Reasonable Potential based on fish tissue data**

35 Ill. Adm. Code 352.430(e) provides Illinois EPA with authority to require water quality based effluent limits in NDPES permits whenever "historical information or knowledge of Agency field inspectors indicate that a potential for discharge of a substance exists and there is evidence that the substance would be discharged in quantities sufficient to merit inclusion of permit limits." Illinois EPA will establish WQBELs in NPDES permits for each facility that discharges detectable levels of any pollutant into a waterbody where the geometric mean of the pollutant in representative fish tissue samples collected from the waterbody exceeds the tissue basis of a Tier I criterion or Tier II value, after consideration of the variability of the pollutant's bioconcentration and bioaccumulation in fish.

6. **Estimating missing endpoints using default ACR for WET data**

Illinois rules at 35 Ill. Adm. Code 352.530 contain procedures for determining WET reasonable potential. Illinois' rules do not contain provisions for estimating a chronic endpoint using an acute-to-chronic ratio (ACR) when chronic WET data are lacking. Illinois EPA will use all available WET data to assess reasonable potential under 35 Ill. Adm. Code 352.530 for both

acute and chronic endpoints. Illinois EPA also will assess both acute and chronic WET endpoints in all cases. Where data are lacking for a particular endpoint, Illinois EPA will use a default acute to chronic ratio of ten to one to estimate the missing endpoint unless it is possible to calculate a better case-specific acute to chronic ratio from the available data.

7. **Requiring Use of Methods Specified in or Approved Under 40 CFR Part 136**

Illinois's rules at 35 Ill. Adm.Code 352.104 and 352.700 require that NPDES permits specify that permittees use the most sensitive analytical method specified in or approved under 40 CFR 136 for purposes of monitoring pollutant levels in the permittee's discharge. Illinois EPA will specify in NPDES permits that permittees use the most sensitive analytical method specified in or approved under 40 CFR 136 at the time of permit issuance for purposes of monitoring pollutant levels in the permittee's discharge.

8. **Alternatives to pollutant minimization plans**

Illinois' rules at 35 Ill. Adm. Code 352.700(b) provide that, where there is a WQBEL below the level of quantification, "[t]he permit shall include a condition requiring the permittee to develop and conduct a pollutant minimization plan [PMP] . . . unless the permittee can demonstrate that an alternative technique is adequate to assess compliance with the WQBEL." An alternative technique is not "adequate to assess compliance with the WQBEL" unless the technique can actually demonstrate that a discharge is in compliance with the WQBEL. Moreover, if Illinois EPA relies upon the existence of an alternative technique as a basis for not requiring a permittee to develop and conduct a PMP, Illinois EPA will require in the permit that the permittee use the alternative technique to monitor for the presence and amount in the permittee's effluent of the pollutant for which the WQBEL has been imposed.

9. **Monitoring and reporting frequency required under PMPs**

Illinois's rules at 35 Ill. Adm. Code 352.700(b) set forth certain monitoring and reporting requirements that Illinois EPA will include in NPDES permits that contain WQBELs below the level of quantification and requirements to develop and conduct a PMP. Illinois EPA always will require quarterly monitoring for the pollutant for which the WQBEL has been imposed, and an annual review and semi-annual monitoring of potential sources of the pollutant unless information generated by a pollutant minimization plan supports a determination that some other monitoring frequency is more appropriate.

10. **Compliance schedules**

Illinois' rules at 35 Ill. Adm. Code 309.148(a) provide that compliance schedules in NPDES permits must require the permittee to "take specific steps to achieve compliance . . . in the shortest reasonable period of time consistent with the guidelines and requirements of [the Clean Water Act] and the [Illinois Environmental Protection] Act." Illinois EPA will not grant compliance schedules in NPDES permits where a compliance schedule is not needed. Illinois EPA also will not grant compliance schedules that are inconsistent with the guidelines and

requirements of the Clean Water Act.

11. **Interim limits for compliance schedules.**

Illinois' rules at 35 Ill. Adm. Code 352.800(c) provide that, if a compliance schedule extends beyond one year, the schedule shall provide for interim requirements as "appropriate." Illinois EPA agrees that the phrase "as appropriate" in 35 Ill. Adm. Code 352.800(c) means that interim numeric effluent limits will be included in the permit.

12. **Use of QSAR Information to Estimate Ambient Screening Values**

Illinois' rules at 35 Ill. Adm. Code 352.430(f)(1) provide that, where there are inadequate data to calculate a Tier II value, Illinois EPA "shall use all available, relevant toxicity information to estimate ambient screening values for the pollutant that will protect humans from noncancer health effects and aquatic life from acute and chronic effects." Illinois EPA shall use available and relevant Quantitative Structure Activity Relationship Information, along with all other available, relevant toxicity information, to estimate ambient screening values for the pollutant that will protect humans from noncancer health effects and aquatic life from acute and chronic effects under 35 Ill. Adm. Code 352.430(f)(1).

13. **Monitoring Requirements for BCCs**

Illinois' rules at 35 Ill. Adm. Code 309.146 allow Illinois EPA to include monitoring requirements in NPDES permits. Where bioaccumulative chemicals of concern (BCCs) are known or believed to be present in a discharge, Illinois EPA shall include requirements to monitor for those BCCs in the NPDES permit for that discharge.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

By: _____

Thomas V. Skinner
Director

Date: 5.23.00

U.S. ENVIRONMENTAL PROTECTION AGENCY REGION V

By: _____

Francis X. Lyons
Regional Administrator

Date: 7/28/00

EXHIBIT C

EPA 831-R92001
October 1992

United States
Environmental Protection
Agency

Office of Wastewater Enforcement and Compliance EN-338

EPA

Review of Water Quality Standards, Permit Limitations, and Variances for Thermal Discharges at Power Plants

ACKNOWLEDGEMENTS

Several U.S. Environmental Protection Agency (EPA) personnel were critical to the collection and analysis of information on the operation of power plants and the effect of thermal effluent on the environment: Ted Landry, Region I; Charles Kaplan, Region IV; and Peter Howe, Region V.

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The EPA Project Coordinator for this study was Mary Reiley, (202) 260-9456.

NOTICE

This document has been reviewed by the concerned offices and programs within the Office of Water: Statements of policy and opinion were prepared and incorporated by the Office. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

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REVIEW OF WATER QUALITY STANDARDS, PERMIT LIMITATIONS, AND VARIANCES FOR THERMAL DISCHARGES AT POWER PLANTS

EXECUTIVE SUMMARY

This report provides an overview of issues relating to thermal effluent discharges, limitations, and variances. The report also highlights the environmental impacts of thermal effluents, methods to mitigate the impacts, and recommended EPA actions to address thermal issues.

Thermal discharges are defined as pollutants by the Clean Water Act (CWA) and are subject to effluent limitations. If the discharger can show that effluent limitations derived from applicable State water quality standards (WQS) are more stringent than necessary to ensure protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water to which the discharge occurs (i.e., meets the variance criteria), EPA or State may adjust the permit limitations to a less stringent level.

This adjustment is called a "Section 316(a) variance" and is included in the National Pollutant Discharge Elimination System (NPDES) permit (or State equivalent) that the facility receives from the permitting authority. EPA draft guidance for issuing these variances is provided in the 1977 *Section 316(a) Technical Guidance Manual*; however, this guidance has never been finalized by EPA. Some EPA Regions, however, have developed their own guidance.

The actual thermal limitations and monitoring requirements with which the facility must comply are specified in the permit. Permit limitations for thermal discharges may be established as a maximum temperature at the point of discharge (POD), maximum rate of temperature increase at the POD, and temperature difference between a sample taken at the POD and a sample taken upstream of the POD (i.e., ambient water temperature). Discharge temperature limitations in the permit are calculated by considering a specified mixing zone in which the thermal effluent is expected to be assimilated by the receiving water. In many cases, heat load is commonly limited, but discharge temperature, although monitored, may not be limited.

WQS requirements for thermal discharges and the related mixing zone requirements vary widely from State to State. Preliminary reviews by EPA indicated that approximately one third of the 580 power plants in the U.S. have been granted a Section 316(a) variance from WQS. EPA's review also revealed that the EPA has little information readily available on the thermal limitations that have been granted.

Based on these findings, EPA determined that further evaluation was needed. In August 1989, EPA's Office of Wastewater Enforcement and Compliance (OWEC) initiated this study of the CWA Section 316(a) variances for thermal limitations for power plants discharging thermal effluent. This study was conducted in the following four stages:

- Prepared a compendium of State WQS
- Compiled a matrix of NPDES permit limitations and State WQS
- Developed a list of facilities recommended for review in depth

- Conducted data reviews and site visits, including site visits to, and a file review of, Brunner Island Power Plant; a review of facility operation and discharge data at selected facilities; and interviews with selected State, EPA Regional, and facility staff.

The first two stages resulted in separate reports, which are summarized here. The information gathered and findings for the remaining stages are included in this report.

I. Impact of Thermal Effluent

Information provided by the EPA Regions and permitted facilities did not reveal widespread environmental problems resulting from the discharge of thermal effluent from power plants.[1] Isolated cases where substantial degradation occurred were most often the result of administrative error on the part of the permitting agency (e.g., inappropriate permit limitations) rather than facility noncompliance with permit limitations. Fish kills caused by "cold shock" (sudden drop in temperature in the thermal plume during winter months) and excessive temperatures are two acute impacts that were identified at some facilities in this study. In some of these cases, facilities with Section 316(a) variances had high temperature discharges, which caused fish kills. It has been documented that certain thermal discharges have a chronic effect on the populations of different aquatic species in certain water bodies (e.g., reduced diversity, change in species mix, health effects) as well as adverse impacts on surrounding flora and fauna.

To support variance requests and permit reissuance, facilities conduct environmental studies of varying scope and depth. In some cases, these studies are required in the permit. In addition, facilities may employ a variety of procedures to reduce the impact of thermal discharges. Many of these procedures also may be required in permits. These are discussed in Section II below.

II. Shutdown Procedures and Control Mechanisms to Reduce Impact on the Environment

Power plants shut down under a variety of circumstances, including decreased power needs, periodic maintenance, and emergencies. Shutdown procedures are generally designed to protect equipment and address health and safety concerns. Although not the primary purpose, many of these procedures protect fish from cold shock by preventing sudden drops in discharge water temperature. This study identified few facilities that have procedures for a controlled shutdown specifically designed to reduce the potential for cold shock. One facility that does have such procedures is Brunner Island, which uses a "fish comfort system" designed to ensure temperature drops of no greater than 10° F per hour in the discharge channel during unit shutdown.

A wide variety of control mechanisms are used, other than controlled shutdowns, to reduce the impact of thermal effluents on the environment. These mechanisms range from cooling towers that cool the effluent to physical barriers that keep fish out of discharge channels where the fish are at greatest risk from exposure to temperature fluctuations and maximum temperatures. Control mechanisms that are designed to prevent environmental degradation due

[1] Note: Regions may not be apprised of problems because violation evaluation in the Permit Compliance System and on the Quarterly Non-Compliance Reports (QNCRs) may not necessarily meet the thresholds for reporting and/or enforcement action.

to thermal effluent may vary to accommodate seasonal temperature changes. These control mechanisms either reduce the water temperature at discharge and/or help reduce water temperatures outside the mixing zone. Mechanisms include: cooling towers, cooling ponds, submerged pipes, and multiport diffusers. Control mechanisms that are used to keep fish out of discharge channels include: screens, nets, barriers, water jets, and vertical bars. These mechanisms vary in effectiveness.

III. Environmental Studies Performed to Support Variances

Studies to support initial Section 316(a) variances may be quite extensive and involve collection of facility operating data, environmental data, and biological data, as well as mathematical or physical modelling. However, at the time of permit reissuance, the amount of data required to support a variance is usually less unless a change has occurred in: facility operating conditions, the discharges that interact with the thermal discharge, or in the biotic community of the receiving water.

Biosampling and environmental monitoring help ensure that the environmental integrity of a water body is maintained. Some permits require monitoring on a periodic basis, others have no requirements for monitoring or biosampling. In cases where the permit does not specify monitoring requirements, changes in water quality (most typically improvements) may go undetected unless the facility personnel perform monitoring on their own or a State or federal agency monitors that part of the waterway. Improvements in water quality may change the parameters under which a variance may be considered for reissuance.

IV. Key Findings

Key findings from this study to date are: 1) For the majority of facilities (some with variances, others without), impacts from thermal effluent have not been found to be large and/or permanent, although additional studies at some facilities are needed; 2) Most thermal issues are not related to intentional noncompliance on the part of the facility, but rather are administrative in nature on the part of EPA (e.g., there may be no permit provisions that ensure that variance criteria are met, no monitoring provisions are specified in the permit, and/or no permit requirements that protect fish at facilities where cold shock is likely to occur); 3) The lack of final guidance on Section 316(a) variances from EPA Headquarters has contributed to inconsistencies in permit requirements and the process by which variances are issued; 4) EPA is losing its institutional knowledge on thermal issues, thereby decreasing the EPA's ability to review permits.

The following recommendations reflect consideration of these findings and discussions with EPA staff from the Regions and Headquarters:

- Update the previously developed listing/summary of Section 316(a) and Section 316(b) status for power plants.
- Issue final guidance, formalize EPA policy, and develop permit language and enforcement checklists to ensure that Section 316(a) variances meet variance criteria.
- Provide training for EPA Regional and State permit writers.

- Identify States and EPA Regions that have established processes by which variances can effectively be issued and reissued (e.g., the Technical Advisory Committees in Region I) and share this information among the other States and EPA Regions through a national thermal guidance panel.

- Evaluate ways to increase the reporting to EPA and the public of thermal effluent violations from the States, including modifying the reporting protocols for the Permit Compliance System.

- Reconsider the establishment of technology-based new point source performance standards governing thermal discharges, for steam electric plants over the long-term.

In summary, OWEC believes that the Section 316(a) variance is a useful tool when appropriately and consistently applied. To promote consistency, OWEC is developing a training course for power plant permit writers and others involved in thermal effluent management. The pilot workshop is to be held in Region II in the second quarter of FY 1993. A guidance document also is under development and will be available in draft form by October 1993. The workshops and guidance document will address the first five recommendations made above. The sixth has been placed on the selection list for guidelines review, update, and reissuance.

REVIEW OF WATER QUALITY STANDARDS, PERMIT LIMITATIONS, AND VARIANCES FOR THERMAL DISCHARGES AT POWER PLANTS

1.0 INTRODUCTION TO THE REPORT

This report provides an overview of issues relating to thermal effluent discharges, limitations, and variances. The report also highlights environmental impacts of thermal effluent, methods to mitigate the impacts, and recommends EPA actions to address thermal issues.

The thermal component of any discharge is defined as a pollutant by the Clean Water Act (CWA) and is subject to technology-based or water quality-based effluent limitations, whichever is more stringent. Thermal discharges are of concern because they occasionally cause fish kills and have been known to cause other detrimental effects such as increased levels of parasitic and/or bacteriological infection and poor body condition in aquatic life, as well as reducing population size and species diversity. Thermal discharges may also have a detrimental impact on benthic flora and fauna in estuarine and marine areas. If the discharger can show that the effluent limitations calculated from State water quality standards (WQS) are more stringent than necessary to ensure protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water where the discharge is to occur, EPA or the State may adjust the effluent limitation to a less stringent level that still ensures such protection and propagation.

This adjustment is called a "Section 316(a) variance" and is included in the effluent discharge permit the facility receives from the State or EPA Region. Section 316(a) of the CWA allows dischargers such as power plants to apply for a variance from WQS to provide flexibility to ensure that thermal discharge limits are protective of a "balanced indigenous population" of aquatic life in and on our nation's waters, while balancing other environmental, social, and economic factors. These factors may include costs such as cooling towers, retention ponds, and protocols for facility operations for minimizing effluent temperatures and fluctuations. Other factors include: losses of electricity production capacity due to retrofitting of cooling towers; evaporative water losses caused by cooling towers; land use restrictions; energy requirements; solid waste disposal; clean air act compliance; and aesthetics. This variance provision for thermal effluent is particularly important to power plants because thermal effluent is such a significant part of their discharge. EPA draft guidance for issuing these variances was provided in the 1977 *Section 316(a) Technical Guidance Manual*; however, this guidance has never been finalized by EPA. Some EPA Regions, however, have developed their own guidance.

WQS for thermal limitations and the related mixing zone requirements vary from State to State. Preliminary reviews indicated that approximately one third of the 580 major power plants in the U.S. had been granted a Section 316(a) variance from those standards. Major facilities are defined by EPA to include NPDES permittees with an industrial rating of 80 or greater under the NPDES permit rating procedures. EPA selected facilities from this universe because permit, violation, and enforcement data are more likely to be reported by the States in EPA's Permit Compliance System (PCS) data base. The review also revealed that EPA had little information readily available on thermal limitations.

Based on these findings, EPA determined that further study was needed. In August 1989, EPA's Office of Wastewater Enforcement and Compliance (OWEC) initiated a review (this study) of the CWA Section 316 variances for thermal limitations for major electric power plants discharging thermal effluent. The goals of the review are to:

- Compile information on State thermal loading guidelines, standards, and limitations
- Compile NPDES permit information on all power plants having active discharges
- Prepare a listing of facilities with Section 316(a) variances that warrant in depth review based on certain criteria
- Conduct an in-depth analysis of selected facilities above
- Compare and analyze permit limitations, discharges, and standards of similar facilities.

EPA initiated a second study in April 1991 to examine in further detail issues identified during the initial data collection phase. In this second study, EPA conducted additional interviews with EPA Regional staff and facility staff. This report details the information collected to date from both studies, as well as further research and analysis of thermal limitations, study methodology, findings, and conclusions/recommendations. Future work may include site visits to other facilities, review of State files on specific facilities, and further research to respond to issues identified in this report.

2.0 STUDY METHODOLOGY

EPA's review of WQS, permit limitations, and thermal variances occurred in four stages. The first two stages resulted in separate reports, the *Compendium of State Water Quality Limits for Thermal Discharges and Mixing Zones* and the *Matrix of NPDES Permit Limits and State Water Quality Standards for Thermal Discharges from Major Power Plants*, which are summarized in Sections 2.1 and 2.2 . The remaining stages are included in their entirety in this report. The information collected from the site visits to Brunner Island is contained in Attachments A and B and summarized in the findings section of this report.

2.1 Compendium of State Water Quality Standards

As a first stage in compiling and analyzing information on thermal discharge limitations, EPA developed a compendium of State-approved WQS relating to thermal discharges and corresponding mixing zones. The compendium contains a summary of each State's WQS for thermal discharges and mixing zones, the issuance date of the thermal discharge WQS, and the State regulatory citation for the WQS.

To develop this compendium, EPA collected information on State WQS from the *Environment Reporter - State Water Laws* issued by the Bureau of National Affairs. In addition, EPA conducted interviews with personnel from State water resources departments and EPA's Criteria and Standards Division to ensure compilation of the most current regulations. EPA compiled this information into a document entitled *Compendium of State Water Quality Limits for Thermal Discharges and Mixing Zones*.

It should be noted that WQS in many States are not based on the extensive data and modern scientific theories that have become available since the standards originally were issued. Largely because of the availability of Section 316(a) of the CWA, which enables permittees to perform site-specific evaluations in lieu of applying WQS, many States have not chosen to update their thermal WQS with the new data and procedures that have become available since that time.

2.2 Matrix of NPDES Permit Limits and State Water Quality Standards

In the second stage, EPA prepared a report containing matrices of National Pollutant Discharge Elimination System (NPDES) permit limitations and State WQS for the 580 major power plants with active thermal discharges. The State WQS included in the matrices were summarized from the compendium to facilitate comparison with the NPDES permit limitations in the matrix. (Note: Comparing WQS and permit limitations does not indicate whether a variance is warranted or whether the permit limitations have been exceeded. Permit limitations and State WQS are measured differently and as a result cannot be compared directly. Instead, the WQS must be put into a formula that takes into account the amount of heat discharged, size of the thermal plume, amount of water discharged, and other variables. In addition, some facilities will have permit limitations that allow for the discharge of heated effluent in excess of State WQS (because those facilities have been "grandfathered" from complying with certain State WQS requirements). EPA obtained a majority of the information on the NPDES permit limitations from EPA's Permit Compliance System (PCS). The Utility Data Institute, EPA Headquarters' files, EPA Regional offices, and State water quality authorities provided additional information for the matrices.

The information collected on NPDES permit limitations and State WQS included:

- Facility permit number
- Facility name
- Receiving water
- Permit expiration date
- Design discharge flow
- Pipe schedule number
- Thermal parameter measured at the discharge point
- Minimum limitation for the associated thermal parameter
- Average limitation for the associated thermal parameter
- Maximum limitation for the associated thermal parameter
- Months limitation applies
- State water quality class
- Maximum increase above the ambient temperature
- Maximum temperature of receiving water
- Status of Section 316(a) variance
- Enforcement actions for thermal violations.

Not all of this information was available for each facility. From this facility-specific information, EPA selected facilities for further review, as discussed below.

2.3 Facilities Reviewed In Depth

EPA selected from a list of the 580 major facilities 33 that met at least one of the following criteria for more detailed review:

- Variance application or approval, but no thermal discharge limitations (according to PCS)
- High thermal discharge limitations
- History of noncompliance or citizen complaints.

In some cases, EPA also used as selection criteria evidence of fish kills and location of facilities on water bodies designated by the State as having high resource value or containing endangered species. For the 33 selected facilities, EPA then compiled the following information:

- Permit number
- Facility name
- Receiving water
- Name of contact
- Telephone number of contact
- Variance approval status
- Thermal discharge limitations
- High discharge limitations
- Enforcement actions.

This information is contained in Attachment C of this report. The next section presents the methodology used in collecting the information; the findings are summarized in Chapter 3.0.

2.4 Data Reviews and Site Visits

Discussions with EPA Regional, State, and facility staff provided the core of data on facility operations and discharges. In addition, EPA reviewed PCS and facility records to compare the actual discharges, permit limitations, State standards, and variances of several facilities, including Brunner Island.

EPA contacted several of the selected facilities from Section 2.3 to discuss operational data, facility type, compliance rate, and discharge information. EPA also researched and analyzed the permit limitations, discharges, and enforcement history of the six facilities discharging thermal effluent into the Susquehanna River. The Susquehanna River was selected because of its proximity to a facility that had a history of fish kill incidents. Moreover, some of these facilities are located in Pennsylvania, which has a different method for assessing mixing zones than other States.

In all, EPA gathered information about 39 major facilities relating to facility operations, discharges, permit limitations, State WQS, and variances. For specific facilities, EPA collected information on facility procedures for unit shutdown, the process by which the facility obtained its initial variance, studies to support renewal of the variance, environmental monitoring conducted by the facility, and the presence of any environmental problems. EPA also interviewed Regional and State staff on how variances are issued and reviewed by the States and Regions (in particular the Technical Advisory Committee in Region I). Other interviews, particularly in Region V, focused on facilities experiencing difficulty complying with State thermal WQS, while other discussions focused on issues relating to the Section 316(a) program and the CWA reauthorization.

In addition, EPA made two site visits to Pennsylvania Power and Light's (PP&L) Brunner Island facility in York County, Pennsylvania. The purpose of the site visits was to make preliminary determinations of the type of information to be collected during site visits to other facilities. These site visits consisted of a review of State files, a tour of the facility, discussions with facility environmental staff, and observation of biosampling at the facility. This information supplemented the review of State files on the enforcement history of the facility. The information compiled on the Brunner Island facility is integrated with the findings from discussions with staff at other facilities and the State.

3.0 STUDY FINDINGS

The results of the research and analysis of data on permits, State WQS, and variances, the impacts of thermal effluent, as well as information on specific facilities, are contained in this section.

3.1 Establishing Thermal Permit and Variance Limitations

The goal of the CWA as stated in Section 101 is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." A key objective is the eventual elimination of pollutants discharged into the waters of the U.S. A principal means to achieve that objective is a system to impose effluent limitations on, or to otherwise prevent, discharges of pollutants into any waters of the United States from any point source. The CWA's primary mechanism for imposing effluent limitations on pollutant discharges is a nationwide permit program established under Section 402 of the Act, NPDES. Each effluent limitation imposed on an NPDES permittee is generally developed using technology-based or water-quality-based standard methodology. Generally, technology-based limitations define a floor or minimum level of control and are applicable at the point of discharge. Technology-based limitations are established through either: 1) national effluent limitation guidelines developed by EPA, or 2) the permit writer's best professional judgement.

In addition to technology-based limitations, each permittee must comply with limitations derived from additional or more stringent WQS established by the State (and approved by EPA) to achieve or maintain the beneficial uses of a particular waterway. State WQS take precedence over any less stringent technology-based controls. These standards do not apply directly at the discharge pipe, but rather, are converted to discharge pipe limitations by the permit writer by determining the assimilative capacity of the stream and dividing it among the discharger's waste load allocation (WLA) to the stream.

In the case of the thermal component of a discharge, no national technology-based effluent limitation guidelines currently exist. As a result, thermal limitations must be developed based on WQS. WQS applicable to thermal discharges are generally set as a maximum temperature or maximum incremental temperature increase at a point outside of the mixing zone. (NB: the first effluent guidelines for the steam electric power industry did place technology-based controls on heat. EPA was quickly sued by the power industry and the courts remanded that provision to EPA. Since that time, no additional technology-based limits have been proposed or adopted for the thermal component of discharges.)

The actual thermal limitations and monitoring requirements with which the facility must comply are specified in the NPDES permit. The State or EPA permit writer may consult various guidance manuals to determine the validity of the proposed permit limitations. One of those manuals is the *Quality Criteria for Water 1986* (The Gold Book). The manual outlines methodologies for determining appropriate water quality criteria for all States. This manual is an attachment to the report entitled *Compendium of State Water Quality Standards.*

The concept of Section 316(a) varies significantly between States and between Regions. A State can write both WQS and mixing zone dimensions for thermal pollutants in such a way that virtually no power plant will need to apply for a Section 316(a) variance. In some States, plants in operation before a certain time have been grandfathered and are excused from

performing a Section 316(a) demonstration. In other States, the requirements are more rigorous and even extend to industries other than steam electric power.

Permit limitations for thermal discharges may be established as a maximum temperature at the point of discharge (POD), a maximum incremental temperature increase at the POD, and/or the temperature difference between a sample taken at the POD and a sample taken at the plant intake or upstream of the POD. In most cases, heat load is commonly limited, but discharge temperature, though monitored, may not be limited. Compliance with mixing zone requirements is determined by in-stream thermal monitors or with mathematical models used to back calculate from the temperature at the POD to the expected temperature in the mixing zone as a result of the thermal discharge. The in-stream monitors that determine compliance with mixing zone requirements may be located as much as several miles downstream depending on the size of the mixing zone. The mathematical models consider such characteristics as the size of the waterway, the volume of the discharge, the stream bank configuration, mixing velocities, dilution ratio, and other hydrologic or physiographic characteristics. While each State has a specified mixing zone, each defines that mixing zone differently.

An exception to the mixing zone approach is that used by the Commonwealth of Pennsylvania. Pennsylvania does not specify or consider mixing zones in setting thermal discharge limitations. Instead, an instantaneous complete mix of the thermal discharge with the receiving stream is assumed. Therefore, the "mixing zone" actually is the entire stream, allowing for a greater dilution of the discharged thermal effluent. According to the Pennsylvania Department of Environmental Resources (PA DER), thermal discharge limitations established in individual facility permits are often more stringent to offset the benefits of whole stream dilution (this study did not attempt to verify this assertion). Generally, the effluent thermal limitations in Pennsylvania are based upon an allowable heat rejection rate and are expressed in terms of BTU's (British Thermal Units) per hour. The basic theory underlying this principle is that the heat gained by the stream is equivalent to the heat lost by the discharge. The maximum allowable or actual discharge temperature then is calculated based upon the equation of the heat rejection rate.[2] Variations in the equation account for cases where stream flow is augmented, or where the stream and intake temperatures differ. Pennsylvania has determined temperature variations and limitations on a site-specific basis for every body of water in the Commonwealth. Detailed calculations, equations, and examples are outlined in the PA DER's *Staff Guidance for Implementation of Temperature Criteria*, dated October 3, 1989. This document is an attachment to the EPA report entitled *Matrix of NPDES Permit Limits and State Water Quality Standards.*

3.2 Impact of Thermal Effluent

Thermal discharges can impact aquatic life in several ways. Either cold shock (a sudden decrease in water temperature) or high temperature discharges may cause high fish mortality rates due to the inability of different cold-blooded species to adapt to certain changes in temperature. In addition, increases in ambient temperatures may lead to changes in the population of certain aquatic species. Higher temperatures may also adversely affect plants and benthic organisms that are exposed to the thermal plume. The majority of facilities contacted did

[2] $T_d = (Q_1 / Q_d)(T_2 - T_1) + T_1$, where T_d is the maximum allowable or actual discharge temperature, Q_1 is the design stream flow, Q_d is the anticipated or actual discharge flow, T_2 is the maximum allowable downstream temperature, and T_1 is the intake temperature. The design stream flow and temperature are established to represent a worst-case scenario and are based on low flow and median temperature conditions.

not report any significant environmental problems as a result of thermal effluent. Discussions with State staff and a review of PCS data revealed some problems relating to fish kills and permit violations, however.

Several facility staff mentioned recreational benefits enjoyed by fishermen who take advantage of the higher concentrations of fish found in thermal plumes in fall, winter, and early spring. Any adverse effects to the fish, they believe, would be reported by the fishermen. Only one of the facilities contacted has received citizen complaints regarding thermal effluent. In addition, temperate waters are well suited for commercial fish operations; some State and/or federal agencies utilize waters near power plants for fish stocks or hatcheries.

The following section documents some of the problems that were identified in this study from conversations with staff in the EPA Regions and at facilities, and from site visits. However, the absence of adverse impacts at most of the selected plants in this study provides the basis for a conclusion that there is only a small likelihood of significant thermal impacts occurring at the nation's power plants operating under Section 316(a) variances.

3.2.1 Impact of Cold Shock

One of the most acute forms of environmental impacts from thermal effluent is "cold shock," which results in fish kills. Cold shock to fish results from sudden drops in temperature in a thermal plume, usually during winter months. Typically, cold shock occurs during a unit or facility shutdown when the thermal effluent is replaced by a rapid discharge of unheated water. Certain species of fish less than 1 year old are especially susceptible to a sudden drop in temperature over 5° F. The fish kills appear to occur only in winter due to the physiology and location of fish during these months. During the coldest water periods, sudden temperature drops are more likely to cause death in most fish species than during warmer ambient temperatures (spring and fall) when higher temperature drops can be tolerated. Furthermore, the comfort range of the fish is such that in the warmest months, fish congregate in the deeper, cooler waters, and during the winter they are attracted to and stay within the thermal plume. Accordingly, fish are more likely to be present in the plume and therefore affected by thermal fluctuations during the winter months.

Cold shock is most likely to occur at facilities that:

- Are located in cold climates (northeast and northwest) or mountainous regions.
- Have "once through cooling" and do not have any form of supplemental heat dissipation or rapid effluent mixing device (i.e., cooling ponds or multiport diffusers) to reduce the change in temperature (ΔT). These facilities are more likely to have a thermal plume with a significantly higher temperature than that of the ambient water.
- Have one or two operating units, where shutdown of one unit has a significant effect on the total discharge.
- Have older units, which are more likely than newer units to be used only intermittently during peak loading, and are shutdown on weekends, holidays, and during periods of lessened demand. The more shutdowns a facility has, the

greater the number of occasions where cold shock may occur as a result of temperature fluctuations in the thermal plume.

Only one facility in the study reported fish kills attributable to cold shock in the last 2 years. This facility experienced fish kills due to "cold shock" in December 1985, January 1988, January 1990, and January 1991. The 1991 fish kill occurred during a controlled shutdown of the largest of three units. At the time of the controlled shutdown, one of the remaining two units was already out of service. As a result of both unit shutdowns, the amount of heated discharge entering the channel was significantly reduced. The drop in water temperature killed 500 fish. In January 1990, one unit was brought out of service in a controlled shutdown to 1/3 of the unit's output. The "fish comfort system" activated and reduced the flow from the facility to avoid a sudden pass through of unheated river water. However, at 1/3 load, the temperature differential across the unit was too great to continue with a controlled shutdown without critical damage to the facility, and the staff removed the comfort control system from operation. The shutdown of the unit resulted in a 30° F increase in the discharge channel over an hour as flows from the other two units overran the first unit's decreased discharge. A sudden drop in temperature (15° F in approximately 10 minutes) occurred in the channel when the comfort system was removed. Subsequently, unheated river water passed through the facility and into the discharge channel. The facility staff interviewed believe the fish kill was a result of the sudden decrease in temperature and not the initial increase.

A January 1988 fish kill due to a "cold shock" resulted from decreased flow from the facility during shutdown of one unit and the undertow of the river water back up the discharge channel. This resulted in a 29° F drop over 10 minutes in the channel, killing 180 fish. At this facility, there are no controls preventing fish from entering the discharge channel, thus exposing the fish to the potential variations of temperature.

The facility staff attributed the December 1985 fish kill to a drop in power load; the staff attempted to maintain a 5 megawatt per minute drop in load, but ended with a 6 megawatt per minute drop. The target drop rate was based on the staff's experience that a 5 megawatt per minute drop rate maintains less than a 10° F drop per hour. The facility staff believes it is possible that the ambient river temperature being lower than expected (in addition to the greater drop) was a factor in the large decrease in temperature. Adjustments in procedures were to include a check of ambient river temperature and adjust the rate drop accordingly.

The staff reported that controlled shutdowns are preferred over a "trip" (i.e., an automatic emergency shutdown of the unit) for safety and environmental reasons. On a "trip," the temperature in the discharge channel actually increases because of the influence of the discharges from the two other units.

3.2.2 Impact of Excessive Temperatures

High temperature thermal discharges can cause fish kills and other detrimental impacts to the aquatic environment. Some facilities reported that they have experienced heat-related fish kills. Many of these fish kills were isolated incidents and not indicative of a chronic problem. Facilities with once through cooling and no supplemental heat dissipation facilities are more likely to discharge high temperature thermal effluent than are those facilities that employ cooling ponds, cooling towers, diffusers, or recycle the water back through the facility after cooling.

EPA Regions have identified facilities where ongoing problems exist or existed and where fish kills have been reported in great numbers due to excessive temperatures. According to Region V files, one station in Indiana heated the West Fork of the White River to 108° F, resulting in an extensive fish and mollusk kill downstream. Four Ohio facilities heated their respective streams to higher than 100° F several miles downstream. Files show one of the four facilities increased river temperatures to 110° F in the summer of 1988, resulting in a major fish kill of approximately 2 million fish. At the time of these fish kills, all four facilities were in compliance with their permits; none of the permits had maximum temperature limitations. Rather, limitations were based on the maximum heat rejection rate for the facility.[3] In effect, these facilities can heat the river to facility capacity. In practice, as river flow rates reach summer minimum or drought condition minimum flows, power plants generally must reduce their operations, because the volume of cooling water available in the river and/or high intake water temperatures make operating the plant at full capacity impossible. EPA has since imposed thermal limitations that require the facility to meet maximum State WQS on a fully mixed basis. There are ongoing permit limitation negotiations with several Region V facilities.

In addition to fish kills, high temperature discharges can adversely impact the aquatic environment in several ways including: 1) damage to benthic grasses and fauna; 2) loss of spawning areas; 3) bank-to-bank thermal plumes preventing fish migration; and 4) loss of eggs, larvae, and planktonic organisms in riverine thermal plumes. For example, the thermal plume from a Region IV facility adversely affected approximately 3000 acres of the receiving bay area. Within this 3000 acres, at least 1100 acres of seagrass and attached macroalgal communities were destroyed because of excessive temperatures. In addition, major components of locally indigenous fish and invertebrate species are excluded from the thermally-impacted area.

3.2.3 Changes in Population of Certain Fish Species

More commonly, high temperature discharges cause chronic, health related problems to aquatic life. For example, thermal discharge at certain power plants may affect indigenous fish populations by reducing the presence and number of cold-water species, while increasing the abundance of warm-water species. A report entitled *Changes in the Fish Community of the Wabash River Following Power Plant Start Up: Projected and Observed* and studies by Region V in Indiana suggest that changes in fish population are occurring in some water bodies where there are variances to the WQS in the permit. These variances allow facilities to exceed the maximum 5° ΔT criteria included in most State WQS. More studies may be needed to identify the long-term effects of exceeding the WQS at specific sites.

3.2.4 Entrainment and Impingement

Many facilities have installed mechanisms to reduce environmental damage caused from entrainment and impingement. Entrainment refers to smaller organisms (e.g., phytoplankton, fish eggs, larvae) that are passed through the facility with the cooling water and are subjected to pumps, antifouling agents, condensers, and other physical, chemical, or thermal related causes of damage. Impingement refers to larger organisms such as fish that enter the cooling water intake system and then are trapped on screens. Although this study does not address environmental damage caused by entrainment and impingement, it is important to note that at some facilities a trade off exists between discharge temperature and impingement. Often, the

[3] These variances are appropriate for many other facilities since the facility may discharge into an ocean, a Great Lake, or a large river with a strong current thereby minimizing any effect on water quality.

more water that is drawn from the water source through the condensers to lower effluent temperatures, the more aquatic organisms die from entrainment and impingement.

3.3 Shutdown and Load Reduction Procedures and Control Mechanisms at Facilities

Facility or unit shutdowns or load reductions often occur for facility or unit maintenance, reduction in energy demand, or exceedance of discharge temperatures. "Shutdown" refers to bringing a unit(s) offline (i.e., ceasing energy production). "Load reduction" refers to decreasing energy production.

An EPA review in August 1989 found that many facilities are not required by permit to have facility or unit shutdown procedures to eliminate or reduce risk of cold shock to aquatic life. However, a wide variety of control mechanisms to reduce the impact of thermal effluent on the environment are used, from cooling towers and cooling ponds that cool the effluent to physical barriers that keep fish out of discharge channels (where the fish are at greatest risk from temperature fluctuations). Control mechanisms that are designed to prevent environmental degradation due to thermal effluent may vary to accommodate for seasonal temperature changes. These control mechanisms reduce the water temperature at discharge and/or help reduce water temperatures within and outside of the mixing zone. Mechanisms include: cooling towers, cooling ponds, discharge pipes, and multiport diffusers. Control mechanisms that are used to keep fish out of discharge channels include: screens, nets, barriers, water jets, and vertical bars. These mechanisms vary in effectiveness.

3.3.1 Shutdown Procedures to Prevent Cold Shock

Most facilities have some type of shutdown procedures in which operating units gradually are brought offline as the power level is reduced. These procedures, however, normally reflect health and safety concerns related to protecting facility equipment, rather than preventing cold shock to fish. Efforts to reduce the risk of cold shock may be hampered, in some instances, by load reduction procedures that are required to meet air quality standards.

Some power plants operate only part time in order to supplement regional energy production during periodic high energy demand, resulting in occasional shutdowns. Fish that congregate in the facility's thermal plume during winter months may be susceptible to cold shock during these shutdowns. At this time, there are no national permit requirements or guidance on shutdown procedures to address the potential problem of cold shock. To help assess the impact of facilities operating part time, Region V has proposed special conditions in the permit of a facility that is prone to cold shock. The Region has suggested that the permit contain a "Special Condition" requiring the permittee to conduct an evaluation of the potential for cold shock to fish in the thermal plume. The evaluation would include winter fish sampling and a summary of winter operating conditions for the past 4 years. The summary would include daily average and maximum ΔT and discharge temperatures. After two years, a minimum discharge temperature of 36° F would be required when intake temperatures are below 36° F unless the evaluation documents the absence of cold shock potential. At one Region I nuclear facility, the permit requires gradual temperature decreases to protect marine life from cold shock. As characteristic of most nuclear plants, these controlled temperature decreases are not used in the event of a reactor emergency shutdown, because in those situations, the objective is to avoid core damage. Loss of adequate cooling water, such as would be caused by failure of cooling water condenser pumps or clogging of intake screens, might require an emergency reactor shutdown. Region IV

requires all Section 316(a) demonstrations to address potential "cold kills" and assure adequate procedural controls.

In 1983, Brunner Island installed a fish comfort system in response to frequent fish kills. The comfort system allows for controlled temperature decreases of 10° F per hour during unit shutdown. Since then, fish kills have occurred less frequently and with less severity, but a problem still exists. The problem of cold shock at Brunner Island may be related to the disproportionate amount of water discharged from one unit relative to the combined discharges of two other units. In response to this problem, Brunner Island prepared a report examining each of the seven fish kills between 1983 and 1991 attributable to cold shock. Recommendations from the study include: 1) install a control modification to the discharge channel valve system on units one and two to achieve more control over discharge temperature; 2) conduct an annual check of the fish comfort system on unit three; 3) revise unit three control shutdown procedures so that the facility can better ensure a 10° F drop per hour; and 4) install temperature monitoring equipment on two units.

For most facilities, shutdown procedures related to cold shock are not needed. Procedures are not needed at facilities that discharge directly into a lake or large waterway where a rapid mixing of effluent occurs. For example, at a Lake Michigan facility, a year-long study performed in conjunction with the State determined that wind and current affected water temperature more than the thermal discharge. In the case of internally driven shutdowns, the risk of cold shock also is low for a facility that has three or more units, because a single unit shutdown will only result in a moderate and endurable drop in temperature in the thermal discharge. However, grid-affected unit trips likely will impact all the units at a given site, causing a larger impact in thermal discharge. The risk of cold shock and the related need for facility procedures is also low for facilities that operate in climates that are warm year-round. The risks of cold shock are also likely to be minimal at facilities with a history of winter outages that have not caused fish kills. Because cold shock appears to be very site-specific, such actual historic data offers the best evidence possible that the likelihood of cold shock is minimal.

Cold shock may, however, become more of an issue as facilities age and are used only intermittently to supplement peak power demands, or retooling extends their useful life. An important consideration, however, is that fish populations (and certainly less mobile species) are less likely to congregate in a thermal plume that is intermittent, as opposed to a plume that is continuous. Moreover, older plants generally are smaller than newer plants, and thus they produce a smaller plume. All of these factors must be considered in evaluating cold shock potential.

3.3.2 Control Mechanisms to Prevent Damage from Thermal Discharge

Power plants employ a variety of techniques that use water to cool their condensers. Many facilities have installed heat dissipation systems to minimize the impact of thermal discharge on the environment; others use operating procedures (such as the shutdown procedures described previously) to reduce the impact on the environment.

Typically a once through cooling process does not cool the water prior to discharge, rather it involves drawing in water, running it once through the facility, and directly discharging the water in one uninterrupted flow. Power plants prefer using once through cooling because it costs less than mechanisms that cool the water prior to discharge. Once through cooling is appropriate for

certain facilities, but when used alone, it poses the greatest threat to aquatic life for both cold shock and thermal shock.

Cooling towers and cooling ponds are effective in lowering the temperature of the water after it is has passed through the condensers, prior to discharge. Depending on the facility, the cooled water is either recycled through the facility to be used again or periodically discharged to the receiving body. Cooling towers generally require the use of antifouling agents, which may have their own water quality issues. Salt water complicates any circulating water system, whether it is once-through or closed cycle, but this added complexity does not preclude the use of cooling towers. In addition, cooling towers may cause significant water loss due to evaporation.

Cooling or retention ponds are large reservoirs where water is stored after passing through the facility, allowing time for the water to cool prior to being recycled or discharged. Cooling ponds require approximately one acre per megawatt and may not be feasible for high megawatt facilities with a small plant site area. The acreage required for cooling ponds or reservoirs varies according to geographic location. Facilities located in arid climates may require more acreage per megawatt.

Some facilities locate their discharge pipes or multiport diffusers offshore or in the center and/or at the bottom of a river or lake to minimize the impact of the thermal discharge. The risk of fish kills from cold shock or excessive temperature is minimized when diffusers are used, as a function of water velocity and diffusion. Diffusers are equipped with nozzles or small diameter ports that blast water at a high velocity. The velocity is great enough that fish cannot swim against it; fish are unable to enter or rest in the high velocity zone. By the time velocities are reduced, diffusion has eliminated large temperature differentials, and there is little risk of cold shock or thermal shock to fish and other aquatic organisms.

The use of these control mechanisms may vary to accommodate for seasonal temperature changes. For example, some facilities only utilize their cooling towers or cooling ponds during summer months to reduce the discharge temperature and flow during critical ambient temperature periods. In addition, during very hot periods, some facilities reduce the amount of electricity generated which results in reduced temperature of the thermal effluent (as long as the same amount of water is run through the plant).

3.3.3 Control Mechanisms that Keep Fish Out of the Discharge Channel

Several facilities supplied information on control mechanisms used to keep fish out of the discharge channel. Mechanisms include: screens, barriers, water jets, and vertical bars. The appropriateness and effectiveness of the control mechanisms vary, and little data were available from the facilities to evaluate these methods. Screens vary in size and are used to physically keep fish out of the channel. Vertical bars keep larger, adult fish out of the channel. High velocity water jets keep fish out of the channel because the fish cannot swim against a rapid water flow. Discharge channels differ in terms of length (from a few yards to over 3 miles), depth, width, construction, and the temperature of water being discharged into them. Some facilities also stated that there were no mechanisms used to keep fish out of discharge channels, and that these channels are subsequently used for fishing by sportsmen during cold ambient temperature periods. Fish can make their way into the discharge channel by swimming through pipes, over fences, and a variety of other means. Subsequent heated effluent or change in discharge temperature can cause fish kills in the discharge channel.

For example, during the spring of 1991, a nuclear facility had an incident where 4,000 fish were killed in the discharge channel despite control mechanisms. Normally a wall blocks fish from entering the channel and discharge pipes maintain a water velocity that restricts access through the pipes. There are, however, occasions when the water velocity through the discharge pipes is reduced, and fish can swim up the pipes into the channel. In addition, during periods of high river flow, fish may be able to swim over the wall.

3.4 Environmental Studies Performed to Support Section 316(a) Variances

Environmental monitoring and studies provide data to both the facility and the permitting agency on the health and numbers of aquatic life near the facility. This data may be used to demonstrate that the facility meets Section 316(a) variance criteria under its current permit, that permit requirements need to be modified, or that a variance would not protect the environment.

This section describes some of the parameters that some initial studies for Section 316(a) variances monitored and discusses the extent to which facilities continue to monitor the biotic community. This section also discusses the environmental studies and monitoring that facilities seeking to renew their variances may be required to conduct.

3.4.1 Initial Section 316(a) Variance Studies

Facilities that have applied for Section 316(a) variances are often required to engage in extensive studies and data collection to demonstrate that facility operations under the requested variance will 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 facility discharges. Guidance for conducting and evaluating these studies is provided by the permitting agency. Several EPA documents exist to assist a facility in preparing its Section 316 demonstration, including the draft *Interagency Section 316(a) Technical Guidance Manual*. EPA, however, has not finalized this draft guidance. In absence of national guidance, some EPA Regions have developed their own informal guides to Section 316 demonstrations, which describe the types of information an applicant will need to submit to be considered for a variance.

Typically, information must be gathered on physical, thermal, and biological characteristics of the receiving water, including information on plankton, plants, macroinvertebrates, and fish. The specific types of information and sampling methodologies are determined on a case-by-case basis. For example, general requirements for a Section 316(a) demonstration for facilities that will use "once-through" cooling water systems differ from the requirements for "recycling" cooling water systems (cooling towers, spray ponds, or cooling ponds) because of varying impacts on the environment.

An applicant is entitled to a variance so long as the overall existence of balanced, indigenous population of aquatic organisms results from operation of the facility in its existing configuration. The permitting agency will establish permit limitations that are protective of the water and its inhabitants and consistent with the conditions of the Section 316(a) demonstration. Each permit is unique, based on the particular circumstances of that facility and the receiving water body. For example, the Brunner Island discharge results in the loss of spawning habitat for some fish. According to the facility staff, Brunner Island maintains a variance because the water body is still able to sustain a very large amount of spawning habitat for affected species along other parts of the waterway.

3.4.2 Studies to Support Reissuance of Section 316(a) Variance

The Section 316(a) variance terminates when the permit expires. Although facilities engage in a great deal of research and data collection to initially acquire a variance, the amount of data required by the permitting authority to support reissuance of the variance at the time of permit reissuance usually is minimal. The permittee only needs to provide a basis for that reissuance. The basis could be as simple as: 1) there have been (and will be) no changes to thermal discharges from the facility or to plant operating conditions; 2) there are no changes to facility discharges that could interact with the permittee's thermal discharges; and 3) there are no changes (to permittee's knowledge) to the biotic community of the receiving water body. For many facilities, there is no need to perform additional reissuance studies, because no changes have occurred, and a reissuance is reasonable.

For certain facilities, however, continued reissuance studies may be warranted. For example, if the waterway to which the facility discharges undergoes an improvement in water quality or a return of anadromous fish, additional studies may be needed. As the water quality improves along many of the nation's waters (e.g., the Ohio River), the process for Section 316(a) variances may need to include studies on facility impact to the waterway. Several questions would need to be addressed by the permit writer prior to reissuance: 1) How do facilities or EPA Regions gather data on improved water quality? 2) What criteria need to be met to determine if additional testing is required for variance renewal? 3) Does the current biological data of a water body get compared to baseline data such as dissolved oxygen? 4) How should changes in water quality affect a facility's permit?

In addition, many variances initially were granted, and permit limitations established, based on modelling data. Actual field data from environmental studies may later indicate that the: 1) actual plant operation results in discharges that do not meet the permit limitations that were based on the modelled Section 316(a) demonstration; and/or 2) permit limitations are inadequate to ensure the protection and propagation of a balanced, indigenous population. Moreover, studies may be needed to support the reissuance of a variance where significant environmental degradation has occurred, as in the case of two of the four Ohio facilities mentioned in Section 3.2.2 of this report.

3.4.3 Environmental Monitoring

Some permits require a facility to engage in environmental monitoring, other permits have no such requirements. Moreover, sampling protocols currently are determined on a case-by-case basis, with little formal guidance from Headquarters or some EPA Regions.

Region I Technical Advisory Committees (TAC) develop and review site specific sampling and monitoring requirements for permitted facilities. One nuclear facility participates in an Environmental Surveillance and Monitoring Program, the purpose of which is to determine whether the operation of the facility results in measurable effects on the marine ecology and to evaluate the significance of any observed effects. If significant effects are detected, the facility must take steps to correct the situation. Similar programs were required in other EPA Regions for virtually all nuclear power plants.

In cases where permits do not require the facility to engage in environmental monitoring, changes in water quality may go undetected unless facility personnel perform monitoring on their own initiative or a State or federal agency monitors that part of the waterway. In these cases,

some facilities will monitor more extensively than others. For example, one Maryland facility is completing a 10-year quantitative study of its effect on fin fish population and other biota. This extensive study is contrasted by the studies performed at a facility in Region III where biosampling procedures for fish could have been more rigorous.

Region V is considering recommending that future Ohio permits contain a special condition requiring in-stream biological monitoring for facilities with Section 316(a) variances that do not require compliance with all State thermal WQS criteria. Ohio EPA also has established fish sampling protocols including suggested procedures for electro-netting fish.

3.5 EPA Procedures for Issuing and Reissuing Permits

Each EPA Region differs in the level of expertise, guidance, and institutionalized procedures that are used in the permitting process. Region I has established the most formalized system to issue and renew variances through the TACs. Region IV also has a TAC in place for a Florida nuclear facility. One issue that all of the Regions share is that as a result of retirement, attrition, and transfer, EPA is losing its institutional knowledge on thermal issues and consequently the ability to adequately review permits. One way to ensure consistency and preserve institutional knowledge is through Headquarters guidance.

3.5.1 Advisory Committees

Some Regions and States report using TACs when developing permits. As mentioned above, Region I forms TACs to oversee the process by which variances are issued to facilities. The Committees were established to augment expertise within EPA and to shepherd utilities through the Section 316(a) process. Committee members represent key biological regulatory agencies (e.g., U.S. Fish and Wildlife Service, the State fish and game agencies, marine fisheries agencies, and outside experts). Power plants also are represented on the Committee. This review process, described below, has been well received by industry and regulators. To date, no variance decisions in Region I have been challenged by the permittees.

When a facility requests a variance, the EPA Region and the respective State convene an advisory committee, which remains in place until the facility undergoes verification testing. The facility provides the committee with a broad overview of facility operations and details of any problems that may arise as a result of the facility's operations. Baseline biological data are collected for 1 to 3 years before the facility goes on line so that any potential problems can be addressed at an early stage.

There appear to be no other arrangements that are as institutionalized as the TAC, although other advisory groups exist. For example, the Maryland Department of Natural Resources has a power plant research program that makes technical recommendations regarding the environmental effects of a facility's operations. While this program was not specifically established to deal with thermal issues, that has been one of its primary functions for at least the past 15 years.

3.5.2 Lack of Institutional Knowledge

EPA personnel familiar with permitting and compliance issues relating to thermal effluent and power plants, including national technical experts are retiring or otherwise leaving EPA. As a result, EPA may need to take actions to ensure continued expertise on power plants, thermal

effluent, mathematical models, and other thermal issues. In one instance, Region V had objected to the original Section 316(a) request made by a facility, but after the Region's power plant expert left EPA, the Region lacked the expertise to support its permit objection, and the State granted the Section 316(a) variance. The facility in question later caused a large fish kill due to the high temperature discharge. Since that time, the permit limitations have been changed.

Currently, there is little guidance on permit preparation or conducting environmental studies and monitoring to support variance reissuance at the federal level. This potentially could result in poorly written permits, or lack of compliance oversight for thermal discharges. The loss of expertise on thermal effluent impacts will be mitigated somewhat in the future by the almost exclusive use of closed cycle cooling for new plants in certain EPA Regions; however, permit reissuance of older plants will still require some expertise on thermal discharges.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Key findings from this study to date are: 1) For the majority of facilities, impacts from thermal effluent have not been found to be large and/or permanent, although additional studies at some facilities are needed; 2) Most thermal issues are not related to noncompliance on the part of the facility, but rather are administrative in nature on the part of EPA (e.g., there are no permit provisions that ensure that variance criteria are met, no monitoring provisions are specified in the permit, and/or no permit requirements that protect fish at facilities where cold shock is likely to occur); 3) The lack of final guidance on Section 316(a) variances from EPA Headquarters has contributed to inconsistencies in permit requirements and the process by which variances are issued; and 4) EPA is losing its institutional knowledge on thermal issues, impacting EPA's ability to adequately review and prepare permits.

The following recommendations reflect consideration of these findings and discussions with EPA staff from the Regions and Headquarters:

- Update the previously developed listing/summary of Sections 316(a) and 316(b) status for NPDES permittees.

- Issue final guidance, formalize EPA policy, and develop generic permit language and enforcement checklists to ensure that 316(a) variances fully meet variance criteria.

- Provide training on thermal variances for EPA Regions and authorized States.

- Identify States and EPA Regions that have established processes by which variances can effectively be issued and reissued (e.g., the TACs in Region I) and share this information among the other States and EPA Regions.

- Evaluate ways to increase the reporting to EPA and the public of thermal effluent violations from the States, including modifying the reporting protocols for the Permit Compliance System.

- Reconsider the long-term establishment of technology-based new point source performance standards governing thermal discharges, for steam electric plants.

EPA guidance should address the need for maximum discharge temperature limitations for some permits, maximum ΔT in discharge temperatures over time, and ongoing biosampling and environmental studies. In addition, permit guidance should address the need for and feasibility of temperature monitoring requirements at various points in the waterway and/or requirements for periodic thermal surveys to ensure accuracy of thermal plume models. Guidance also needs to be developed on cold shock, especially for older peak power facilities, which operate part time. Cold shock guidance may include parameters for controlled temperature decreases during unit shutdown and control mechanisms to restrict fish from the discharge channel.

In summary, OWEC believes that the Section 316(a) variance is a useful tool when appropriately and consistently applied. To promote consistency, OWEC is developing a training course for power plant permit writers and others involved in thermal effluent management. The pilot workshop is to be held in Region II in the second quarter of FY 1993. A guidance document

also is under development and will be available in draft form by October 1993. The workshops and guidance document will address the first five recommendations made above. The sixth has been placed on selection list for guidelines review, update, and reissuance.

Additional recommendations for EPA guidance relate to clarifying EPA's interpretation of the CWA. Specifically whether and how Section 316(a) variances should consider impingement and entrainment factors. Permits Division staff also believe that a clearer interpretation of what "cost reasonableness" level is intended for Section 316(b) would be helpful.

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Attachment A

BRUNNER ISLAND REVIEW

Description of the Plant and its Operations

Brunner Island Power Plant is a coal fired steam electric station located at Brunner Island, York County, Pennsylvania. It is operated by Pennsylvania Power and Light (PP&L). The Brunner Island facility takes in approximately 744 million gallons per day of water from the Susquehanna River. The river water is pumped to the condenser through tubing to cool steam coming out of the turbines. The water is chlorinated prior to use to remove contaminants (e.g., algae, dissolved solids) and to reduce fouling of the facility mechanisms by algae and deposits. The condensed steam is recirculated; the heated water is returned to the Susquehanna. The schematic on the following page details the processes at a coal fired electric plant.

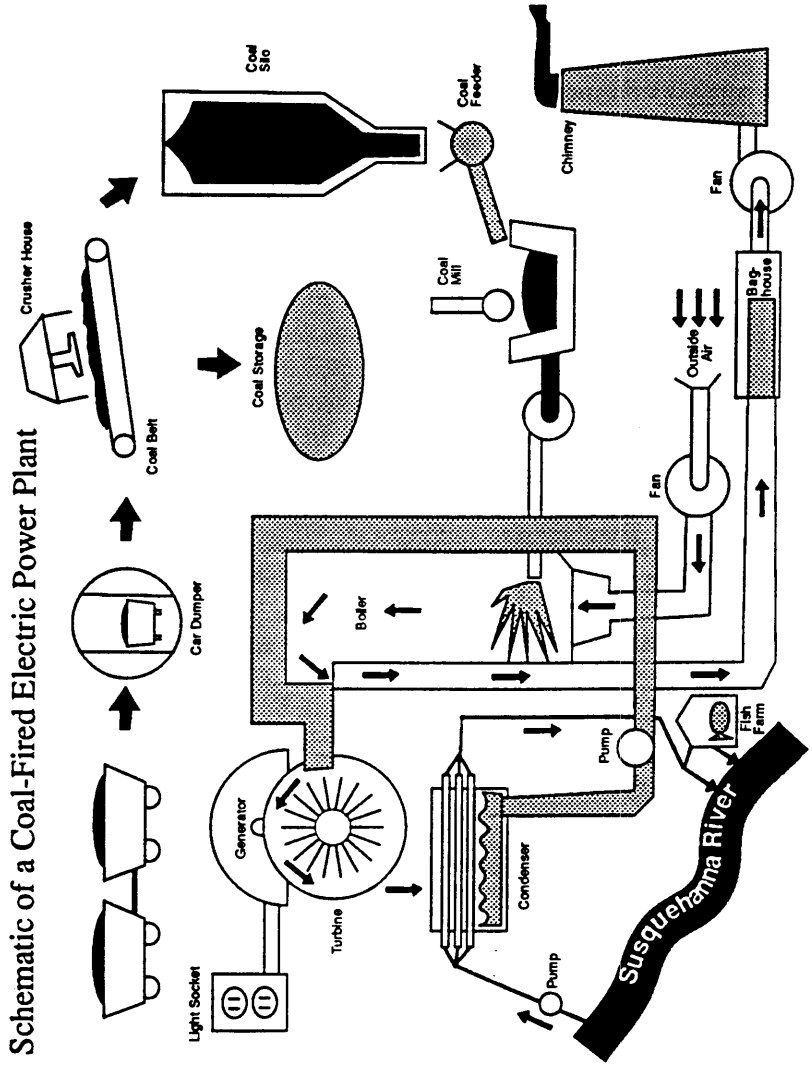
The facility consists of three units, Units 1, 2, and 3, built in 1958, 1961, and 1969, respectively. The Brunner Island facility is typical of many older facilities in that it uses "once through cooling," which means the river water is pumped in to the condenser cool the turbines, then pumped out as soon as cooling is completed. The facility returns the water to its source, unlike other facilities that discharge water after cooling into a water body different from the source. By discharging to the source, the facility avoids many of the problems that could occur otherwise (e.g., augmented flow, introduction of non-indigenous species, draw down of source water body).

During shutdowns the amount of water entering and leaving the condenser is restricted. The residence time of the water in the condenser is thus longer to ensure the cooling water will remain at a more constant temperature even though the plant is generating less heat. This is the Thermal Shock Prevention System, or "fish comfort system," used to avoid sudden or large fluctuations of temperature in the discharge channel.

If the temperature differential across the condenser becomes too great, plant equipment can be damaged. Under these circumstances, the fish comfort system is removed resulting in increased draw of river water into the condenser and discharge of unheated water into the channel. The unheated water may serve to greatly decrease the temperature of the water in the channel/river interface. The discharge channel at Brunner Island, unlike other facilities in the review, does not have controls to prevent fish from entering or amassing at the channel/river junction (where the fish are at greater risk to temperature fluctuations and high temperatures).

Units 1, 2, and 3 share a common discharge channel. Because Unit 3 produces as much discharge as Units 1 and 2 combined, the reduced flow from Unit 3 during shutdown allows the flows from Units 1 and 2 to fill the entire channel. The cross over causes the remaining flow on the Unit 3 side of the channel to equilibrate to the temperature of the crossover flow. The equilibration could be either an increase or decrease in temperature on the Unit 3 side of the channel depending on the direction of the temperature differentials between the two discharges. Thus, a shutdown of Unit 3 can have a significantly higher impact on the receiving stream than the removal of either Units 1 or 2 alone.

Brunner Island (PP&L), PA Site Visit



Facility File Review

The Brunner Island facility file review consisted of examining PP&L's facility history file kept by the PA DER in Harrisburg, Pennsylvania, and documents on file at EPA. Documents reviewed included Discharge Monitoring Reports (DMRs), violation reports, enforcement action files, and inspection reports. There have been citizen complaints about river water temperatures downstream from the Brunner Island plant, including one in August 1989. Reportedly, the water a great distance from the power plant had at times been hot enough to prevent wading, and several dead fish had been observed.

The file review revealed that Brunner Island Power Plant had no DMR violations of its thermal limitations in the last 2 years. Further review of permit and discharge information has shown the plant to be in compliance with the thermal limitation, which is expressed as a heat rejection rate in the facility's permit. The current rejection heat permit limitation was established as part of a Section 316(a) thermal variance in 1977. It is unclear whether PP&L was required to submit operating data to support continuation of the variance at the time of permit reissuance; the permit expires September 30, 1990, but has been extended to 1992. The permit for Brunner Island facility sets a limit on the BTU per hour the plant may discharge. The permit also requires the facility to monitor its discharge temperatures. There are no limitations per se on the maximum and minimum temperatures that may be discharged, or the deviation in temperature from the ambient water temperature. (There also is no requirement that the facility conduct biosampling, although it has since 1981.)

The permit limitation of 6,960 x 10^6 BTU per hour for the facility is more than double the rate that EPA calculated (2,690 x 10^6 BTU/hour) based on the Pennsylvania WQS. The commonwealth's WQS equates to not more than a 5° F rise above ambient temperature measured above the intake pump on the lowest 7 days (continuous) flow in 10 years. For the Susquehanna River, this is 2,400 cubic feet per second (i.e., 7Q10 of 2400 CFS). The heat rejection rates reported at the facility for April and May 1989 were 6,290 x 10^6 BTU per hour and 6,225 x 10^6 BTU per hour respectively. While these rates are within the permit limitation, they far exceed those that the Pennsylvania WQS have dictated.

The commonwealth files contained reports of two fish kills, one each in January 1990 and January 1988. (There were reports of other incidents unrelated to thermal loadings (i.e., sulfuric acid spill, oil spills)). On file were the inspection reports detailing the follow-up inspections due to the fish kills as well as the recommended and performed enforcement activity. As a result of the January 1990 fish kill in which several hundred fish died, the commonwealth imposed a fine of $1,000. (The fish that died included a few hundred gizzard shad, numerous sunfish, and a few carp, catfish, crappie, and fall fish). In the January 1988 fish kill, approximately 180 fish died. At that time, the commonwealth issued a letter of agreement without penalty to the facility.

Commonwealth files also indicate that there were two fish kills in 1985. During the first, in November 1985, two to three thousand gizzard shad died. The facility agreed to a $100 voluntary civil settlement. PA DER made no assessment against the facility. The second fish kill occurred in December 1985. The facility staff attributed the second fish kill to a controlled shut down of the plant initiated due to a tube leak.

Fish Kills

The Brunner Island facility staff provided additional information on the fish kills. The January 1990 fish kill was due to a boiler tube failure in Unit 3. Unit 3 was brought out of service in a controlled shutdown to one-third of the unit's output. The "fish comfort system" kicked-in and reduced the flow from the plant to avoid a sudden pass through of unheated river water. However, at one-third load, the temperature differential across Unit 3 was too great to continue with a controlled shutdown without critical damage to the plant, and the staff removed the comfort control system from operation. Subsequently, unheated river water passed through the plant and into the discharge channel.

The shutdown of Unit 3 resulted in a 30° F increase over an hour in the discharge channel as flows from Units 1 and 2 overran the Unit 3 decreased discharge. A sudden drop in temperature (15°F in approximately 10 minutes) occurred in the channel when the comfort system was removed. The facility staff interviewed suspected the fish kill to be from the sudden decrease in temperature, and not the initial increase.

According to facility staff, the January 1988 fish kill was due to a "cold shock" as a result of decreased flow from the plant during shutdown of Unit 3 and the undertow of the river water back up the discharge channel. This resulted in a 29° F drop over 10 minutes in the channel. A total of 180 fish were counted as dead, including several carp, bass, red horse suckers, and blue gills. One researcher noted an increase in the diversity of fish species, and an increase in carp, and attributed this in part to the elimination of Talapia (an introduced species of fish that had been intentionally removed). As noted earlier, there are no controls preventing fish from entering the discharge channel, thus exposing the fish to the potential variations of temperature.

The staff attributed the December 1985 fish kill to a tube leak in the reheater section on Unit 3. They attempted to maintain a 5 megawatt per minute drop in load, but ended with a 6 megawatt per minute drop. The target drop rate was based on their experience that a 5 megawatt per minute drop rate maintains less than a 10° F drop. The facility staff reported that the ambient river temperature being lower than expected (in addition to the greater drop) possibly was a factor in the large decrease in temperature. Adjustments in procedures were to include a check of ambient river temperature and adjust the rate drop accordingly. (It is not clear how this was factored into the 1988 and 1990 fish kills).

The staff said controlled shutdowns are preferred over a "trip" (i.e., an automatic emergency shutdown of the unit) for safety and environmental reasons. On a "trip" the temperature in the discharge channel actually increases because of the influence of the discharges from Units 1 and 2. The facility has had an average shutdown rate of 13 per year. There were six shutdowns in November and December of 1985 due to tube leaks.

When EPA asked why fish kills appear to occur only in winter, the facility staff explained that the fish are not present at the outfall in the warm months. The comfort range of the fish is such that in the spring, summer, and fall months, they congregate in the deeper, cooler waters of the river and during the winter stay within the thermal plume. Accordingly, there are no fish present to be affected by thermal fluctuations in the warmer months.

In addition, there appears to be a correlation between fish kills and Unit 3 problems. Because Unit 3 discharges as much effluent as Units 1 and 2 combined, a problem with Unit 3 causes a greater impact than a shutdown of either of the other two units.

At the time of this site visit, there had been no recent fish kills, and there were no signs of problems. A second site visit, later in August, allowed EPA to take a closer look at the environmental impacts. These are discussed in the next sections.

Biosampling (see schematic, page A-6)

Every August, in coordination with PA DER staff, the Brunner Island facility environmental staff samples for aquatic life impacts. Late August is selected because it is assumed to be the worst case scenario (i.e., lowest water level and the hottest water). The staff sampled at eight locations, including above the intake, at the POD, and 2 ½ miles below the POD. Sampling is conducted for fish, macroinvertebrate larval and nymph stages, and water quality (dissolved oxygen, temperature, conductivity, and pH). The sampling has occurred every year since 1981. The study results and data are available from the plant.

The biosampling is important because, in addition to fish kills, thermal discharges have been known to cause other detrimental effects to fish such as: increased levels of infections and poor body condition, reduced population size, and reduced species diversity. Without biosampling, nonlethal effects of thermal discharges cannot be adequately assessed.

EPA participated in the August 1990 biosampling of two of the eight sampling locations. The first was on the Susquehanna River about 5 ½ miles downstream from the thermal discharge on the east side of the river opposite the thermal plume (Station 6). The second was at the junction of the thermal discharge channel with the Susquehanna River (Station 3). Results of the sampling are described below.

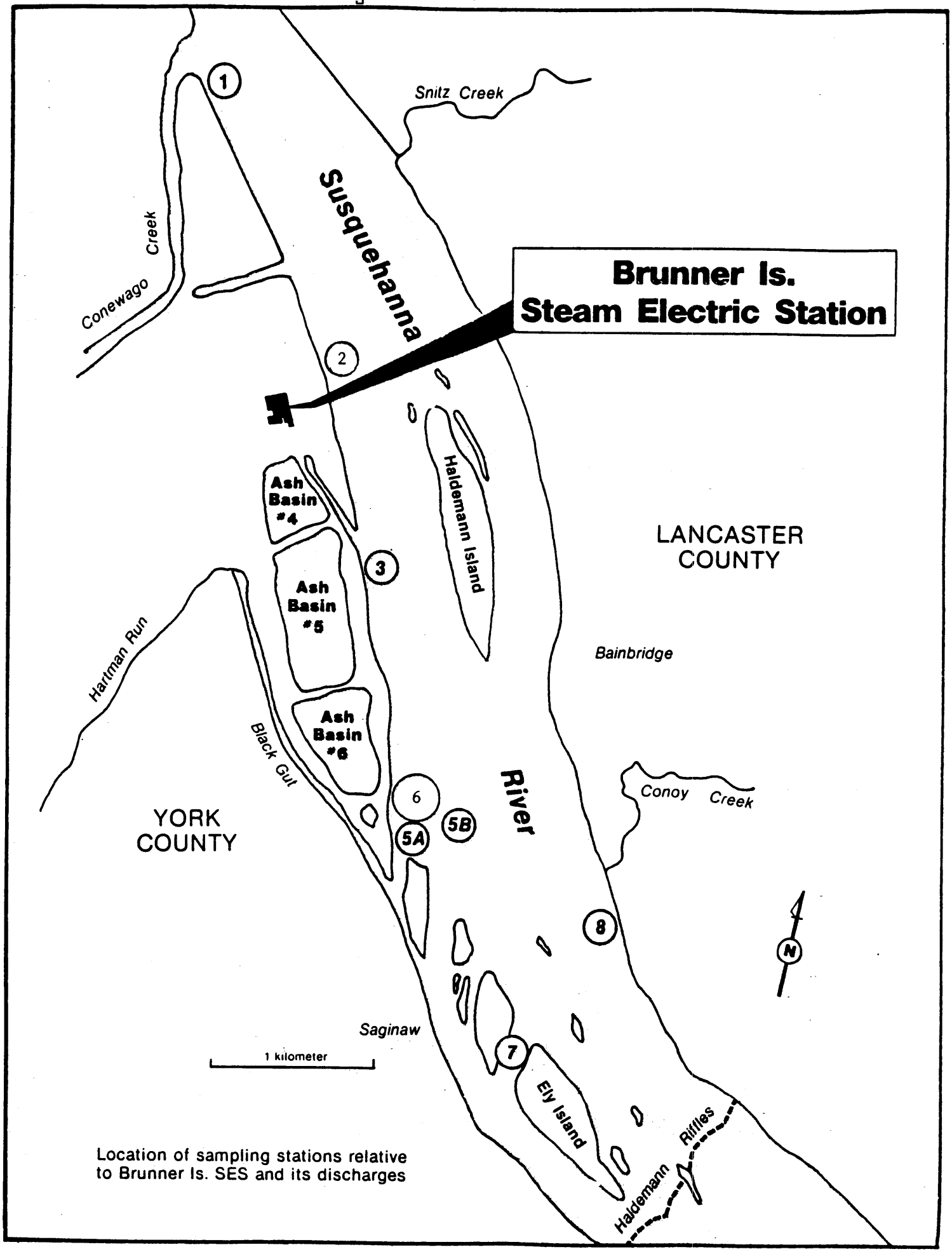
Station 6 Biosampling

The flow of the river on August 28, the day of the sampling, was about two feet above the normal August flow. This resulted in lower than normal numbers of fish caught in that part of the river. (Sampling conducted later in the week was closer to the expected numbers for August). The staff collected fish via electro-shock and netting procedures. The vast majority of the fish were two-inch long shiners, though the staff also caught a few channel catfish, carp, bass, and sunfish. The fish all appeared to be in good health with no obvious signs of disease or infection (i.e., no sores or lesions). For fish over two inches, the staff identified, measured, and weighed them in the field and returned them to the river (The weight and length of the fish are used to calculate body condition). The staff bottled and preserved the smaller fish for later identification.

Macroinvertebrates were collected by disturbing the substrate and collecting the wash in a small mesh seine. The macroinvertebrates collected were typically species found in past sampling (i.e., mayflies, caddisflies, mosquito larvae, hymenoptera). These samples were bottled and preserved for later identification and enumeration. The water temperature at Station 6 was 75° F.

Station 3 Biosampling

The fish collection at Station 3 was significantly different from that of Station 6. According to facility staff, Station 3 routinely demonstrates the lowest diversity and numbers of fish and macroinvertebrates as it is the most highly impacted by the thermal discharge of the eight sampling stations. The fish that were collected were almost exclusively shiners and mosquitofish, as well as a few small sunfish and bass. The staff did not catch any catfish or cod. Some of the fish were dead, though it could not be determined if they had died due to the thermal effluent or



Location of sampling stations relative to Brunner Is. SES and its discharges

from entrainment through the plant's cooling water system. The large fish were identified, measured, weighed, and returned to the river. The smaller fish were bottled and preserved for later identification.

The macroinvertebrate sampling at Station 3 uncovered only two insects, both mayflies, one of which was dead. The samples were bottled and preserved for later identification and more thorough examination. The water temperature at Station 3 was 96° F. The rocks and sediments at this station were covered by a thick (0.5 cm) spongy and slick growth of algae. There also was some discolored foam near the shoreline. (The water in this area is fairly turbulent and foam would be expected.)

Conclusions on Biosampling

The sampling methods and locations are appropriate to meet the company's goals: Year-to-year comparison of river flows, locations of thermal plume, numbers and diversity of fish and macroinvertebrates, and fitness of fish. The sampling is not necessarily rigorous enough, however, to demonstrate "no adverse effects" or "irreparable harm" as no sampling of aquatic vegetation takes place, and fish and macroinvertebrate sampling is only performed once a year.

The fish from Station 6 were robust and in good health. Those from Station 3 did not appear as well off nor were there as many or in as great diversity. The difference in numbers is to be expected, given the hotter water temperatures; in the summer months, most fish seek the cooler, deeper regions of the river. The fish that were dead (Station 3) were not kept to determine the possible cause of death.

The macroinvertebrate population at Station 6 was significantly greater and more diverse than at Station 3. Station 3 has high turbulence, hotter temperatures, and algae growths that interfere with the development of macroinvertebrate populations.

Miscellaneous Observations

Facility staff was not aware of "hot pockets" in the receiving waters, but acknowledged the thermal plume extended downstream at least 6 miles, hugging the right bank (although it occasionally moved depending on flow and weather conditions). The staff members were not aware of thermal stress on the fish, although they indicated that other PP&L plants had thermal stress problems.

The staff members were questioned on how they believe the plant impacts the local and downstream environment and if they believe the York Haven Hydrological Plant and the Three Mile Island Nuclear Power Facility (both just up the river) may be causing impacts for which PP&L was or could be held accountable. The staff responded that the original impact analysis (performed in 1979 and 1980) of the variance required no impact more than 5 miles downstream and believe that depending on the river flow for the year, little or no impact was observed at 2 ½ miles downstream from the discharge point. They noted no visible drawdown of the river due to the plant's use of the water.

None of the staff believed the upstream facilities mentioned caused problems for which PP&L was or could be held responsible. They did mention that the York Hydrological Plant occasionally had an impact on PP&L's ability to draw from the river. When York restocks its reservoir, a drawdown is apparent. This impact is not severe and is temporary, as the reservoir capacity is very limited.

Attachment B

TRIP REPORT FOR MARY REILEY

BIOSAMPLING
PENNSYLVANIA POWER AND LIGHT
BRUNNER ISLAND STEAM ELECTRIC

AUGUST 12-16, 1991

Background: In response to a citizens complaint in the fall of 1989 that the heated effluent from the Pennsylvania Power and Light Co.'s (PP&L) Brunner Island Steam Electric Plant was too hot to wade in for fishing and that cooked crayfish could be found, OWEC launched an investigation into the thermal limits, variances, and mixing zones placed upon steam electric plants. One result of the investigation was a review of the Brunner Island compliance file at the Pennsylvania DER and an informational meeting with the plant's management.

During the meeting, Ed Davis and Bob Domermouth (of Brunner Island and PP&L respectively) spoke of the company's annual biosampling on the Susquehanna River to asses the effects of the thermal effluent on the river. Bob Domermouth invited me to join the sampling team last year and called this past spring to ask if I would like to participate again.

Lay of the Land: (see attached schematic in Appendix A, page A-6)

The Brunner Island facility is located about 10 miles north of York, PA. The segment of the river it discharges to is two miles wide and divided down the center by a chain of islands approximately five miles long. The chain separates the deeper channel on the east side of the river from the shallower on the west and effectively creates a barrier between the thermal plume and cool east waters should the plume extend towards the river's center. The river bottom is almost entirely bedrock, either outcroppings or covered in stones and heavy gravel; some slower moving areas are silty.

The river's water level was extremely low (not much over the 7Q10 which is 2400 cfs) providing a prime opportunity to investigate the effects of the thermal discharge under the low flow conditions anticipated at permit issuance. The plume extended across approximately two-thirds of the west side of the river for atleast four miles. Previous studies at extremely low flows found impact similar to those at station seven as much as five and one-half miles downstream.

Sampling Methods: (see attached schematic in Appendix A, page A-6)

There are eight sampling stations in the annual study: one is a reference station above the thermal discharge at Conewago Creek; two is also a reference station above the thermal discharge on the west bank of the river at the discharge from the facilities sanitary waste treatment pond; station three has the highest impact as it is located at the end of the thermal discharge channel; station six is the outfall of ashbasin six; stations 5A and 5B are on the west side of the river downstream from the thermal discharge, under normal flows this is an impacted area; station seven is between two islands located one-third of the way across the river, downstream from the thermal discharge and is mildly impacted; and station eight is on the east bank of the river, downstream from the thermal discharge but not impacted by the thermal dischage.

Water Quality

Water quality parameters were sampled for all stations: DO (range 6-10), pH (approx. 8), Temperature (range 26° - 42°C), Conductivity, metal and non-metal contaminants.

Vertebrates

Fish were collected at all sampling stations except station 6 (the outfall of ashbasin six, not a natural stream). Fish were captured using electroshock and nets. Collection started downstream of the sampling area and worked upstream.

Recreational species and those more than four centimeters in length were weighed, measured, examined for external peculiarities, and released. Those fish less than four centimeters were preserved for later identification and examination (primarily shiners).
Examples of fish caught and environment (not all inclusive):

Cooler Waters	Warmer Waters
Quill-Back	Shiners
Yellow Carp	Sunfish (Redbreast, Green)
Catfish (Yellow, Brown, Channel)	Catfish (Yellow, Brown)
Bass (Rock, Large/Smallmouth)	Smallmouth Bass
Sunfish (Redbreast, Green)	Common Carp
Gizzard Shad	
Minnows	
Shiners	
Suckers	
Pumpkinseed	

The most significant difference between the cooler and warmer water was the numbers of fish collected rather than the types. Colder waters had significantly more fish than warmer waters. Station three had few if any fish present. Station 5B and 7 also had significantly lower numbers than did the reference stations and station 5A which received reverse flow.

Invertebrates

Macroinvertebrates (insect larvae, pupae, worms, chironomids, bivalves, snails, beatles, etc.) were collected at all stations but station six. The macroinvertebrates were captured in the riffle areas by kicking up the substrate and collecting the loose substrate and organisms in a fine mesh dipnet placed immediately downstream of the disturbed area. All invertebrates were preserved for later enumeration and identification. Depth and flow for the riffle areas sampled were recorded using a universal wading rod.

Examples of macroinvertebrates collected and environment (not all inclusive):

Cooler Waters	Warmer Waters
Riffle Beatles	Dominated by Chironomids
Mayfly Larvae	Riffle Beatles
Bivalves	Water Pennies
Snails	
Chironomids	
Water Pennies	

As with the fish sampling, the macroinvertibrates collected from the benthos demonstrated significant differences in numbers of organisms, particularly station three where again all but nothing was collected. The most significant difference between impact and reference stations was the dominance of the impacted stations by chironomids and only a few token representatives of the other species.

Field Evaluation:

The final report of this years sampling will not be available for several months. Field observations lead me to believe that the impact of Brunner Island Steam Electric's thermal discharge on the Susquehanna River is local and not irreparable. If the plant were to shut down today, the lateral and upstream migration of organisms into the previously impacted area would be relatively quick. This is exemplified in stations 5A and 5B.

During normal flow years stations 5A and 5B are thermally impacted. This year the river flow was extremely low allowing a split flow of cold water from ash basin six; half of the flow traveled back upstream through station 5A and hugging the west side of station 5B. The fish and macroinvertebrate populations in these areas were very different from last year. Though the invertebrate population was still dominated by chironomids, a strong showing of less tolerant species was present. The areas also supported the cooler fish species.

There is little to nothing present at station three, the end of the thermal discharge channel, all life has vacated for the summer to cooler climates (sounds like August in D.C.).

Potential Concerns not Investigated:

There is a possibility that some species, i.e. bass, are spawning just upstream from the PP&L plant and below the York Haven Hydroelectric plant (there is a dam at this point with no passage for fish). The eggs may float downstream and be caught either in the cool water intake or in the plants thermal plume. The effect of this (if there is any) on potential recruitment of these species is unknown.

Other:

Brunner Island had a cold shock kill this past January 1991. It was not a large kill, approx. 200 fish, but it has prompted the facility to take further procedural and potentially technological steps to eliminated the cold shock kills. The facility recently completed a study of all fish kills that have occurred at the plant since 1977. The results demonstrate that since the fish comfort system was put in place on Unit 3 the number, frequency, and severity of fish kills has dropped significantly. The facility has since adopted some additional protective procedures and is considering installing a comfort system for both Units 1 and 2 as well. The station anticipates these measures will eliminate all future kills excepting those that result from severe emergency shutdowns. Bob Domermouth will send me a copy of their study and new procedures.

Attachment C
Facilities Reviewed In Depth (from Section 2.3)*

Permit #	Facility Name	Receiving Water	Contact Person	Telephone #(s)	Thermal Discharge Limits ** (Y/N)	Discharge Limits Above 100° F (Y/N)	History of Noncompliance or Complaints (Y/N)
CT0003093	N.E. Utilities (Norwalk Harbor)	Long Island Sound	Mr. R.A. Reckert, V.P. Mr. Nicholas Lanzalotta	(203) 665-5315 (203) 665-5657	Y	Y	N
CT0003115	N.E. Utilities (Montville Station)	Thames River	Mr. R.A. Reckert, V.P. Mr. Nicholas Lanzalotta	(203) 665-5315 (203) 665-5657	Y	Y	N
CT0003263	Millstone Nuclear Power Station	Long Island Sound	Mr. R.A. Reckert, V.P. Mr. Nicholas Lanzalotta Dr. Bill Renfro	(203) 665-5315 (203) 665-5657	Y	Y	N
CT0003883	Middletown Station	Connecticut River	Mr. R.A. Reckert, V.P. Mr. Nicholas Lanzalotta	(203) 665-5315 (203) 665-5657	Y	Y	N
MA0003557	Boston Ed-#1 Pilgrim Plt	Cape Cod Bay	Mr. Robert Anderson, Biologist	(617) 849-8935	Y	Y	N
MA0005339	Holyoke Water-Mt Tom Station	Connecticut River	Mr. R.A. Reckert, V.P. Mr. Nicholas Lanzalotta	(203) 665-5315 (203) 665-5657	Y	Y	N
ME0000272	Central ME Power-Yarmouth	Casco Bay	Mr. Jim Wazlaw, Dir. Env. Comp.	(207) 623-3521	Y	Y	N
ME0002569	Maine Yankee Atomic Power Co.	Montsweag Bay (Bailey Cove)	Mr. David Sturniolo, Principal Engineer	(207) 882-6321 Ext. 5189	Y	Y	N
NH0020338	P.S.Co. of NH-Seabrook	Atlantic Ocean	Mr. Ken Dow, Env. Scientist	(508) 779-6711 Ext. 2634	Y	N	N
NJ0005550	Oyster Creek Nuclear	South Br. Forked River	Mr. James Vouglitios, Mgr. Env. Ctrl.	(609) 971-4021	Y	Y (T^0 diluted)	N
NY0001015	Nine Mile Point Nuclear Station	Lake Ontario	Mr. Hugh Flanagan, Mgr. Env. Protec.	(315) 349-2428	Y	Y	N
NY0005924	Far Rockaway Power Station	Mott Basin	Mr. Madison Milhous, Mgr. Env. Dept. Mr. Chris Gross	(516) 391-6133 (516) 391-6097	Y	Y	N

* All facilities have approved or applications under review for 316(a) variances
** According to the Permit Compliance System (8/90)

Attachment C
Facilities Reviewed (from Section 2.3)* (continued)

Permit #	Facility Name	Receiving Water	Contact Person	Telephone #(s)	Thermal Discharge Limits ** (Y/N)	Discharge Limits Above 100° F (Y/N)	History of Noncompliance or Complaints (Y/N)
PA0008281	PP&L Brunner Island	Susquehanna River	Mr. Bob Domermuth Env. Mgr.	(215) 770-4849	N	N	N
MD0001511	Baltimore Gas and Electric Co.	Salt Peter Crk.	Mr. Jerry Warner, Senior Engineer Ms. Melissa Wieland	(410) 787-5379 (410) 787-5114	Y	Y	N
MD0002399	BG&E Calvert Cliffs	Chesapeake Bay	Mr. Jerry Warner, Senior Engineer Ms. Melissa Wieland	(410) 787-5379 (410) 787-5114	N	N (not numerical)	N
MD0002658	PEPCO Chalk Point Gen. Station	Patuxent River	Mr. David Bailey, Mgr. Water Quality	(202) 331-6533	N	N	N
IL0002224	Commonwealth Edison, Dresden	Illinois River	Mr. Jeff Smith, Supervisor, Water Quality	(312) 294-4450 Ext. 4435	N	N	N
IN0000132	NIPSCO, Bailey Generating Station	Lake Michigan	Mr. Charles Kern, Dir. of Env. Affairs	(219) 647-4938	N	N	N
MI0001686	Deco-St. Clair Plant	St. Clair and Belle Rivers	Mr. Art Heidrich, Admin. Env. Protection	(313) 237-7021	N (variance not required, facility is grandfathered)	N	N
MI0004464	Lansing BWL-Eckert Station	Grand River	Ms. Gail Peterson, Env. Engineer	(517) 371-6366	N	N	N
MN0000892	NSP-Riverside Plant	Mississippi River	Mr. Jim Bodensteiner, Reg. Analyst	(612) 330-5972	Y	N	N
MN0002011	Ottertail Power Co.	Ottertail River	Mr. Terry Graumann, Env. Engineer	(218) 739-8407	N	N	N

* All facilities have approved or applications under review for 316(a) variances
** According to the Permit Compliance System (8/90)

Attachment C
Facilities Reviewed (from Section 2.3)* (continued)

Permit #	Facility Name	Receiving Water	Contact Person	Telephone #(s)	Thermal Discharge Limits ** (Y/N)	Discharge Limits Above 100° F (Y/N)	History of Noncompliance or Complaints (Y/N)
MN0004006	NSP-Prairie Island Plant	Mississippi River	Mr. Jim Bodensteiner, Reg. Analyst	(612) 330-5972	Y	N	N
OH0001112	Clev. Elec. Illuminating Co.	Lake Erie	Mr. Al Gephart	(216) 447-3202	N	N	Y
OH0001121	Elec. Ill. Ashtabula	Lake Erie	Mr. Al Gephart	(216) 447-3202	N	N	Y
OH0009261	Dayton Power & Light Co.	Great Miami River	Mr. Dave Duwel, Mgr. Env. Mgmt Mr. Scott Arentson	(513) 227-2564 (513) 227-2147	N	N	Y
WI0001589	Wis. Power & Light Edgewater	Lake Michigan	Mr. Tom Hunt, Env. Scientist Mr. Ken Koele, Plant Manager	(608) 252-3237 (608) 252-3237	N	N	N
MO0000043	UE-Rush Island Power Plant	Mississippi River	Mr. Michael Bollinger, Super. Engineer Mr. Frank Putz	(314) 554-3652	N renewal (variance not requested)	N	N
NE0000418	OPPD Fort Calhoun Station	Missouri River	Mr. Bill Neal, Mgr. Env. Affairs	(402) 636-2302	Y	Y	N
NE0111635	OPPD Nebr. City Station	Missouri River	Mr. Bill Neal, Mgr. Env. Affairs	(402) 636-2302	Y	Y	N
MT0000396	Montana Power Co.- Bird/Corett	Yellowstone River	Mr. Jim Stilwell, Env. Engineer	(406) 723-5421 Ext. 3360	Y	Y	N
WY0003115	Dave Johnston Plant	North Pletle River	Mr. Alan Dugan, Env. Engineer	(307) 436-3712	N	N	N

* All facilities have approved or applications under review for 316(a) variances
** According to the Permit Compliance System (8/90)

EXHIBIT D

Newsroom
By Date

EPA Finalizes Standards to Protect Fish, Aquatic Life from Cooling Water Intakes

Release Date: 05/19/2014
Contact Information: Julia Q. Ortiz, Ortiz.Julia@epa.gov, 202-564-1931

WASHINGTON – The U.S. Environmental Protection Agency (EPA) today finalized standards to protect billions of fish and other aquatic life drawn each year into cooling water systems at large power plants and factories. This final rule is required by the Clean Water Act to address site-specific challenges, and establishes a common sense framework, putting a premium on public input and flexibility for facilities to comply.

An estimated 2.1 billion fish, crabs, and shrimp are killed annually by being pinned against cooling water intake structures (impingement) or being drawn into cooling water systems and affected by heat, chemicals, or physical stress (entrainment). To protect threatened and endangered species and critical habitat, the expertise of the Fish & Wildlife Service and National Marine Fisheries Service is available to inform decisions about control technologies at individual facilities.

“EPA is making it clear that if you have cooling water intakes you have to look at the impact on aquatic life in local waterways and take steps to minimize that impact,” said Nancy Stoner, acting Assistant Administrator for Water at EPA.

The final rule establishes requirements under the Clean Water Act for all existing power generating facilities and existing manufacturing and industrial facilities that withdraw more than 2 million gallons per day of water from waters of the U.S. and use at least 25 percent of the water they withdraw exclusively for cooling purposes. This rule covers roughly 1,065 existing facilities –521 of these facilities are factories, and the other 544 are power plants. The technologies required under the rule are well-understood, have been in use for several decades, and are in use at over 40 percent of facilities.

The national requirements, which will be implemented through National Pollutant Discharge Elimination System (NPDES) permits, are applicable to the location, design, construction, and capacity of cooling water intake structures at these facilities and are based on the best technology available for minimizing environmental impact. The rule establishes a strong baseline level of protection and then allows additional safeguards for aquatic life to be developed through site-specific analysis, an approach that ensures the best technology available is used. It puts implementation analysis in the hands of the permit writers so requirements can be tailored to the particular facility.

There are three components to the final regulation.

- Existing facilities that withdraw at least 25 percent of their water from an adjacent waterbody exclusively for cooling purposes and have a design intake flow of greater than 2 million gallons per day are required to reduce fish impingement. To ensure flexibility, the owner or operator of the facility will be able to choose one of seven options for meeting best technology available requirements for reducing impingement.
- Facilities that withdraw very large amounts of water – at least 125 million gallons per day – are required to conduct studies to help the permitting authority determine what site-specific entrainment mortality controls, if any, will be required. This process will include public input.
- New units at an existing facility that are built to increase the generating capacity of the facility are be required to reduce the intake flow to a level similar to a closed cycle, recirculation system. Closed cycle systems are the most effective at reducing entrainment. This can be done by incorporating a closed-cycle system into the design of the new unit, or by making other design changes equivalent to the reductions associated with closed-cycle cooling.

More information: http://water.epa.gov/lawsregs/lawsguidance/cwa/316b/

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