

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)	
)	
WATER QUALITY STANDARDS AND)	
EFFLUENT LIMITATIONS FOR THE)	
CHICAGO AREA WATERWAYS SYSTEM)	R08-09 Subdocket D
(CAWS) AND THE LOWER DES PLAINES)	(Rulemaking- Water)
RIVER: PROPOSED AMENDMENTS TO)	
35 Ill. Adm. Code Parts 301, 302, 303 and 304)	
(Aquatic Life Use Designations))	

NOTICE OF FILING

To:

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 Illinois Pollution Control Board
 James R. Thompson Center
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Persons included on the attached
SERVICE LIST

PLEASE TAKE NOTICE that on May 14, 2014 I electronically filed with the Clerk of the Pollution Control Board of the State of Illinois, **ENVIRONMENTAL GROUPS' RESPONSE TO POST HEARING COMMENTS ON SUBDOCKET D**, a copy of which is attached hereto and herewith served upon you.

Respectfully Submitted,



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DATED: May 14, 2014

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ENVIRONMENTAL GROUPS’ RESPONSE TO POST HEARING COMMENTS ON SUBDOCKET D

Four dischargers, Citgo Petroleum Corp. (“Citgo”), ExxonMobil Oil Corp. (“Exxon”), NRG Energy, Inc./Midwest Generation, LLC (“MWG”) and Stepan Company (“Stepan”), and two agencies, the U.S. Environmental Protection Agency (“USEPA”) and the Illinois Environmental Protection Agency (“IEPA”), have filed post-hearing comments in Subdocket D. Below, Environmental Groups respond to some broad, unsupported and sometimes totally fallacious arguments made by dischargers, as well as some new proposals and other matters contained in the post-hearing comments of IEPA that the Environmental Groups now address. To summarize:

- IEPA proposed temperature standards for Aquatic Life A and B waters and the Upper Dresden Island Pool (“UDIP”) are not more stringent than the existing standards for General Use waters, as some dischargers claim, and it would not be relevant if they were.
- The thermal criteria proposed by IEPA do not protect 100% of the species that could live in the waters in question. Contrary to the arguments of several dischargers, the purpose of these criteria is not to maintain the status quo in a water body that has long suffered from pollution. The Board should not adopt temperature criteria that only protect 95% of the species that already exist in large numbers in these thermally-stressed water bodies.
- Statements that the IEPA proposed criteria were designed to create “optimal” conditions in the CSSC, the Brandon Pool and the Des Plaines¹ are false and misleading. The IEPA did not attempt to create such optimum conditions and, in fact, in some respects the IEPA proposal falls considerably short of protecting tolerable conditions for many species.
- The economic concerns of several of the dischargers are highly speculative and do not constitute a basis under the Clean Water Act for adopting weaker criteria.
- If this proceeding is ever to come to an end, it will not be possible to address all of the dischargers’ concerns about how the criteria adopted in this proceeding will be

¹ (PC 1403 at 6-7, 19.)

implemented. Furthermore, the regulatory relief they seek cannot be granted by the Board in the context of this rulemaking.

A. Any fair comparison between the IEPA proposal and general use temperature criteria shows that the IEPA proposed criteria are much less stringent than the criteria applied to general use waters.

A central argument of MWG², Stepan³ and, to a lesser extent, Exxon⁴ is that the IEPA proposal for temperatures for the UDIP is substantially more stringent than the current temperature criteria applicable to the general use waters. Their unproven assumption is that the existing general use standards, 35 IAC 302.211, are wonderfully protective of all the aquatic life in all the waters in the state, even those with the most sensitive species, and that the criteria applicable to the CAWS and UDIP, which are affected by pollution and barge traffic, must necessarily be less stringent. The dischargers making this argument are wrong for two reasons.

First, it is very likely that the general use standards, which apparently have not been seriously reconsidered in decades, are not protective of many general use waters.⁵ Long ago, the Board recognized that the general use criteria are not protective of all Illinois waters and adopted more stringent numeric standards for certain waters. Indeed, even for the Mississippi River between its confluence with the Illinois River and the Alton Dam there are more stringent standards, although that water body is far south of the UDIP and affected by impoundment and barge traffic.⁶ The general use criteria should eventually be reconsidered as to every Illinois water particularly in light of recent science showing that higher water temperatures promote the growth of harmful algal blooms, including blooms of toxic cyanobacteria.⁷

Second, the objecting dischargers ignore most of the general use criteria. The general use standards do provide maximum temperature criteria in 35 Ill. Admin. Code § 302.211(e) that are very slightly higher at some times than those allowed by the IEPA proposal for the CAWS and the UDIP (and much stronger than those proposed by MWG). However, the dischargers are ignoring the general use criteria provisions that prohibit abnormal temperature changes that “may adversely affect aquatic life,”⁸ require “normal daily and seasonal fluctuations,”⁹ and prohibit temperature rises more than 5 °F above natural.¹⁰

² (PC 1403 at 2.)

³ (PC 1405 at 7-8.)

⁴ (PC 1406 at 22.)

⁵ MWG’s suggestion that the General Use standard has been found to be protective through multiple triennial reviews (PC 1403 at 2) is at best a half-truth. While theoretically IEPA could have seriously reconsidered the general use temperature standard in triennial reviews, IEPA does not do triennial reviews on anything like a triennial basis and we are aware of no occasion when the statewide general use temperature standard has actually been reconsidered by IEPA or the Board.

⁶ See, 35 Ill. Admin. Code § 303.351; *In the Matter of Mississippi River Thermal Standards*, IPCB R1970-016 (Nov. 23, 1971).

⁷ (Attachment 1.) (Paerl, H.W., Huisman, J., “Blooms Like it Hot”, Science Vol. 320 4 April 2008, p. 57.)

⁸ 35 Ill. Admin. Code § 302.211(b). This provision would clearly prohibit operations that might result in winter cold shock as would the proposed IEPA provision to prevent cold shock to which dischargers have objected.

⁹ 35 Ill. Admin. Code § 302.211(c). MWG claims that the IEPA proposal “irrationally attempts” to maintain natural seasonal variations in the CAWS and UDIP, but in criticizing IEPA as proposing standards more stringent than general use standards, ignores that the general use criteria explicitly do require maintenance of normal daily and

B. IEPA was correct in not proposing criteria that just barely maintain the status quo in these recovering water bodies because such criteria would not protect attainable uses or comply with the Clean Water Act.

ExxonMobil¹¹ and MWG¹² both claim that IEPA and its expert, Chris Yoder, chose temperatures designed to protect 100% of species in the UDIP and the CAWS. In their view, IEPA should have only protected 95% of the species that have been shown to live in the relevant waters in substantial numbers. The dischargers claim that their method is what USEPA recommends and that Yoder and IEPA acted irrationally and in violation of USEPA guidance in seeking to protect more.¹³

Yoder did not do what the dischargers say he did and he certainly should not have done what they think he should have done. In fact, USEPA stated clearly to IEPA that the “approach used by IEPA for determining protective temperature criteria, developed by [Yoder] is technically sound and supported by U.S. EPA.”¹⁴ Yoder chose the Representative Aquatic Species (“RAS”) with the assistance of USEPA’s Ed Hammer and excluded at least two sensitive species.¹⁵ Also, as Yoder explained in his report, many of the most sensitive species may have been left out of his study because there is no thermal data on them.¹⁶ USEPA in its January 29, 2010 Comment in this proceeding, even questioned whether Yoder had included enough sensitive species.¹⁷

MWG attacks Yoder at some length regarding the thermal studies done on the Stonecat Madtom.¹⁸ Notably, the Stonecat Madtom was not included in the Modified Use or Secondary Contact RAS lists and did not figure at all into the thermal endpoints presented to IEPA.¹⁹

The White Sucker is most thermally-sensitive species identified by Yoder’s model for the “Modified Use” RAS. The White Sucker actually lives in the UDIP albeit not in great number.²⁰

seasonal fluctuations. Moreover, MWG vastly exaggerates the differences between the UDIP pool and general use waters. In fact, regarding the temperature regime, by far the biggest difference between general use waters and the UDIP pool is that the UDIP suffers from numerous huge half-century old power plants allowed currently to run open cycle without allowing zones of passage or other safeguards required of modern power plants.

¹⁰ 35 Ill. Admin. Code § 302.211(d).

¹¹ (PC 1406 at 31.)

¹² (PC 1403 at 8, 19.)

¹³ Inconsistently, while accusing IEPA of failing to follow U.S. EPA guidance, MWG also accuses IEPA of paying too much attention to USEPA. (PC 1403 at , 27-31.)

¹⁴ (Ex. 4 at 4.)

¹⁵ (Tr. 1/30/2008 at 116.)

¹⁶ (Ex. 15 at 7.)

¹⁷ (PC 286.)

¹⁸ (PC 1403 at 9-10.)

¹⁹ (Ex. 15 at 14-5.)

²⁰ (Ex. 15 at 9 (citing historical incidence of white sucker); Ex. 19 (showing 11 white sucker collected in the Lower Dresden Island Pool); Ex. 367 (showing 76 white sucker collected in Dresden Pool); Ex. 329 (showing 3 white sucker collected in Dresden Pool and more downstream); Ex. 327 at 4-5. Furthermore, it is noteworthy that studies of the Des Plaines River beyond the limited reaches at issue in this proceeding identify white sucker as one of the most abundant fish species. (Ex. 44 (“Common carp, goldfish and white sucker accounted for nearly 60% of all fish collected on the [Des Plaines] River.”); Ex. 340 (identifying white sucker as one of the ten most numerous species in the mainstem of the Des Plaines River); Ex. 42 (showing incidence of white sucker in tributaries to the waters in this proceeding (Jackson Creek and Hickory Creek)).

Dr. David Thomas, formerly chief of the Illinois Natural History Survey, testified that he believes that more White Sucker, Redhorse, Walleye and Smallmouth Bass would occur in the UDIP if temperatures were lower.²¹ Significantly, White Sucker were found in much greater number near the O'Brien Lock by the Illinois Department of Natural Resources after its May 20, 2010 rotenone application to the Little Calumet River.²² Like the UDIP, the Little Calumet River at that location is a deep body of water subject to barge traffic and pollution, but it lacks the thermal discharges that currently dominate the UDIP.

MWG complains that it cannot find the study or studies that support the ultimate incipient lethal temperature for the White Sucker presented in the Yoder Report.²³ The attached study containing the cited UILT (31.5 °C) was found simply by typing "White Sucker UILT" into Google.²⁴ We also found studies showing much lower UILT figures for the white sucker.²⁵

In any event, the dischargers' proposal to protect only 95% of the fish present in large numbers in the relevant waters is not supported by USEPA policy. The dischargers' basis for this claim is a citation to the 1985 U.S. EPA Guidelines for Deriving Numerical Water Quality Criteria for the Protection of Aquatic Organisms and their Uses, Office of Research and Development, PB85-227049. But it is not clear that the USEPA policies regarding developing nationwide criteria for toxins are relevant to setting temperature criteria at all.

More critically, this proceeding is a use *attainability* analysis not a use *attained* analysis. Accordingly, the major object of Subdocket D is to protect the kinds and quantities of aquatic life that *could* live in the waters under consideration if water quality is improved. IEPA should not derive criteria based on protecting 95% of species present at an individual site that may have been impaired by the very pollutant under consideration. As stated by USEPA in writing to IEPA in 2007 regarding the CAWS, the list of species to be protected must include the "species assemblage that ought to be present in the different segments of the CAWS in the absence of thermal impacts."²⁶ It is anticipated by IEPA experts that improved dissolved oxygen and thermal conditions in the CAWS and UDIP will lead to "better fisheries" than we have now despite habitat limitations.²⁷

²¹ (Tr. 8/14/09 at 114; Ex. 327 at 4-6.)

²² (Ex. 505 at 10.)

²³ (Ex. 15 at 13.)

²⁴ (Attach. 2.)

²⁵ See, Attach. 3 at 4, 15. MWG argues that the White Sucker does not belong in the UDIP. (PC 1403 at 13.) But even if one accepts the false premise that the White Sucker does not belong where it has been repeatedly found, the result does not change much. The Emerald Shiner - which clearly has been found in the UDIP and the Brandon Pool and which MWG's and Exxon's experts admit belongs there, (PC 1398 at 3; Tr. 11/19/2009 at 18) - is listed as having a UILT of 89.8°F. As a result, killing the White Sucker would only buy the dischargers 1.2 °F. As shown in the Environmental Groups' Post-Hearing Comments, that number should actually be reduced by 2 °C in calculating the daily maximum value. (PC 1407 at 8.) Even using the Bluntnose Minnow UILT (90.3 °F) to set the daily maximum would result in a lower temperature for a daily maximum (86.7 °F) than was proposed by IEPA if the 2 °C factor is applied as recommended by U.S. EPA. The Bluntnose Minnow, of course, is explicitly mentioned by the Board as a species to be protected in both the UDIP and Aquatic Life B waters its Opinion and Order of October 3, 2013 p.57-8.

²⁶ (Ex. 4 at 6.)

²⁷ (Tr. 1/29/2008 at 105-06.)

For this reason, both the current adjusted standard for the I-55 Bridge (AS96-10) and MWG's proposals for temperatures based on studies of the existing fishery are largely irrelevant. The I-55 adjusted standard was based on evidence regarding the Dresden Pool collected over two decades ago before literally billions of dollars of wastewater treatment came online in the Chicago area. The AS96-10 standard was explicitly based on findings in PCB 87-93, a still-earlier Board proceeding regarding the water quality as it existed and had been studied in the 1970s and 1980s.²⁸

MWG's more recent proposals, while newer, are based on protecting the status quo as it existed a decade ago. MWG admits its field data is "retrospective" in nature.²⁹ This is what MWG means by "real world conditions"³⁰ --- conditions affected by huge MWG thermal discharges into a relatively low-flow water body.

Actually, the MWG proposal does not even protect highly tolerant species known to live in the UDIP in quantity, as the proposal allows temperatures as high as 98 °F.³¹ This temperature is well above the UILT for just about everything but carp³² and is well above the temperature, 96 ° F, known to have caused a fish kill at the Joliet 7& 8 discharge.³³

While the Environmental Groups emphatically believe that far more must be done by MWRDGC and other pollution sources upstream of the Brandon Pool and the UDIP, it would a travesty to allow the substantial investments in water quality made upstream to be wasted in order to allow pre-modern coal plants to continue to operate as though the last half century never happened.

C. The IEPA proposal does not create "optimal" conditions for any fish other than carp and is not protective of numerous fish that should be in the water bodies in numbers.

In one of the bigger whoppers told in the course of these lengthy proceedings, MWG claims that the IEPA proposal is designed so that "every fish of every species reasonably expected to be present, either now or in the future, no matter how infrequently, in all areas of these waters at all times, is provided with a water temperature that is optimal...."³⁴ In fact, as the Yoder report explicitly shows, the proposed daily maximum temperatures are above the optimum temperature for every fish species that he selected to protect other than carp.³⁵ This would include Asian carp and favor Asian carp over those species that cannot tolerate the high temperatures allowed by the IEPA proposal.³⁶

²⁸ *In matter of Petition of Commonwealth Edison for Adjusted Standard from 35 Ill. Adm. Code 302.211(d) and (e)*, IPCB AS96-10 at 4 (Oct. 3, 1996).

²⁹ (PC 1403, Attach. C at 12.)

³⁰ (PC 1403 at 18.)

³¹ (PC 1403 at 40-41.)

³² (Ex. 15 at 69 (UILT exceeded for all RAS species except Common Carp, Flathead Catfish, Blackstripe Topminnow, and Channel Catfish).)

³³ (Ex. 365.)

³⁴ (PC 1403 at 19.)

³⁵ (Ex. 15 at 67.)

³⁶ (Attach. 4 and 5.)

Even the period average temperatures that Yoder proposed were above the optimal temperatures for all of the RAS-listed fish except for Bluegill Sunfish, catfish, and carp and above the temperatures for fish growth of the Bluntnose Minnow, Emerald Shiner and Walleye.³⁷

Moreover, IEPA has proposed allowing maximum temperatures still higher than what Yoder proposed in proposed 35 IAC 302.408(a). Thus, instead of what MWG claims IEPA did, it would be more accurate to write that IEPA proposes criteria that would protect barely-tolerable conditions for most of the fish now in the subject waters and less-than-tolerable conditions for some species known to inhabit the waters despite high temperatures.

The dischargers complain of the non-summer monthly averages proposed by IEPA,³⁸ but they fail to appreciate just how generous IEPA has been to them. IEPA now proposes period averages for non-summer months for the UDIP and other waters based on the higher of the 90th percentile of the temperature at Route 83 and the Cal Sag Channel and the 75th percentile of the discharge temperature of the MWRDGC wastewater treatment plants in order to avoid requiring cooling of the Stickney treatment plant.³⁹

The Environmental Groups do not ask that IEPA require cooling of the MWRDGC treatment plant wastewater but they do ask for recognition of the fact that the UDIP is over 18 miles south of the Route 83 sites that caused problems for the Stickney sewage treatment plant and that those 18 miles give much opportunity for natural cooling of the treatment plant waste. The criteria for non-summer temperatures for the UDIP should be considerably lower than those designed to avoid violations by the treatment plants many miles upstream.⁴⁰ If those criteria are violated in the UDIP, it will be, as Exxon confirms through its analysis of MWG's ability to raise temperatures, due almost entirely to discharges by MWG.⁴¹

Dischargers also wrongly claim that the non-summer temperatures, both as to the daily maximum temperatures and the monthly averages, do not matter to the health of the aquatic ecosystems.⁴² It is generally recognized that fish spawning and hatching is based in large part on temperature signals.⁴³

The Environmental Groups are not enthusiastic about the IEPA "cold shock" proposal (302.408(d)) to protect against fish kills caused by the established phenomena of "cold shock" which occurs when an unnaturally high winter temperature (such as those that can be caused by power plant discharges) to which fish have become acclimatized falls relatively quickly as a result of the power plant being shut down.⁴⁴ The IEPA proposal will leave much for permit

³⁷ (Ex. 15 at 66-67.)

³⁸ (PC 1403 at 22; PC 1405 at 8-9; PC 1406 at 30.)

³⁹ (PC 1401 at 14-15.)

⁴⁰ IEPA admitted that in setting the non-summer criteria for the UDIP it did not consider the effect of cooling from Stickney WRP to Brandon Pool. (Tr. 7/29/2013 at 29.)

⁴¹ (PC 1406 at 19-20.)

⁴² (PC 1403 at 24; PC 1405 at 9.)

⁴³ (Ex. 15 at 15; Tr. 11/10/2009 at 54; Tr. 7/29/2013 at 25; PC 286.)

⁴⁴ (Tr. 8/14/09 at 57.)

writers to do in writing readily-enforceable numeric permit limits.⁴⁵ The proposal, though, is not too strict as it basically tells permit writers to protect against fish kills, which even the dischargers admit are a bad thing. IEPA testimony that it is not aware of fish kills from cold shock in the UDIP does not prove fish kills have never have happened, particularly as there is no evidence that any IEPA official has looked for winter fish kills. Further, scientists have suggested that the effects of cold shock may go unnoticed in many circumstances.⁴⁶

Unaccountably, the dischargers attack the IEPA cold shock proposal.⁴⁷ MWG has its own proposal as to how to address this problem but its proposal is too lax, as shown by the reports and data that have been put forth by MWG.

MWG has submitted to the Board a proposal developed by a consultant to maintain the status quo in the UDIP.⁴⁸ In addition to recommending dangerously lenient summer temperature criteria, the proposal allows winter temperatures in the discharge plume to rise 27 °F above ambient temperatures.⁴⁹ The entire basis for this proposal is a citation to a chart in USEPA's 1977 Temperature Criteria for Freshwater Fish: Protocol and Procedures⁵⁰ ("Brungs and Jones") and a claim that "because of the dominant influence of treated waste water from the [MWRDGC] Stickney WWTP, water temperatures in the [UDIP] typically do not drop below 50 F."⁵¹

But MWG's assertion that the water temperatures do not drop below 50°F is just wrong. As shown by MWG data on Joliet 9 Station Water Intake temperatures for January and February 2009 and 2010,⁵² the water from Stickney often has cooled considerably by the time its gets as far south as the UDIP despite the heating influence of the Will County MWG plant. Intake temperatures during these four months were as low as 33 °F (1/28/2010) and on only one day out of the four months (1/22/2010) were average temperatures as high as the 50°F that were assumed by MWG's consultant.

If one takes the much more typical temperature of 41°F for the UDIP shown by MWG's intake data and then looks at the same table in Brungs and Jones⁵³ that was relied on by MWG's consultant to find that 27°F was acceptable, one now sees that temperatures should be less than 18°F above the background temperature in any place that fish are allowed to aggregate.

⁴⁵ That the standard does not spell out precise figures but leaves much work for permit writers does not in itself make the standard unacceptable. Illinois has numerous standards that require permit writers to make complex calculations to develop water quality based effluent limits (e.g. 302.210, 302.553). Standards can even be acceptable and enforceable in situations in which it impossible for permit writers to reduce the standard to a numeric water quality based effluent limit. *Northwest Envtl. Advocates v. City of Portland*, 56 F.3d 979, 989 (9th Cir. 1995) cert. denied, 518 U.S. 1018 (1996)

⁴⁶ (Attach. 6 at 354.)

⁴⁷ (PC 1403 at 26-27; PC 1406 at 31.)

⁴⁸ (PC 1403, Attach. C (also cited in this proceeding as Ex. 368).)

⁴⁹ (PC 1403, Attach. C at 9.)

⁵⁰ (Ex. 328.)

⁵¹ (PC 1403, Attach. C at 9.)

⁵² (Ex. 460.)

⁵³ (Ex. 328 at 19.)

D. The economic arguments against the thermal standards do not support a finding that the standards are unreasonable

The Board should reject MWG, Exxon, and Stepan's arguments that compliance with the IEPA's proposed thermal standards is economically unreasonable. The record does not support that claim.

Under the Clean Water Act, protective water quality criteria must be adopted⁵⁴ unless those criteria would have "substantial and widespread economic and social impact."⁵⁵ While Illinois law requires that the Board consider "economic reasonableness" when adopting regulations,⁵⁶ it nowhere states that economic considerations trump other requirements. Of course, these criteria cannot receive the USEPA approval required by Section 303(c)(2) of the Clean Water Act, 33 U.S.C. 1313(c)(2), unless they comply with federal law.

The dischargers contend that achieving more stringent thermal standards will cost money, which they claim is an unreasonable outcome. However, not one of the dischargers has built a record that suggests that any of its options for compliance with more protective temperature criteria would cause widespread economic and social impact, nor do they qualify as economically unreasonable.⁵⁷

(i) The economic concerns of Exxon and Stepan regarding the effect of proposed temperature standards are highly speculative.

The arguments of Stepan and Exxon about economically unreasonable outcomes flowing from IEPA's proposed thermal standards are simply a series of statements about possibly needing to spend money, and are largely speculative and unsupported by evidence that such expenditures would have the "widespread and substantial" impact necessary to override ordinary Clean Water Act requirements.

Stepan states that it "will likely" have difficulty meeting both the summer and non-summer proposed temperature standards "if they are imposed as a discharge standard with no mixing zone."⁵⁸ Similarly, Exxon claims that it might somehow have to spend money as a result of imposition of the IEPA temperature proposal while at the same time claiming that proper application of the Clean Water Act would avoid this result.⁵⁹ Both dischargers fault IEPA's Scott Twait for failing immediately to explain how Stepan and Exxon will obtain relief under the present regulations.⁶⁰

⁵⁴ 40 CFR 131.11(a).

⁵⁵ 40 CFR 131.10(g)(6). *See also, Miss. Comm'n on Natural Res. v. Costle*, 625 F.2d 1269, 1277 (5th Cir. 1980) (holding that criteria should not be directed by economic considerations).

⁵⁶ 415 ILCS 5/27(a).

⁵⁷ Such a showing must meet the requirements of USEPA's Interim Economic Guidance of 1994, which no party has attempted to do in this proceeding.

⁵⁸ (PC 1405 at 16.)

⁵⁹ (PC 1406 at 25.)

⁶⁰ (PC 1405 at 25; PC 1406 at 16, n.2.)

Both Exxon and Stepan apparently have nightmares that IEPA will allow MWG to cause violations of the UDIP thermal standards, but then woodenly deprive Exxon and Stepan of the ability to make relatively trivial heat discharges. We agree with Exxon and Stepan that that result would be wrong, but we do not believe that their concerns need to be addressed in this proceeding. As Stepan and Exxon recognize, there are mechanisms to address the problem they describe, even if MWG is allowed to cause violations of proper temperature criteria for some period of time.

(ii) Midwest Generation's arguments that "compliance costs are not justified" lack detail, rigor, and context, and do not add up to a socially unacceptable outcome.

Midwest Generation's argument in its most basic form is that cooling towers would cost \$600 million, and since that is a lot of money, it must follow that it is also an unreasonable amount of money, therefore the proposed standards are unreasonable. The record does not support this conclusion. Midwest Generation's post-hearing brief relies on the testimony of Ray E. Henry (the Sargent & Lundy Report) to outline the cost of closed-cycle cooling.

We need not look far to find much different cost estimates to install cooling towers at these specific units. In the technical support for its proposed regulation under section 316(b) of the Clean Water Act, USEPA provides a detailed methodology for determining the cost of cooling towers unit-by-unit.⁶¹ EPA's methodology results in significantly lower capital estimates than MWG's estimates.

Unit Name	Henry Testimony Estimate	EPA Methodology Estimate
Joliet 29	\$300 million	\$130 million
Joliet 6	\$115 million	\$30 million
Will County	\$257 million	\$84 million

Acknowledging that there are potentially diverse views on the cost of cooling towers, even if the Board were to investigate different cost methodologies and determine that MWG's estimates were accurate, the record has no context for determining whether those costs would cause an economically unacceptable outcome. MWG's estimated \$600 million investment would be shared across 2,950 megawatts, breaking down to roughly \$203/kilowatt. Nowhere in the record does MWG put these costs into the context of the energy industry, where hundreds of millions of dollars are routinely spent to comply with environmental and public health laws and where the relevant question is how the added expenditure would impact the plants' market price of energy. Taking the USEPA cost estimates and calculating the cost per unit of energy based on 2013

⁶¹ The Sierra Club hired Synapse Energy Economics to utilize EPA's methodology for calculating the cost of cooling towers for the Joliet 9, 29, and Will County plants. That cost information is contained in EPA's "Technical Development Document for the Proposed Section 316(b) Phase II Existing Facilities Rule" (2011), (Attach. 7), with calculation details in Exhibit 8-6 of that document (pg. 204). Both capital and O&M costs are calculated using information on intake flow rates in gallons per day. Data on existing intake flow rates is available from EIA form 923. (Attach. 8.).

operating data, we estimate that the investment in cooling towers would add \$1.70 per megawatt hour (mwh) of energy to the current marginal cost of approximately \$37/mwh.⁶²

Furthermore, MWG fails to meaningfully evaluate compliance options other than closed-cycle cooling, depriving the Board of information needed to fully assess the potential economic impacts of various compliance options. MWG fails to consider technology options such as converting units to combined-cycle natural gas systems, which could dramatically reduce overall water use per unit of energy produced. At least one company believes that retrofitting a plant like Joliet 29 or Will Co. to a combined-cycle plant could reduce water use by half.⁶³ For plants like Joliet 29 that already use gas as a secondary fuel, a conversion could not only reduce water use, but could help achieve compliance with other high-priority environmental and public health regulations such as National Ambient Air Quality Standards and the “Combined Pollutant Standard.” These secondary benefits of other technologies that could help achieve uses for the Lower Des Plaines River deserve consideration, and are currently lacking from MWG’s claims that the State’s standards would have “minimal environmental benefit.”

MWG also fails to fully analyze non-technology based operational compliance options such as de-rating its units when the water is very warm. This option was addressed briefly in the hearing testimony of Mr. Henry.⁶⁴ Mr. Henry claimed that the plants would need to de-rate 100 days a year, but under questioning, he couldn’t answer any questions regarding what data he based his assertion on, which plants would need to de-rate, and no MWG witness has even attempted to assess a cost to de-rating the plants as a method of compliance. De-rating the plant would cost the company money in the form of lost revenue, but by refusing to evaluate compliance options other than cooling towers, MWG has deprived the Board of information regarding the cost of this, and any non-cooling tower option.

Finally, Midwest Generation fails to identify the true value of closed cycle-cooling to the river when it claims that the technology would lead to “minimal environmental benefit.” Closed-cycle cooling is widely used across the country, with more than 450 coal-fired generators using this technology.⁶⁵ There is no question that closed-cycle cooling is technically feasible. Closed-cycle cooling can reduce water use at steam plants like Will County and Joliet 29 and 9 by 95-98%.⁶⁶ Not only would this technology dramatically reduce the thermal pollution from these stations by nearly eliminating its water use, closed-cycle cooling also nearly eliminates “impingement” and “entrainment” of the same aquatic species at risk of thermal pollution in the Des Plaines River, thus dramatically reducing the death and other physical harms caused by once-through cooling.

⁶² Synapse estimates the current marginal cost using publicly available data from the Energy Information Administration and calculates fuel cost, fixed and variable O&M, and divides these costs across the amount of energy produced at the relevant facility.

⁶³ (Attach. 9 (MarkronTech Presentation).)

⁶⁴ (Tr. 3/18/2011 at 48-60.)

⁶⁵ Energy Information Administration Form 860, *available at* <http://www.eia.gov/electricity/data/eia860/>.

⁶⁶ *See* EPA’s rulemaking record for Clean Water Act Section 316(b), *available at* http://water.epa.gov/lawsregs/lawsguidance/cwa/316b/upload/qa_proposed.pdf.

In sum, the record contains cost estimates that are questionably high, related to just one compliance option, and fails to evaluate the full benefit of that one option. MWG's summary conclusion that the cost of compliance is unreasonable is not supported by the record.

(iii) Midwest Generation's relies on old arguments regarding cost without proper analysis of the financial circumstance and past experience of its new owner, NRG.

In March, New Jersey-based NRG took control of Joliet 29, Joliet 9, and Will County along with several other assets that were formally owned by Edison Mission Energy, a subsidiary of Edison International. MWG's filing on April 30th fails to take this change of ownership into consideration and merely reiterates old arguments from earlier stages of this docket that are no longer relevant under changed circumstances.

On December 17, 2012 Edison Mission Energy and its subsidiary Midwest Generation filed for Chapter 11 Bankruptcy protection. The filings are replete with descriptions of a failing business that was negatively impacting the parent company, Edison International. MWG's testimony and comment to the Board under Edison Mission Energy ownership were cloaked in this doomsday financial reality. Today, MWG is owned by NRG, a company that projects a nearly opposite financial outlook and continues to make news with its slew of acquisitions. Simply put, NRG has money to spend and Edison Mission Energy has spent the last several years preparing for, filing, and working its way through, a bankruptcy proceeding. If MWG wants to assert a financial hardship, it must do more than state an estimated cost figure for compliance; as we note above, that cost must be evaluated in the context of the energy business, and also in the context of new ownership. Without this information, context, and analysis, the record is wholly inadequate to allow the Board to make the same conclusion that MWG asserts regarding the standard's economic impacts.

NRG has relevant experience complying with cooling water issues that highlight the oversimplification of the issues represented in MWG's post-hearing brief. In California, NRG has navigated a rulemaking process similar to this one that culminated in the State Water Board's 2010 adoption of a Policy on the "Use of Coastal and Estuarine Waters for Power Plant Cooling." The Policy establishes technology-based standards to implement federal Clean Water Act section 316(b) and reduce the harmful effects associated with cooling water intake structures on marine and estuarine life. The Policy applies to the 19 existing power plants that currently have the ability to withdraw over 15 billion gallons per day from California's coastal and estuarine waters.

This policy impacts five NRG plants and the company has plans to comply with the policy at each plant. According to NRG's representations to the state of California, it plans to replace its El Segundo, Encina, Mandalay, and Ormond Beach plants with new modern plants that use dry air cooling instead of once-through cooling. At its Pittsburgh plant, NRG plans to retrofit the facility to use closed-cycle cooling.⁶⁷

⁶⁷ NRG's letters to the State Water Resources Control Board, *available at*: http://www.swrcb.ca.gov/water_issues/programs/ocean/cwa316/.

Finally, new-owner NRG will announce a business plan in the next 4-6 weeks that will lay out a vision for its Illinois assets including Joliet and Will County. The details of that plan are currently unknown, but NRG has signaled an intent to leverage experience with its recent acquisition of GenOn, which included important decisions about whether to continue to rely on coal-fired assets, whether to convert some stations to natural gas and run them fewer hours each year, whether to invest in controls, and other critical decisions.⁶⁸ It is possible that NRG will announce changes to Joliet and Will County operations that will reduce thermal load and reduce MWG's estimated cost of compliance.

(iv) The State of Illinois has recognized the tremendous benefits and argued that cooling towers are the preferred technology to address aquatic impacts in similar circumstances.

Despite MWG's claims that the benefits of closed-cycle cooling are minimal, the State of Illinois is on record clearly identifying the negative impact once-through, or single-cycle cooling can have on waterways and it has argued in favor of closed-cycle cooling in the past. In 2004, the State filed an Amicus Curiae brief in *Clean Wisconsin v. Public Service Commission of Wisconsin*, arguing, inter alia, that closed-cycle cooling should have been considered for the Elm Road Generating Station, a coal-fired power plant expansion project at the South Oak Creek plant site.⁶⁹

In its brief, the State identifies cooling towers and dry cooling as "two available alternative technologies" to the once-through cooling process proposed for the Elm Road station.⁷⁰ The State goes on to say "[t]he discharge of heated water by the open-cycle cooling system would cause further harm to the aquatic environment by disrupting the timing of egg hatching, causing nuisance species such as zebra mussels to flourish, and causing fatal temperature shock whenever there is an upwelling or storm or the thermal discharge is temporarily discontinued."⁷¹

While each plant and each water body require independent consideration, the State's position provides an important juxtaposition to MWG's claims that minimal benefit would ensue from the application of closed-cycle technology. This is especially true given the similarity in the size of Elm Road (two, 615 megawatt units) with some of the facilities at issue in this docket such as Joliet 29 (two, 660 megawatt units).

E. Future proceedings

The dischargers and the agencies also raise questions regarding other pollutants and criteria about which there has been much less information and discussion in these proceedings than about temperature. Generally, the Environmental Groups believe it would be unwise for the Board to adopt new criteria as to any of these pollutants based on an incomplete record and limited discussion. Further, this is not the proceeding for changing variance procedures or writing individual variances or establishing permit compliance schedules.

⁶⁸ (Attach. 10 (NRG January 7, 2014 Presentation).)

⁶⁹ (Attach. 11.)

⁷⁰ (Attach. 11 at 14.)

⁷¹ (*Id.* at 15.)

1. Ammonia, Selenium and Copper

IEPA states that the CAWS, Brandon Pool and the UDIP “will be fully protected by the adoption of the ammonia water quality standards proposed by the Agency.”⁷² We do not believe that is true, and note that USEPA has recently adopted new, more stringent ammonia criteria based on new studies designed to protect species more sensitive than those considered when the Board last considered ammonia criteria.⁷³

Nonetheless, we urge the Board to establish ammonia criteria for the ALU A, ALU B and the UDIP waters based on the IEPA proposal. We hope and expect that IEPA will soon bring revised statewide ammonia criteria to the Board based on the new science developed by U.S. EPA, the U.S. Fish and Wildlife Service and others.

Similarly, while we believe that Illinois should update its copper and selenium criteria, we do not believe that this proceeding is the place to do that.

2. Chloride and mercury

The Environmental Groups do not believe that the record has been made for a broad consideration of the chloride standard to be applied to the CAWS, Brandon Pool or the UDIP. We believe strongly that new statewide chloride standard should be adopted soon, and that Illinois should begin to address chloride pollution more aggressively.

Although we do not fully understand IEPA’s current position as to chloride, we are very concerned by what appears to be new language in the IEPA proposal that limits the applicability of the 500 mg/L chloride standard to May 1 to November 30.⁷⁴ While certainly this is the time period during which it is easiest to meet the chloride standard because it generally has not snowed recently, water criteria must be designed to protect aquatic life and other uses.⁷⁵ It would be convenient if all the species that are sensitive to chloride pollution are not susceptible to it during months in which such pollution is hard to control, but that would have to be established with science.

Generally, as to the efforts of Citgo, Stepan and Exxon to obtain variances from standards that have not been established, regarding compliance problems that may or may not exist, this water quality standards rulemaking is not the forum to obtain the regulatory relief the dischargers seek. This rulemaking is promulgated subject to the procedures set forth for regulations of general applicability in 35 Ill. Admin. Code, Part 102. Site-specific standards must follow the procedures specified in 35 Ill. Admin. Code 102.208 and 102.210. Variances and adjusted standards must follow the procedures set forth in 35 Ill. Admin. Code, Part 104. The Board does not in the context of this proceeding have the authority to entertain the regulatory relief sought by the dischargers. Nor does the Board have the authority to draft or issue an NPDES permit with which these dischargers would be more content. The task at hand, on which we have been

⁷² (PC 1401 at 6.)

⁷³ (See, PC 1404, Enclosure 1 at 2.)

⁷⁴ (PC 1401 at 57.)

⁷⁵ 40 CFR 131.11(a).

working for nearly seven years, is to develop water quality standards for the CAWS and Lower Des Plaines River.

We take no position on whether Citgo has made the case regarding chloride or mercury criteria for the limited regulated navigation zone in the immediate area of the invasive species barrier. Citgo's proposal, however, certainly should not be adopted more broadly as to ALU B waters. Also, insofar as it has offered evidence regarding winter standards for chloride, Citgo's evidence does not speak to any areas outside of the regulated safety zone where fingernail clams or other species sensitive to chloride may be present. We welcome Citgo's suggestion that best management practices be implemented for control of chloride by all of the entities adding chloride to waters suffering from chloride pollution.

CONCLUSION

The parties have worked on this use attainability proceeding officially in the Board for almost seven years, and for many years before that in studies and stakeholder discussions. The Board should adopt criteria that are legally-sound, reasonable and environmentally-protective. We believe that the IEPA proposal, as modified by the changes suggested by the Environmental Groups, satisfy all of these goals and will not impose any costs that are not required by proper environmental protection and the law.

Dated: May 14, 2014

Respectfully submitted,

ENVIRONMENTAL LAW & POLICY CENTER
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A handwritten signature in black ink, appearing to read 'JDexter', with a long horizontal flourish extending to the right.

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*Authorized to represent the parties listed above for
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CERTIFICATE OF SERVICE

I, Jessica Dexter, hereby certify that I have served the attached ENVIRONMENTAL GROUPS' RESPONSE TO POST HEARING COMMENTS ON SUBDOCKET D upon the below service list via the United States Mail, postage prepaid, in Chicago, Illinois on May 14, 2014.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'JDexter', with a long horizontal flourish extending to the right.

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