

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
)
WATER QUALITY STANDARDS AND) R08-9
EFFLUENT LIMITATIONS FOR THE) (Rulemaking – Water)
CHICAGO AREA WATERWAY SYSTEM)
AND LOWER DES PLAINES RIVER)
PROPOSED AMENDMENTS TO 35 ILL.)
ADM. CODE 301, 302, 303, and 304)

NOTICE OF FILING

TO:

John Therriault, Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph Street, Suite 11-500
Chicago, IL 60601

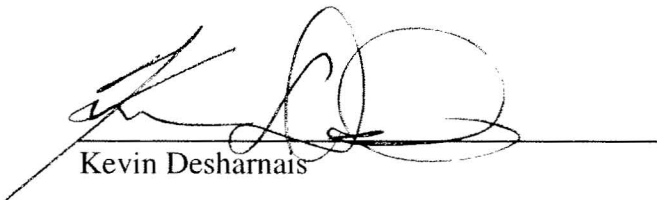
Marie Tipsord, Hearing Officer
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph Street, Suite 11-500
Chicago, IL 60601

Deborah J. Williams, Assistant Counsel
Stefanie N. Diers, Assistant Counsel
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

Persons included on the attached
SERVICE LIST

PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Pollution Control Board the STEPAN COMPANY'S QUESTIONS FOR THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY AT THE HEARING COMMENCING JANUARY 28, 2008, a copy of which is herewith served upon you.

STEPAN COMPANY



Kevin Desharnais

Date: January 18, 2008

Thomas V. Skinner
Thomas W. Dimond
Kevin Desharnais
Mayer Brown LLP
71 South Wacker Drive
Chicago, Illinois 60606-4637
(312) 701-8079 (phone)
(312) 706-9181 (fax)

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STEPAN COMPANY'S QUESTIONS
FOR THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
AT THE HEARING COMMENCING JANUARY 28, 2008

NOW COMES Stepan Company, by and through its attorneys, Mayer Brown LLP, and submits the following questions based upon the Statement of Reasons and its Attachments and the testimony submitted by the Illinois Environmental Protection Agency (“Agency” or “IEPA”) in this matter.

For Rob Sulski

1. On page 14 of your testimony you refer to intermediately tolerant and intolerant types of aquatic life that are adaptive to the unique flow conditions of the Upper Dresden Island Pool (“UDI Pool”). Please describe what types of aquatic life are meant.
2. What are the unique flow conditions in the UDI Pool?
3. Why are the geographic features of the UDI Pool (its earthen banks and overhanging vegetation) given more weight than the effects of upstream contamination in evaluating the UDI Pool’s aquatic life potential?
4. Why was it determined that the UAA factors do not apply to the UDI Pool but do apply to the CAWS Aquatic Life Use A Waters and to the CAWS and Brandon Pool Aquatic Life Use B Waters?
 - a. In particular, for UAA factor number 3, how was it determined that there are no irreparable human-caused conditions or sources of pollution that would prevent the attainment of the IEPA’s recreational and aquatic life goals in the UDI Pool?
 - b. Also in regard to UAA factor number 3, how was it determined that remedying the sources of pollution would not cause more environmental damage than leaving them in place?

- c. Regarding UAA factor number 6, what studies were conducted to determine that the economic impacts of compliance would not result in an unacceptable social impact?
 - d. Finally, regarding the remaining factors, how was it determined that there are no other human or natural pollutants, dams, or other problems that might prevent attainability in the UDI Pool?
5. How are the Qualitative Habitat Index Evaluation ("QHEI"), Ohio Boatable Index, and the IEPA Fish Index of Biological Integrity ("IBI") calculated?
- a. How do you explain the large difference in the scores between the Center of Applied Bioassessment and Biocriteria ("CABB") QHEI scores for the UDI Pool stretch of 45 to 80 (Attachment S appears to show values of 43.5 to 81.5) and the QHEI for the UDI Pool of roughly 20 obtained in the UAA Final Report?
 - b. What was the basis for relying most heavily upon the CABB score?
 - c. What was the basis for discounting the UAA Final Report score?
 - d. Isn't the UAA Final Report score more reliable given that it calculated QHEIs at over 30 locations along the UDI Pool whereas the CABB data only addresses 3 locations?
 - e. Was any narrative report describing the data summarized in Attachment S prepared? If yes, will the Agency provide that to the Board and the parties in a supplement filing? If no narrative report was prepared, why not? Are the data in Attachment S usable without a narrative report or someone to testify as to how the data was gathered and what protocols were followed?
 - f. If the correct score is 20, would that change the appropriate standards necessary to protect the aquatic life?
6. How was it determined that waterway aeration, waterway flow augmentation, effluent cooling, and effluent disinfection were recommended options for meeting the temperature, bacterial, and dissolved oxygen standards?
- a. What other options were considered?
 - b. Was any evaluation made into the feasibility of these options for facilities other than the MWRDGC?
 - c. Was any consideration given to what specific methods might be utilized by facilities other than the MWRDGC? If so, was any consideration given to the possible consequences of those methods?
 - d. Was the cost of these options ever evaluated as to facilities other than MWRDGC and Midwest Generation?

- e. According to your testimony (p. 18), the practicalities of MWRDGC's compliance were considered. Why were similar analyses not performed for the facilities along the Lower Des Plaines River? Are such analyses planned? Could the results of those analyses impact IEPA's conclusions as to whether the revised standards are technically feasible and economically feasible?
7. You say that temperature constraints could be overcome through additional cooling of the 5 Midwest Generation stations. Do you also expect that other dischargers may exceed the temperature limits and need to install additional cooling facilities? Have you determined how many will be needed?
8. Will the current proposed bacteria standards resolve the bacteria violations associated with storm events and combined sewer overflows ("CSOs")?

For Roy Smoger

1. How was it determined that the highest level of biological potential should serve as the aquatic life goal for the UDI Pool?
 - a. Did you consider the impact of other lower-level areas upon the UDI Pool?
 - b. Did you consider whether the effluent concentration in the water flowing into the UDI Pool from those other areas would render this high level of biological potential unrealizable?
2. Does the UDI Pool currently meet the highest level of biological potential? If not, then, according to your testimony (p. 3), what are the foreseeable improvements in its conditions that will make the UDI Pool habitable by all types of aquatic life populations?
 - a. How did you determine what improvements are foreseeable?
 - b. Did you foresee that improvements in other areas of the Lower Des Plaines River would be necessary to enable the UDI Pool to reach the highest level of biological potential?
3. Considering your dissolved oxygen standards, did you conduct any studies to determine whether, even if the UDI Pool met your proposed standards, it would be habitable to aquatic life? If so, what was the basis for that conclusion?
4. Why did the IEPA propose dissolved oxygen standards for the UDI Pool that are identical to those for General Use waters, when the UDI Pool has not been designated as General Use?
5. If the UAA Final Report QHEI score is correct and the aquatic life potential is poor, does the daily DO standard need to be as high as 5.0 mg/l?

For Scott Twait

1. On page 3 of your testimony, you state that “The Agency is also proposing water quality standards for sulfate and chloride that are based on the proposal currently before the Board in R07-9.”
 - a. Why are water quality standards being proposed based on the proposed General Water Quality standards for waters which have been determined to be unable to meet the General Water Quality Standards?
 - b. Have the differences for these waters been taken into account? How?
2. On pages 3-4 of your testimony, you state that the pH is being updated to conform to the General Use standard of 6.5 to 9.0. You further state, “It is expected that this standard will be attained at most times and in most areas of the CAWS and Lower Des Plaines River, though data from the Metropolitan Water Reclamation District of Greater Chicago (or MWRDGC) indicates there may be occasional pH violations below 6.5.”
 - a. Are these violations expected due to natural variations in river/environmental conditions?
 - b. If so, is it correct that the Agency does not expect that this pH standard is consistently “attainable,” as that term is used in 40 CFR 131.2.
 - c. Is it appropriate to designate uses which require establishment of standards where it is not expected that consistent compliance is possible?
3. The Agency says it is changing the pH to conform to General Use standards. Does the Agency also, therefore, plan to change the NPDES discharge requirements to 6.5-9.0 in future permits?
4. With regard to ammonia, page 4 of your testimony states that the seasonal ammonia standard protecting the early life stage period is not applicable to those waters not being designated for the protection of early life stages. The waters that do not protect for early life stages are the CAWS and Brandon Pool Aquatic Life Use B waters.
 - a. Do the waters of the UDI Pool currently satisfy the proposed ammonia standard for early life stages?
 - b. In establishing the ammonia standard for the UDI Pool, what factors support a belief that ammonia levels will decline down stream of the Brandon Locks?
 - c. Does the Agency know whether the waters of the UDI Pool currently meet the proposed standards?
 - d. What percentage of waters which make up the UDI Pool originate in the Brandon Pool? Has any analysis of the costs to achieve such compliance been undertaken?

5. The proposed standard for ammonia is the same as General Use waters, yet the Lower Des Plaines River cannot meet General Use. Explain why a standard different from the General Use standard would not be more appropriate.
6. Page 5 of your testimony refers to several standards such as BTEX and others that were pending approval by USEPA. The attached letter states that by approving these criteria the USEPA is not endorsing IEPA's use of unreviewed static, unmeasured data in deriving BTEX criteria. What does USEPA mean in this case?
7. If the drinking water standard for xylene is 10 ppm, why is the Lower Des Plaines Chronic standard 0.36 ppm?
8. Why does the Agency propose General Use standards for chloride and sulfates for the Lower Des Plaines River if it is not General Use, especially since the Agency says they know there will be violations?
9. What are the current levels of chlorides and sulfates in the Lower Des Plaines River?
10. On page 10 of your testimony, you state, "Due to extreme difference of opinion in the temperature discussion and the lack of an updated national criteria document," IEPA looked to the Ohio River Valley Water Sanitary Commission methodology for derivation of temperature criteria.
 - a. What is the "extreme difference of opinion" mentioned?
 - b. Who were the parties who were in disagreement?
 - c. What was the basis for the opinion of each?
 - d. What other methodologies were considered for establishment of temperature criteria?
11. On page 11 of your testimony, with regard to the MBI report's categories of Representative Aquatic Species (RAS) lists, you state, "the categories are modeled after existing aquatic life uses in Illinois and Ohio's modified use, but should not be interpreted as being equivalent to existing Illinois and Ohio designated use labels."
 - a. How do the categories in the MBI report differ from the aquatic life use designations developed by the Agency for the Lower Des Plaines River?
 - b. What is the significance of each identified difference?
 - c. How was each difference accounted for in establishing the applicable water quality standards for the Lower Des Plaines River?

12. On page 12 of your testimony, you state, "The Des Plaines River between Brandon Road Lock and Dam and the I-55 bridge has incrementally more diverse aquatic life and higher quality habitat than the rest of the CAWS and Lower Des Plaines River. For this reason, the Agency determined it was appropriate to use the option of the 27 RAS list (Modified Use) to determine the summer daily maximum and period average for the Upper Dresden Island Pool waters."
- a. What field studies, if any, were undertaken to confirm that the incremental changes below the Brandon Road Lock and Dam would support the Modified Use RAS list of species?
 - b. Was an evaluation undertaken for each species?
 - c. Which species are the drivers for derivation of the thermal standard?
 - d. Were any field studies undertaken to verify the appropriateness of these species as indicator species for the subject portions of the Lower Des Plaines River?
13. On page 13 of your testimony, you state, "The monitoring location at Route 83 on the Chicago Sanitary and Ship Canal was used as the 'background' location because it was not directly influenced by cooling water or Lake Michigan and was believed to be representative of 'background' temperatures."
- a. Is this sampling point intended as background for the UDI Pool?
 - b. Do the characteristics of this location support its use as background for the UDI Pool? How so?
14. On page 14 of your testimony you state, "the proposed thermal water quality standards are also more stringent than the current General Use standards for the months of April through November, especially when considering the period average."
- a. What is the basis for making the thermal standards more stringent on the affected waterways than the General Use standard given that fish can tolerate short-term elevations in temperature?
 - b. Does the Agency plan to change the General Use standards?
 - c. Has the Agency given notice to potentially affected dischargers outside the CAWS and Lower Des Plaines River of any intent to change the General Use standard?
15. On page 14 of your testimony it appears the Agency adjusted the temperature limit based on MWRDGC's discharge temperatures. Will the Agency adjust other temperature limits based on effluent discharge data from other facilities?

16. What is the technical justification for the terms of the proposed allowed excursions? Have any studies been performed to determine whether higher levels/numbers of excursions would impair the designated uses?
17. Has the Agency considered whether aquatic species in the UDI Pool have the ability to engage in adaptive behaviors in the face of temperature excursions in establishing the proposed thermal standard?
 - a. For example, do the aquatic species have the ability to avoid areas with temporary excursions by moving to other parts of a water body?
 - b. If such behaviors have been considered, how are they reflected in the proposed rule?
18. On page 16 of your testimony you refer to the study commissioned by MWRDGC and the deferral of adopting any numeric bacterial water quality standard ("WQS") until sound information is available. The proposed disinfection standard may not be the right standard and the expense of installing systems may be unnecessary. How does the Agency respond?

For Chris O. Yoder

1. Please provide for the record a complete copy of the MBI database, in searchable form and a copy of the Fish Temperature Model utilized to derive thermal endpoints from that database.
2. What studies were considered but not included in the database? Please identify the studies, and the basis for exclusion.
3. On page 7 of your testimony, you state, "'CTM is a rapid heating method that does not approximate natural conditions and produces unrealistically high lethality endpoints.'" Your testimony then continues, "Surprisingly, much of the new data that we found were based on CTM studies." What percentage of the over 200 new studies reviewed relied on CTM endpoints? Did you examine whether the studies themselves included adjustment factors to account for the differences from natural conditions?
4. On page 7 of your testimony, you indicate that, where new studies relied on CTM, "a safety factor of 2°C was used . . . to address the inherent weakness of this rapid heating method in mimicking nature."
 - a. Isn't it possible that test organisms would be able to acclimate and adjust better if the temperature rise was more gradual such that the lethal endpoint would be higher than recorded in CTM studies?
 - b. What studies have you performed, or read, that address whether the 2°C adjustment better reflects natural conditions?

- c. Was the combined effect of including this “safety factor” for each CTM study considered in calculating the short-term and long-term survival outputs?
 - d. How is this reflected in the study?
5. What percentage of the original 370 literature sources relied on CTM? Was the same 2°C adjustment applied to these studies? Was the combined effect of including the safety factors considered? How is this reflected in the study?
6. On page 8 of your testimony, you indicate that, due to your finding that intolerant species are under-represented in the thermal database, for these species you frequently rely on single studies that do not always produce all of the thermal endpoints in the Fish Temperature Model. In order to address these “holes in the database,” you rely on an extrapolation procedure.
 - a. How may of the 27 RAS species selected for the UDI Pool required application of this extrapolation procedure?
 - b. Doesn't the prevalence of this extrapolation procedure for “sensitive species” suggest that the data most likely to determine the limits of the study are inherently the most unreliable?
 - c. How is the uncertainty resulting from this extrapolation reflected in the assessment?
 - d. What steps have you taken to ensure that the extrapolation procedure does not distort the results of your model, generally, and for the UDI Pool, in particular?
7. What methodology was utilized to define the Modified Use RASs for the UDI Pool?
8. Isn't it true that the selection of the RAS species and the thermal endpoints selected for each RAS can potentially affect the overall outcome of the analysis?
9. Which species were considered but not included as Modified Use RASs?
10. What other species have been identified in the UDI Pool of the Lower Des Plaines River which were not included in the Modified Use RASs?
11. Would inclusion of these additional species affect the results of the study?
12. In attachment 3 to your testimony, entitled, “Re-Evaluation of the Technical Justification for Existing Ohio River Mainstream Temperature Criteria,” prepared for ORSANCO, dated January 27, 2006, (the ORSANCO Study) on pages 2-3, you state, “Temperature criteria options that emanate from the Fish Temperature Modeling System are the result of RAS selections and the thermal endpoints selected for each RAS. Thus, decisions made about each can potentially affect the outcome of the process.” This is true for the Lower Des Plaines River modeling as well, correct?

13. You state (Exhibit 3 at p. 3) that the list of representative fish in the ORSANCO study was determined by a Subgroup of the Ad Hoc Committee, which included members of the regulated community and other stakeholders. How were the representative fish species identified for the Lower Des Plaines River study? Was there a chance for input on the selected species by members of the regulated community or other stakeholders?
14. On page 9 of your testimony, you state, "It was left to the local and policy experts at Illinois EPA to designate uses for the study area waters and make appropriate decisions about the Representative Aquatic Species Lists." Is it your testimony that the selection of the 27 Modified Use RASs for the UDI Pool of the Lower Des Plaines River was subject to appropriateness review by the Agency? Could changes to the selected RASs alter the thermal standards recommended by your study for the UDI Pool of the Lower Des Plaines River?

General Questions

1. Did the EPA consider the effect of increased recreational use on the disturbance of river sediment and the degradation caused by this disturbance?
2. The Statement of Reasons (p. 10) refers to the Board decision to designate the area from Lockport to the I-55 Bridge as Restricted Use Waters because of heavy industrialization, barge traffic, diking of the shoreline and dredging. What has changed to make this different now?
3. The full implementation of the Tunnel and Reservoir Project will not occur until 2015. Since significant CSOs will continue to occur until completion of that project, why should we not wait for that to be completed before addressing bacteriologic issues?
 - a. With 15 CSO events per year, what makes the Agency think the effects from these will not continue to affect the water quality?
 - b. Why should the regulations change now and therefore put more requirements on the industries rather than wait for installations of the reservoir project in order to reduce those events?
4. How does the Agency know that bacteria standards will bring the river into compliance with the draft federal wastewater quality criteria if the number of CSOs continues?
5. If there are concerns with health issues and public notification resulting from CSO events, why increase the public use of these segments until the CSO events are reduced?
6. In the Statement of Reasons, you indicate 80% of the flow to the Brandon Locks comes from wastewater treatment plants. How much flow in the UDI Pool area is attributed to wastewater treatment plant discharges?

7. The Statement of Reasons (p. 33) states, “[T]he Lower Des Plaines River is artificially channelized, it is also routinely subject to unavoidable moderate to severe watercraft passage related disturbances such as sediment scouring and wake formation that is dangerous to small watercraft and disrupts shoreline habitat for aquatic life.”
 - a. Isn't IEPA's proposal to expand use designations for the Lower Des Plaines River inevitably going to result in more incidents?
 - b. Did the Agency consider that expanded use designations could increase collisions due to accidents or unsafe recreational users?
8. The Statement of Reasons (p. 34) states, “Each of the reaches possesses some physical limitations to human-contact recreation ranging from: deep-draft, steep-walled channels, to gradual sloped, manicured banks. Such limitations are irreversible in the foreseeable future but, in combination with other factors described, preclude any activities from occurring in these reaches other than those that currently exist.” If this is the case, why change the current standards?
9. On p. 42 of the Statement of Reasons, the Agency recommends deferring setting any numerical standard for bacterial parameters for all three proposed recreational use designations pending completion of additional studies. Why then propose a 304 bacterial discharge standard?
10. On p. 43 of the Statement of Reasons, if fecal coliform is not an indicator organism and USEPA has not published their bacteria criteria, why is the IEPA proposing the fecal discharge requirement? Further, why is this discharge requirement proposed when USEPA believes that fecal coliform bacteria are sometimes detected where fecal contamination is absent?
11. Why not delay the proposed 304 bacteria standard until the USEPA establishes the bacteria criteria since IEPA acknowledges they will return to the Board for a rulemaking at that time?
12. If the MWRDGC is conducting a study over the next 24-30 months, why propose the 304 standards at this time?
13. On p. 48 of the Statement of Reasons, what is meant by aquatic life populations that are intermediately tolerant? What types of species are these?
14. On p. 48 of the Statement of Reasons, what is meant by aquatic life populations that are intolerant types and what types of species are these?
15. On p. 49 on the Statement of Reasons, what are the unique flow conditions mentioned to which the aquatic life can adapt, and why are they able to adapt? What types of species are referred to here?

16. Section 302.403 of 35 Ill. Adm. Code refers to unnatural sludge, and page 55 of the Statement of Reasons says the Agency recognizes the history of sediment pollution in the CAWS and Lower Des Plaines River. It also says that historic sediment pollution presents an attainability concern to some types of aquatic life in these waters. What type of aquatic life and what are the conditions and analysis of the sediment?
17. The Statement of Reasons (p. 69(e)) refers to the proposed standards for several chemical constituents and says these are the same as those for General Use waters. Why is this the case if the Lower Des Plaines River does not have the potential to attain General Use status?
18. This section also says there are no national criteria for the parameters listed in (e) and that the USEPA has not approved the Agency's standards. Specifically, for example, Xylene has a 10 ppm level in drinking water but the proposal here is 30 times less. What is the reasoning behind this far more stringent standard?
19. The Statement of Reasons (p. 75) refers to the sulfate and chloride standards and the Agency proposes to adopt the General Use limits for the stream segments in this proposal. If the Lower Des Plaines River cannot reach General Use, why should the proposed standard not be higher, especially since the Agency expects violations due to road salting? How will the Agency address NPDES permits for these two standards?
20. Section 302.410 of 35 Ill. Adm. Code addresses the setting of additional toxic standards. This section should require the Agency to propose those standards to the Board for adoption in order to allow input from all parties rather than deriving it independently. Why did the Agency not follow those procedures in this case?
21. Regarding the ammonia standard, does the UDI Pool water meet the proposed standard? When was the latest data generated?
22. Why adopt the General Use standard for ammonia for the UDI Pool if this segment does not meet the General Use criteria currently?

Use Designations

1. In what manner have the characteristics of the Lower Des Plaines River changed since the early 1970's?
 - a. Did the Agency investigate how frequently the Lower Des Plaines River is dredged presently?
 - b. Did the Agency investigate whether there has been a change in the frequency of barge traffic on the Lower Des Plaines River?
 - c. Given the Agency's statements regarding the significance of CSOs, urban runoff and industrial discharges, is the Lower Des Plaines River still subject to significant sludge deposition?

- d. Has there been any significant change in the slope or flow conditions of the Lower Des Plaines River between the early 1970's and the present?
 - e. Are the waters of the Lower Des Plaines River still subject to significant urban stresses?
 - f. Are the urban stresses even greater now due to increased population?
2. The Statement of Reasons (p. 22) states that the Agency's goal for the Lower Des Plaines UAA was to "find an ecologically and recreationally attainable state that would as closely as possible approach the aquatic life and recreational goals of the Clean Water Act without causing an adverse widespread socio-economic impact."
 - a. What did the Agency do to investigate the socio-economic impact of the proposed new WQSs for the Lower Des Plaines River?
 - b. Did the Agency evaluate whether additional uses proposed for the Lower Des Plaines River are already provided on other nearby streams?
 3. What is the meaning of the Agency statements at p. 24 of the Statement of Reasons? Does the Agency possibly intend the uses and standards proposed in this proceeding to be applied to waters outside the Lower Des Plaines River and CAWS?
 4. Has the Agency reached a conclusion as to whether the proposed UDI Pool Aquatic Life uses are presently being attained in the entire stretch of the Lower Des Plaines River between the Brandon Road Locks and the I-55 bridge? What is the basis for that conclusion?
 5. Has the Agency reached a conclusion as to whether the proposed Incidental Contact Recreation use is being attained in the entire stretch of the Lower Des Plaines River between the Brandon Road Locks and the I-55 bridge? What is the basis for that conclusion?

Facilities Likely to be Impacted

1. Did the Agency seek information from industrial dischargers in the Lower Des Plaines River as to the thermal quality of their discharges and their ability to meet the proposed WQSs without construction of cooling towers or other cooling systems?
2. How many facilities does the Agency expect will be impacted by the proposed new thermal standards for the UDI Pool?
3. Has the Agency considered the costs for industrial dischargers on the UDI Pool to comply with the proposed new thermal standards?

4. When the existing Secondary Contact standards were promulgated, the Board took into account the costs that more stringent thermal standards would impose in terms of tens of millions of dollars of costs for required cooling towers. What has the Agency done to consider similar costs in proposing these WQS changes?
5. Has the Agency's Bureau of Water consulted with the Bureau of Air as to the likely increase in particulate matter emissions that would result from the construction of cooling towers to meet the proposed new thermal standards?
6. If the Agency has not conducted these inquiries, how can it conclude that the proposed use designation does not cause more environmental damage than leaving the current use designations in place (UAA factor 3) for the Lower Des Plaines River from Brandon Road Locks to the I-55 bridge?
7. Has the Agency's Bureau of Water considered whether cooling towers or other cooling systems are capable of being permitted under regulations applicable to air emissions given the associated particulate matter emissions?

Thermal Standards

1. Does the UDI Pool water currently meet the proposed temperature standards?
 - a. During what periods of the year does the UDI Pool not meet the proposed temperature limits?
 - b. How does the Agency plan to address NPDES permit holders whose discharges into the UDI Pool are above the current proposed temperatures?
 - c. How, if at all, will allowed mixing and mixing zones be applied if the UDI Pool is not attaining the finally adopted standards?
 - d. Since NPDES permits have monthly averages and maximums, how does the Agency propose to address the 15-day proposed temperature limits in the proposed standards during the times the Lower Des Plaines River does not meet the standard?
2. The proposed thermal standards for the UDI Pool are the same or tighter than General Use. Does the Agency plan to change the General Use standards to match these? If so, shouldn't the Agency proceed with a change to the General Use standard prior to adopting more stringent standards for waters that it admits cannot attain General Use due to various UAA factors?
3. Given that the Agency's UAA did not find the Lower Des Plaines River to be capable of full attainment of the aquatic life and recreational goals of the CWA, why has the Agency proposed thermal criteria that are even more stringent than standards applicable to General Use waters?

4. What was the scientific justification for using the 75th percentile as the monthly average (Statement of Reasons, p. 83)? What would the impact be of using a higher or lower percentile?

Dissolved Oxygen

1. The dissolved oxygen ("DO") standard being proposed for the UDI Pool is the same as General Use. Why propose the same standards if the stream does not meet the necessary standards to be classified as General Use, especially given the contaminated sediment and its affect on the DO?
 - a. How does the Agency plan to enforce this standard on NPDES holders?
 - b. Is the UDI Pool currently attaining the proposed DO standard?
 - c. Can a mixing zone be used for DO discharges to the UDI Pool?
2. Given that IEPA has concluded that the Lower Des Plaines River from Brandon Road Locks to the I-55 Bridge has not fully attained General Use status, on what basis has IEPA determined that the proposed dissolved oxygen standards should be the same as those for General Use?
3. Has the Agency determined which dischargers or how many dischargers will need to provide additional treatment technology? Has the Agency considered the aggregate cost of the additional treatment?
4. Is there evidence that early life stages are present in the UDI Pool during the March through July time frame?

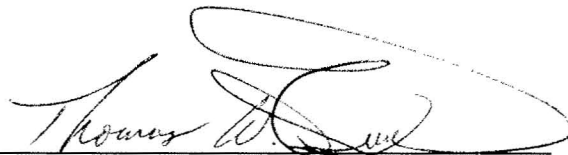
Stakeholder Involvement

1. During the stakeholder involvement process, what, if any, proposed regulations on possible temperature standards for the Lower Des Plaines River were discussed with the stakeholders?
2. If any proposed regulations on temperature standards for the Lower Des Plaines River were discussed, when were those discussed?
3. Why did the Agency propose the current regulations without another review with the Stakeholders Advisory Group ("SAG")? Were the temperature standards proposed to the Board presented to the SAG?
4. On what basis did the Agency change the proposed temperature standards between the last proposal to the SAG and what was proposed to the Board?
5. Did the Agency have any meetings or other communications with any stakeholders regarding the temperature criteria, use designations or other matters addressed in this rulemaking after January 2007? If not, why?

**Lower Des Plaines River Use Attainability Analysis Final Report
(AquaNova Int'l, Ltd./Hey & Associates, Inc., Dec. 2003)
(the "UAA Final Report")**

1. Why did the Agency not ask the authors of the UAA Final Report to address the economic impact of the changes in use designation? Does the Agency agree with the statement in the UAA Final Report (p. 2-102) that such a study is "crucial"? If not, what is the Agency's legal justification for ignoring one of the UAA factors set forth at 40 C.F.R. § 131.10(g)?
2. Despite admitting that it did not analyze one of the UAA factors, the UAA Final Report concluded that the existing thermal standards should be replaced (p. 2-103). How could the authors of the UAA Final Report legitimately reach that conclusion when they had not analyzed a UAA Factor deemed "crucial"?
3. What steps has the Agency taken to assess whether compliance with the proposed temperature criteria would cause greater environmental damage (UAA factor 3, 40 C.F.R. § 131.10(g)(3)) than leaving the existing criteria in place?
4. The copy of the UAA Final Report posted on the Board's on-line docket is missing pages 2-98 through 2-101. Will the Agency agree to file those pages with the Board?
5. Does the Agency agree with the statements in the UAA Final Report (p. 4-12) that vegetation in the UDI Pool is indicative of a disturbed community and that industrial development exists along much of the UDI Pool segment of the Lower Des Plaines River?
6. The UAA Final Report (p. 4-32 to 4-33) states that "navigation is listed as a 'typical' and protected use" in 40 C.F.R. Part 131 and is a multi-million dollar industry of the Lower Des Plaines River. Does the Agency agree with those statements?
7. What is the scientific legitimacy of considering sub-aspects of the QHEI score as the UAA Final Report does (pps. 4-30 to 4-34)? Isn't the QHEI meant to be analyzed as an aggregate score?
8. The UAA Final Report states (p. 4-33) that two habitat categories measured by the QHEI "could be improved through artificial management."
 - a. What does this mean?
 - b. Does the Agency have plans to artificially change the use of the UDI Pool segment?
 - c. If so, on what basis is the Agency engineering a new use of the UDI Pool given that the UAA Final Report concludes that poor habitat in the Lower Des Plaines River is the "result of the channelization and impoundment of the river," which is considered "irreversible" (p. 4-34)?

STEPAN COMPANY

A handwritten signature in black ink, appearing to read "Thomas W. Dimond", written over a horizontal line.

One of its Attorneys

Date: January 18, 2008

Thomas V. Skinner
Thomas W. Dimond
Kevin Desharnais
Mayer Brown LLP
71 South Wacker Drive
Chicago, Illinois 60606-4637
(312) 701-8079 (phone)
(312) 706-9181 (fax)

CERTIFICATE OF SERVICE

I, the undersigned, certify that on this 18th day of January, 2008, I have served electronically the attached STEPAN COMPANY'S QUESTIONS FOR THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY AT THE HEARING COMMENCING JANUARY 28, 2008, and NOTICE OF FILING upon the following person:

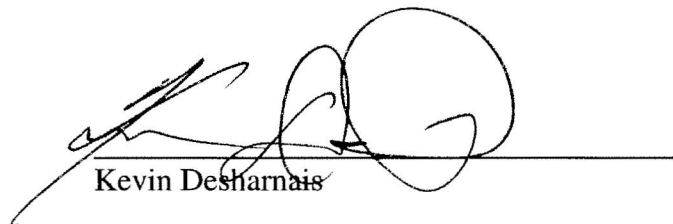
John Therriault, Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph Street, Suite 11-500
Chicago, IL 60601

and by U.S. Mail, first class postage prepaid, to the following persons:

Marie Tipsord, Hearing Officer
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph Street, Suite 11-500
Chicago, IL 60601

Deborah J. Williams, Assistant Counsel
Stefanie N. Diers, Assistant Counsel
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

The participants listed on the attached
SERVICE LIST


Kevin Desharnais

SERVICE LIST

Frederick M. Feldman
Ronald M. Hill
Margaret T. Conway
Metropolitan Water Reclamation District
of Greater Chicago
111 East Erie Street
Chicago, IL 60611

Bill Richardson, Chief Legal Counsel
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702-1271

Keith Harley
Elizabeth Schenkier
Chicago Legal Clinic, Inc.
205 West Monroe, 4th Floor
Chicago, IL 60606

Katherine D. Hodge
Monica T. Rios
Hodge Dwyer Zeman
3150 Roland Avenue
P.O. Box 5776
Springfield, IL 62705-5776

Dennis Duffield
Director of Public Works & Utilities
City of Joliet
921 E. Washington St
Joliet, IL 60431

Claire Manning
Brown Hay & Stephens LLP
700 First Mercantile Bank Bldg
205 S. Fifth St
Springfield, IL 62705-2459

Frederick Keady
Vermillion Coal Company
1979 Jolms Drive
Glenview, IL 60025

Matthew Dunn, Chief
Environmental Bureau
Office of the Attorney General
100 West Randolph, 12th Floor
Chicago, IL 60601

Ann Alexander
Natural Resources Defense Counsel
101 N. Wacker Dr., Ste. 609
Chicago, IL 60606

Susan M. Franzetti
Franzetti Law Firm P.C.
10 South LaSalle St.
Suite 3600
Chicago, IL 60603

Albert Ettinger
Jessica Dexter
Environmental Law & Policy Center
35 E. Wacker Dr., Suite 1300
Chicago, IL 60601

Richard Kissel
Roy Harsch
DrinkerBiddle
191 N. Wacker Dr., Suite 3700
Chicago, IL 60606-1698

Charles Wesselhoft
James Harrington
Ross & Hardies
150 N. Michigan Ave
Chicago, IL 60601-7567

Fred L. Hubbard
P.O. Box 12
16 West Madison
Danville, IL 61834

Electronic Filing - Received, Clerk's Office, January 18, 2008

Georgia Vlahos
Naval Training Center
2601A Paul Jones St
Great Lakes, IL 60088-2845

Kay Anderson
American Bottoms
One American Bottoms Road
Sauget, IL 62201

W.C. Blanton
Blackwell Sanders LLP
4801 Main St, Suite 1000
Kansas City, MO 64112

Robert VanGyseghem
City of Geneva
1800 South St
Geneva, IL 60134-2203

Jerry Paulsen
Cindy Skukrud
McHenry County Defenders
132 Cass Street
Woodstock, IL 60098

Albert Ettinger
Freeman Freeman & Salzman
401 N. Michigan Ave
Chicago, IL 60611

Bernard Sawyer
Thomas Grant
Metropolitan Water Reclamation District
6001 W. Pershing Rd
Cicero, IL 60650-4112

Lisa Frede
Chemical Industry Council of Illinois
2250 E. Devon Ave
Suite 239
Des Plaines, IL 60018-4509

Fredric Andes
Erika Powers
Barnes & Thornburg
1 North Wacker Dr
Suite 4400
Chicago, IL 60606

Jack Darin
Sierra Club
70 E. Lake St
Suite 1500
Chicago, IL 60601-7447

Bob Carter
Bloomington Normal Water Reclamation
PO Box 3307
Bloomington, IL 61702-3307

Tom Muth
Fox Metro Water Reclamation District
682 State Route 31
Oswego, IL 60543

Kenneth W. Liss
Andrews Environmental Engineering
3300 Ginger Creek Drive
Springfield, IL 62711

Vicky McKinley
Evanston Environmental Board
223 Grey Avenue
Evanston, IL 60202

Albert Ettinger
Jessica Dexter
Environmental Law & Policy Center
35 E. Wacker
Suite 1300
Chicago, IL 60601

Marc Miller
Jamie S. Caston
Office of Lt. Governor Pat Quinn
Room 414 State House
Springfield, IL 62706

Electronic Filing - Received, Clerk's Office, January 18, 2008

James L. Daugherty
Thorn Creek Basin Sanitary District
700 West End Avenue
Chicago Heights, IL 60411

Sharon Neal
Commonwealth Edison
125 South Clark Street
Chicago, IL 60603

Tracy Elzemeyer
American Water Company
727 Craig Road
St. Louis, MO 63141

Margaret P. Howard
Hedinger Law Office
2601 South Fifth Street
Springfield, IL 62703

Irwin Polls
Ecological Monitoring and Assessment
3206 Maple Leaf Drive
Glenview, IL 60025

James Huff
Huff & Huff, Inc.
915 Harger Road, Suite 330
Oak Brook, IL 60523

Jeffrey C. Fort
Ariel J. Teshar
Sonnenschein Nath & Rosenthal LLP
7800 Sears Tower
233 S. Wacker Drive
Chicago, IL 60606-6404

Fredric P. Andes
Carolyn S. Hesse
David T. Ballard
Barnes & Thornburg LLP
1 N Wacker Dr, Suite 4400
Chicago, IL 60606

Dr. Thomas J. Murphy
2325 N. Clifton St
Chicago, IL 60614

Beth Steinhorn
2021 Timberbrook
Springfield, IL 62702

Cathy Hudzik
City of Chicago
Mayor's Office of Intergovernmental Affairs
121 North LaSalle Street, Room 406
Chicago, IL 60602

Traci Barkley
Prairie Rivers Networks
1902 Fox Drive, Suite 6
Champaign, IL 61820

Brent Fewell
Kristy A. N. Bulleit
HUNTON & WILLIAMS LLP
1900 K Street, N.W.
Washington, DC 20006