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January 5, 2009

Sent via email to kurt.neibergall@illinois.gov

Kurt Neibergall, Hearing Officer
Illinois EPA
Office of Community Relations
1021 N Grand Ave. East
PO Box 19276
Springfield, IL 62794-9276

Re: IEPA Log No. C-1526-00, COE Log No. 187020-2, City of Springfield, Illinois, Hunter Lake Reservoir

Dear Mr. Neibergall:

The Illinois Chapter of the Sierra Club and Prairie Rivers Network object to the proposal to grant a 401 certification to the City of Springfield for the construction of a dam on Horse Creek to create a new water supply reservoir. Sierra Club and Prairie Rivers Network members live in the Sangamon River watershed and depend on clean waters in its Horse Creek and Brush Creek tributaries for recreational activities including fishing, birdwatching and other wildlife viewing.

Members of Petitioners will be adversely affected when pollution discharged under the 404 permit and 401 certification causes unnecessary degradation of the water quality in the Horse and Brush Creek watersheds, including significant wetlands therein. They will also be adversely affected when permitted discharges cause or contribute to the degradation of the existing uses of the receiving streams and wetlands and otherwise injure the ecology of these

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waterbodies as a result of IEPA's failure to perform a proper 401 certification review and antidegradation assessment.

The permit applicant proposes to construct a 1,700 foot earthen dam on Horse Creek which will create a 3,010 acre reservoir that will inundate the present confluence of Horse Creek with Brush Creek. Lost aquatic resources include 102 acres of wetland, 88.3 acres of stream channel and 4 acres of ponds. According to a natural area inventory performed by the Friends of the Sangamon Valley in 2000, the project would destroy all of the remaining hardwood floodplain forest which remains today in the Brush and Horse Creek watersheds (Transcript at p. 47) An additional 1,526 acres of nonwetland forest will be also be inundated by the reservoir waters.

In addition, there are aquatic resource impacts from the proposed sewer pipeline planned to divert wastewater effluent from the towns of Virden, Divernon and Pawnee. The proposed 29.6 mile long pipeline will necessitate 18 stream crossings. The Army Corps of Engineers (ACOE) public notice of December 3, 2008 ("ACOE notice") states that 33 acres of wetland impacts are anticipated.

Because of concerns that Hunter reservoir will cause flooding in the Village of Pawnee, channel modifications to Horse Creek and Henkle Branch are also planned, including relocation of a 0.92 mile segment of Horse Creek, the widening of Horse Creek and Henkle Branch with impacts estimated on 5 acres wetlands and 4,850 feet of stream. The ACOE notice describes these as impacts to 4,050 feet of Horse Creek and 800 feet of Henkle Branch. Of these, 850 feet of Horse Creek will be abandoned and replaced with a 600 feet new channel. Additional impacts will be from stream widening: 800 feet of Henkle Branch and 3,200 feet of Horse Creek, upstream and downstream of the new channel. The construction of a levee to protect Pawnee High School from Horse Creek is also being considered.

As we will detail below, the proposed project has substantial adverse environmental impacts and fails to satisfy the criteria at 35 Ill. Adm. Code Section 302.105(c)(2) for issuance of a Clean Water Act Section 401 certification. Namely, the project fails to assure that:

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i) The applicable numeric or narrative water quality standard will not be exceeded as a result of the proposed activity;

ii) All existing uses will be fully protected;

iii) All technically and economically reasonable measures to avoid or minimize the extent of the proposed increase in pollutant loading have been incorporated into the proposed activity; and

iv) The activity that results in an increased pollutant loading will benefit the community at large.

Furthermore, the scope of IEPA's duty regarding 401 certification has not been satisfactorily met. The primary reasons include the following and will be further detailed in this letter.

i) The State's certification review did not consider all of the potential effects of the proposed activity on water quality, including direct and indirect, short and long term, upstream and downstream, as well as the effects on water quality of the construction and operation of the dam. EPA WQS Handbook, 2nd Edition., Appendix Q, p. 23.

ii) Several aspects of the project that will directly impact the ability to protect designated and existing uses and ensure attainment of water quality standards are still in the planning stages.

We are not alone in our assessment of the substantial environmental impacts of this project. In an Oct. 12, 2008 letter to Bruce Yurdin at IEPA, Tom Skelly, Water Division Manager, Office of Public Utilities, for the City of Springfield acknowledges 'The environmental impacts of the Hunter Lake proposal are the *greatest of the alternatives;* however, the impacted environment is not unique.' (emphasis added) In the November 21, 2008 response from Tom Skelly to questions posed to the City of Springfield by Dan Heacock of IEPA, the city also states, "Mitigation costs are included as contingency costs for all other alternatives and are not itemized, since the *mitigation would be minor in comparison to one of the reservoir alternatives."* (emphasis added)

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While we do not agree with Mr. Skelly's conclusion regarding the importance of these resources, his conclusion is irrelevant to the agency's duty under both the Clean Water Act and the state's antidegradation regulations. The state must protect all existing and designated uses, prohibit an activity that is likely to cause an exceedance of water quality standards, and finally must permit only those projects that incorporate all economically and technically feasible pollution control alternatives. The Hunter Reservoir proposal fails on all counts making 401 certification by the state untenable.

* * * * *

SECTION I. ANTIDEGRADATION ASSESSMENT FAILS TO ASSURE WATER QUALITY STANDARDS WILL NOT BE EXCEEDED AS A RESULT OF THE PROPOSED ACTIVITY.

35 IAC Section 302.105 c)2)B)i) requires that the following must be assured "The applicable numeric or narrative water quality standard will not be exceeded as a result of the proposed activity;"

IEPA cannot assure that the Phosphorus standard will not be violated, as required by Section 401 of the Clean Water Act and 35 IAC Section 302.105 c)2)B)i). At the public hearing held on December 3rd, 2008, when asked whether the Hunter Reservoir will meet the phosphorus water quality standard Bob Mosher responded as follows: "Will it meet the phosphorus standard? Probably not. I say that because every impoundment in Illinois that I'm aware of where that phosphorus standard applies is not met. It's a standard that's kind of a wishful thinking. We wish they all met that, but none of them do." (Transcript, p. 110)

When further asked what the Agency will do if the proposed activities to address nutrient inputs, many of which are considered voluntary, are not satisfactorily completed, Mr. Mosher responded as such: "Well, you're aware that we're reassessing nutrient water quality standards for Illinois. That's one route that could make some sense of all this. Obviously, there's nothing in the regulations that says you may not build any more lakes in Illinois. There's nothing in the

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regulations that says you can build a lake wherever you want to, don't worry about anything. We're stuck with antidegradation and try to make sense of cases on a case-by-case basis. The phosphorus water quality standard is an issue right now, and we know we have to do certain things; like I've already mentioned, move the point sources, do what we can for non-point sources, but we don't believe the phosphorus issue is a water quality standard issue that prevents the lake from being built… Like I said, it's a standard that isn't met anywhere. It isn't expected to be met anywhere. Given our rich soils and our high population and other factors, it's a given. I have to add that we have a lot of lakes in Illinois that are meeting their designated uses that don't meet the phosphorus standard." (Transcript, p. 110-111)

These remarks by the Section Manager of the IEPA's Water Quality Standards Section are troubling, if not startling. First, our Illinois Water Quality Regulations encoded in Title 35, Subtitle C, Chapter 1 clearly state the expectations for limiting phosphorus levels in reservoirs. 35 IAC Section 302.201 states that the General Use Water Quality Standards contained in Subpart B "must be met in waters of the State for which there is no specific designation." 35 IAC Section 302.202 states that the purpose of the General Use Standards is to "protect the State's water for aquatic life, wildlife, agricultural use, secondary contact use and most industrial uses and ensure the aesthetic quality of the State's aquatic environment." 35 IAC Section 302.205 is the phosphorus water quality standard and states the following "After December 31, 1983, Phosphorus as P shall not exceed 0.05 mg/L in any reservoir or lake with a surface area of 8.1 hectares (20 acres) or more, or in any stream at the point where it enters any such reservoir or lake." This clearly applies to the proposed Hunter Reservoir.

Secondly, it is important to note that Horse and Brush Creeks are not currently considered impaired for phosphorus.

Third, these are the regulations that apply to reservoirs in the state of Illinois *today*. As required by the Clean Water Act; before granting 401 certification, IEPA must assure that the proposed project will not violate any Illinois water quality standard. Mr. Mosher's insinuation that any

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future reassessment of nutrient water quality standards has any application to the proposed project at hand is irresponsible and unlawful.

Finally, the more clear and legitimate line of logic should conclude that, given that phosphorus standards are not being met in reservoirs anywhere in the state, this new reservoir may not be certified under Section 401.

Further evidence from the record showing that IEPA has not sufficiently fulfilled their duty and must not certify the proposed project includes the following examples of blatant disregard for their authority and duty to uphold and implement the state's environmental regulations.

> (Transcript p. 184-5)
> MS. KNOWLES: "The first is simply, do you acknowledge that there is evidence in the record that this project is likely to cause a violation of the applicable water quality standard for phosphorus?"
> MR. MOSHER: "Yes, we did state earlier that this lake should not be any different than every other impoundment in Illinois and that that phosphorus standard would not be met."
> MS. KNOWLES: "If I may, there is a report entitled "Water quality evaluations for Lake Springfield and proposed Hunter Lake and proposed Lick Creek Reservoir conducted by the Illinois State Water Survey December 1997." Have you seen this report?"
> MR. HEACOCK: "Yes. I think that's in the file." (Transcript p. 184-5)

As Mr. Heacock notes, these reports are in the file but we would like to point to the conclusions of these reports that are critical to the IEPA's denial of water quality certification under Section 401.

From "Water quality evaluations for Lake Springfield and proposed Hunter Lake and proposed Lick Creek Reservoir" conducted by the Illinois State Water Survey December 1997:

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p. 50 Figure 21. entitled "Predicted phosphate-phosphorus and surface elevation in proposed Hunter Lake during a 2-year drought under a selected operating scenario with Lake Springfield. The graph shows that phosphorus levels at both the surface and bottom layers would exceed 0.1 mg/L (over 2X the water quality standard of 0.05mg/L) for all months for both Year 1 and Year 2.

p. 71 from Summary and Conclusions "Phosphate-phosphorus levels in the proposed lakes (Hunter Lake and Lick Creek Reservoir) were similar to Lake Springfield with minor differences." Important to note that Lake Springfield has been considered impaired according to the 303d Integrated Water Quality Report for high levels of phosphorus (and dissolved oxygen).

From "Water, Sediment and Nutrient Budgets of the John H. Hunter Lake" 1994 by Crawford, Murphy and Tilly:

p. 36 "It can be expected that the trap efficiency for the various nutrients in the proposed Hunter Lake will be similar to that of Lake Springfield, as calculated in the ISWS report (Fitzpatrick and Keefer, 1988). With this assumption and using the regression equations presented in Table 6, calculations of the nutrients were made to develop a nutrient budget for the proposed Hunter Lake….Phosphorus, with an IPCB general use standard of 0.05 mg/L is exceeded *for all samples* (emphasis added). During the Lake Springfield monitoring study (Fitzpatrick et al., 1988), most samples obtained at the lake spillway exceeded the phosphorus standard…"

p. 49 from Summary and Conclusions "From the data collected, no nutrient exceeded IPCB standards, except phosphorus."

Finally, we would like to note the following excerpt from Mr. Mosher's formal statement at the public hearing held on December 3rd regarding the Hunter Reservoir's 401 certification, quote "The Antidegradation Standard assures that the uses of waters, including streams and wetlands,

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are protected from increases in pollutant loading or habitat alterations beyond the fact that they are simply meeting numeric and narrative water quality standards." Further in the statement is the Agency's conclusion, "In this case, the Illinois EPA has tentatively found that the proposed activity will result in the attainment of water quality standards based on the information available at the time the assessment was written." These statements directly contradict oral statements provided at the hearing.

IEPA failed to consider impact of additional loadings of Phosphorus on water quality. The Agency must identify and quantify the proposed load increased for the applicable parameters and of the potential impacts of the proposed activity on the affected waters IAC Section 302.105 f)1)B). The Illinois State Water Survey (ISWS) Report Cr-621 (Borah et al., 1997) entitled "Water Quality Evaluations for Lake Springfield and Proposed Hunter Lake and Proposed Lick Creek Reservoir" indicates that the phosphorus concentration in the reservoir is very sensitive to phosphorus in the inflow. However, phosphorus data for inflow is from very limited sampling done in 1994 and was stated to be "conservative". There is no evidence in the available record that IEPA used available phosphorus data from Horse and Brush Creeks or that IEPA conducted recent sampling to update simulations. It is important to note that ISWS simulations were done in 1997 before Springfield changed its strategy for pumping from Horse Creek intake (upstream of South Fork Sangamon dam) – previously, pumping would not occur until water in Lake 1 dropped 2 ft below normal; now it is pumped to keep Lake 1 full, as stated in the Environmental Impact Statement. It seems that these simulated water quality results, aside from being based on poor anecdotal data, underestimate the drawdown from Hunter Reservoir, thus overestimating water quality.

Especially important is that there is no evidence in the record that cumulative buildup of phosphorus in the sediments, available upon the frequent resuspension through wind and wave action, has been considered. The ISWS report predicts Dissolved Oxygen to be equal to zero in bottom layers of the reservoir for all cases. The release of Phosphorus (P) from anoxic sediments is considered an internal P load and represents an additional P load to a water system. The

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additional load enhances eutrophication, boosts production and increases the oxygen demand in water and sediment (Nurnberg and Peters, 1984).

IEPA cannot assure that the Dissolved Oxygen standard will not be violated, as required by Section 401 of the Clean Water Act and IAC Section 302.105 c)2)B)i). The findings of ISWS CR-621 (Borah et al.) regarding dissolved oxygen levels in Hunter Lake during drought and (p.48) and severe drawdown (p. 64) seem to indicate that the water quality standard for dissolved oxygen will be met at the surface level. These conclusions are disingenuous as the model was run with data measured once every month through a one-year period (p. 7). In order to accurately study, quantify and predict changes in levels of dissolved oxygen in a defined section of river, changes in oxygen production and oxygen consumption rates throughout the 24 hour daily cycle as well as seasonal cycles must be acknowledged. This is not possible with the type of data used in the HEC-5Q model which provides the basis for the Borah et al. report. Photosynthetic activities of algae and macrophytes can increase oxygen concentrations on a diurnal basis, particularly in relatively sluggish streams and rivers (Wetzel, 2001). In nutritionally enriched and productive streams, the magnitude of diurnal oscillations in dissolved oxygen concentrations can increase. Until dissolved oxygen levels in both Horse and Brush Creeks are sampled with greater frequency, including diurnal periods and over a longer time period to capture several seasonal cycles, it is not clear how Illinois EPA can assure that the dissolved oxygen standard will not be violated by the proposed project.

As an additional note, ISWS CR-621 (Borah et al. p 4) states that the City of Bloomington installed aeration systems for their two lakes, following customer complaints of foul odors and bad taste due to algal blooms during the 1988 drought. We note that this is irrelevant to the proposed Hunter Dam and Reservoir and to state certification, since Section 401 of the Clean Water Act requires compliance with all standards, including the narrative standard.

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Finally, the applicant has proven itself unable or unwilling to bring its Lake Springfield Reservoir into compliance with the 36-year-old Clean Water Act. The Illinois EPA should withhold the 401 certification until compliance is achieved and maintained.

* * *

SECTION II. ANTIDEGRADATION ASSESSMENT FAILS TO ASSURE EXISTING USES WILL BE FULLY PROTECTED.

35 IAC Section 302.105 c)2)B)ii) requires that the following must be assured "All existing uses will be fully protected;"

Illinois EPA has failed to adequately identify and characterize the existing uses in both Brush and Horse Creeks. Characterization must address physical, biological and chemical conditions of the water body, 35 IAC 302.105 f)1)A) and examine the impact of the proposed project on species diversity, 35 IAC 302.105 a)1). The Illinois Pollution Control Board has held that "where the record indicates the presence of a diverse assemblage of fish species, IEPA must conduct a study of the fish community in relation to the permitted increase in loadings." *Des Plaines River Watershed Alliance v. Illinois EPA and Village of New Lenox*, PCB no. 04-88 (April 19, 2007) at *107.

The Antidegradation Assessment states that the project will result in a "shift in habitat from a riverine to a lacustrine system" and when questioned at the public hearing, Bob Mosher stated "our approach is that it is a tradeoff that can be made". (Transcript at p. 112) In doing so, the IEPA has failed to properly evaluate the functions and values provided by the impacted headwater streams. Illinois EPA assessment methods are appropriate for 3rd order tributaries with continuous flow and above, not for streams such as Brush Creek and Horse Creek. Illinois, unlike neighboring states, does not have a headwater stream evaluation in place. Headwater communities function in a very different way than wadable permanent streams. They will not, for example, have a high biological diversity. This does not mean that they are not valuable. Their

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value has to be graded by structural and functional contributions they make to their downstream communities. (Where Rivers Are Born; Meyer, 2001)

Illinois EPA has failed to protect and maintain existing uses in Horse and Brush Creeks.

Several detrimental impacts to biota are well understood to result from reservoir construction including a reduction in the diversity of the macroinvertebrate communities downstream of a dam, due in part to changes in water temperature (Prakash, 2004). Additionally, "Impounding a stream leads to major changes in available aquatic habitats, and, therefore, quantitative and qualitative changes in the phytoplankton and periphyton flora are expected; phytoplankton densities would increase. The habitat of the project area would change from a small stream, littoral habitat to primarily a limnetic habitat due to the large volume of open water that would be created by the impoundment. This would result in a decline of several littoral zooplankton species and an increase in populations of limnetic species. The relative abundance of littoral versus limnetic species would depend upon shoreline development." Final Environmental Impact Statement (FEIS), Section 4.1.5.1.

Impacts to fish populations result from changes in habitat availability, food base, ability to migrate and spawn and changes in both temperature and dissolved oxygen. (Collier et al., 2000). As Bunn and Arthington (2002) summarize in "Basic Principles and Ecological Consequences of Altered Flow Regimes for Aquatic Biodiversity" the flow regime is regarded by many aquatic ecologists to be the key driver of river and floodplain wetland ecosystems. Two of the four key principles focused on in this literature review include 1) Aquatic species have evolved life history strategies primarily in direct response to natural flow regimes; and 2) maintenance of natural patterns of longitudinal and lateral connectivity is essential to the viability of populations of many riverine species. "In general, impoundments have a negative impact on native stream fishes. With the conversion from free-flowing to lake-like conditions, those species that require flowing water, well-oxygenated gravel/sand riffles for egg deposition, or other natural stream attributes are usually reduced in numbers or eliminated…A few species, including the bluntnose minnow, bullhead minnow, quillback, tadpole madtom, and blackstripe topminnow, would decrease in numbers of individuals and several species, such as central

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stoneroller, striped shiner, redfin shiner, hornyhead chub, bigmouth shiner, sand shiner, suckermouth minnow, creek chub, white sucker, pirate perch, and Johnny darter, would not survive and reproduce in the lake… Not only will the species composition change with the development of this reservoir, but species diversity will decrease as well." Final Environmental Impact Statement (FEIS), Section 4.1.5.1. This is prohibited by Illinois' antidegradation regulations. "Uses actually attained in a surface water body or water body segment on or after November 28, 1975, whether or not that are included in the water quality standards, must be maintained and protected. Examples of degradation of existing uses of the waters of the State include: 1) an action that would result in the deterioration of the existing aquatic community, such as a shift from a community of predominately pollutant-sensitive species to pollutant-tolarant species *or a loss of species diversity* (emphasis added)". 35 IAC Section 302.105 a).

The proposed mitigation fails to protect existing uses. Mitigation plans for the proposed reservoir are incomplete and flawed in many ways such that existing uses will not be protected if the project were to proceed. These failings are outlined below and further described in our January 5, 2009 comments to the Army Corps of Engineers (ACOE).

1. In response to a FOIA request, the IEPA FOIA coordinator stated in a December 18, 2008 letter that "…IEPA has no current draft Mitigation Plan for Hunter Lake." With no such plan available to the public during the comment period, how do the EPA and ACOE expect citizens to comment intelligently on the proposal, or seek independent expert advice concerning the viability of the mitigation efforts outlined so cryptically in the ACOE notice and Antidegradation Assessment? More importantly, how can IEPA fulfill its duty to protect existing uses without a completed mitigation plan?
2. The ACOE notice and the Antidegradation Assessment would have us believe that the acreage of the new reservoir will mitigate for the losses of the riparian environment of Horse and Brush Creek despite the many species of fish which are described above and in the FEIS as being adversely affected by the shift from free-flowing to lake-like conditions. (FEIS. Section 4.1.5.1 Biological Impacts)

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3. The 77.8 acres of forested wetlands are proposed to be mitigated by forest wetland restoration of 118 acres of Sugar Creek floodplain, the conversion of 36 acres of softball diamonds and parking lots at Riverside Park to bottomland forest and additional enhancements through interplanting of 159 acres of presently forested wetlands at Riverside Park. The growth of these newly-planted forested areas will not provide the same kind of habitat currently provided by the palustrine forested wetlands which will be destroyed for many, many years, resulting in significant temporal losses of this type of habitat. Further, what is expected viability of plantings in an already forested area?
4. The 24.2 acres of palustrine emergent, wet meadows, scrub shrub, unconsolidated bottom and NRCS farmed wetlands which will be destroyed are proposed to be mitigated by the building of 36.4 acres of emergent wetlands within three coves of Hunter reservoir. The wide swings in water levels anticipated in the reservoir as it is pumped to maintain the water level in Lake Springfield, even with the proposed in-lake water detention structures, make this restoration effort a risk. *See* FEIS 4.1.12 Operational Impacts for anticipated impacts due to drawdown. What publicly available studies have been done to provide assurance those sites will – in the words of the Antidegradation Assessment – "retain water and maintain hydraulic conditions" during drawdowns that the FEIS states will be 7 feet in a "typical year" and greater during dry years?
5. The Antidegradation Assessment describes 449 acres of riparian corridor habitat which will be lost along Brush and Horse creeks. The 69 acres of wetland fringe provided by a six-foot wide littoral shoreline of the proposed reservoir is the only part of the mitigation which has been fleshed out, and its longevity is questioned in the FEIS: "Prolonged drawdown during severe drought conditions would limit the function and value of these newly created areas." FEIS Section 4.1.8 Wetlands. In addition, shoreline habitat will be further limited by the use of riprap for stabilization. According to the Hansen Engineers unpublished calculation from 2005, 19.6 miles of shoreline are to be stabilized with riprap. Again, the FEIS states: "The habitat of the project area would change from a small stream, littoral habitat to primarily a limnetic habitat due to the large volume of open water that would be created by the impoundment. This would result in a decline of several littoral zooplankton species and an

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increase in populations of limnetic species. The relative abundance of littoral versus limnetic species would depend upon shoreline development." (FEIS Section 4.1.5.1 Biological Impacts)

The remainder of the mitigation for this habitat loss is undefined with only proposals for mitigation at Riverside Park or via conservation easements along Horse Creek, South Fork Sangamon River, and Sangamon River North of the reservoir. No such conservation easements have to this date been obtained. *See* Transcript at p. 106.

6. In addition, no mitigation has been described for the impacts associated with both the proposed sewage effluent pipeline and the stream work proposed for Horse Creek and Henkle Branch in the Village of Pawnee. The creek channel meander proposed to be abandoned near Pawnee is cited by the applicant (Tom Skelly's letter of November 21, 2008) as providing "additional flood water retention and maintenance of aquatic habitat." Given the high potential that sediment will fill the meander, for what fraction of the reservoir project's life will such benefits be realized? Are any of these benefits included in the mitigation plan to offset wetlands damaged by the project? If so, please include in the project cost comparisons of the maintenance costs that will be incurred to ensure permanence and nondegradation of the benefits.
7. There are many additional critical questions regarding mitigation and the protection of existing uses that remain unanswered. For instance, how was the total area of wetlands (102 acres) determined? Was each site visited and measured? If the estimate relies on inspection of a sample of wetlands, please describe the process used to ensure that the sample was unbiased and statistically significant. To what extent did the applicant rely on secondary sources such as aerial photos, topographic maps, etc.? .? For example, in the 1992 document *An Environmental Assessment of the Hunter Lake Project Area,* which was supplied as an attachment to Tom Skelly's letter of November 21, 2008, 500 acres of palustrine forested wetlands are described, yet the ACOE notice and the Antidegradation Assessment only list 77.8 acres.
8. In the latest correspondence from the City of Springfield in response to questions posed by the IEPA (Tom Skelly's letter of November 21, 2008), numerous details regarding the

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proposed mitigation for this project and the longterm viability of the planned actions remain unanswered. These include a lack of field surveys to determine wetland impacts associated with the proposed channel modifications on Horse Creek and Henkle Branch near Pawnee (IEPA's question 12), no stream channel maintenance plan for this work (question 12), the absence of a stream channel maintenance plan (question 12), and detailed mitigation plans regarding the Horse and Brush Creek fills (question 13), and a complete lack of any study or mitigation plans related to impacts associated with the proposed pipeline installation (question 16).

* * *

SECTION III. ANTIDEGRADATION ASSESSMENT FAILS TO FULLY AND ACCURATELY EXPLORE ALTERNATIVES TO THE PROPOSED DAM WHICH WOULD AVOID OR MINIMIZE THE EXTENT OF THE PROPOSED INCREASE IN POLLUTANT LOADING.

35 IAC Section 302.105 c)2)B)ii) requires that the following must be assured "All existing uses will be fully protected;"

In making an antidegradation assessment, the Agency must assure that all technically and economically reasonable measures to avoid or minimize the extent of the proposed increase in pollutant loading have been incorporated into the permit. 35 Ill. Adm. Code 301.105 c) 2) B) iii). IEPA's antidegradation review must assess whether the pollution controls needed to maintain water quality will interfere with the proposed development. *36 Ill. Adm. Code 302.105 c)1).* A simple cost estimate of the pollution controls is insufficient. *Des Plaines River Watershed Alliance v. Illinois EPA and Village of New Lenox*, PCB no. 04-88 (April 19, 2007) at *94,*95. Such assessment must include not only a calculation of annual pollution control projects costs, but also a calculation of the total annualized costs/household and a financial analysis, consistent with *USEPA's Interim Economic Guidance for Water Quality Standards*, to determine if lowering water quality is necessary. *Id.*

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As demonstrated below, the economic and technical feasibility of various alternatives have not been adequately considered. For instance,

1) The Sangamon River was rejected as a source of supplemental water supply in Section 2.2.2 of the FEIS because of adverse impacts associated with constructing a permanent dam to back up water several miles to an existing pump station on the South Fork. No other ways of obtaining water from the river were considered: e.g. pumping directly from the Sangamon River to Lake Springfield or allowing gravity flow into adjacent gravel pits from which water could then be pumped to Lake Springfield or directly to the water treatment plant. The lowest annual flows since 1909 averaged at that location occurred in 1954 and averaged ~75 mgd, far exceeding the City's stated shortfall of 9.1 mgd during the 100-year drought. The applicant currently has a permit described in USACE Notice 2006-253 for a low-head dam near the Clear Lake gravel pit, which requires 27 mgd bypass (comparable to the minimum monthly flow of record). Therefore it is reasonable to expect that the minimum monthly flow could easily be protected, given the buffering effect of storage capacity created by drawdown of the gravel pits and/or Lake Springfield. Please analyze these options at a degree of detail sufficient to determine whether these alternatives will minimize pollutant loadings to a greater degree than the dam, and if so, whether these options are economically feasible.
2) The Lake Shelbyville alternative was also dismissed in the EIS on the grounds that the state's water supply in that reservoir has been fully allocated to other users. However no consideration was given to raising the "normal" pool a few inches, and pumping the water a few miles into the Sangamon watershed where it could flow by gravity to augment water supply available to both Decatur and Springfield. Any such augmentation of the Sangamon River flow could be captured by Springfield at or near the gravel pits. Is there any reason why such an operational change at Lake Shelbyville could not be requested, even if it might eventually need congressional approval?
3) Returning up to 8.1 mgd of ash sluice water to Lake Springfield or the power plant was rejected in the FEIS for pollution-related reasons that are no longer relevant. At least two water conservation studies were funded by the applicant several years after the FEIS was

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published. Both identified feasible options for substantially reducing this water demand for ash sluice by using technologies of the type employed at "zero liquid discharge" power plants elsewhere (Sargent & Lundy, 2004; Burns & McDonnell, 2005). Several of these options were rejected because they appeared uneconomic at the artificially low costs assigned by CWLP to raw ($1.35/million gallons) and treated ($1,550/million gallons) water from Lake Springfield. For comparison, the applicant's new rate schedule calls for selling treated water at $3,560/million gallons (a price that must be increased further to pay for any supplementary supplies). Table S2 that was attached to the Public Notice for the 401/404 permit shows the cost of *raw* water from Hunter Reservoir to be more than $3,000/million gallons (levelized net present worth divided by ~ 4 mgd annual water *actually delivered*). Since Table S2 was prepared the applicant has reduced its estimate of need by 25%. Please provide evidence that these options for reducing power plant water demands will be uneconomic in the future and should be rejected, considering the actual marginal costs of raw and treated water.

4) Reuse of treated wastewater from the Springfield Metropolitan Sanitary District (SMSD) was also rejected in the FEIS based on water quantity and quality concerns that no longer appear to be relevant. Subsequent consultant reports (e.g. Burns & McDonnell, 2005) suggested several feasible options for using wastewater at the power plant, not only for ash sluice but also for cooling. Wastewater availability is changing as SMSD plans to expand capacity of the Sugar Creek plant to 32 mgd (Sangamon Co. Board minutes, April 9, 2008). Sluice water needs have been reduced by retirement of Lakeside generating units, and CWLP now plans to redirect the high-boron FGD wastewater to another watershed rather than the ash ponds. Please update the feasibility analyses to consider this and other recent information, along with changes in relative costs of wastewater vs. raw reservoir water from Hunter dam, as requested above.

5) The South Fork pump station is due for replacement, and its capacity could be increased so it is able to pump more water during the high water periods that occur during drought years as illustrated in the following schematic from the State Water Survey report by Fitzpatrick & Knapp (1991). Since the extra capacity may need to operate only during 50-100 year droughts, the extra pumping power cost may not be decisive, so pipeline enlargement might

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not be necessary. To what extent could increasing deliveries from the South Fork reduce the cost of the alternatives listed in Table S2, e.g. by reducing the number of wells or pipelines?

6) Lake Springfield yield is based on the assumption that the lake cannot be drawn down below 548 ft. msl during a 100-year drought, because it is too close to the elevation of the cooling water intake for Dallman units 31-33. An additional 2 mgd capacity could be obtained by drawdown to 547, and more capacity could be added by further drawdowns. Please address the technical feasibility of a drawdown to 543-547 ft. and quantify the cost of bringing water to the plant at lake levels ranging from 547 to 543 (the level of the existing potable water intake), considering explicitly the power generating efficiency benefit gained by bringing colder water from the deepest parts of the lake. In addition, please include an analysis of the applicant's ability to meet these costs.
7) As discussed in greater detail below, reduction in demand and water conservation have been improperly ignored as viable alternatives.

The need for a supplemental water supply has been consistently overestimated, and not supported by reproducible analysis. The stated need has also declined steadily over the years. For instance, the stated need that provided the basis for the analyses cited in the FEIS was 15.3 mgd in 2025. In the 2007 permit application, the need had been reduced to 12 mgd, yet no supporting analyses were provided or cited. Following the close of the public comment period in August 2007 the applicant produced a crudely-documented update that reduced the stated need to 9.4 mgd (CWLP 2007a), which was further revised in October 2007 to 9.1 mgd (CWLP 2007b). The October 2007 report itemizes 3 components of "need" that are highly questionable: 1) 6.9 mgd for "ash sluice" at the power plant; 2) 1.7 mgd for serving towns now using groundwater; and 3) 7.2 mgd for excess summer use during droughts.

1) "Ash sluice" means using lake water to flush ashes from the power plant to settling ponds below Spaulding dam. The polluted water then overflows into Sugar Creek at a concentration that violates the statewide water quality standard for boron. Why has the applicant apparently rejected each of the 4 water-conserving options analyzed by Burns & McDonnell (2005)?

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2) Where is the evidence that switching 1.7 mgd of groundwater-based systems serving 12 townships with surface water supplied from Hunter Dam is cost-effective and environmentally sound, especially considering the hundreds of miles of pipelines required? If it is not cost-effective for these groundwater users to switch, please add the necessary subsidy to the cost of the supplementary water supply project.

3) Average summer use already exceeds winter use by 7.2 mgd according to data from the State Water Survey (2008) shown in Figure 1 below. CWLP (2007b) assumes that an additional 7.2 mgd will be required during summers in severe droughts (additional 3.6 mgd averaged over entire year). Based on evidence from other cities' experience, how can EPA and COE accept the applicant's assertion that this additional 14.4 mgd peak demand and 7.2 mgd annual demand cannot be reduced by seasonal pricing policies or by strictly enforced curtailment during severe droughts?

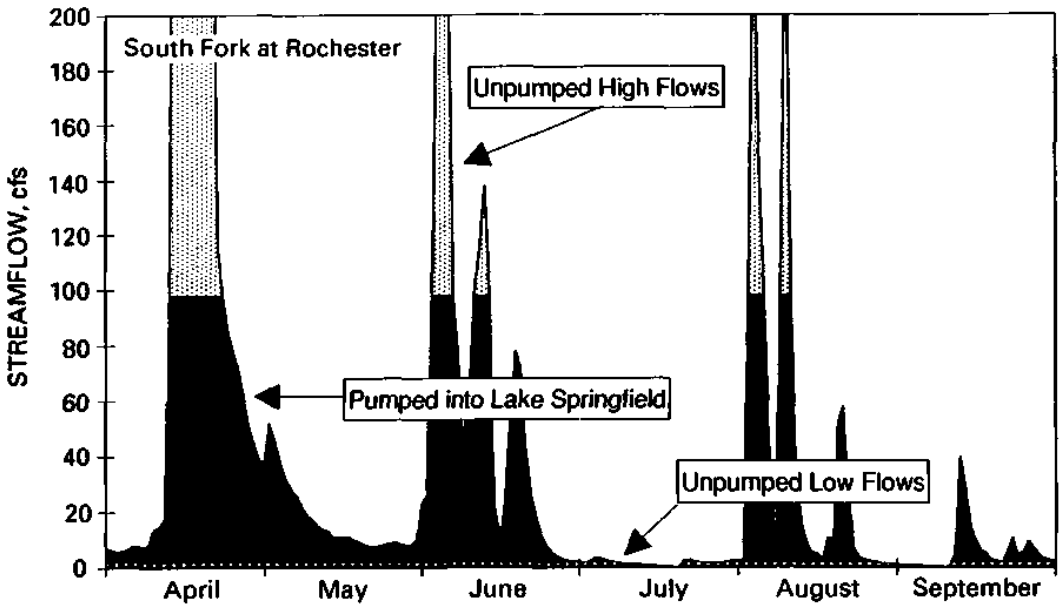

Figure 1. Effect of increasing existing South Fork pump capacity

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Given the unsupported conclusions and frequent changes, it is unclear at this point, what the actual need is. In fact, the record shows that the actual need of the CWLP service area has never met projected needs.

The overestimation of need has biased the analysis against alternatives that are feasible. The applicant's updated supply/demand forecast (CWLP 2007b Table 3 shown below) shows that existing sources can provide 25% more water than the 38.7 mgd the applicant claims it needs during a 25-year drought.

Table 3. Yield (MGD) of Lake Springfield Under Different Drought Recurrence Intervals.

Year	100 – Year	50 – Year	25 – Year	10 – Year
2000	30.5	33.8	54.4	71.7
2007 (est.)	30.3	33.6	53.4	71.2
2015 (est.)	30.0	33.2	51.5	70.3
2025	29.6	32.8	49.5	69.4

Includes base yield, 0.7 MGD South Fork pump capacity correction, 1 MGD revised pumping strategy, and 1.6 MGD recycling of ash pond water to Lake Springfield.

By definition the severity of a 25-year drought is likely to be exceeded only 3 times per century. Supplemental water supply will be needed on only a few occasions during the 50-year project life and pumping will be required only during a few major droughts.

The applicant's preferred alternative is the most capital-intensive of those analyzed in Table S2, which was provided with the May 2007 Public Notice. Hunter Reservoir's capital cost is about twice that of the least-cost alternative (gravel pits & wells), and its annual operating cost is less than half. Since capital costs must be spread across all the water supplied, the economic analysis can be severely biased by overestimating the total amount of water *delivered*.

By failing to update the alternatives analysis to reflect the updated need of 9.1 mgd, the applicant biases the analysis against groundwater alternatives that can be easily downsized. Please revise the alternatives comparisons to correct the following biases:

1) The applicant sized the groundwater alternatives at 12 mgd instead of removing a few of the most costly wells and pipelines.

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2) By comparing the alternatives based on 12 mgd peak demand instead of 9.1 mgd, the applicant has overstated by more than 30% the amount of water actually delivered over the 50-year project life.

3) The applicant has also overestimated the frequency of severe droughts (a 100-year drought plus two more droughts more severe than the 50-year drought), thus further overstating the amount of water delivered. In fact the chance of such severe droughts occurring in the 50-year project life is far lower, as shown in the following graph from the Illinois State Water Survey (Fitzpatrick & Knapp, 1991).

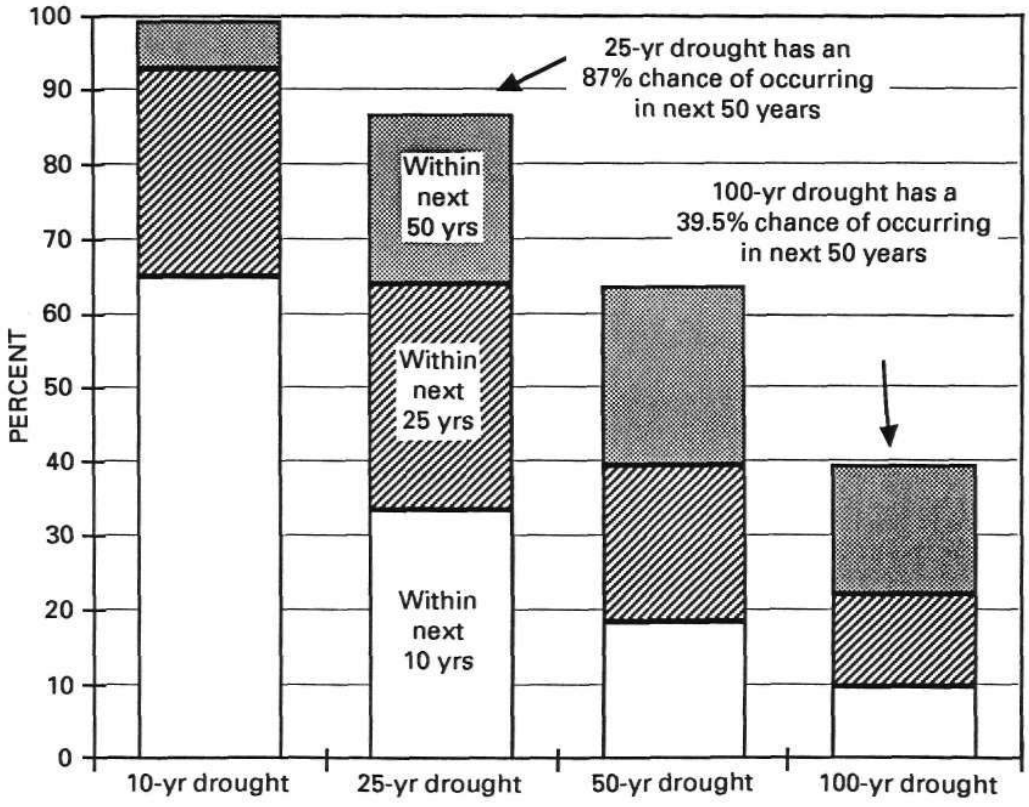

Figure 2. Drought probabilities from Illinois State Water Survey

4) Section 2.2.2 of the FEIS states that "Sources of less than 1 mgd are not considered combinable. Single sources yielding well in excess of the needs of the City are not

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considered." If the applicant's peak demand does not materialize due to conservation by customers or by the power plant, the cost per gallon of water delivered could become outrageously high, as shown in Fig. 2 above. Water efficiency and conservation was summarily rejected because it was judged too small; why shouldn't IEPA and COE reject Hunter Reservoir for being too large?

Water conservation is an alternative that must be considered. Water conservation can reduce the stated need. Water demand has been almost flat in Springfield for 27 years; the only part of demand that is increasing is summer use which is mainly lawn watering, golf course irrigation, etc. The following graph compares summer and winter (Nov-Apr) usage, from data provided by the Illinois State Water Survey (2008). By failing to consider substantial restructuring of water rate schedules to encourage more efficient use, demand growth has been overestimated.

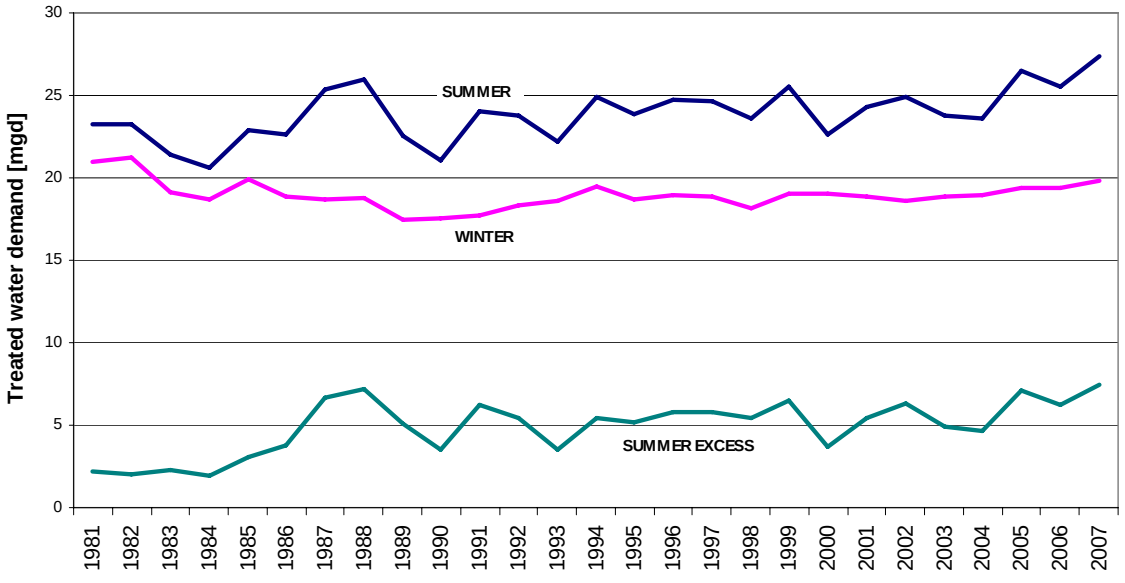

Figure 3. Summer and winter water use (27 years)

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1) Seasonal pricing to promote more efficient water use in summer was considered and rejected for being "too small" in the FEIS., which estimated <0.1 mgd savings. That result is not credible, because the PMCL (1991) economic model assumed that price has no effect on non-residential water demand, and it grossly underestimated the effect on residential use by reliance on average rather than marginal prices and on price elasticities picked from the low end of the cited range. Electric utilities have used seasonal pricing for decades to reduce peak demands; see the vast technical literature on load shaping, load management etc. By what amount would peak demands be reduced through an aggressive program of seasonal pricing, for example by raising the summer rate by a factor of 3 or 5 and returning the revenues in a way that does not create incentives to increase water use (e.g. abolishing the fixed meter charges, charging little or nothing for a subsistence amount of 3-4 units/month for residences, or by reducing city sales or property taxes)? Unlike investor-owned utilities, municipal utilities are not constrained to cost-based ratemaking; are there records of the applicant analyzing and presenting such alternatives to the City Council?
2) The 20-year trend extrapolation (CWLP 2007b Figure 4 shown below) captured only partially the introduction of federal plumbing fixture efficiency standards which began to take effect in 1994 and will continue for decades. Likewise the extrapolation fails to account for the federal appliance efficiency standards that will reduce laundry and dishwasher water use ~40% beginning in 2010. Please adjust the demand forecasts to account for these federal laws and regulations.

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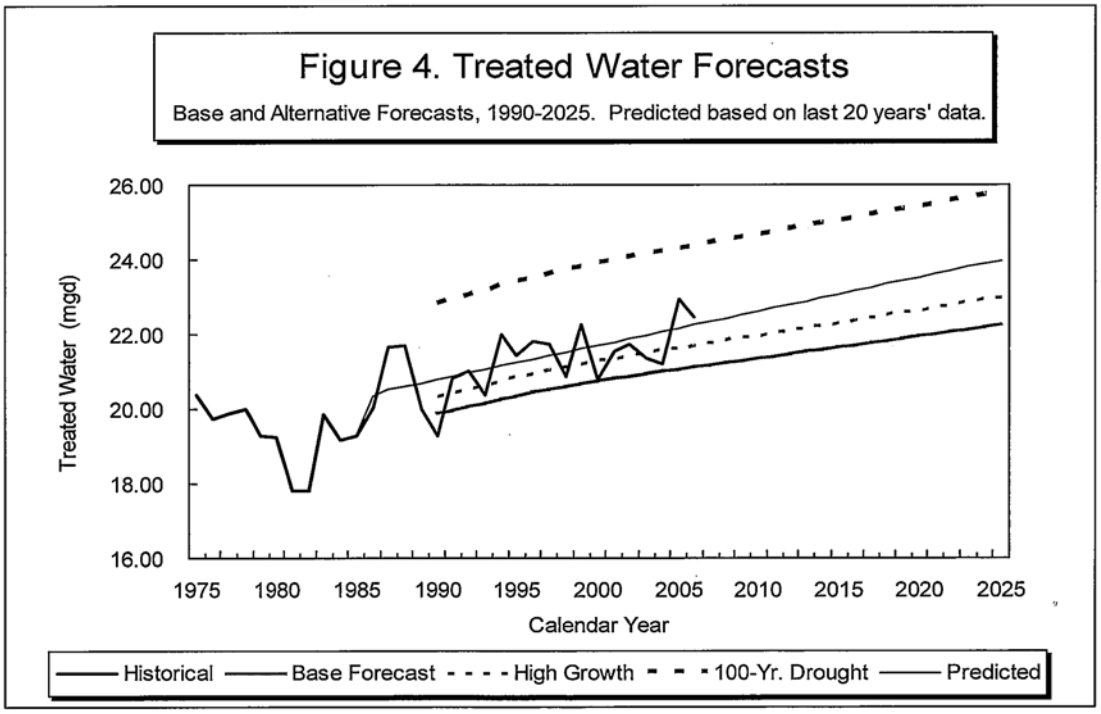

3) By implicitly assuming that the CWLP's temporary exemption from statewide boron pollution standards will persist through 2025, the applicant assumes that it can continue to use large quantities of lake water to flush pollutant-laden ashes into settling ponds and thence into Sugar Creek. Does IEPA's acceptance of this assumption give the applicant an implicit signal that IEPA will endorse continued extensions of the adjusted standard, thus giving a green light to continued excessive water use for ash sluicing?

4) By failing to implement water conservation options at the applicant's own power plant, as suggested by consultants (Sargent & Lundy, 2004; Burns & McDonnell, 2005) the applicant artificially inflates the stated need. Such measures were also offered because of their ability to substantially reduce boron loading due to the applicant's ash pond discharges into Sugar Creek, pursuant to an adjusted standard. Please adjust the stated need accordingly.

5) The water "needs" of the power plant are based on the applicant's assumption that it will continue burn 100% coal at high load factors through 2025. Bills currently pending before Congress call for 60-80% reductions in carbon emissions by 2050, and studies project that coal prices will rise (due to carbon taxes or allowance auctions) from today's $30/ton to $100/ton or more, causing coal use in the US to drop ~80% by 2025 (Paltsev, et al. April

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2007). What is the justification for assuming that CWLP's coal consumption (and associated water use) is likely to remain constant through 2025? If shutdown or conversion of Dallman units 31-33 to natural gas combined cycle plants becomes feasible or necessary by 2025, how much would that reduce consumptive water use and forced evaporation from Lake Springfield?

6) The City of Springfield needs to look to other cities and resources for guidance on implementing water conservation measures. Numerous examples exist for the most common reason for doing water conservation: to avoid needing to build a new water supply reservoir. The first one of note is from Boston. The Massachusetts Water Resources Authority avoided the need for new supplies from the Connecticut River by plugging the leaks in their distribution system. The City of New York avoided needing a new wastewater treatment plant by installing over a million ultra low flush toilets. The City of Denver, faced with the rejection by EPA of the Two Forks Dam, eventually met their expected demand through their water conservation programs. More information on the Boston and New York examples, plus others, may be found in the 2002 USEPA report entitled Cases in Water Conservation: How Efficiency Programs Help Water Utilities Save Water and Avoid Costs, available at www.epa.gov/owm/water-efficiency/index.htm.

Another recent report, *Hidden Reservoir; Why Water Efficiency is the Best Solution* by American Rivers, describes how the Southeast can save over $700 million and new water supply for over one million residents by embracing water efficiency solutions like stopping leaks and upgrading old buildings. The report outlines nine proven, timely and cost-effective steps that local leaders can take to save water and help ensure their rivers remain valuable community assets.

1. Stop leaks
2. Price water right
3. Meter all water users
4. Retrofit all buildings
5. Landscape to minimize water waste.
6. Increase public understanding

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7. Build smart for the future
8. Return water to the river
9. Involve water users in decisions.

The report can be found at www.AmericanRivers.org/WaterEfficiencyReport.

Right here in Illinois, we are fortunate to have the North American advocate for water efficient products and programs, a group of professionals highly accomplished in providing information and assistance on water conservation efforts. Located in Chicago, the Alliance for Water Efficiency is a stakeholder-based 501(c)3 non-profit organization dedicated to the efficient and sustainable use of water. The Alliance has embarked on key tasks to support and enhance water conservation efforts, providing benefit to water utilities, water conservation professionals, planners, regulators, and consumers.

The water conservation reports, *Evaluation of Water Conservation for Springfield City Water, Light and Power*(1992) and *The Social Acceptability of Water Conservation in Springfield, Illinois* (1991) both prepared by Planning and Management Consultants, Ltd, used to evaluate the potential benefits and cost of implementing water conservation measures in the service area of Springfield CWLP are nearly two decades old. In fact, these reports do not reflect updated legislation that now requires upgrades in residential plumbing and appliances that will significantly reduce water usage. The following table illustrates our point.

	Existing stock	**New Federal Standards (* 1994, ** 2010)**	**Percent water savings**
Toilets (gal/flush)*	5.5	1.6	70%
Showerheads (gal/min)*	> 5	2.5	> 50%
Dishwashers (gal/cycle)**	10	6	40%
Clothes washers (gal/cyc)**	40	18-25	> 40%

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We encourage representatives from City, Water, Light and Power and the City of Springfield to contact Mary Ann Dickenson at Alliance for Water Efficiency for assistance in water conservation efforts. Additional information can be found at http://www.allianceforwaterefficiency.org/about/default.aspx./.

An underestimate of existing water supply yields has also resulted in an overstatement of need. For instance,

1) Lake Springfield yields are based on assumption that water from ash clarification pond is available only during 100-year drought. However it appears that continuous recycling (i.e. throughout the duration of the drought) of that water to the lake was omitted from the simulation analyses that calculated lake yield for the FEIS (Knapp, 1998).
2) Projected yields are based on a plan to continue deferring maintenance on Lake Springfield. The permit application is based entirely on estimates of yield provided by the Illinois State Water Survey (Borah et al. 1997; Knapp, 1998; Fitzpatrick and Knapp, 1991). All these estimates assume that neither Lake Springfield nor Hunter Lake will be dredged during the 50 year project life. Failure to commit to such maintenance not only exaggerates water supply "need" by understating yield, but also demonstrates a lack of commitment to maintenance of water quality. In view of Lake Springfield's failure to comply with the 36-year-old Clean Water Act, what is IEPA and COE's rationale for excluding the cost of maintaining the design yield of both reservoirs?
3) The yield of the gravel pits is underestimated because the applicant's estimate of usable storage volume is based on the type of dredging equipment used at each site in 1997, not the type that could be substituted at modest cost to the City in the future if necessary during a drought. How much would the storage volume be increased by such a substitution, and how would it affect the net present value of the gravel pit/Sangamon wells alternative?
4) The gravel pit yields (4.8 mgd in the FEIS, updated to 7.4 mgd in 2008 to account for ongoing mining) are also underestimated, due to the applicant's assumption that water

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withdrawals during severe droughts would be constrained by mining operations requiring that a certain depth of water remain in the pit. This could increases the pits' 100-year drought yield even more than a possible switch to different mining equipment, further decreasing the need for additional wells and associated pipelines. Please revise the economic comparisons in Table S2 accordingly.

Information needed to evaluate several claims made in the public notice was not cited and its existence was unknown to the public. Potential commenters were therefore forced to make FOIA requests to fish around for potentially relevant documents. This was complicated by the IEPA's failure to publish a list of documents in the Hunter Lake file. For example, the economic analyses of alternatives presented in the FEIS failed to include any water delivery schedule, and implicitly assumed that the 18-month 100-year drought would occur in Year 1 of the 50-year project life. A water delivery schedule is necessary for a proper comparison of alternatives. This was "fixed" in 2005 and only cryptically documented in apparently unpublished calculations by Hanson Engineers, a "report" that was never cited in the 2007 public notice. Only the results were reflected in the revised version of FEIS Table S-2 that was attached to the 2007 public notice. The existence of the Hanson "report" and its underlying assumptions about the water delivery schedule were not announced to the public. Recently we were able to find and obtain the report, cited below as Hanson (2005),

Economic analyses made by the applicant are obsolete and biased against the alternatives in the following ways:

1) The applicant's projection of future water sales is a simple extrapolation of the 1986-2006 trend. What is the expected reduction in 2025 water demand as a result of a) the near-doubling of water rates approved by the City Council in May 2008; b) the increase in water rates required to pay for Hunter reservoir or one of the alternative supplemental water supplies; and c) the recently-announced 400% increase in sewer rates (State Journal Register, 2008)? Any reduction in forecast water demand will favor the alternatives at the expense of

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Hunter Reservoir because its operating costs comprise a smaller fraction of the total. Please show how the agency will adjust projected demands accordingly.

2) The costs of the gravel pit option are overestimated because they fail to allow for the fact that pits may be recharged at a rate far greater than the 0.33 mgd assumed by the applicant, due to their proximity to the Sangamon River which flows over the aquifer, and due to claims by the owner of one pit that its level rises and falls quickly in response to changes in river levels. Despite repeated requests recorded in news articles and transcripts of City Council meetings, the applicant has failed to perform a pump test to quantify the recharge rate of the gravel lakes. Please revise the analyses in Table S2 to consider staging construction of groundwater alternatives to reduce present worth by deferring capital costs, for example by securing real estate first and measuring gravel pit recharge rates, followed by pipeline permitting and construction, and eventually adding wells as needed. Failure to do so overestimates the net present worth of groundwater alternatives' costs.

3) The most costly portion of the "Sangamon River Groundwater and Gravel Pits" alternative shown in Table S2 are the well fields and pipelines to supplement the 4.8 mgd yield of relatively less costly gravel pits. However due to ongoing mining operations the gravel pits have grown in storage volume since the 1998 analysis performed for the FEIS. The applicant now states that the gravel pits alone would yield 7.4 mgd, or more than 80% of the 9.1 mgd "need" during a 100-year drought. By the time any of the alternatives could be constructed and brought into operation, the yield of the gravel pits could be approaching 100% of the applicant's stated need. The analysis detailed in Hanson (2005) suggests that eliminating the wells from that option would reduce the 50-year present worth by $55M ($44M capital + $11M operation and maintenance). Cost savings of this magnitude would certainly offset any cost associated with increasing gravel pit yield from 4.8 to 7.4 mgd. It also provides motivation for revising the option to include "gravel pits only" and to combine it with other options to deal with the 9.1 mgd stated need.

4) The cost estimates in Table S2 reflect the FEIS assumption that access to water in the gravel pits would be acquired via up-front payments of about $3M (in $2006), and 4.8 mgd water purchased for $166/MG (in 2006$), thus accounting for $7.6M present worth (for details see

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CMT, 1998). Since one of the properties is currently for sale for less than $3000/acre, it appears that fee simple acquisition might be no more costly than the per-gallon purchase arrangement described in the FEIS. Please assess the feasibility of purchasing the gravel lakes and leasing them for mining operations, since no pumping would be required in most years. Please show how the projected lease revenues will be included in a revised economic analysis, which should also account for growth in water storage volume as the pits continue to be mined.

5) All data submitted by the applicant regarding the "available storage volume" in the gravel pits assume that 5-10 feet of water must be left in the bottom of the pits to allow current owners to continue gravel mining (CMT, 2008). However if the City owned the gravel pits the terms of any lease-back arrangement could allow the City to temporarily halt mining during the infrequent severe (50 and 100-year) droughts. With access to the full storage volume of the pits, the 7.4 mgd capacity is increased to 11.3 mgd – far in excess of the applicant's stated 9.1 mgd "need". Please state how the economic comparisons will be revised accordingly.

6) The cost of the Hunter Reservoir is underestimated by failure to include, and to use recent valuations, for properties and conservation easements and flood easements yet to be acquired. Please state how the agency intends to revise the cost estimate accordingly.

7) The cost of Hunter Reservoir is underestimated because it fails to include the costs of sufficient shoreline stabilization and watershed management to *ensure* that water quality standards will in fact be met. Please state how the agency will update the project cost estimates accordingly.

8) Please show how the agency will include the costs of dredging to prevent expansion of mudflats and to maintain design yield in the lifecycle cost analysis for Hunter Reservoir.

9) Finally the cost estimates for Hunter Reservoir and the alternatives are 25 years out of date (Hanson 2005) and very crudely updated using the consumer price index (not construction cost indices). The preceding comments on the economic comparisons were therefore keyed to the obsolete estimates that were presented to the public. In reality, all the alternatives should be re-designed and re-engineered prior to construction because of the great likelihood

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that changes in *relative prices* of materials, labor and land have occurred during the last quarter-century.

* * *

SECTION IV. APPLICANT HAS NOT SUFFICIENTLY DEMONSTRATED THAT THE PROPOSAL WILL BENEFIT THE SPRINGFIELD COMMUNITY.

35 IAC Section 302.105 c)2)B)iii) requires that the following must be assured "All technically and economically reasonable measures to avoid or minimize the extent of the proposed increased in pollutant loading have been incorporated into the proposed activity;"

The Antidegradation Assessment lists augmentation of the water supply for the City of Springfield and those in its service area as the purpose and benefit of the proposed reservoir. In addition, the removal of sewage treatment plant discharges from the proposed Hunter Lake watershed and the possible removal of septic system discharges from the Lake Springfield watershed are listed as anticipated benefits. Finally, recreational opportunities are cited as an additional benefit.

However, each of these identified benefits can also be achieved without the establishment of the Hunter Reservoir. Viable alternatives to Hunter Reservoir, without its many adverse impacts to the environment, wildlife habitat, historic sites, etc., exist that could supply additional water as we have described in this comment letter.

Removal of sewage treatment plant discharges from the Hunter Lake watershed does not remove those discharges from the environment. Increased wastewater discharges will impact the water quality and use of the water bodies to which the wastewater will be diverted. Likewise, the uncertainties about who will pay for the diversion of the wastewater poses a potential adverse, not beneficial, impact to the current customers of the Pawnee and Virden sewage treatment plants.

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The removal of septic system discharges from the Lake Springfield watershed may ultimately be beneficial, but currently we are not aware of evidence which indicates that septic systems are a source of pollution to Lake Springfield. Septic systems are not listed as a source of impairment for the lake's many problems in the 2008 Illinois Water Quality Report. In addition, the financial burden of connecting a home with a properly functioning septic system in the Lake Springfield watershed to the proposed sewer line could well be a detriment, not a benefit, to a given homeowner. The incremental capital and operating costs of these hookups cannot be found in the project budget, nor is there any statement that the City or the State will mandate those hookups. In fact, Tom Skelly stated at the December 3 public hearing that hookups are "a separate issue." Thus it appears that there will be no such water quality benefits to offset the adverse impacts caused by the dam and reservoir.

While a new reservoir will present opportunities for lake-based recreational activities such as boating, it is not a given that this will benefit the community at-large. Hiking, picnicking, fishing, and hunting are all recreational activities that could occur on the land in its current state, and are likely more accessible to more people than activities which require some type of water craft. In addition, bike trails have been proposed for the site. For tourists attracted to Springfield for its history, the inundation by the reservoir waters of many sites of historic significance will decrease their recreational opportunities.

* * *

SECTION V. IEPA HAS FAILED TO FULFILL THE FULL SCOPE OF ITS DUTY UNDER SECTION 401 OF THE CLEAN WATER ACT.

All of the potential effects of a proposed activity on water quality—direct and indirect, short and long term, upstream and downstream, construction and operation-should be part of a State's certification review. EPA WQS Handbook, 2nd Edition., Appendix Q, p. 23.

In this section, we would like to call particular attention to the lack of attention to potential impacts from the proposed activities in the long term timeframe, downstream of the dam and

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throughout the operation of the dam and reservoir. We feel that inadequacies in terms of short term upstream impacts during the construction phase of the reservoir have been addressed elsewhere in this letter.

Long term impacts have not been given adequate consideration.

As noted previously, dam construction and the development of a reservoir cause an ecological shift from a riverine to a lacustrine system resulting in changes in the physical, chemical and biological dynamics. We do not feel that sufficient consideration has been given to the following anticipated long term impacts and request a response from the Agency demonstrating how the following impacts have been considered in light of the Agency's duty to ensure that no violation of water quality standards occurs as a result of the proposed project : 1) Shifts in species composition, 2) Decrease in species diversity, 3) Blockage of fish migration and spawning, 4) Alteration of terrestrial and aquatic dynamics, 5) Elimination and/or alteration of recreational opportunities, and 6)Alteration of sediment and water discharge dynamics.

Environmental impacts of the operation of the dam and management of the reservoir have not been considered. Before granting this certification, the CWA requires IEPA to assure (and to certify in writing) that the project will not violate any water quality standard, including the protection of both designated and existing uses. As noted previously, the State's 401 certification applies to both construction *and operation* of the proposed activity. Therefore, the Hunter Reservoir must be managed appropriately for the intended uses while ensuring protection of existing uses. We understand that the reservoir's uses include supplemental water supply source, though the reservoir is also being offered for recreation, aquatic habitat, and flood control. Undoubtedly, it will also serve as a sediment trap, a barrier to fish migration and will serve to dampen seasonal fluctuations such as flow, temperature and dissolved oxygen. Often, conflict arises over how to manage for multiple designated and existing uses. For example, maintaining water levels in Lake Springfield to allow for water withdrawal for cooling at CWLP's power plants requires drawing down the water level in Hunter Reservoir, leading to exposure and elimination of aquatic habitat or damage to recreational infrastructure such as boat

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docks. Agricultural uses of the land draining towards Hunter Reservoir may contribute to pesticide, nutrient and sediment pollution conflicting with the intended use of public water supply. When water is released from the Hunter Reservoir dam to allow for pumping into Lake Springfield, how does the depth, rate and temperature of the release affect native fish and other aquatic organisms living downstream of the dam? The City has yet to describe their reservoir management plan and water release scheme, though these are critical to protection of existing and designated uses in upstream and downstream segments of Horse and Brush Creeks, particularly 1) maintenance of water levels, 2) timing, duration, volume, rate and location of water and sediment releases, and 3) watershed land use practices.

* * *

SECTION VI. SEVERAL ASPECTS OF THE PROJECT THAT WILL DIRECTLY IMPACT THE ABILITY TO PROTECT DESIGNATED AND EXISTING USES AND ENSURE ATTAINMENT OF WATER QUALITY STANDARDS ARE STILL IN THE PLANNING STAGES LEAVING THE STATE WITH AN INSUFFICIENT BASIS FOR CERTIFICATION.

It is unclear how the Illinois EPA can fulfill their duty to consider "All of the potential effects of a proposed activity on water quality—direct and indirect, short and long term, upstream and downstream,, construction and operation" as part of their certification review as required by the Clean Water Act if these potential impacts have not been determined and considered. Furthermore, presentation of such vague and incomplete information undermines the whole purpose of the permitting process and public involvement.

Examples of insufficiently considered impacts include:

1) According to the Joint Public Notice, there is a danger of increased flooding in the City of Pawnee. While the public notice states that CWLP is exploring channel modifications and levee construction, it is clear from both the notice and CWLP's responses to questions posed by the City of Springfield (dated 11/21/08) that flood control is an integral part of this entire project and that it is still in the planning stages. For instance, a proper wetland delineation

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has not been completed. Similarly, maintenance agreements and detailed engineering of the channel to determine and define impacts are also proposed to come later. Remarkably, CWLP is proposing that IEPA and the Army Corps of Engineers issue the permit and the certification *before* impacts are determined and before the requisite alternatives analysis and compensatory mitigation proposal are commenced.

2) Negotiations with the Villages of Pawnee, Divernon and the Virden Sanitary District with respect to sewage wastewater diversion and the Hunter Reservoir project have been suspended until such time that the Section 401 Water Quality Certification and Section 404 permits are issued. Plans for pipeline installation, wetland delineations, potential wetland impacts and mitigation for the diversion of sewage from the three villages will have water quality impacts. IEPA's antidegradation assessment failed to consider these impacts and is therefore incomplete.

3) The FEIS states that "[f]our cemeteries near the Lake's high water mark may require levee protection." At the December 2008 public hearing officials indicated they had not yet determined whether any graves at those cemeteries would need to be relocated. Please provide that information along with plans for any levees or other structures needed to protect those cemeteries.

4) The Corps public notice states that "No Indiana bats were observed during the 1990-91 survey." The relevant questions are whether Indiana bat habitat exists in the area, and whether such habitats were carefully examined for evidence of the presence of the species. When U.S. Fish and Wildlife Service requested that the City comply with Section 7 of the ESA of 1973 by providing a habitat suitability survey for the Indiana bat, the City of Springfield replied "the time is not yet ripe to conduct this survey."

5) Many of the measures described in the "Mitigation" section of the Antidegradation Assessment are purely speculative. Does this mean that the applicant has failed to make firm commitments to all the measures listed? For example in a single paragraph beginning at the bottom of page 3 there appears:

> *Assuming* a 100-ft corridor… 449 acres of riparian corridors affected. (Why not inspect and measure?)

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Some of the roads will be closed to vehicular traffic… (How will this mitigate loss of riparian corridors?)

Some of the roadways *may* be re-designated as pedestrian… (How will this mitigate loss of riparian corridors?)

A *portion* of the site *may* be dedicated… (What if it is not?)

Further… mitigation *would be provided as possible* with acquisition of conservation easements… (Who determines what if possible, and what if it is not?)

If such easements are granted to the City… a minimum of 100 feet on either side of the watercourse would be *requested*… (What if the willing sellers cannot be found or do not agree to the City's terms and price?)

For the required flowage easement areas… 50 feet on either side of the tributary would be *requested*… (What if sellers do not agree to the City's terms and price?)

The applicant *proposes* that instream flow releases… (Why do the COE and EPA not require a firm commitment?)

* * * * *

For all of the above stated reasons, IEPA cannot lawfully assure that this project will be protective of Illinois' water quality standards. As such, the Agency must deny 401 certification.

We appreciate your consideration of these comments in addition to previously submitted written comments and oral testimony.

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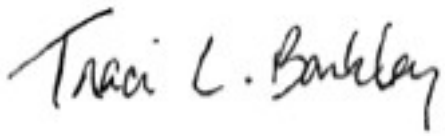
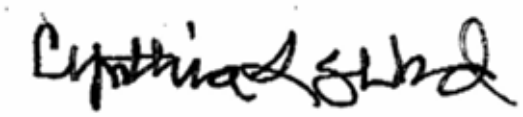
Sincerely,



Traci L. Barkley
Water Resources Scientist
Prairie Rivers Network



Dr. Cynthia Skrukrud
Clean Water Advocate
Illinois Chapter of the Sierra Club

CC: Tim Davlin, Mayor of City of Springfield
Todd Renfrow, General Manager, City Water, Light and Power
Tom Skelly, Manager of Water Division, City Water, Light and Power
Wayne Hammel, Regulatory Branch, U.S. Army Corps of Engineers, Rock Island District
Charlene Carmack, Environmental Branch, U.S. Army Corps of Engineers, Rock Island District
Dan Johnson, Chief of Regulatory Branch, U.S. Army Corps of Engineers, Rock Island District
Ken Westlake, Regional NEPA Coordinator, Office of Enforcement and Compliance Assurance, USEPA Region 5
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