

**BEFORE THE ILLINOIS POLLUTION CONTROL BOARD**

In the Matter of:	)	
	)	
	)	
STANDARD FOR THE DISPOSAL OF	)	PCB 2020-019
COAL COMBUSTION RESIDUALS	)	(Rulemaking - Water)
IN SURFACE IMPOUNDMENTS:	)	
PROPOSED NEW 35 ILL. ADMIN.	)	
CODE 845	)	
	)	
	)	

**NOTICE OF ELECTRONIC FILING**

To: Attached Service List

PLEASE TAKE NOTICE that on September 10, 2020, I electronically filed with the Clerk of the Illinois Pollution Control Board the **PREFILED QUESTIONS OF ELPC, PRAIRIE RIVERS NETWORK, AND SIERRA CLUB TO DAVID E. NIELSON**, copies of which are served on you along with this notice.

Dated: September 10, 2020

Respectfully Submitted,




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**BEFORE THE ILLINOIS POLLUTION CONTROL BOARD**

IN THE MATTER OF: )  
)  
STANDARDS FOR THE DISPOSAL OF ) R 20-19  
COAL COMBUSTION RESIDUALS IN ) (Rulemaking – Land)  
SURFACE IMPOUNDMENTS: PROPOSED )  
NEW 35 ILL. ADM. CODE 845 )  
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**PREFILED QUESTIONS OF ELPC, PRAIRIE RIVERS NETWORK, AND SIERRA CLUB TO DAVID E. NIELSON**

1. On Page 2 of your testimony, you state: “This essentially requires a drainage layer at the base of new and retrofitted CCR surface impoundments with the purpose of reducing the hydraulic head on the impoundment’s composite liner system.” As used in this quoted sentence:
  - a. What does “drainage layer” mean?
  - b. What does “hydraulic head” mean?
  - c. What does “composite liner” mean?
  
2. On Page 3 of your testimony, you provide Figure 1, which is reproduced in the Appendix following these prefiled questions.
  - a. What does “geomembrane” mean as used in Figure 1?
  
3. On Page 3 of your testimony, you state: “In the 2010 proposed rule (Reference 3), the US EPA proposed a leachate collection and removal system be installed between the flexible membrane liner (FML, i.e., geomembrane) and low-permeability soil components of the impoundment’s composite liner system.”
  - a. How does US EPA’s 2010 proposed rule’s leachate collection and removal system compare to the Proposed Illinois CCR Rule?
  - b. Is a flexible membrane liner the same thing as a geomembrane liner? If not what are the differences?
  
4. On Page 4 of your testimony, you cite to page 21369 of Reference 2 (Federal CCR Rule), and quote the following excerpt: “The proposed requirement for CCR surface impoundments to construct a leachate collection system between the FML and soil components would prevent the direct and uniform contact of the upper and lower components.”
  - a. Does the quoted observation also apply to the Proposed Illinois CCR Rule?

- b. If not, why not?
5. On page 4, you state: “The agency could have required the leachate collection and removal system be installed above the impoundment’s composite liner system (as the Proposed Illinois CCR Rule), which would maintain the integrity of the liner.”
- a. Is it your opinion that the Proposed Illinois CCR Rule “would maintain the integrity of the liner?”
6. On page 4, you state: “However, after performing an exhaustive risk assessment, which included modeling of and reviewing the available data on both proven and potential damage cases, the agency determined that a leachate collection and removal system was not necessary for CCR surface impoundments to be protective of human health and the environment.”
- a. What is the basis for your conclusion that US EPA “determined that a leachate collection and removal system was not necessary for CCR surface impoundments to be protective of human health and the environment?”
  - b. Did US EPA make that determination as to leachate collection and removal systems generally? If not, did US EPA make that the determination specifically regarding EPA’s 2010 proposal?
7. On page 5, you state: “I agree with the US EPA’s determination that a leachate collection and removal system is not necessary for CCR surface impoundments to be protective of human health and the environment.”
- a. What is the explicit US EPA determination that you agree with?
  - b. Can you cite to the explicit US EPA determination you agree with? If so, please provide a citation.
  - c. Can you quote from the explicit US EPA determination you agree with?
8. On page 5, you state: “As a licensed professional engineer, I believe that valid scientific studies, similar to the US EPA’s Risk Assessment, should be the primary basis for environmental regulation, which does not appear to be the case for the leachate collection and removal system requirements in the Proposed Illinois CCR Rule.”
- a. Did US EPA’s Risk Assessment analyze leachate collection and removal systems?
  - b. Can you cite to EPA’s analysis of and quote from where EPA analyzed leachate collection and removal systems in the US EPA Risk Assessment? If so, please provide a citation.
  - c. Can you quote from EPA’s analysis of leachate collection and removal systems in the US EPA Risk Assessment? If so, please provide a quotation?

9. On page 6, you state: “However, removing CCR transport water (leachate) from surface impoundments is not an industry standard because it is not practical given the inherent operation of a surface impoundment.”
  - a. What is the basis for your opinion that removal of leachate from surface impoundments is “not practical?”
  - b. Why does the “inherent operation of a surface impoundment” render leachate collection and removal “not practical?”
10. On page 6, you state: “The flow rate of leachate collected in an MSW landfill is typically less than 1/10th of the typical flow rate of CCR transport water system, which are usually about 3,000 to 5,000 gpm.”
  - a. How did you derive the MSW landfill leachate flow rate?
    - i. What did you derive it from?
  - b. How did you derive the flow rates for CCR transport water systems?
    - i. What did you derive them from?
  - c. When you say “typical” and “usually about,” does that mean flow rates can be lower than 3,000 gpm or higher than 5,000 gpm for CCR transport water systems?
  - d. How do owners or operators of surface impoundments regulate or control the flow rates of CCR transport water systems?
  - e. Do you know the flow rates for CCR transport water systems at the coal power plants owned or operated by Midwest Generation?
  - f. Did you review or consider the flow rates for CCR transport water systems at the coal power plants owned or operated by Midwest Generation?
11. On page 6, you state: “One additional significant difference in MSW landfill leachate and transport water is that while MSW leachate is a waste product, the transport water is a vital part of the operation of a power plant to cool and move the CCR from a power station to waste treatment unit such as a CCR surface impoundment.”
  - a. Does the “significant difference in MSW landfill leachate and transport water” affect whether a leachate collection and removal system can be installed and operated at a surface impoundment? If so, how does the “significant difference” impact the ability to install and operate a leachate collection and removal system at a surface impoundment?
  - b. Once CCR transport water flows into a surface impoundment, does that transport water recirculate back to the coal power plant to “cool and move the CCR from a power station to waste treatment unit?”
  - c. What does “waste treatment unit” mean?
  - d. What makes a CCR surface impoundment a “waste treatment unit?”
  - e. What treatment occurs at a CCR surface impoundment?
12. On page 6, you state: “However, the Proposed Illinois CCR Rule does not mandate the removal of leachate or the maximum hydraulic head level on a pond liner system.”

- a. What's the basis for your opinion that the Proposed Illinois CCR rule "does not mandate the removal of leachate?"
13. On page 6, you state: "In my opinion, the decision whether to install a leachate collection and removal system that will be operated as determined by the Owner/Operator should be made by the Owner/Operator."
- a. What's the basis for your opinion?
14. On page 6, you state: "Installing a leachate collection and removal system in a CCR surface impoundment is not practical because, if the system was to operate, the pond would likely be dry, causing negative consequences such as fugitive dust emissions."
- a. You stated "the pond would likely be dry," what is the basis for your opinion that the pond would "likely" be dry with a leachate collection and removal system?
  - b. Does a "dry" pond render a leachate collection and removal system "not practical?" If so, how does a "dry" pond render a leachate collection and removal system "not practical?"
  - c. Are there circumstances where a pond would not be "dry" with a leachate collection and removal system?" If so, under what circumstances would a pond not be "dry" with a leachate collection and removal system?
  - d. Is it possible to reduce or eliminate "fugitive dust emissions?" at surface impoundments? If so, what techniques or technology are used to reduce or eliminate "fugitive dust emissions" at surface impoundments?
  - e. Would the installation and operation of a leachate collection and removal system affect the techniques or technologies used to reduce or eliminate "fugitive dust emissions" at surface impoundments?
15. On page 7, you provided some calculations:
- a. For your calculation that resulted in  $Q = 7.5$  million gal/day:
    - i. Was 42,000  $\text{ft}^3$  rounded to the nearest thousand? If so, what would the value be if you rounded the calculation to the nearest hundredth?
    - ii. What was the conversion value you used to convert 42,000  $\text{ft}^3/\text{hr}$  to 5,300 gpm?
    - iii. Is 0.12 usually the conversion value to convert  $\text{ft}^3/\text{hr}$  to gpm? E.g., 1  $\text{ft}^3/\text{hr}$  equals 0.12 gpm?
    - iv. Was 5,300 rounded to the nearest hundred? If so, what would the value be if you rounded the calculation to the nearest hundredth?
    - v. What was the conversion you used to convert 5,300 gpm to 7.5 million gal/day? Was the conversion  $\text{gpm} \times 60 \times 24$ ?
    - vi. What would the following calculation equal in gal/day if you did not do any rounding:  $Q = 20 \text{ ac} \times 43,560 \text{ ft}^2/\text{ac} \times 0.048 \text{ ft}^3/\text{hr} = 42,000 \text{ ft}^3/\text{hr} = 5,300 \text{ gpm} = 7.5 \text{ million gal/day}$

- b. Using your same formula, all other variables remaining the same, what would the total flow per hour for the 20-acre pond if the filter layer was 1 foot (12 inches) thick?
  - c. Using your same formula, all other variables remaining the same, what would the total flow per hour be for the 20-acre pond if the hydraulic conductivity of the filter layer was  $1 \times 10^{-6}$  cm/sec?
16. On page 7 and page 8, you mention a hypothetical 20-acre surface impoundment:
- a. Why did you choose a 20-acre surface impoundment?
  - b. Did you review surface impoundments in Illinois to arrive at the 20-acre hypothetical?
  - c. Did you review the acreage of surface impoundments owned or operated by Midwest Generation? If so, what is the range of acreage for the impoundments you reviewed?
17. On page 8, you state: “The installation of a leachate collection and removal system in the hypothetical 20-acre surface impoundment presented earlier is expected to require the mining, transportation, and placement of over 70,000 cubic yards (3,500 to 4,500 truckloads) of free-draining gravel, which may not be considered to be a prudent use of natural resources, given the US EPAs position on the adequacy of composite liners without leachate collection.”
- a. What’s the basis for the “70,000 cubic yards” value?
    - i. Did you conduct any analysis to arrive at that value?
    - ii. If yes, what was that analysis?
  - b. What’s the basis for the “3,500 to 4,500 truckloads” range?
    - i. Why is there a difference of 1,000 truckloads from least to greatest in the range of truckloads for 70,000 cubic yards?
    - ii. Did you conduct any analysis to arrive at the range of 3,500 to 4,500? If so, what was that analysis?
  - c. Can free-draining gravel be brought to an impoundment through other means than trucks, such by barge or by rail?
18. On page 8, you state: “To date, two states (Oklahoma and Georgia) have obtained US EPA approval of their CCR programs. Neither of these states have a requirement to install a leachate collection and removal system in a CCR surface impoundment. Also, I am not aware of any other state requiring (or proposing to require) a leachate collection and removal system in a CCR surface impoundment.”
- a. What is the relevance, if any, of whether other states have required leachate collection and removal systems?
19. On page 8, you state: “The Federal CCR Rule and the Proposed Illinois CCR Rule both require a system of groundwater monitoring wells near the waste boundary of a CCR surface impoundment (Reference 1, Section 845.630.a.2), which is effectively an early

leak detection system and thus allow any required remedial actions to be implemented before offsite groundwater impacts.”

- a. What does the phrase “early leak detection system” mean?
  - b. Are there any other types of leak detection systems?
  - c. Is your statement referring to surface impoundments generally or only new or retrofitted impoundments?
20. On page 9, you state: “Given my concerns with the system described in the Proposed Illinois CCR Rule, I suggest the Illinois Pollution Control Board should allow an alternative method of leachate collection that is at least as protective as the system required by the Proposed Illinois CCR Rule. For example, a collection system similar to that shown in Figure 2 would provide a proactive means of protecting groundwater since the lower geomembrane liner would impede the flow of any leakage from the primary composite liner and direct the flow to the leachate pumping system.”
- a. Is it your opinion that the collection system similar to Figure 2 is as protective or more protective than the collection system proposed by IEPA?
21. On page 10, you state: “As a licensed professional engineer, I believe that valid scientific studies should be the basis for environmental regulation, which does not appear to be the case for the leachate collection and removal requirements in the Proposed Illinois CCR Rule.”
- a. Did you review any of the materials in the proceedings that adopted the leachate collection system requirements for solid waste landfills in Illinois?
22. On page 13, you state: “The decontamination could include cleaning with high-pressure water washes, visual inspections for any damage, repair if damage was a result of the removal of CCR, and reuse as a supplemental layer below a new composite liner as suggested in Figure 2.”
- a. If an owner or operator was to install the alternative leachate collection system you proposed on pages 9 and 10, how could the existing geomembrane liner be reused?

Dated: September 10, 2020

Respectfully Submitted,



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**CERTIFICATE OF SERVICE**

The undersigned, Jeffery T. Hammons, an attorney, certifies that I have served by email the Clerk and by email the individuals with email addresses named on the Service List provided on the Board's website, available at <https://pcb.illinois.gov/Cases/GetCaseDetailsById?caseId=16858>, true and correct copies of the **PREFILED QUESTIONS OF ELPC, PRAIRIE RIVERS NETWORK, AND SIERRA CLUB TO DAVID NIELSON**, before 5 p.m. Central Time on September 10, 2020. The number of pages in the email transmission is 13 pages.

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