Midwest Generation L.L.C
Waukegan Generation Station

National Pollutant Discharge Elimination System (NPDES) Permit

Responsiveness Summary

Regarding

July 31, 2013 Public Hearing

Illinois Environmental Protection Agency
Office of Community Relations
March 25, 2015

Midwest Generation L.L.C.
Waukegan Generating Station

National Pollutant Discharge Elimination System (NPDES) Permit Responsiveness Summary

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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

Midwest Generation L.L.C
Waukegan Generating Station
Renewed Permit
Permit Number IL0002259

ILLINOIS EPA PERMIT DECISION

On March 25, 2015, the Illinois Environmental Protection Agency approved a NPDES permit for Midwest Generation, L.LC.

The following changes were made to the public noticed permit:

1. The compliance schedule for pH in Special Condition 2 was revised to allow for a 6 month monitoring period followed by 12 additional months, if necessary, to design and construct a treatment system.

2. The mercury monitoring requirements for outfall 001 were consolidated into Special Condition 16 and Special Condition 15 was removed.

3. Special Condition 10 was modified to require that changes in the use of water treatment additives be approved by the Illinois EPA.

4. Special Condition 11 clarifies that the discharger may request a reduction or elimination in dissolved oxygen monitoring after two years.

5. The sampling frequency for pH at outfall 001 was changed to 2/month which will provide two samples on the monthly DMR.

6. The sampling frequency at A01 and B01 for TSS and oil and grease was changed to 2/month which will provide two samples on the monthly DMR.

7. Special Condition 7 was revised to require compliance with the new cooling water intake structure existing facilities rule.

8. Special Condition 17 was removed and the language is included in Special Condition 7(B)(3). The remaining special conditions were renumbered.

9. Fly ash sluice water was removed from the permit.

10. The permitted flow and condenser cooling water flow was reduced to 739 MGD and 589 MGD respectively, to reflect the removal of Unit 6 from service on December 21, 2007.

11. The discharger address was changed as requested.

12. An equation was added to Special Condition 4 to determine and report the heat rejection rate.

PRE-HEARING PUBLIC OUTREACH

The notice of the NPDES permit public hearing was published in the *Waukegan Lake County Sun* on June 11, 18, and 25, 2013.

The hearing notice was mailed or e-mailed to:

a) Lake County officials;
b) Municipal officials in: Waukegan as well as State and federal representatives;
c) Parties that filed comments or requested a hearing on the public-noticed draft permit; and,
d) Those who have requested to be notified of water hearings.

The hearing notice was posted on the Illinois EPA website:
http://www.epa.state.il.us/public-notices/2013/midwest-generation-waukegan/hearing-notice.pdf

Hearing notices were posted at the Illinois EPA headquarters in Springfield.

July 31, 2013 PUBLIC HEARING

Hearing Officer, Dean Studer, opened the hearing July 31, 2013, at 6.30 p.m. at the Jane Addams Center-Bowen Park, 95 Jack Benny Drive, Waukegan, Illinois.

Midwest Generation, L.L.C. Hearing Participants:

Mark Nagel

Illinois EPA Hearing Participants:

Deborah Williams, Assistant Counsel, Bureau of Water
Scott Twait, Standards Section, Bureau of Water
Lynn Dunaway, Groundwater Section, Bureau of Water
Jaime Rabins, Industrial Unit, Permits Section, Bureau of Water
Darrin LeCrone, Industrial Unit, Permits Section, Bureau of Water

Illinois EPA Permit Engineer, Jaime Rabins, gave a brief overview of the draft permit.

Comments and questions were received from the audience.

Hearing Officer, Dean Studer, closed the hearing at 9:40 p.m. on July 31, 2013.

Illinois EPA personnel were available before, during and after the hearing to meet with elected officials, news media and concerned citizens.

Approximately 80 persons representing neighbors, local government, businesses, elected officials, environmental groups, interested citizens, and Midwest Generation participated in and/or attended the hearing. A court reporter prepared a transcript of the public hearing which was posted on the Illinois EPA website at:
http://www.epa.state.il.us/public-notices/2013/midwest-generation-waukegan/hearing-transcript.pdf

The hearing record remained open through August 30, 2013.

BACKGROUND of Midwest Generation L.L.C.
Waukegan Generating Station

The Illinois EPA Bureau of Water has prepared a final reissued NPDES permit for Waukegan Generating Station. The address of the discharger is Midwest Generation L.L.C., 401 East Greenwood Ave., Waukegan, Illinois 60087.

The applicant is engaged in operation of a steam electric generating station (SIC 4911). The station operates two coal fired boilers to supply steam to two generating units, designated units 7 and 8, with a combined nominal capacity of 742 megawatts (MW). The station withdraws water from Lake Michigan for condenser cooling, house service water, and boiler feed water. Wastewater is generated from once-through condenser cooling, conditioning boiler feed water, backwashing the condenser cooling water intake screens, non-chemical cleaning of plant equipment, ash handling, and precipitation which contacts the site.

Plant operation results in:

- an average discharge of 739 million gallons per day (MGD) of condenser cooling water and house service water from outfall 001;
- an intermittent discharge of boiler blowdown from outfall A01;
- 0.151 MGD of demineralizer regenerant wastes from outfall B01,
- 8.13 MGD of wastewater treatment system effluent from outfall C01,
- 0.676 MGD of east yard basin overflow from outfall D01;
- an intermittent discharge of unit 7 demineralized water storage tank drain from outfall F03; and,
- an intermittent discharge of non-chemical metal cleaning wastes from outfall G01.

Responses to Comments, Questions and Concerns

Comments, Questions and Concerns in regular text
Illinois EPA responses in bold text

NPDES PERMIT

1. I'm here tonight to urge you to strengthen the draft water pollution permit for the coal plant so that there are proper paths or impacts that can't harm me, my family, my community and our environment. I am a resident of Lake Forest where we draw our drinking water from two intake pipes that are approximately eight miles south of the coal plant. Specifically, I request tonight for the Illinois EPA to strengthen this permit in four ways: Number one, strengthen the coal ash pollution limits that the U.S. EPA has already determined are inadequate. Number two; please include measures to address the ground water contamination that exists near the plant. Number three; please review the Lake Michigan Thermal Water Quality Standards to insure the coal plant is not harming water quality and aquatic life. And number four, please take steps to minimize the fish kills from the plant's intake pipes.

   The permit contains a new monitoring requirement for metals and other pollutants for outfall 001 which includes coal-related discharges.

   The permit does not contain groundwater monitoring requirements because groundwater monitoring is being administered through the compliance commitment agreement (CCA) submitted by Midwest Generation in response to violation notice W-2012-00056. The CCA also requires the installation and monitoring of two additional monitoring wells at the site to further assess groundwater flow and quality.

   The permit controls thermal discharges in accordance with PCB 78-72, -73 Consolidated dated September 21, 1978. Unit 6, rated at 100 MW, was retired on December 21, 2007, eliminating any discharge from the unit and further reducing the thermal load to Lake Michigan. To ensure the nature of the thermal discharge has not changed and the alternative thermal effluent limitation granted by the Board has not caused appreciable harm to a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is made, the reissued permit requires specific activities and studies discussed in response to Question #59.

   To determine if additional controls are necessary to minimize impingement and entrainment of fish, the reissued permit requires the submittal of an impingement mortality and entrainment characterization study and an alternatives analysis for the water intake structure.

2. The gentleman from Midwest Generation said that the ponds are not leaking. They may not be leaking, but there are monitoring wells around the perimeter that are coming up with arsenic, and I won't go through all of them. I don't remember all of them, but they are the very types of heavy metals that we have concerns about. The idea that you would find those things in the area around it would imply that the supernatant water above the solids that are in the pond is leaching metals, and it is an item of concern. We would ask that you take a look at those 2010 U.S. EPA Guidelines, which asks people not to monitor alone, but to put BAT technology in place so that these sorts of things can be controlled.

   The permit contains a new monitoring requirement, Special Condition 16, which requires semi-annual monitoring for metals and other pollutants to ensure effluent and water quality limits are being met upon discharge. If data indicates limits are necessary, the permit may be reopened, and additional limitations and provisions will be added to the permit. Based on currently available data, it does not appear that the active ash ponds are the source of contamination. There appears to be some other source. Midwest Generation has engaged their consultants and is evaluating the site. With the removal of Unit 6, fly ash is no longer wet sluiced which will reduce the potential leaching of metals. The facility has installed technology to minimize, if not eliminate, ash pond leaks/seeps. The east pond was relined in 2003 and the west pond was relined in 2005 with a 60 mil HDPE liner, 12 inches of sand, and 6 inches of limestone screenings and the liner is inspected on an annual basis.

3. Is your role to allow a discharge that might further impair the waters of Lake Michigan, which are already impaired from mercury, and then see whether they do; or is it to limit the discharges, to insure that Lake Michigan water is not impaired in the future, and then check to make sure that that goal is achieved? Are you prospective or precautionary? I would like an answer. Is that fair?

   The receiving water, segment QLM-01 of Lake Michigan, is impaired for mercury, but the Illinois EPA does not have any low-level mercury data for the Waukegan Generating Station facility which is necessary to determine if a mercury limit is required. Therefore, the reissued permit contains a new low level mercury monitoring requirement at outfall 001. The discharges at outfall 001 are required to be monitored for mercury monthly for the first two years and quarterly thereafter utilizing USEPA method 1631E. The data will be reviewed during the next permit cycle to perform a reasonable potential analysis to determine if limits are necessary.

4. I understand the USEPA is currently revising their rules as far as coal ash pollution, the pollutant runoff from the ash ponds. Is that correct? Have they asked the Illinois EPA to try to look at changing their standards?

The USEPA Administrator, Gina McCarthy, signed the Disposal of Coal Combustion Residuals from Electric Utilities final rule on December 19, 2014, and it was submitted for publication in the *Federal Register*. The rule will become effective six months after publication in the Federal Register.

5. Is there any change in this permit from the previous permitting to address that there should be a change in the standards?

   This permit requires additional monitoring and is more stringent than the previous permit in the following ways: (1) metals monitoring, (2) dissolved oxygen monitoring, (3) impingement mortality and entrainment characterization study, and an alternatives analysis submittal requirement, (4) biological sampling and thermal modeling, (5) reduction in condenser cooling water discharged due to the retirement of Unit 6 (100 MW), and (6) elimination of fly ash sluice as an authorized discharge. There have not been any changes to the permit based on the proposed steam electric power generating point source category regulations, as they are not currently applicable.

6. Can you guarantee that the coal ash flowing through Lake Michigan will still be safe in the next five to ten years? Can you guarantee that your data in the permit is accurate?

   The permit authorizes the discharge of water which comes into contact with coal ash, not the discharge of untreated coal ash. The Illinois EPA has reviewed the effluent data for this facility and determined that a reasonable potential to exceed water quality standards does not exist nor do any of the reported pollutants exceed effluent standards. To ensure continued compliance with water quality and effluent standards, the permit requires semi-annual monitoring for metals and other pollutants and more frequent monitoring for mercury.

7. When Midwest Generation sells this plant, will the permit automatically transfer to the next owner, with the possibility of more delays in meeting standards, or will the new owner have to reapply for a permit?

   NRG Energy, Inc. acquired Midwest Generation LLC on April 1, 2014. The permits are not being transferred because the plant will continue to be operated by Midwest Generation, L.L.C. However, in the future, if another owner wants to own and operate this plant, they must follow the permit transfer requirements of 40 CFR 122.61.

8. Although the draft permit fact sheet states that two boilers are operating instead of three, the average discharge flows from the asphalt have not changed from earlier permit drafts, as we've seen. Should they be corrected to flows as stated by Midwest Generation in some of their earlier comment letters that were referenced in the

comments we submitted earlier? Does it have any impact on effluent limits that are in the draft permit?

The flow of 768.62 MGD at outfall 001 in the public noticed permit was in error and was reduced to 739 MGD to reflect that Unit 6 was retired on December 21, 2007.

9. Did IEPA change the identified receiving water between the December 2, 2011, draft, and the February 8th, 2013 draft?

No. The receiving water was listed as Lake Michigan in the previous permit and is listed as Lake Michigan in this reissued permit.

10. The receiving water is still considered an open water of Lake Michigan then?

Yes, pursuant to 35 Ill. Adm. Code 302.501; the Illinois EPA has determined that the receiving water for outfall 001 is an "Open Waters of Lake Michigan".

11. The draft permit put on public notice in 2011 included thermal limits. Why did IEPA include those thermal limits in that draft permit?

The previous permit included thermal relief in accordance with Section 316(a) of the Clean Water Act 33 U.S.C. 1326(a). The 2011 public noticed permit omitted thermal relief in error and instead limited the discharges to the State Water Quality Standards of 35 Ill. Adm. Code 302.507. Comments were received from the discharger requesting that the permit reincorporate the thermal relief granted by the Illinois Pollution Control Board Order 77-82, dated August 3, 1978. The Illinois EPA reviewed the matter and agreed to reincorporate the thermal relief in the permit. To ensure the nature of the thermal discharge has not changed and the alternative thermal effluent limitation granted by the Board has not caused appreciable harm to a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is made, the reissued permit requires specific activities and studies discussed in response to Question #59.

12. Did anything change between 2011 and 2013, other than finding this variance in the Pollution Control Board that caused IEPA to remove those thermal standards from the permit?

Subsequent to discovering the omission, the permit was corrected and re-public noticed on October 16, 2012 to recognize the thermal relief granted by the Illinois Pollution Control Board Order 77-82, dated August 3, 1978.

13. In preparation of this draft permit, did IEPA review the documentation presented for the 1978 variance that we're talking about?

The Illinois EPA reviewed the thermal studies from 1975 and 1976 conducted in accordance with 316(a) of the Clean Water Act 33 U.S.C. 1326(a) and determined that there have not been any changes at the facility which would result in additional heat being discharged into the lake. Furthermore, Unit 6, rated at 100 MW, was removed from service on December 21, 2007 thus, decreasing the heat load.

14. Did the 1978 variance delineate the extent of the thermal plume from the Waukegan plant?

Although, the extent of the thermal plume was not delineated in the 1978 Variance, based on the full operation of four generating units, "the predicted area of the plume is 126 acres for the 3 °F isotherm with no cross-current in the lake for the discharge structure" (Page 1, PCB 78-72, -73 (Consolidated)). Currently, there are only two generating units operating, Unit 7 and Unit 8.

15. Can you explain what cooling water intake structures are operated at this facility?

The cooling system for each unit is designed as a once-through system. Cooling water from the lake is withdrawn from an on-shore location, and passes through the intake canal into a constructed embayment prior to entering the plant through two intakes, one for Unit 7 and one for Unit 8. Bar racks are located in front of the traveling screens at each intake. Each screenhouse is equipped with fixed trash bars, through-flow traveling screens, and a high pressure wash-water system. All screens are made with #12 gauge wire with ⅜-inch openings. The traveling screens are oriented parallel to the face of the screenhouse. The intake withdraws water from the entire water column.

Two pumps provide cooling water to Unit 8, whereas four pumps provide cooling water to Unit 7, for a total of six pumps. Unit 7 has one traveling screen and pump bay for each pump, whereas, Unit 8 has two bays each containing one pump and protected by two traveling screens. Screen wash water from the traveling screens for each unit flows into separate trash baskets. The design through screen velocity at critical low water level is 2.0, and 1.8 feet per second for Units 7, and 8, respectively.

16. What current and historical data did IEPA have regarding impingement and/or entrainment at this facility?

The Illinois EPA used the data provided in the 1975/1976 study conducted in accordance with Section 316(b) of the Clean Water Act 33 U.S.C. 1326(b). Specifically the study provides:

Twenty-four hour impingement samples were collected every fourth day from May 12, 1975 through April 1976 at the Waukegan station. An estimated 898,457 fish comprised of 30 species were impinged during the study.

Weekly entrainment samples were collected from April 2, 1975 through March 1976. An estimated 19.8 million identifiable fish larvae were collected, comprised of only three species: common carp, alewife, and rainbow smelt. An estimated 855.2 million identifiable fish eggs were collected during this study. Consistent with the fish larvae, only three species were identified among the fish eggs: alewife, rainbow smelt, and common carp.

17. Special Condition 15 describes the mercury monitoring method that is to be used. Can you clarify for me that that applies to both outfall 001 and internal outfall C01; and then my question is, this is how I read it, and you can tell me if I'm wrong: Why is there a monthly monitoring required for a year at outfall 001 and then quarterly thereafter, while only quarterly monitoring is required at outfall C01?

    The reference to mercury monitoring at C01 on page 5 was in error and hence was removed from the permit. Mercury monitoring requirements for outfall 001 were consolidated into Special Condition 18 and to eliminate redundancy Special Condition 15 was removed. Mercury monitoring will be monthly at outfall 001 for 24 months and then quarterly thereafter.

18. Has Midwest Gen[eration] provided any mercury monitoring using the method that is described in Special Condition 15? Have they already provided any data using that method to you?

    The Illinois EPA does not have any low-level mercury data for the Waukegan Generating Station facility nor was the discharger required to provide any. However, in the reissued permit, mercury is required to be sampled monthly at outfall 001 for 24 months and quarterly thereafter in the reissued permit.

19. First, in the December 2011 draft permit, there was a requirement that dissolved oxygen not be less than 90-percent saturation. Why was that removed from the most current version of the permit?

    The limit has been removed and replaced with a requirement to monitor the intake and discharge. The Illinois EPA would need this data to determine if a reasonable potential exists to exceed dissolved oxygen standards and if a limit is necessary.

20. Are both fly ash and bottom ash directed to the coal basins, coal ash basins? There appears to be some inconsistency between the draft permit, which identifies fly ash and bottom ash as waste streams to outfall C01.

Fly ash was previously generated from Unit 6 which was retired on December 21, 2007. Currently, only bottom ash is directed to the coal ash basins. The reference to fly ash sluice water for outfall 001 on page 5 of the permit was in error and thus removed.

21. So, will the permit be changed to reflect that? If it's going to allow them to put out fly ash that has more mercury in it than it used to, then you need to do an anti-degradation assessment.

    Since, the permit does not authorize the discharge of fly ash sluice water an antidegredation assessment is not necessary. See response #20.

22. Is there a reason why I guess from the studies, it looks like it was from the permit one of the conditions is to study the impact of the plume and do surveys on that, is there a reason why that was not done before this permit?

    The thermal relief was granted back in the 1970s. The thermal relief provisions have been incorporated in all previous permits since approval was granted. In order to re-justify or renew that type of relief, the Illinois EPA is requiring the applicant to study the fish species, the health of the lake, mixing for temperature, so that the information can be reviewed during the next permit cycle. See response #59.

23. My question is at what point do you determine that you don't have enough data, and you're going to request more?

    The Illinois EPA has reviewed the application and determined that it has adequate data to reissue the permit. In order to make any future permitting decisions during the next permit cycle, the reissued permit requires the following new monitoring requirements/submittals: (1) metals monitoring, (2) dissolved oxygen monitoring, (3) impingement mortality and entrainment characterization study and an alternatives analysis submittal requirement, and (4) biological sampling, and thermal modeling.

24. How often do you perform audits of their data? How do you know how accurate that is, and how often do you do a double check and just audit their information, to make sure that you are getting the correct information?

    The information received from applicants is considered to be accurate unless it is known or appears to be in error. Furthermore, applicants must certify under penalty of law that the information submitted is, to the best of their knowledge and belief, is true, accurate, and complete and that they are aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

25. When looking through the Special Condition Number 16, it says, "There shall be no discharge of complex metal-bearing waste streams and associated rinses from chemical metal cleaning, unless this permit has been modified to include the new discharge. Just a point of order, I'm just trying to figure out what the complex metal bearing waste streams are. If it's complex metal, does that mean hexavalent chrome and waste streams? What I'm trying to relate is whether these waste streams are the same as I used to encounter many years ago.

    There are two types of metal cleaning wastes, chemical metal cleaning wastes and non-chemical metal cleaning wastes. Complexed metal cleaning wastes means chemical metal cleaning wastes. Currently only non-chemical metal cleaning wastes are authorized to be discharged.

26. Where does the water that services the plant come from? Does it come from Lake Michigan, or does it come from bottled water or something like that?

    The water to service the plant comes from Lake Michigan.

27. What type of waste water treatment is applied to the effluent from the ash ponds before discharge?

    Sedimentation is the primary treatment method. There is also an oil containment ring located on the outer circumference of the clarifier.

28. In the draft permit released in December 2011, mercury monitoring put a limit on total suspended solids was placed on the one million gallon per day coal pile runoff. Why was that condition removed from the latest draft permit? One million gallons per day is a lot of water. Are there dry weather discharges coming off of the coal pile?

    The coal pile runoff collection basin which receives drainage from the coal pile area, west yard area, car dumper area, main switch yard area, west yard area polymer building drains, peaker sump, and west turbine area roof drains has an approximate discharge of 1.0 MGD. Coal pile runoff only has an approximate flow of 0.5 MGD. Because the coal pile runoff discharges to the wastewater treatment plant, which is limited for TSS, it is not necessary to limit TSS discharges from the coal pile prior to treatment and then have another TSS limit after treatment.

    There are no dry weather discharges from the coal pile.

29. How close are the coal piles to Lake Michigan, or the canal that is hydrologically connected to Lake Michigan?

    The closest proximity of the coal pile is to the station intake canal along the northern (NNE) edge of the pile. It is approximately 125 feet from the

Waukegan Generating Station intake canal. It is important to note that there is a coal pile runoff ditch located between the pile and the canal that will intercept water/coal mixtures. The ditch, which surrounds the pile, directs the coal pile run-off water to the coal pile runoff collection basin.

30. Is it possible for coal to bypass the permitted outfall and discharge coal directly into the lake or the canal?

All runoff from the coal pile and associated areas is designed to be routed to the existing coal pile runoff collection basin, which is then sent to the station's wastewater treatment system prior to discharge.

31. Are there transformers containing PCBs on the site; and if so, do you know how they are stored?

There are four PCBs transformers at the facility, each located inside a secured and covered building constructed with its own secondary containment system and located at least 1,000 feet from the nearest outdoor open water basin.

32. Can you explain why the monthly average effluent limitation for copper on outfall G1 changed from 0.5 milligrams per liter in the 2011 permit, to 1 milligram per liter the 2013 draft permit? Which is the monthly average under the federal guidelines, is it the 0.5 or 1?

Copper was previously limited at outfall C01 pursuant to state effluent standards of 0.5 mg/L monthly average, 1.0 mg/L daily maximum (35 Ill. Adm. Code 304.124). Since the source of copper is the non-chemical metal cleaning wastes, a new internal monitoring point G01 was added to the permit for the existing discharge of non-chemical metal cleaning wastes per 40 CFR 423.12(b)(5). Consistent with 40 CFR 423.12(b)(5) the discharge is limited to a monthly average and daily maximum copper limitation of 1.0 mg/L prior to mixing with other wastestreams.

33. Has Midwest Generation indicated that it's unable to meet pH limits in outfall 1?

The discharges from outfall 001 have not been previously subject to pH limits. Thus, the reissued permit requires pH to be monitored for six months. The data will be used to determine whether treatment is necessary to meet the pH limits.

34. How does one normally treat for pH, what's the process? Is it a particularly difficult chemical to treat for?

pH can be adjusted by adding either an acid (to lower pH) or a base (to raise pH). Carbon dioxide may also be used to reduce pH in alkaline water. If treatment is required to meet the pH limits at outfall 001, the facility will need

time to design, construct, and comply with the pH limits which were not in the previous permit.

35. What is the basis of IEPA's determination as stated in Special Condition 14 that the effluent limits on outfall 001 constitute BAT/BCT for storm water?

    Stormwater is treated and subject to effluent limits which are more stringent than requiring only best management practices through a stormwater pollution prevention plan.

36. So, all storm water on site is treated at the wastewater treatment plant? Do you know what treatment those discharges receive?

    All runoff is collected in the station's collection system and treated using sedimentation and oil removal prior to discharge.

37. Can you explain why the proposed internal outfall H01 for coal panel discharges was eliminated in this version of the draft permit?

    Since coal pile runoff is routed to the wastewater treatment system, which has effluent limitations for total suspended solids, limiting total suspended solids prior to treatment is unnecessary.

38. Given the fact that they are doing dry processing of fly ash and mercury residual, can we presume there is a permit for that?

    The permit does not authorize the discharge of fly ash sluice water. See response #20.

Antidegradation Assessment/Water Quality Standards

39. I am concerned how these standards decide upon, how this was considered to be safe. Sometimes we find things later on that science changes and we find some of the things, for example, we had many problems with mercury, nitrogen, asbestos in this area, how the science as to this is supposed to be safe. In addition to this, saying that this is the existing science, and I'm not sure how this will be determined, when I hear that Congress intends to cut fund to get EPA, how do you intend to monitor and enforce these standards, if your budget is reduced?

    Illinois EPA develops water quality standards to protect aquatic life and human health. To keep these water quality standards up to date based on new science or research the Illinois EPA is required to perform a triennial review (every three years) of its standards 33 U.S.C. 1313(c). Illinois EPA uses the USEPA national criteria documents as well as more recent toxicity data to develop water quality standards.

    If funding to the federal EPA is decreased, Illinois water quality standards will remain in force and Illinois EPA will continue to enforce and update these standards as state funding allows.

40. What's involved in the antidegradation study?

    Under the Illinois Pollution Control Board rules at 35 Ill. Adm. Code 302.105, an antidegradation assessment has to be completed when there is a new or expanding facility that is increasing the loading of a parameter to the receiving water. In this case, the Waukegan Generating Station facility is not increasing the loading to the receiving water, therefore, no antidegradation assessment has been completed.

    An antidegradation assessment must comply with the requirements of 35 Ill. Adm. Code 302.105 and must include: identification and characterization of the water body, identification and quantification of the proposed load, purpose and anticipated benefits, assessments of alternatives, any additional information the Illinois EPA requests, and proof that a copy of the application has been provided to IDNR.

41. The idea that they have not increased the load, the bottom line is you don't know what the load is. They haven't been busy measuring it and monitoring it. The new permit asks for all of those sorts of parameters to be incorporated, and what we would ask of you is that you do an antidegradation analysis of this particular plant in regards to that.

    The Waukegan Generating Station facility is not increasing the output of the plant nor are they changing plant processes, therefore, effluent loading to the

receiving water will not increase. Consistent with 35 Ill. Adm. Code 302.105, an antidegradation assessment is not required.

42. Were the limits in the 2011 draft permit based on Lake Michigan Water Quality Standards?

With the exception of one parameter, temperature, the Waukegan Generating Station facility must comply with the Water Quality Standards for Lake Michigan. Temperature limits were based on a study conducted in accordance with Section 316(a) of the Clean Water Act 33 U.S.C. 1326(a) and approved of by the Illinois Pollution Control Board in Order 77-82, dated August 3, 1978.

43. Do you know whether the aquatic community in Lake Michigan as a whole experienced any changes since 1978; for example, have species recovered or declined, has the composition of the aquatic community changed over time?

There have been significant changes in the aquatic community over the past three decades. Most of the large-scale changes are the result of changes in lake productivity. As productivity declines, there is less available nutrients/energy to move through the food web. Declines in productivity are likely the contributing factor to declines in the yellow perch and alewife populations. Declines in alewife abundance consequently affect salmon and trout populations. These changes in productivity and lower trophic level species composition (i.e., zooplankton and benthic invertebrates) have been largely attributed to effects of invasive species (e.g., zebra and quagga mussels, and spiny and fish hook water fleas).

44. Has any equivalent of the monitoring required by Special Condition 18, that's the last condition in the permit, or second to the last, been required in the past? If so, have reasonable potential analyses been conducted based on that data?

Metals monitoring was not required in prior or the currently-effective NPDES permits. However, as part of the application, Midwest Generation has provided one sample result. The Illinois EPA performed a reasonable potential analysis for the Waukegan Generating Station facility. There is no reasonable potential to exceed the water quality standards in the effluent or outside of allowed mixing.

45. Now, we have some information from the files of what Midwest Gen[eration] had submitted to IEPA, and they had their own analysis of their own data that they found that there was a reasonable potential to exceed Water Quality Standards at outfall 001 for iron, lead, mercury and phenols. Why are there no limits on those pollutants in the permit?

Midwest Generation was using the reasonable potential analysis to convince the Illinois EPA that there was no reason to monitor the large majority of

metals. According to the Midwest Generation analysis, the data did not indicate that iron, lead, mercury, and phenols had no reasonable potential to exceed the water quality standards. Therefore, Midwest Generation was willing to accept monitoring of those parameters. The projected effluent quality (PEQ) was above the water quality standards. However, there were no detections of lead, mercury, or phenol in the three samples. Midwest Generation only collected Iron (total) samples and did not collect Iron (dissolved) samples. Lake Michigan has an Iron (dissolved) water quality standard. Therefore, Midwest Generation's data collection cannot be used to determine a reasonable potential to exceed the Iron (dissolved) water quality standard. Based on this information, the Illinois EPA determined that regulation of iron, lead, mercury, and phenols are not necessary but monitoring is required for future analysis.

46. They did not perform their only reasonable potential analysis on other metals that are often found in coal ash. Those include things like aluminum, thallium, silver, arsenic and antimony. Arsenic and antimony both of those have been detected in the ground water near the coal ash compound. So, that raises a concern for me. Selenium, they reported a value of 0.21 milligrams per liter selenium in the effluent from the plant's wastewater treatment system, while the Lake Michigan standard is 5 micrograms per liter. So, my question is: Has IEPA looked at those pollutants and the need for a limit in the permit?

The Illinois EPA performed a reasonable potential for the Waukegan Generating Station for outfall 001. Any samples taken at an internal outfall, has a large amount of dilution from the condenser cooling water. There is no reasonable potential to exceed the Water Quality Standards in the effluent or outside of allowed mixing.

47. Are facilities allowed to use dilution to meet Water Quality Standards?

Facilities are allowed to use dilution to meet water quality standards as long as they comply with the mixing regulations at 35 Ill. Adm. Code 302.102.

48. Will the Illinois EPA use the 3.1 nanograms per liter human health standard, or the 1.3 nanograms per liter for wildlife standard for mercury for Lake Michigan in its reasonable potential analysis?

The Illinois EPA will ensure that the effluent complies with all applicable water quality standards. In this case, as the wildlife standard for mercury of 1.3 nanograms per liter is the most stringent water quality standard applicable, the Waukegan Generating Station facility would be required to comply with 1.3 nanograms per liter standard.

49. Can you determine whether mercury has a reasonable potential to exceed the lake, that very low Lake Michigan water quality standard, if you only have mercury data reported at less than 0.2 milligrams per liter?

    The previous permit did not require mercury analysis based on a low level detection method. The one sample that was collected used a method that does not give sufficient information to say whether or not the water quality standard is met. The reissued NPDES permit requires sampling using the low-level mercury monthly for two years and quarterly thereafter.

50. My question is about that monitoring condition, which is in Special Condition 11, why is it requiring that dissolved oxygen be monitored during the daytime? You've set hours that it's supposed to be collected during the daytime, instead of at night, or right before dawn, when we would expect DO to be at its lowest point in the dire one-sentence swing.

    The data from Special Condition 11, which requires dissolved oxygen data to be collected in the influent and effluent, will allow the Illinois EPA to determine what impact the facility is having on dissolved oxygen. The Illinois EPA is requiring this data to be monitored during the daytime so that we can compare the results to ambient data that the Illinois EPA collects, which is also monitored during the daytime.

51. Are you allowed, based on science and health standards, to set good standards to be the new standards for the new permit to be as stringent as they need to be to protect the health of the communities?

    The Illinois EPA ensures that the NPDES permit will comply with current water quality standards which are approved by the Illinois Pollution Control Board through the Administrative Procedures Act. The current water quality standards are based on the available relevant toxicity data to protect aquatic life, wildlife, and human health. The Illinois EPA uses the triennial review of 33 U.S.C. 1313(c) (every three years) to determine if adequate toxicity data has been generated resulting in a need to recalculate the water quality standards. The Illinois EPA would then need to petition the Illinois Pollution Control Board to modify the water quality standards.

Enforcement/Compliance Issues

52. The State of Illinois has indicated that advocates in favor of denying this permit should be prepared to quote chapter and verse of the state regulations. At the public hearing however it was evident that some very smart folks did not understand either the state or federal regulations. Furthermore state regulations have become increasingly complex through time. Practitioners and consultants that routinely deal with the regulations might have a familiarity and ability to address this complexity but the general public will not. We suggest that a two page summary and explanation of the state and federal statutes under which the permit is written be part of future draft permit applications. We also suggest that it be made part of the responsiveness summary.

    The USEPA developed a fact sheet outlining a brief history and introduction to the national water pollution control permitting program as administered by the USEPA and provides an overview of the permitting activities implemented through the NPDES program today. This information can be found at http://www.epa.gov/npdes/pubs/101pape.pdf

    The Illinois EPA has been delegated authority to issue NPDES permits in Illinois. The State received this delegated authority, by USEPA, on October 20, 1977 pursuant to Sections 4, 11, and 39 of the Illinois Environmental Protection Act.

53. Midwest Generation is currently in bankruptcy. They will not be interested in extensive modifications of their plant or their unit processes. However, USEPA guidance concerning water treatment at coal plants suggests that state permit writers "anticipate" the intent of the proposed federal rules changes to be finalized in September of this year. The guidelines emphasize timely introduction of BAT technologies. Continuing to "study the issue" does not imply timeliness. We believe that thermal and impingement/entrainment data may already be available. Illinois EPA should confirm this before the permit is finalized.

    Section 316(a) of the Clean Water Act applies to the thermal discharges from this facility 33 U.S.C 1326(a). The facility has applied for and was granted thermal relief by the Illinois Pollution Control Board, Order 77-82, dated August 3, 1978. Since that time, thermal discharges have been further reduced with the removal of Unit 6 (100 MW) from service on December 21, 2007. As a condition of the continuation of the facility's 316(a) thermal relief the reissued permit requires biological sampling and thermal modeling. The Illinois EPA will review the data during the next permit cycle to determine if additional limitations are necessary.

    Section 316(b) of the Clean Water Act applies to the operation of the cooling water intake structure 33 U.S.C 1326(b). The Illinois EPA used the data provided in the 1975/1976 316(b) study which is summarized in response #16.

To characterize the current effect of the cooling water intake structure operation, the discharger is being required to submit an impingement mortality and entrainment characterization study and a alternatives analysis. Illinois EPA will review this information during the next permit cycle and determine if additional facilities or monitoring is necessary.

Groundwater Issues

54. Is there anything in this permit that would require amending the standards or monitoring or regulation or plans to clean up ground water contamination?

    The permit does not contain groundwater monitoring requirements. However, the approved compliance commitment agreement (CCA) submitted by Midwest Generation in response to violation notice W-2012-00056 does require ongoing groundwater monitoring. The CCA also requires the installation and monitoring of two additional monitoring wells at the site to further assess groundwater flow and quality.

55. Is that a continuous monitoring or how often?

    Groundwater samples are collected and analyzed, and the analytical results are reported quarterly.

56. Could that be increased, I mean quarterly? Can we check that more often, and what kind of plan is there?

    The Illinois EPA has determined that a quarterly sampling frequency is adequate for groundwater monitoring at the site. Based on currently available data, it does not appear that the active ash ponds are the source of contamination. There appears to be some other source. Midwest Generation has engaged their consultants and is evaluating the situation. The site investigation for a source(s) of contaminants up gradient of the active ash ponds is not part of the approved CCA.

57. Have any studies been conducted regarding the hydrologic connection between the ground water affected by the site and Lake Michigan and/or other surface waters?

    No such studies are required under this permit. The proposed regulations for closure of ash ponds under 35 Ill. Adm. Code 841, currently before the Illinois Pollution Control Board, contain provisions that will require facilities like the Waukegan Generating Station to perform modeling and groundwater monitoring of well systems to assess the potential for ash disposal units to impact surface water and groundwater.

Miscellaneous Issues

58. Please strengthen the draft water pollution permit for the Waukegan coal plant so that it properly accounts for pollution that can harm me, my community, Lake Michigan and all the living things in the Lake.

    This permit was strengthened over the previous permit in the following ways: (1) metals monitoring, (2) dissolved oxygen monitoring, (3) impingement mortality and entrainment characterization study and an alternatives analysis submittal requirement, (4) biological sampling and thermal modeling, (5) reduction in condenser cooling water discharged due to the removal of Unit 6 (100 MW), and (6) elimination of fly ash sluice as an authorized discharge.

59. Review the Lake Michigan thermal water quality standards to ensure the coal plant is not harming water quality and aquatic life.

    The facility has an approved thermal demonstration in accordance with Section 316(a) of the Clean Water Act 33 U.S.C. 1326(a) and is not subject to the thermal water quality limits of 35 Ill. Adm. Code 302.507. However, as a condition for the continuation of the facility's 316(a) thermal variance (PCB 72-73 Consolidated, dated September 21, 1978), the permittee is being required to conduct the following activities and studies: (a) complete a literature search for biological studies conducted in Lake Michigan in the general vicinity of the facility, including but not limited to, relevant biological monitoring data from state or federal agencies; (b) prepare a Representative Important Species (RIS) List, including an explanation of the rationale for selection of each species on the list; and (c) based on the results of the biological studies literature search and the RIS List, prepare a study plan for biological sampling and thermal monitoring, including, as appropriate, thermal modeling.

60. Strengthen coal ash pollution limits that the U.S. EPA has already determined are inadequate.

    The permit authorizes the discharge of water which comes into contact with coal ash not the discharge of untreated coal ash. The water which contacts coal ash discharged from this facility is limited to the more stringent of the state or federal standards. The permit also requires metals monitoring to ensure compliance with effluent and water quality standards.

61. Include measures to address the groundwater contamination that already exists near the plant.

    Midwest Generation has voluntarily initiated a site investigation to identify source(s) of contaminants up gradient of the active ash ponds. Because site investigations frequently need to be modified based on preliminary findings,

inclusion in a NPDES permit, is not a good means to respond quickly to modifications of any site investigations.

62. Minimize fish kills from the plant's intake pipes. We have already done such harm to the living things in the water and this does affect us. We need to fix this, not to make it worse.

    To characterize the current effect of the cooling water intake structure operation, the discharger is being required to submit an impingement mortality and entrainment characterization study and an alternatives analysis. We will review this information during the next permit cycle and determine if additional limits or monitoring is necessary.

63. Concerns regarding heavy metals such as mercury in Lake Michigan. Concerns for citizens who fish in the lake and eat the fish.

    See responses #46 and #49.

Acronyms and Initials

BOD	Biochemical oxygen demand
CCA	Compliance Commitment Agreement
COD	Chemical oxygen demand
CFR	Code of Federal Regulations
DMR	Discharge Monitoring Report
IDNR	Illinois Department of Natural Resources
IEPA	Illinois Environmental Protection Agency
ILCS	Illinois Compiled Statutes
Ill. Adm. Code	Illinois Administrative Code
mg/L	Milligrams per liter
MGD	Million gallons per day
NPDES	National Pollutant Discharge Elimination System
pH	A measure of acidity or alkalinity of a solution
TDS	Total dissolved solids
TMDL	Total maximum daily load
TSS	Total suspended solids
303(d)	Section of federal Clean Water Act dealing with surface water quality standards.
7Q10	Lowest continuous seven-day flow during a 10-year period

DISTRIBUTION OF RESPONSIVENESS SUMMARY

An announcement, that the NPDES permit decision and accompanying responsiveness summary is available on the Illinois EPA website, is being mailed or e-mailed to all who registered at the hearing and to all who sent in written comments. Printed copies of this responsiveness summary are available from Barb Lieberoff, Illinois EPA, 217-524-3038, e-mail: Barb.Lieberoff@illinois.gov.

WHO CAN ANSWER YOUR QUESTIONS

Illinois EPA NPDES Permit:

Illinois EPA NPDES technical decisions:	Jaime Rabins	217-782-0610
Legal questions	Sara Terranova	217-782-5544
Water quality issues	Scott Twait	217-782-3362
Groundwater Issues	Lynn Dunaway	217-785-2762
Public hearing of July 31, 2013	Dean Studer	217-558-8280

The public hearing notice, the hearing transcript, the NPDES permit and the responsiveness summary are available on the Illinois EPA website (please copy this website into your browser):

http://www.epa.illinois.gov/public-notices/2013/npdes-notices/index#midwest-generation-waukegan