Western Lake Erie (Waterkeeper) Association
6565 Bayshore Rd.
Oregon, Ohio 43616

Via Electronic and First-Class Mail

June 1, 2010

Mike McCullough
Ohio EPA, DSW
Permits & Compliance Section
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Columbus, OH 43126-1049
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Re: **Comments on Proposed Modification of Clean Water Act Permit for FirstEnergy Bayshore Power Plant (OEPA Permit No. 2IB00000)**

Dear Mr. McCullough:

Please accept these comments submitted on behalf of the Western Lake Erie (Waterkeeper) Association, regarding the Ohio Environmental Protection Agency's ("Ohio EPA") proposed renewal of the Clean Water Act National Pollutant Discharge Elimination System ("NPDES") permit for the FirstEnergy Bayshore Power Plant (OEPA Permit No. 2IB00000) (hereinafter "Draft Permit").
As explained in the comments, Ohio EPA must issue a new draft permit that requires cooling towers.

Preface/Background:

The Western Lake Erie (Waterkeeper) Association mission is "To preserve, protect, and improve the waters and fish of the Western basin of Lake Erie, the warmest, shallowest, most biologically productive area in all of the Great Lakes through collaboration, education and advocacy.".
The Ohio EPA has issued a draft NPDES permit for the First Energy Generation Corporation Bayshore Station (FEGCBS) at 4701 Bayshore, Oregon, Ohio Lucas County, Ohio.

The FEGCBS is located on western shores of Maumee Bay, near the mouth of the Maumee River and about 3 miles from Lake Erie. FEGCBS relies mostly on coal for the production of electricity, with one unit's power source from Pet Coke supplied by the BP Refinery. The facility's discharges of pollutants and cooling water withdrawals are subject to various requirements under Federal and State laws.

Ohio EPA has been issuing permits for the FEGCBS facility every five years since the Clean Water Act. The base permit was put in a confidential file and it took me six months in the late 1990's to get a copy of the fish kill permit that was renewed by Ohio EPA every five years.
FEGCBS conducted a study of impingement and entrainment in 1976 -1977. Ohio EPA for the period from 1976-1977 to 2005-2006 required no fish counts or reductions of fish kills at the FEGCBS power plant – a period of nearly thirty years. While there were technologies to reduce the fish kills developed over the thirty year period, especially for impingement , the FEGCBS facility did nothing to reduce the kills and Ohio EPA kept issuing the NPDES permits every five years with no new counts or reduction requirements.

Ohio EPA's consultant Tetra Tech: " Bayshore power plants collection and return system…does not contain any components that target impingement, nor does the system conform to widely accepted design standards for a fish collection and return system…no collection buckets, no continuous rotations. Fish are removed from the screens with a 50 psi high pressure spray si) ….. and returned in concrete conduit with … several sharp turns before a significant drop to the discharge sluiceway. The intake location is less than ideal."

Even prior to the Clean Water Act, commercial fishermen were questioning the fish kills at the FEGCBS facility. The plant was built in 1952 and by 1968 commercial fishing was banned in Maumee Bay while the FEGCBS facility kills were freely allowed.(See comments by commercial fisherman Frank Reynold's incorporated herein Attachment A).

Late in March 2010, anglers were fishing the walleye run in the Maumee River near Perrysburg where anglers stood in waders to catch the prized fish. Many of the anglers put the females dripping with eggs back in the river. Few anglers know that as the walleye larvae travels downstream to Lake Erie that an estimated 14 million walleye larvae will be killed in the Bayshore power plant intake.

650 million gallons of cooling water from the Maumee River at the mouth of Maumee Bay is channeled past a 150 acre dredge island into a 12' deep, 200' wide, 3700' long intake channel into the power plant intake. This is where millions of fish and billions of larvae meet their demise. 46 million fish caught against the screens – 52 million if you do traditional math and 2.1 billion larval fish that go through the screens – that is an average of 126,000 fish a day caught and 5.7 million fish per day almost all of which are killed.

Few fish make it to the outfall which is separated from the intake by a half mile by one mile dredge disposal area. The discharge water is heated 5-10 °Fahrenheit than the intake. The water is discharged into 2-3' of water with minimal oxygen levels. The heated water then creates a thermal plume that extends all the way down the Oregon shoreline to Maumee Bay State Park where the water never froze all winter in 2009-2010, but the Maumee River and Lake Erie waters did freeze.

In 2000 questions about the thermal plume from the FEGCBS facility surfaced and Ohio EPA required FEGCBS to conduct a thermal plume study. The study was limited in scope and the

results provided little to know good scientific information about the FEGCBS facility thermal plumes. While residents stated that the thermal plumes from the facility reached over two miles, the study said that the thermal plume was contained in the area near the confined disposal facility. In the winter of 2009-2010, Sandy Bihn, who lives on the shores of Maumee Bay, took pictures of the thermal plume extending to Maumee Bay State Park. The thermal plume is ecologically harmful and denies residents the right to frozen water to walk out and ice fish/ice boat or walk and recreate on the frozen waters(See attachéd picture taken January 9, 2010Attachment B) showing the thermal plume to Maumee Bay State Park. USEPA/Ohio EPA's consultant, Tetratech, stated the inadequacies of the thermal plume analysis. The thermal plume study is inadequate and needs to be redone if cooling towers are not required. In the meantime Natural Resource Damages should be issued to the FEGCBS facility.

Economics

While the FEGCBS facility has gotten away scot free from paying anything for they have killed and the natural resource damages, it seems that the legacy losses are not the way regulators look at the technology to use concerning the FEGCBS facility fish kill and ecosystem impacts. The Gentner Consulting Group report completed a study in May 2010, 'Economic Damages of Impingement and Entrainment of Fish, Fish Eggs, and Fish Larvae at the Bayshore Power Plant.' (Attachment C) The study states:

> *The Maumee River is economically and ecologically important for fisheries production in Lake Erie. Lake Erie wide commercial fisheries generate $25.8 million in revenues annually with Ohio responsible for $4.0 million of those revenues in 2009. Because of low yellow perch abundance, the Western Basin has been closed to yellow perch harvest for the last two years. Commercial fishing in Lake Erie generates $22.0 million in total sales, $12.3 million in income and supports 524 jobs from the harvester through to the consumer.*
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> *Recreational fishing in Lake Erie has an even larger economic footprint, generating $518.9 million in expenditures and supporting $1.2 billion in total sales, $632.7 million in personal income and 10,708 jobs. Walleye and yellow perch are the most popular target species. All together, commercial and recreational fishing generate $1.4 billion in total sales, $711.1 million in personal income and support 14,052 jobs.*
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> *The biological assessment utilized published studies on fish mortality from egg to adult to estimate adult equivalents. Across both impinged and entrained fish, the BSPP prevents 54.5 million predator and prey species from reaching adulthood. Of that total 8.5 million fish are predators targeted by commercial and recreational fishermen. A separate prey analysis indicates that the 46 million prey fish would support an additional 407,645 walleye.*

Economic damages stemming from both predator and prey impingement and entrainment were estimated based on the biological assessment using benefit transfer techniques. Recreational values were taken from studies conducted in the Great Lakes where possible. Commercial value proxies were taken from economic impact models of the US fisheries industry and include values from the harvester through to the consumer.

Applying the commercial and recreational damage estimates results in annual economic damages of $21.4 million per year. If the value of the walleye that could be supported by the lost prey fish are included, the annual losses reach $29.7 million annually. The net present value of a 20 year stream of these losses discounted at the government recommended 7% discount rate yields $315.0 million or $22.1 million more than the cost of implementing cooling towers at the Bay Shore Power Plant.

This analysis presents a conservative estimate of total damages. Mid-range values per fish were used on the recreational side and upper bound estimates were used for the commercial values per fish. On the other hand, damages resulting from other uses, like bird watching or hunting were not included. Additionally, non-use damages from fish impingement and entrainment were not estimated nor were health or non-use damages from increased algal blooms and other damages from the thermal plume. Finally, there is evidence that the actual impingement and entrainment estimates from the plant are higher than those estimated by the plant. Had any of these other use and non-use values and higher impingement and entrainment estimates been included, the economic damage estimates would be higher than those presented here, all else being equal.

Comments

1. The cost of the loss of the fish on an annualized basis as determined by the Gentner Consulting Group is $29.4 million a year without assessing other economic losses from those who are connected to the fish – the birds, people, etc. The $29.4 million annual justifies putting in cooling towers estimated to cost $92 million.
2. The FEGCBS facility is a generating facility and is not part of the rate base charged to consumers. First Energy also has a First Energy Transmission and Distribution 'company' that determines First Energy customer rates. The separation of the 'companies' makes rate determinations separate from generation. First Energy Generation, which Bayshore is part of, is separate from rate base determination. First Energy Transmission and Distribution buys power at auction. This is how the rate structure for First energy is set up in the State of Ohio under the Public Utilities Commission of Ohio(PUCO). Therefore the argument that installing cooling towers will increase rates is incorrect and cannot be used. One arm of the State of Ohio, Ohio EPA cannot assume that rates will be impacted, if another arm of the

State of Ohio, PUCO that sets rules for utilities, has made a different determination and agreement(s) with First Energy.

3. The FEGCBS facility can afford to pay for cooling towers…. Basyhore/First Energy charges some of the highest electrical rates in the country. Bayshore/First Energy has a dirty noisy plant that is so bad that they pay for a street sweeper all day to keep the dust down on Bayshore Rd. First energy has just purchased the Alleghany power companies stock for $8.5 billion. It is estimated that the FEGCBS facility plant grosses $287 million per year. The FEGCBS facility Bayshore/First Energy can afford a cooling tower and pay for the fish kills.
4. The FEGCBS facility is telling folks that if cooling towers are required, they will close the plant, but in October 2009, FEGCBS facility personnel told Ohio EPA that the FEGCBS facility is too important to the grid system to close down during the spring fish spawning season. Both of these statements cannot be true.
5. Before the public hearing, Bayshore rushed to install pilot plywood louvers attached by concrete blocks to reduce the fish impingement at the FEGCBS facility. Ohio EPA's consultant Tetra Tech said that while louvers are logistically possible, they will not will not deliver satisfactory performance. With Ohio EPA's own consultant saying no to louvers, why did Ohio EPA put louvers issue a draft permit with the louvers? Also, louvers are species specific – there are over 100 species of fish killed at Bayshore. Louvers are just a cheap way to buy time until Ohio EPA makes the company do something else.
6. All that impact fish, except intakes, pay for licenses to fish with rules on sport fish size, number and when to fish. Also businesses and others pay Natural Resource Damages if there are accidental spills. Why is the FEGCBS facility allowed to kill so many fish and pay nothing for the kills and damages?
7. There is a general problem with all NPDES permits issued in Maumee Bay and Western Lake Erie. The modeling for the allowable pollutants is set for all of Lake Erie whose average depth is 62'. Pollutants discharging into an average Maumee Bay depth of 5' and Western Lake Erie depth of 24' have a greater impacts on water quality that pollutants discharged into 62' of water or on the far eastern Lake Erie basin 200' of water. Ohio EPA is required under the Clean Water Act to set limits that are protective of water and habitat. The standards used by Ohio EPA for the NPDES permits issued in Maumee Bay and Western Lake Erie, including the FEGCBS facility, fail to meet modeling standards and limits under the Clean Water Act. Additionally, USEPA ruled that all of Maumee Bay and Western Lake Erie is classified as nearshore and having exceptional warm water habitat. For this reason also, Ohio EPA should reevaluate the NPDES discharge limits and determine what the water quality based effluent limits should be.
8. Figure 1 for the location of the Bayshore are be updated to the current configuration of Facility Three.
9. Ohio EPA should require Bayshore/First Energy to count, weigh and report the fish they kill on a daily basis. Ohio EPA should also set daily maximum fish kill limits, similar to those set by the Army Corps of Engineers for the Thurmond Dam power plant in Georgia and South Carolina, where the plant must close when kills exceed a certain number in a day. Ohio EPA should impose these fish kill limits until Cooling Towers are installed.

10. There was a recommendation from OEPA and ODNR that Bayshore close 3 of the 4 units during spawning season. Closure during spawning season should be a permit condition
11. ODNR should charge the FEGCBS facility Natural Resource Damages charge Natural Resource Damages until cooling towers are installed. Funds collected should benefit fish in the Maumee River, Maumee Bay and Western Lake Erie.
12. The Pilot Plywood Louvers that have no track record to reduce fish kills in fresh water coal fired power plants should be halted.
13. The massive fishery in the Maumee River/Bay and Western Lake Erie, Ohio EPA should compel Ohio to set the fish kill limit reductions at 95% for impingement and 80% for entrainment which are the upper limits suggested by USEPA rather than the minimal 80% and 60% minimal levels proposed by Ohio EPA. Fish are important to Ohio's economy – the lower limits suggest that Ohio does not value fish in Lake Erie as much as the FEGCBS facility coal fired power plant. The higher 95%/80% limits should be used for all 316a/b NPDES permits issued by Ohio EPA. Water is an important economic resource. Ohio needs to demonstrate this with the most protective limits allowed by law.
14. The timetable for installation of the best available technology should be moved up to July 1, 2012 instead of 2014.
15. Bayshore/First Energy be required to install the best available technology, mechanical draft cooling towers as recommended, as logistically feasible with satisfactory performance with no disqualifying limitations that is cost effective and reduces impingement by 95-98% and entrainment by 95-98% by Ohio EPA's consultant, Tetra Tech. This alternative also nearly eliminates the thermal plumes with the reduction in water use to an estimated less than 50 million gallons a day. If cooling towers were required at Davis Besse and Enrico Fermi, the same should be required at Bayshore.
16. The limited use of screens in some of the intakes be investigated and corrected to 24 hour use(the report shows one screen used 15 minutes in a 24 hour period and another 30 minutes in a 12 hour period). Why is the FEGCBS facility allowed to bypass some screens much of the time?
17. Ohio EPA needs to determine and publicly tell what is happening to the dead fish at Bayshore. There are reports that Bayshore grinds the dead fish and then puts the remains in the flyash. IS this true? Do ground up fish in the fly ash have any permit issues for the fly ash or its reuse? Ohio EPA needs to require Bayshore to give a full accounting of what happens to the dead fish.
18. Ohio EPA needs to require Bayshore to analyze and quantify all of its flyash for arsenic, mercury and other pollutants in the cdf and in the landfill.
19. The wastewater from the flyash sluice should be characterized and reported.
20. The mercury discharge limits meet Great Lakes Water Quality standard
21. There are no studies that show the impacts of the thermal discharges to the ecosystem along the Oregon shoreline. As previously stated, the water along the shoreline never freezes. There is reason for Ohio EPA to restrict the size of the thermal plume to 1000 feet from the point of discharge to allow, if for nothing else, recreational uses of the Oregon shoreline in the winter. Bayshore/First Energy should not be allowed to keep the water from freezing for over two miles denying people the right to ice fish, ice skate, or ice boat on Maumee Bay.

22. That the outfall temperature be limited to no more than 90° Fahrenheit.
23. The Maumee is the Great Lakes most biologically productive river which is part of the Western Lake Erie watershed – The Great Lakes most biologically productive lake waters. The FEGCBS facility is located in the most sensitive warm water habitat in Lake Erie and the Great Lakes. Previously First Energy/Toledo Edison owned and operated the Acme coal fired power plant which was on the Maumee River in on the east side of downtown Toledo. The Acme plant was closed in the 1990's – because it was old and people questioned the fish kills. The location of the FEGCBS facility is unfortunate – but the plant absolutely warrants cooling towers.
24. The Bayshore power plant 's location is at the mouth of the Maumee River with the intake and outfall into Maumee Bay whose average depth is only 5'. The average depth at the outfall is two to three feet deep. The shallow nature of the waters make the average daily use of 650 million gallons more significant. Therefore Ohio EPA should adjust numbers and modeling for the very shallow waters. In addition, there have been statements about the velocity of the water in the FEGCBS facility. Frank Reynolds says at one time there were coal shipments into the channel which was 28' deep. The sediments filling the intake canal reduce the volume of water and increase the velocity. One immediate aid to the fish could be to require the FEGCBS facility to increase the depth of the intake channel which would the fish a little better chance at survival
25. The Bayshore intake and the outfall are separated by the Army Corps 500 acre confined disposal facility that is angled is such a way that much of the outfall water 'hugs' the shore rather than dispersing to the open lake. Ohio EPA should require a cut through from the Army Corps in the CDF to improve circulation on the shores of Maumee Bay. Ohio EPA has a duty to look at the entire configuration of the waters along the Bayshore shoreline – this includes the CDF. The Ohio EPA should recommend to the Army Corps that the design of the CDF and how it negatively impacts the shoreline and a cut through is needed.
26. The State of New York recently required cooling towers at the Indian Point Facility on the Hudson river which reports estimate entrains 1.1 billion fish a year and impinges 1 million fish a year. Bayshore/First Energy's consultant estimates that Bayshore entrains 2.1 billion fish a year and impinges 46 million fish a year. Ohio EPA should require the FEGCBS facility to have cooling towers as the State of New York did at Indian Point
27. The FEGCBS facility use of plywood for the louvers is simply a joke. Bayshore's own consultant, Kinetrics did not recommend louvers to reduce the fish kills and OEPA's consultant, Tetra Tech, did not recommend louvers either. The layout of the power plant and the waterfront is not suitable for louvers. The confined disposal facility and the narrow channel to the intake make louvers unsuitable. Furthermore, there is no evidence that louvers have never been used at a coal fired power plant – they have been used at hydro facilities. The proposal to use louvers and do the pilot project is an effort to delay known technology that will reduce the fish kills. Bayshore is using louvers to buy time and continue the kills.

28. Kinetrics report says that the amount of fish estimated killed from the Maumee River in the 1970's was 3.4% and now Kinetrics estimates the percentage close to 10%. The increased percentage of fish killed from the Maumee River while fish numbers like walleye have dropped from a Lake Erie ODNR estimate of 80 million five years ago
29. The permit period should be one year to allow the public to have input on the chosen option and design. Unless the permit requires cooling towers, the permit period should be for one year.
30. Bayshore/First Energy be required to install the best available technology, mechanical draft cooling towers as recommended as logistically feasible with satisfactory performance with no disqualifying limitations that is cost effective and reduces impingement by 95-98% and entrainment by 95-98% by Ohio EPA's consultant, Tetra Tech. This alternative also nearly eliminates the thermal plumes with the reduction in water use to an estimated less than 50 million gallons a day. If cooling towers were required at Davis Besse and Enrico Fermi, the same should be required at Bayshore.

Fishing is big business. The economic spinoff from fishing is estimated at $800 million a year and the number of jobs from fishing is estimated at nearly 10,000. Fish have great economic value. It is time for Ohio EPA and Ohio DNR to have the Bayshore/First Energy power plant reduce the fish kills by installing cooling towers. First Energy Generation has the ability to pay for the cooling towers with the cost factored into rates determined at auction, not into distribution. The Gentner Consulting Group Study economically justifies the installation of cooling towers. Toledo, Port Clinton, Sandusky and the State of Ohio would all benefit from a more robust fishery.

Sandy Bihn
Western Lake Erie Waterkeeper Association Executive Director

Rick Unger
Lake Erie Charterboat Association Presidnet

Frank Reynolds
Commercial Fisherman

Attachment A

Comments from Frank Reynolds, Commercial Fisherman

I have lived and worked(out of my fisheries buildings) within ½ mile of the plant seventeen years before the Bayshore plant was built in 1951 and ever since.

The following comments are based on my experience as a commercial fisherman, fisheries specialist, and biological researcher.

My comments focus on the need for building a cooling tower(s) because all the information and scientific data I have collected points to the overwhelming conclusion that there is no substitute for cooling towers.

Historic Background

The Bayshore power plant has killed fish, degraded the Maumee Bay waters, spawning grounds, nursery and general food supply.

Before 1952, the nearshore area in Maumee Bay was a very good prosperous commercial and sports fishing area for yellow perch, bass, carp and catfish which continued until about 1968. After 1952 there were smaller and smaller catches until in 1968 ODNR closed commercial fishing in Maumee Bay. In the 15 years from 1952 to 1968, the loss of fish in Maumee Bay was significant.

In 1953 just after the intake channel channel was dug, I commercially fished at the end of the channel where the water was 28' deep. The intake channel to the power plant was 28' deep to allow coal boats to unload. The coal boats required a deep channel. Yellow perch was so abundant, I could no sell my whole catch. At that time the power plant was a single unit and used about ¼ of the water it uses today. Yellow perch was so abundant in the intake channel that they clogged the power platn intake screens many times and nearly caused the plant to shut down. The yellow perch problem in the intake screens went on for about nine months a year.

The negative impact the Bayshore plant had on the fish did not happen overnight or in a couple of years. The Bayshore power plant impacts were caused by a slow and very subtle evisceration on the ecosystem and the fish stocks from over a half a century back. There is a direct inverse correlation showing that from 1953 to present , as water use increased, fish populations went down, especially yellow perch. This is because entrainment and impingement losses are only part of the impacts from this plant. The hot water discharge has caused the virtual elimination of sea weed beds used

by yellow perch larvae during the nursery period to escape predators. The horrendous overall negative impact from the affluent water is reason enough to require cooling towers.

The present experiment with this 'Whoopee Goldberg' louver is a political diversion. The louvers are not to be used for fish in our area. The pilot louver project is a flat out waste of time and money. Louvers will not work here, plus louvers are an insult to our intelligence to suggest such a worthless scheme will work. Louvers are fot adult and juvenile fish only and have to be installed in very specific location. Bayshore is not a location where louvers will work.

Attachment B