IF YOU ARE SEEING THIS PAGE, PLEASE NOTE:

As of June 2010, all permits having a fact sheet that are going through a modification will have posted in pdf format any modification fact sheet attached to the front of the previous renewal/modification fact sheet.

FACT SHEETS ARE ON NEXT PAGE

If you have any questions regarding this, please contact the NPDES or PPU sections in the Division of Surface Water.

Attached are:

1IB00004*KD & 1IB00004*ID

National Pollutant Discharge Elimination System (NPDES) Permit Program

F A C T S H E E T

Regarding an NPDES Permit To Discharge to Waters of the State of Ohio
for **Dayton Power & Light Company O. H. Hutchings Station**

Public Notice No.: 13-10-033
Public Notice Date: October 18, 2013
Comment Period Ends: November 18, 2013

OEPA Permit No.: **1IB00004*KD**
Application No.: **OH0009261**

Name and Address of Applicant:

Dayton Power & Light Company
9200 Chautauqua Road
Miamisburg, Ohio 45342

Name and Address of Facility Where Discharge Occurs:

DP&L - Hutchings
9200 Chautauqua Road
Miamisburg, Ohio 45342
Montgomery County

Receiving Water: **Great Miami River**

Subsequent Stream Network: **Ohio River**

Introduction

Development of a Fact Sheet for NPDES permits is mandated by Title 40 of the Code of Federal Regulations, Section 124.8 and 124.56. This document fulfills the requirements established in those regulations by providing the information necessary to inform the public of actions proposed by the Ohio Environmental Protection Agency, as well as the methods by which the public can participate in the process of finalizing those actions.

This Fact Sheet is prepared in order to document the technical basis and risk management decisions that are considered in the determination of water quality based NPDES Permit effluent limitations. The technical basis for the Fact Sheet may consist of evaluations of promulgated effluent guidelines, existing effluent quality, instream biological, chemical and physical conditions, and the relative risk of alternative effluent limitations. This Fact Sheet details the discretionary decision-making process empowered to the Director by the Clean Water Act and Ohio Water Pollution Control Law (ORC 6111). Decisions to award variances to Water Quality Standards or promulgated effluent guidelines for economic or technological reasons will also be justified in the Fact Sheet where necessary.

Effluent limits based on available treatment technologies are required by Section 301(b) of the Clean Water Act. Many of these have already been established by U.S. EPA in the effluent guideline regulations (a.k.a. categorical regulations) for industry categories in 40 CFR Parts 405-499. Technology-based regulations for publicly-owned treatment works are listed in the Secondary Treatment Regulations (40 CFR Part 133). If regulations have not been established for a category of dischargers, the director may establish technology-based limits based on best professional judgment (BPJ).

Ohio EPA reviews the need for water-quality-based limits on a pollutant-by-pollutant basis. Wasteload allocations are used to develop these limits based on the pollutants that have been detected in the discharge, and the receiving water's assimilative capacity. The assimilative capacity depends on the flow in the water receiving the discharge, and the concentration of the pollutant upstream. The greater the upstream flow, and the lower the upstream concentration, the greater the assimilative capacity is. Assimilative capacity may represent dilution (as in allocations for metals), or it may also incorporate the break-down of pollutants in the receiving water (as in allocations for oxygen-demanding materials).

The need for water-quality-based limits is determined by comparing the wasteload allocation for a pollutant to a measure of the effluent quality. The measure of effluent quality is called PEQ - Projected Effluent Quality. This is a statistical measure of the average and maximum effluent values for a pollutant. As with any statistical method, the more data that exists for a given pollutant, the more likely that PEQ will match the actual observed data. If there is a small data set for a given pollutant, the highest measured value is multiplied by a statistical factor to obtain a PEQ; for example if only one sample exists, the factor is 6.2, for two samples - 3.8, for three samples - 3.0. The factors continue to decline as samples sizes increase. These factors are intended to account for effluent variability, but if the pollutant concentrations are fairly constant, these factors may make PEQ appear larger than it would be shown to be if more sample results existed.

Procedures for Participation in the Formulation of Final Determinations

The draft action shall be issued as a final action unless the Director revises the draft after consideration of the record of a public meeting or written comments, or upon disapproval by the Administrator of the U.S. Environmental Protection Agency.

Within thirty days of the date of the Public Notice, any person may request or petition for a public meeting for presentation of evidence, statements or opinions. The purpose of the public meeting is to obtain additional evidence. Statements concerning the issues raised by the party requesting the meeting are invited. Evidence may be presented by the applicant, the state, and other parties, and following presentation of such evidence other interested persons may present testimony of facts or statements of opinion.

Requests for public meetings shall be in writing and shall state the action of the Director objected to, the questions to be considered, and the reasons the action is contested. Such requests should be addressed to:

Legal Records Section
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, Ohio 43216-1049

Interested persons are invited to submit written comments upon the discharge permit. Comments should be submitted in person or by mail no later than 30 days after the date of this Public Notice. Deliver or mail all comments to:

Ohio Environmental Protection Agency
Attention: Division of Surface Water
Permits and Compliance Section

P.O. Box 1049
Columbus, Ohio 43216-1049

The OEPA permit number and Public Notice numbers should appear on each page of any submitted comments. All comments received no later than 30 days after the date of the Public Notice will be considered.

Citizens may conduct file reviews regarding specific companies or sites. Appointments are necessary to conduct file reviews, because requests to review files have increased dramatically in recent years. The first 250 pages copied are free. For requests to copy more than 250 pages, there is a five-cent charge for each page copied. Payment is required by check or money order, made payable to Treasurer State of Ohio.

For additional information about this fact sheet or the draft permit, contact Eric Nygaard at (614) 644-2024 (eric.nygaard@epa.state.oh.us) or Bob Ostendorf at (937) 285-6107 (Robert.ostendorf@epa.state.oh.us) .

Location of Discharge/Receiving Water Use Classification

The DP&L Hutchings Plant discharges to the Great Miami River at River Mile (RM) 68.85. Figure 1 shows the approximate location of the facility.

This segment of the Great Miami River is described by Ohio EPA River Code: 14-001, U.S. EPA River Reach #: 05080002-009, County: Montgomery, Ecoregion: Eastern Corn Belt Plains. The Great Miami River is designated for the following uses under Ohio's Water Quality Standards (OAC 3745-1-21): Warmwater Habitat (WWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), and Class A Primary Contact Recreation (PCR) .

Use designations define the goals and expectations of a waterbody. These goals are set for aquatic life protection, recreation use and water supply use, and are defined in the Ohio WQS (OAC 3745-1-07). The use designations for individual waterbodies are listed in rules -08 through -32 of the Ohio WQS. Once the goals are set, numeric water quality standards are developed to protect these uses. Different uses have different water quality criteria.

Use designations for aquatic life protection include habitats for coldwater fish and macroinvertebrates, warmwater aquatic life and waters with exceptional communities of warmwater organisms. These uses all meet the goals of the federal Clean Water Act. Ohio WQS also include aquatic life use designations for waterbodies which can not meet the Clean Water Act goals because of human-caused conditions that can not be remedied without causing fundamental changes to land use and widespread economic impact. The dredging and clearing of some small streams to support agricultural or urban drainage is the most common of these conditions. These streams are given Modified Warmwater or Limited Resource Water designations.

Recreation uses are defined by the depth of the waterbody and the potential for wading or swimming. Uses are defined for bathing waters, swimming/canoeing (Primary Contact) and wading only (Secondary Contact - generally waters too shallow for swimming or canoeing).

Water supply uses are defined by the actual or potential use of the waterbody. Public Water Supply designations apply near existing water intakes so that waters are safe to drink with standard treatment. Most other waters are designated for agricultural and industrial water supply.

Facility Description

The DP&L Hutchings Electric Generating Station (EGS) generates electricity using coal-fired boilers and steam turbine generators. The Hutchings EGS is a six unit 360 megawatt hours (1 unit= 60 MWH), coal fired EGS built in 1946. Formerly a baseload plant it has recently been used to provide electricity during times of peak electrical demand primarily during the period of June through August and December through February. A 32 MWH gas turbine was installed in 1968. River water is used to condense the steam for re-use, and to convey ash from the boilers and air stacks for treatment. The facility has a total daily peak electric power production rate of 9408 megawatts.

The process operations performed at this facility are classified by the Standard Industrial Classification (SIC) code 4911, "Electric Services (steam electric power plants)". Discharges resulting from process operations are therefore subject to Federal Effluent Guideline Limitations, contained in Chapter 40 of the Code of Federal Regulations, Part 423, "Steam Electric Power Generating" Industrial Category.

Description of Existing Discharge

The DP&L Hutchings Plant has 4 discharge points to the Great Miami River. Outfall 001 is the discharge of once-through condenser cooling water withdrawn from the river. This discharge averages (50^{th} percentile for the period 2008-13) approximately 42.1 million gallons per day (MGD), and is not treated.

Outfall 002 contains treated effluent from the ash ponds, coal pile runoff, boiler blowdown water, and effluent from the oily waste pond (fuel oil unloading area, gas turbine area, turbine sumps and bilge sump). The combined discharge is treated by skimming, sedimentation and filtration. Oil is also removed at the oily waste pond by absorbent booms). The average flow from this outfall is approximately 1.28 MGD (50^{th} percentile for the period 2008-13).

The outfall 002 discharge also contains infrequent discharges from chemical metal cleaning processes at the plant. Discharges from this process are monitored at internal monitoring station 621 to ensure compliance with the federal effluent guidelines. This internal monitoring point is needed to monitor compliance with guideline limits for copper and iron before mixing with other wastestreams. If these parameters were monitored at the final discharge point, it may not be possible to detect the concentrations of these metals from the cleaning process because of the relatively small volume of cleaning wastewater compared with the flow from the ash pond system.

Outfall 003 contains storm water runoff.

Outfall 004 contains sanitary wastewater from the plant. This discharge is treated by activated sludge aeration, settling, chlorination and de-chlorination. The average flow from this treatment plant is approximately 1050 gallons per day (50^{th} percentile for the period 2008-13)

Table 1 presents a summary of unaltered monthly operation report data for the period January 2008 to July 2013 for DP&L Hutchings as well as current permit limits.

Assessment of Impact on Receiving Waters

An assessment of the impact of a permitted point source on the immediate receiving waters includes an evaluation of the available chemical/physical, biological, and habitat data which have been collected by Ohio EPA pursuant to the Five-Year Basin Approach for Monitoring and NPDES Reissuance. Other data may be used provided it was collected in accordance with Ohio EPA methods and protocols as specified by the Ohio Water Quality Standards and Ohio EPA guidance documents. Other information which may be evaluated includes, but is not limited to: NPDES permittee self-monitoring data; effluent and mixing zone bioassays conducted by Ohio EPA, the permittee, or U.S. EPA.

In evaluating this data, Ohio EPA attempts to link environmental stresses and measured pollutant exposure to the health and diversity of biological communities. Stresses can include pollutant discharges (permitted and unpermitted), land use effects, and habitat modifications. Indicators of exposure to these stresses include whole effluent toxicity tests, fish tissue chemical data, and fish health biomarkers (for example, fish blood tests).

Use attainment is a term which describes the degree to which environmental indicators are either above or below criteria specified by the Ohio Water Quality Standards (WQS; Ohio Administrative Code 3745-1). Assessing use attainment status for aquatic life uses primarily relies on the Ohio EPA biological criteria (OAC 3745-1-07; Table 7-15). These criteria apply to rivers and streams outside of mixing zones. Numerical biological criteria are based on measuring several characteristics of the fish and macroinvertebrate communities; these characteristics are combined into multimetric biological indices including the Index of Biotic Integrity (IBI) and modified Index of Well-Being (MIwb), which indicate the response of the fish community, and the Invertebrate Community Index (ICI), which indicates the response of the macroinvertebrate community. Numerical criteria are broken down by ecoregion, use designation, and stream or river size. Ohio has five ecoregions defined by common topography, land use, potential vegetation and soil type.

Three attainment status results are possible at each sampling location -full, partial, or non-attainment. Full attainment means that all of the applicable indices meet the biocriteria. Partial attainment means that one or more of the applicable indices meet the biocriteria or one of the organism groups reflects poor or very poor performance. Nonattainment means that either none of the applicable indices meet the biocriteria or one of the organism groups indicates poor or very poor performance. An aquatic life use attainment table (see Table 2) is constructed based on the sampling results and is arranged from upstream to downstream and includes the sampling locations indicated by river mile, the applicable biological indices, the use attainment status (i.e., full, partial, or non), the Qualitative Habitat Evaluation Index (QHEI), and comments and observations for each sampling location.

Status of Aquatic Life Uses

The Great Miami River was assessed from the confluence of the Mad River (RM 81.5) downstream to the confluence with the Whitewater River (RM 6.5). This reach of the Great Miami River is designated Warmwater Habitat for beneficial aquatic life uses. Of the 75 assessed miles, 60.6 miles were in full attainment of the designated aquatic life use, and 14.4 miles were not attaining the use. Thermal loadings from the Dayton Power and Light Hutchings Plant directly caused a brief departure from attainment due to fish avoiding the area downstream from the discharge. Indirectly, the elevated temperatures downstream from the plant helped to

foment impacts from nutrient over-enrichment as evidenced by the strong association between temperature, sestonic chlorophyll and 5-day biochemical oxygen demand.

Nutrient over-enrichment was clearly evidenced by anomalously high sestonic chlorophyll levels, and 24-hourour swings in dissolved oxygen (DO) in excess of 15 mg/l – or 3 times what is typical for large rivers. Chlorophyll levels averaged 124 µg/l over the summer, with values over 200 µg/l measured in July. These levels are five to ten times higher than what are typical for large rivers, even those considered enriched. Nutrient over-enrichment was the primary cause of non-attainment for 13.9 miles of the 14.4 impaired miles. The nutrient over-enrichment was initially fueled by loadings from diffuse sources in the upper watershed, primarily agriculture, and sustained by local point sources through the summer. The highest chlorophyll levels, and widest DO swings were measured on the heels of high late spring/early summer flows.

Basis of the Modification

DP&L has closed electric generating operations at the Hutchings Plant, and is only using office space at the facility. As a result, Outfalls 001 (once-through cooling water) and 002 (ash pond/low volume wastewaters) have ceased discharged. This modification would remove these two outfalls from the permit. Ohio EPA would also remove internal station 621 (chemical metal cleaning), and the upstream/ downstream monitoring stations – 801, 802, and 901.

Several conditions in Part II of the permit would also be removed because they are no longer needed:

- Item D – Cooling water additive approvals;
- Item G – Cooling tower chemical prohibitions;
- Item L – Mercury test methods;
- Item N – Temperature limitations;
- Item O – Thermal load calculation procedures;
- Item P – Emergency provisions; and
- Item S – 316b conditions.

Discharges from the sewage treatment plant (Outfall 004) and the storm water outfall (Outfall 003) would continue to be authorized under the permit. The monitoring and reporting for sewage sludge (Station 588) would also continue. As a result of these changes, Ohio EPA would reclassify the facility as a minor discharge.

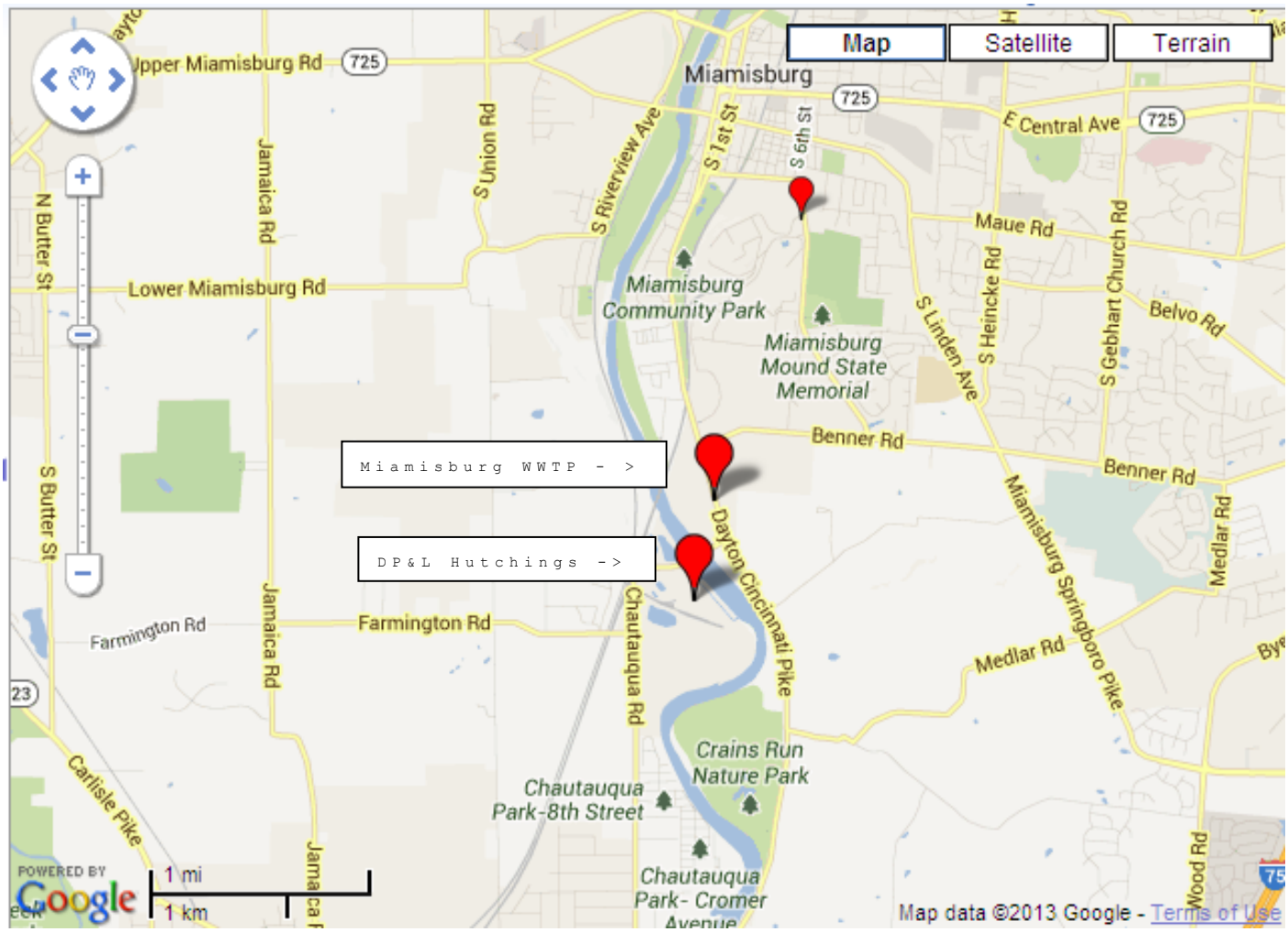

Figure 1. Approximate location of the DP&L Hutchings Plant.

Table 1. Effluent Characterization Using Self-Monitoring Data

Summary of current permit limits and unaltered monthly operating report (MOR) data for DP&L Hutchings Plant outfalls. All values are based on annual records unless otherwise indicated. N = Number of Analyses. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile; A = 7 day average. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results.

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range	Decision Criteria		
			30 day	Daily		50th	95th		# Obs.	PEQ_{ave}	PEQ_{max}
Outfall 001											
Water Temperature	Annual	F	Monitor		1584	61.3	91.7	34.9-110			
Thermal Discharge	Annual	Million BTU/Hr	316a Limits		1584	0	822	0-1330			
Flow Rate	Summer	MGD	--	--	511	27.8	185	0-265			
Flow Rate	Winter	MGD	--	--	488	52.3	182	0-235			
Flow Rate	Annual	MGD	Monitor		999	42.1	184	0-265			
Outfall 002											
pH	Annual	S.U.	6.5 to 9.0		181	7.68	8.08	6.58-8.85			
Total Suspended Solids	Annual	mg/l	30	50	264	4.05	23.3	0.1-38.7			
Total Suspended Solids	Annual	kg/day	--	--	261	16.4	159	0.242-348			
Oil and Grease, Total	Annual	mg/l	15	20	262	0	0	0-11.2			
Oil and Grease, Total	Annual	kg/day	--	--	259	0	0	0-90.4			
Selenium, Total Recoverable	Annual	ug/l	9.5	--	51	0	2.93	0-11.1			
Selenium, Total Recoverable	Annual	kg/day	0.182	--	51	0	0.0217	0-0.113			
Barium, Total Recoverable	Annual	ug/l	Monitor		45	178	255	86.6-274			
Barium, Total Recoverable	Annual	kg/day	--	--	45	0.784	2.62	0.0365-2.73			

Silver, Total Recoverable	Annual	ug/l		Monitor		45	0	0.844	0-1
Silver, Total Recoverable	Annual	kg/day	--		--	45	0	0.00565	0-0.00868
Copper, Total Recoverable	Annual	ug/l		Monitor		21	0	21.6	0-24.1
Copper, Total Recoverable	Annual	kg/day	--		--	21	0	0.195	0-0.275
Flow Rate	Annual	MGD		Monitor		1850	1.28	2.98	0.002-769
Chlorine, Total Residual	Annual	mg/l	--		0.037	27	0.01	0.067	0-0.07
Chlorine, Total Residual	Annual	kg/day	--		--	27	0.0212	0.487	0-0.706
Mercury, Total (Low Level)	Annual	ng/l		Monitor		21	2.89	13.8	0.45-15.4
Mercury, Total (Low Level)	Annual	kg/day	--		--	21	1.94E-05	9.67E-05	0.000000741-0.000157
pH, Maximum	Annual	S.U.	--		9.0	84	7.66	8.21	6.73-8.38
pH, Minimum	Annual	S.U.	--		6.5	84	7.66	8.21	6.73-8.38

Outfall 003

Oil and Grease, Total	Annual	mg/l	15		20	57	0	0	0-5.3
Oil and Grease, Total	Annual	kg/day	--		--	53	0	0	0-1.51
Flow Rate	Annual	MGD		Monitor		1319	0.0016	0.0806	0-9

Outfall 004

Color, Severity	Annual	Units		Observation		1413	0	0	0-0
pH	Annual	S.U.		6.5 to 9.0		1004	7.51	8.19	6.43-8.9
Total Suspended Solids	Annual	mg/l	30.0		45.0	81	6	17.3	0-34
Total Suspended Solids	Annual	kg/day	1.703		2.555	80	0.0237	0.0784	0-0.326
Barium, Total Recoverable	Annual	ug/l		Monitor		22	76.1	111	11.6-221
Barium, Total Recoverable	Annual	kg/day	--		--	21	0.000341	0.00175	0.0000918-0.002
Silver, Total Recoverable	Annual	ug/l		Monitor		48	0	0.364	0-1.1
Silver, Total Recoverable	Annual	kg/day	--		--	44	0	9.87E-07	0-0.00000654
Odor, Severity	Annual	Units		Observation		1413	0	0	0-1

Turbidity, Severity	Annual	Units	Observation		1413	0	0	0-1
Fecal Coliform	Annual	#/100 ml	1000	2000	34	3	300	0-360
Flow Rate	Annual	MGD	Monitor		1898	0.00105	0.00418	0-0.0131
Chlorine, Total Residual	Annual	mg/l	--	0.038	713	0.01	0.03	0-0.03
Chlorine, Total Residual	Annual	kg/day	--	--	696	0.000059	0.000237	0-0.000871
pH, Maximum	Annual	S.U.	--	9.0	19	7.9	8.65	7.43-8.77
pH, Minimum	Annual	S.U.	--	6.5	21	6.96	7.27	6.52-7.47
CBOD 5 day	Summer	mg/l	25.0	40.0	34	0	5.83	0-8.14
CBOD 5 day	Winter	mg/l	25.0	40.0	34	0	3.92	0-12
CBOD 5 day	Summer	kg/day	1.42	2.271	33	0	0.0294	0-0.0372
CBOD 5 day	Winter	kg/day	1.42	2.271	33	0	0.0256	0-0.0949

Table 2. Biological Survey Results and Biocriteria. Summary of the aquatic life use attainment status for the Warmwater habitat use designation in the Great Miami River based on data collected by the Ohio EPA during 2010.

RIVER MILE Fish/Macro.	IBI	Mod. Iwb	ICI	QHEI	Use Attain-Ment Status	Comments
80.65	44	8.7	E		FULL	
78.85	54	10.0	46		FULL	
77.24	52	9.8	42		FULL	
75.70	52	9.6	50		FULL	
73.70	46	8.3[ns]	NA		(FULL)	
72.40	58	9.9	E		FULL	
71.70	48	9.9	48		FULL	
69.90	48	9.2	VG		FULL	
69.30	NA	NA	MG			
68.70	52	9.2	52		FULL	
66.90	50	9.2	50		FULL	Ust. Hutchings Plant
64.10	32[ns]	8.2[ns]	32*		PARTIAL	Dst. Hutchings Plant
62.58	39[ns]	8.7	36		FULL	
60.58	46	8.4[ns]	NA		(FULL)	
59.50	NA	NA	44		(FULL)	
58.20	48	8.9	46		FULL	

Attainment status based on one organism group is shown in parentheses.
ns – Non-significant departure from biological criteria (≤4 IBI or ICI units, ≤0.5 MIwb units).
*= Significant departure from biological criteria.

Biological Criteria – Eastern Corn Belt Plains:

WWH Boat Methods – IBI = 42, MIwb = 8.5, ICI = 36
Qualitative macroinvertebrate narrative evaluation based on community composition, EPT taxa richness, and QCTV are given letter scores: E=Exceptional, VG = Very Good, G = Good, etc.

Table 3. Final effluent limits and monitoring requirements for DP&L Hutchings outfalls 1IB00004003 and 1IB00004004 and the basis for their recommendation.

		Effluent Limits				
		Concentration		Loading (kg/day)[a]		
Parameter	Units	30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	Basis[b]
Outfall 003						
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M
Oil and Grease	mg/l	15	20	--	--	BPJ/EP
Outfall 004						
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
$CBOD_5$	mg/l	25.0	40.0	1.42	2.271	EP/PD
Suspended Solids	mg/l	30.0	45.0	1.703	2.555	EP/PD
pH	S.U.	- - - - - - - - - - - - -	6.5 to 9.0	- - - - - - - - - - - - -		WQS
Fecal coliform	#/100ml					
Summer		1000	2000	--	--	EP
Chlorine Residual	mg/l	--	0.038	--	--	WLA/IMZM
Barium, T. R.	µg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Silver, T. R.	µg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Color	units	- - - - - - - - - - -	-Observation	- - - - - - - - - - - - - - -		M[c]
Odor	units	- - - - - - - - - - -	-Observation	- - - - - - - - - - - - - - -		M[c]
Turbidity	units	- - - - - - - - - - -	-Observation	- - - - - - - - - - - - - - -		M[c]

[a] Effluent loadings based on average design discharge flow of 0.015 MGD.

[b] Definitions: BPJ = Best Professional Judgment; EP = Existing Permit; M = Monitoring; PD = Plant Design Criteria; WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

[c] Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

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Effluent limits based on available treatment technologies are required by Section 301(b) of the Clean Water Act. Many of these have already been established by U.S. EPA in the effluent guideline regulations (a.k.a. categorical regulations) for industry categories in 40 CFR Parts 405-499. Technology-based regulations for publicly-owned treatment works are listed in the Secondary Treatment Regulations (40 CFR Part 133). If regulations have not been established for a category of dischargers, the director may establish technology-based limits based on best professional judgment (BPJ).

Ohio EPA reviews the need for water-quality-based limits on a pollutant-by-pollutant basis. Wasteload allocations are used to develop these limits based on the pollutants that have been detected in the discharge, and the receiving water's assimilative capacity. The assimilative capacity depends on the flow in the water receiving the discharge, and the concentration of the pollutant upstream. The greater the upstream flow, and the lower the upstream concentration, the greater the assimilative capacity is. Assimilative capacity may represent dilution (as in allocations for metals), or it may also incorporate the break-down of pollutants in the receiving water (as in allocations for oxygen-demanding materials).

The need for water-quality-based limits is determined by comparing the wasteload allocation for a pollutant to a measure of the effluent quality. The measure of effluent quality is called PEQ - Projected Effluent Quality. This is a statistical measure of the average and maximum effluent values for a pollutant. As with any statistical method, the more data that exists for a given pollutant, the more likely that PEQ will match the actual observed data. If there is a small data set for a given pollutant, the highest measured value is multiplied by a statistical factor to obtain a PEQ; for example if only one sample exists, the factor is 6.2, for two samples - 3.8, for three samples - 3.0. The factors continue to decline as samples sizes increase. These factors are intended to account for effluent variability, but if the pollutant concentrations are fairly constant, these factors may make PEQ appear larger than it would be shown to be if more sample results existed.

Summary of Permit Conditions

Compared to the existing permit, the following changes were made.

Outfall 002 discharge to the Great Miami River: Copper limit dropped. Limits for selenium and total residual chlorine recommended. Barium and silver monitoring added.

Outfall 004 discharge to the Great Miami River: Silver monitoring added.

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Procedures for Participation in the Formulation of Final Determinations

The draft action shall be issued as a final action unless the Director revises the draft after consideration of the record of a public meeting or written comments, or upon disapproval by the Administrator of the U.S. Environmental Protection Agency.

Within thirty days of the date of the Public Notice, any person may request or petition for a public meeting for presentation of evidence, statements or opinions. The purpose of the public meeting is to obtain additional evidence. Statements concerning the issues raised by the party requesting the meeting are invited. Evidence may be presented by the applicant, the state, and other parties, and following presentation of such evidence other interested persons may present testimony of facts or statements of opinion.

Requests for public meetings shall be in writing and shall state the action of the Director objected to, the questions to be considered, and the reasons the action is contested. Such requests should be addressed to:

Legal Records Section
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, Ohio 43216-1049

Interested persons are invited to submit written comments upon the discharge permit. Comments should be submitted in person or by mail no later than 30 days after the date of this Public Notice. Deliver or mail all comments to:

Ohio Environmental Protection Agency
Attention: Division of Surface Water
Permits and Compliance Section
P.O. Box 1049
Columbus, Ohio 43216-1049

The OEPA permit number and Public Notice numbers should appear on each page of any submitted comments. All comments received no later than 30 days after the date of the Public Notice will be considered.

Citizens may conduct file reviews regarding specific companies or sites. Appointments are necessary to conduct file reviews, because requests to review files have increased dramatically in recent years. The first 250 pages copied are free. For requests to copy more than 250 pages, there is a five-cent charge for each page copied. Payment is required by check or money order, made payable to Treasurer State of Ohio.

For additional information about this fact sheet or the draft permit, contact Raj Chakrabarti (614) 644-2027, raj.chakrabarti@epa.state.oh.us

Location of Discharge/Receiving Water Use Classification

DP&L - Hutchings discharges to Great Miami River from four outfalls at approximately River Mile (RM) 68.85. The approximate location of the facility is shown in Figure 1.

This segment of the Great Miami River is described by Ohio EPA River Code: 14-001, USEPA River Reach #: 05080002-009, County: Montgomery, Ecoregion: Eastern Corn Belt Plains. The Great Miami River is presently designated for the following uses: Warmwater Habitat (WWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), and Primary Contact Recreation (PCR).
The middle Great Miami River study area is shown in Figure 2.

Use designations define the goals and expectations of a waterbody. These goals are set for aquatic life protection, recreation use and water supply use, and are defined in the Ohio WQS (OAC 3745-1-07). The use designations for individual waterbodies are listed in rules -08 through -32 of the Ohio WQS. Once the goals are set, numeric water quality standards are developed to protect these uses. Different uses have different water quality criteria.

Use designations for aquatic life protection include habitats for coldwater fish and macroinvertebrates, warmwater aquatic life and waters with exceptional communities of warmwater organisms. These uses all meet the goals of the federal Clean Water Act. Ohio WQS also include aquatic life use designations for waterbodies which can not meet the Clean Water Act goals because of human-caused conditions that can not be remedied without causing fundamental changes to land use and widespread economic impact. The dredging and clearing of some small streams to support agricultural or urban drainage is the most common of these conditions. These streams are given Modified Warmwater or Limited Resource Water designations.

Recreation uses are defined by the depth of the waterbody and the potential for wading or swimming. Uses are defined for bathing waters, swimming/canoeing (Primary Contact) and wading only (Secondary Contact - generally waters too shallow for swimming or canoeing).

Water supply uses are defined by the actual or potential use of the waterbody. Public Water Supply designations apply near existing water intakes so that waters are safe to drink with standard treatment. Most other waters are designated for agricultural and industrial water supply.

Facility Description

The DP&L Hutchings Electric Generating Station (EGS) generates electricity using coal-fired boilers and steam turbine generators. The Hutchings EGS is a six unit 360 megawatt hours (1 unit= 60 MWH), coal fired EGS built in 1946. Formerly a baseload plant it is now used to provide electricity during times of peak electrical demand primarily during the period of June through August and December through February. A 32 MWH gas turbine was installed in 1968. River water is used to condense the steam for re-use, and to convey ash from the boilers and air stacks for treatment.

Raw materials used by the Hutchings EGS are coal, oil, and gas with a total daily peak electric power production rate of 9408 megawatts. Upgrades to the facility occurred in the 1980s with a sewage treatment plant expansion (outfall 004) that included the addition of aeration and resulted

in extending the sediment settling time. In addition a filter building at ash pond (002) was installed. In 1993 dechlorination was added to the WWTP.

The process operations performed at this facility are classified by the Standard Industrial Classification (SIC) code 4911, "Electric Services (steam electric power plants)". Discharges resulting from process operations are therefore subject to Federal Effluent Guideline Limitations, contained in Chapter 40 of the Code of Federal Regulations, Part 423, "Steam Electric Power Generating" Industrial Category.

Description of Existing Discharge

The DP&L Hutchings Plant has 4 discharge points to the Great Miami River. Outfall 001 is the discharge of once-through condenser cooling water withdrawn from the river. This discharge averages (50^{th} percentile for the period 2003-2008) approximately 106.5 million gallons per day (MGD), and is not treated.

Outfall 002 contains treated effluent from the ash ponds, coal pile runoff, boiler blowdown water, and effluent from the oily waste pond (fuel oil unloading area, gas turbine area, turbine sumps and bilge sump). The combined discharge is treated by skimming, sedimentation and filtration. Oil is also removed at the oily waste pond by absorbent booms). The average flow from this outfall is approximately 1.597 MGD (50^{th} percentile for the period 2003-2008).

The outfall 002 discharge also contains infrequent discharges from chemical metal cleaning processes at the plant. Discharges from this process are monitored at internal monitoring station 621 to ensure compliance with the federal effluent guidelines. This internal monitoring point is needed to monitor compliance with guideline limits for copper and iron before mixing with other wastestreams. If these parameters were monitored at the final discharge point, it may not be possible to detect the concentrations of these metals from the cleaning process because of the relatively small volume of cleaning wastewater compared with the flow from the ash pond system.

Outfall 003 contains storm water runoff.

Outfall 004 contains sanitary wastewater from the plant. This discharge is treated by activated sludge aeration, settling, chlorination and de-chlorination. The average flow from this treatment plant is approximately 1570 gallons per day (50^{th} percentile for the period 2003-2008)

Table A presents the summary of the aquatic life use attainment status for the warmwater habitat use designation in Great Miami River based on data collected by the Ohio EPA from June to October, 1995

Tables B present summaries of unaltered monthly operation report data for the period January 2003 to August 2008 for DP&L Hutchings as well as current permit limits, and monthly average PEQ_{avg} and daily maximum PEQ_{max} values.

Assessment of Impact on Receiving Waters

An assessment of the impact of a permitted point source on the immediate receiving waters includes an evaluation of the available chemical/physical (water column, effluents, sediment, flows), biological (fish

and macroinvertebrate assemblages), and habitat data which have been collected by Ohio EPA pursuant to the Five-Year Basin Approach for Monitoring and NPDES Reissuance. Other data may be used provided it was collected in accordance with Ohio EPA methods and protocols as specified by the Ohio Water Quality Standards and Ohio EPA guidance documents. Other information which may be evaluated includes, but is not limited to, NPDES permittee self-monitoring data and effluent and mixing zone bioassays conducted by Ohio EPA, the permittee, or U.S. EPA.

The following discussion of biological data is taken from the Technical Support Document (TSD) "Biological and Water Quality Study of the Middle and Lower Great Miami River and Selected Tributaries, 1995". The full document can be obtained through the OEPA, Division of Surface Water website @ www.epa.state.oh.us/dsw/index .

Ohio EPA relies on a tiered approach in attempting to link administrative activity indicators (*i.e.*, permitting, grants, enforcement) with true environmental indicators (*i.e.*, stressor, exposure, and response indicators). Stressor indicators generally include activities which have the potential to degrade the aquatic environment such as pollutant discharges (permitted and unpermitted), land use effects, and habitat modifications. Exposure indicators include whole effluent toxicity tests, tissue residues, and biomarkers, each of which provides evidence of biological exposure to stressor or bioaccumulative agents. Response indicators include the more direct measures of community and population response and are represented here by the biological indices which comprise Ohio EPA's biological criteria. The key is in using the different types of indicators within the roles which are the most appropriate for each. Describing the causes and sources associated with observed impairments relies on an interpretation of multiple lines of evidence including the water chemistry data, sediment data, habitat data, effluent data, biomonitoring results, land use data, and biological response signatures within the biological data itself. Thus the assignment of principal causes and sources of impairment represents the association of impairments (defined by response indicators) with stressor and exposure indicators.
Use attainment is a term which describes the degree to which environmental indicators are either above or below criteria specified by the Ohio Water Quality Standards (WQS; Ohio Administrative Code 3745-1). Assessing use attainment status for aquatic life uses involves a primary reliance on the Ohio EPA biological criteria (OAC 3745-1-07; Table 7-14). These are confined to ambient assessments and apply to rivers and streams outside of mixing zones. Numerical biological criteria are based on multimetric biological indices which include the Index of Biotic Integrity (IBI) and modified Index of Well-Being (MIwb), which indicate the response of the fish community, and the Invertebrate Community Index (ICI), which indicates the response of the macroinvertebrate community. Numerical endpoints are stratified by ecoregion, use designation, and stream or river size. Three attainment status results are possible at each sampling location -full, partial, or non-attainment. Full attainment means that all of the applicable indices meet the biocriteria. Partial attainment means that one or more of the applicable indices meet the biocriteria or one of the organism groups reflects poor or very poor performance. An aquatic life use attainment table (see Table 5) is constructed based on the sampling results and is arranged from upstream to downstream and includes the sampling locations indicated by river mile, the applicable biological indices, the use attainment status (*i.e.*, full, partial, or non), the Qualitative Habitat Evaluation Index (QHEI), and comments and observations for each sampling location.

The WWH use attainment status in the Great Miami River from the city of Dayton to Middletown (RM 90.0 to 55.0) has improved markedly since 1980 and 1989 due to the numerous WWTP upgrades and subsequent reductions in loadings of oxygen demanding wastes and ammonia-N. A total of 29.9 miles were in full attainment, 3.6 miles were in partial attainment, and 1.5 were in non attainment of the WWH

criterion in 1995. Within the upper half of the mainstem, all of the free flowing sites were in full attainment of the existing WWH use designation with the exception of one site immediately downstream from Owl Creek. Most of the impounded segments were in partial or non attainment of the WWH use designation with the exception of the DP&L Tait dam pool and the Monument Avenue dam pool. The partial or non attainment corresponded to an increased incidence of deformities, erosions, lesions, and tumor (DELT) anomalies which occurred within the dam pools indicating sublethal stresses to the fish community. The sublethal stresses were principally nutrient enrichment and marginal dissolved oxygen (D.O.) levels, which are associated with the many WWTPs and other discharges of organic wastes. The WWTP upgrades have substantially advanced aquatic life use attainment within the free flowing sections of the middle Great Miami River.

Fish community performance met or exceeded the applicable Index of Biotic Integrity (IBI) and Modified Index of Well-Being (MIwb) criteria at 54% and 87%, respectively, of the mainstem sites and 73% and 53%, respectively, of the tributary locations sampled. Fish assemblages were indicative of exceptional to fair quality in the mainstem from Dayton to the mouth (RM 90.0 to 0.0) (excluding mixing zones and impoundments). Impounded segments in the mainstem performed mostly in the fair range.

Macroinvertebrate community performance met or exceeded the applicable Invertebrate Community Index (ICI) criterion at 100% of the sites sampled on the Great Miami River (excluding mixing zones and impoundments), and 40% of the tributary locations. ICI scores and qualitative evaluations were indicative of exceptional to good quality at all of the mainstem sites.

The Dayton Power & Light Company O.H. Hutchings Electric Generating Station (EGS) has four outfalls which discharge directly to the Great Miami River. The main outfall (001) discharges both above and below a low head dam at RM 64.37. The majority of the wastewater produced from the DP&L Hutchings Station is once-through, non-contact condenser cooling water used in the steam surface condenser cooling units. The station also produces wastewater from the fly ash filters and a sanitary wastewater treatment plant.

In 1995, The segment downstream from the DP&L Hutchings EGS was in full attainment of the WWH use at all of the free flowing sites. Biological assemblages in the Great Miami River immediately downstream from the DP&L Hutchings EGS were indicative of marginally good to exceptional quality with no indications of thermal impacts or acute toxicity. The fish and macroinvertebrate assemblages one mile downstream from DP&L Hutchings EGS both reflected exceptional community quality. This is a significant improvement since 1988 when a massive fish kill occurred due to extreme thermal loadings from the Hutchings EGS during a period of extended low flows and high ambient temperatures. Temperatures exceeding 40° C were observed immediately downstream and exceedences of the WWH temperature criteria were evident downstream to Middletown. No fish (IBI = 12, very poor) were found in sampling conducted downstream of the Hutchings EGS on July 14, 1988 (RM 63.5). No fish were found again on August 17, 1988 at RM 64.0 (downstream of the dam) and at RM 62.5 (upstream of the U.S. Filter/Franklin WWTP). Macroinvertebrate community performance was fair (ICI=18 at RM 64.3) indicating a significant impact to the macroinvertebrates. Thousands of crayfish were also killed by the elevated water temperatures. The fish community began to recover in September 1988, but was predominated by highly tolerant species such as green sunfish and goldfish and community condition remained poor to very poor. Since that time the Hutchings

EGS has been operating within a thermal load management plan designed to prevent similar impacts.

The TMDL project for the lower Great Miami River is scheduled to begin in 2010. This study will include biological and chemical sampling and will re-evaluate the use-attainment status from the 1995 TSD report

Development of Water-Quality-Based Effluent Limits

Determining appropriate effluent concentrations is a multiple-step process in which parameters are identified as likely to be discharged by a facility, evaluated with respect to Ohio water quality criteria, and examined to determine the likelihood that the existing effluent could violate the calculated limits.

The assimilative capacity was divided among several facilities in order to account for possible interactivity of the discharges. The CONSWLA model was used to distribute the loads of those conservative parameters requiring allocation. The study area, showing relative positions of significant dischargers and tributaries, is depicted in Figure 1.

This data is evaluated statistically, and Projected Effluent Quality (PEQ) values are calculated for each pollutant. Average PEQ (PEQ_{avg}) values represent the 95th percentile of monthly average data, and maximum PEQ (PEQ_{max}) values represent the 95th percentile of all data points. The average and maximum PEQ values are presented in Table 4.

The PEQ values are used according to Ohio rules to compare to applicable water quality standards (WQS) and allowable wasteload allocation (WLA) values for each pollutant evaluated. Initially, PEQ values are compared to the applicable average and maximum WQS. If both PEQ values are less than 25 percent of the applicable WQS, the pollutant does not have the reasonable potential to cause or contribute to exceedances of WQS, and no wasteload allocation is done for that parameter. If either PEQ_{avg} or PEQ_{max} is greater than 25 percent of the applicable WQS, a wasteload allocation is conducted to determine whether the parameter exhibits reasonable potential and needs to have a limit or if monitoring is required. See Table 5 for a summary of the screening results.

Parameter Selection

Effluent data for DP&L Hutchings Station were used to determine what parameters should undergo wasteload allocation. The sources of effluent data are as follows:

Self-monitoring data (LEAPS)	January 2003 through August 2008
Form 2.C. Application data	2008

The effluent data were checked for outliers and the following values were removed: for outfall 002, one value for selenium of 43.6 µg/l; and for outfall 004, one value for barium of 11.6 µg/l (likely reporting error). The average and maximum projected effluent quality (PEQ) values are presented in Table 1. For a summary of the screening results, refer to the parameter groupings at the end of this section.

Wasteload Allocation For those parameters that require a WLA, the results are based on the uses assigned to the receiving waterbody in OAC 3745-1. Dischargers are allocated pollutant loadings/concentrations based on the Ohio Water Quality Standards (OAC 3745-1). Most pollutants are allocated by a mass-balance method because they do not degrade in the receiving water. Wasteload

allocations using this method are done using the following general equation: Discharger WLA = (downstream flow x WQS) - (upstream flow x background concentration). Discharger WLAs are divided by the discharge flow so that the allocations are expressed as concentrations

The applicable waterbody uses for this facility's discharge and the associated stream design flows are as follows:

Aquatic life (WWH)		
Toxics (metals, organics, etc.)	Average	Annual 7Q10
	Maximum	Annual 1Q10
Agricultural Water Supply		Harmonic mean flow
Human Health (nondrinking)		Harmonic mean flow

Allocations are developed using a percentage of stream design flow (as specified in Table 3), and allocations cannot exceed the Inside Mixing Zone Maximum criteria.

The data used in the WLA are listed in Tables 2 and 3. The wasteload allocation results to maintain all applicable criteria are presented in Table 4.

Whole Effluent Toxicity (WET) is the total toxic effect of an effluent on aquatic life measured directly with a toxicity test. Acute WET measures short term effects of the effluent while chronic WET measures longer term and potentially more subtle effects of the effluent.

Water quality standards for WET are expressed in Ohio's narrative "free from" WQS rule [OAC 3745-1-04(D)]. These "free froms" are translated into toxicity units (TUs) by the associated WQS Implementation Rule (OAC 3745-2-09). Wasteload allocations can then be calculated using TUs as if they were water quality criteria.

The wasteload allocation calculations for WET are similar to those for aquatic life criteria - using the chronic toxicity unit (TU_c) and 10 percent of the 7Q10 flow for the average and the acute toxicity unit (TU_a) and 1 percent of the 7Q10 flow for the maximum. These values are the levels of effluent toxicity that should not cause instream toxicity during critical low-flow conditions.

For DP&L Hutchings Station, the WET values are as follows;

Outfall 002 1.0 TU_a and 66.6 TU_c.
Outfall 004 1.0 TU_a and 20076. TU_c.

.

The chronic toxicity unit (TU_c) is defined as 100 divided by the IC_{25}:

$$TU_c = 100/IC_{25}$$

This equation applies outside the mixing zone for warmwater, modified warmwater, exceptional warmwater, coldwater, and seasonal salmonid use designations except when the following equation is more restrictive (Ceriodaphnia dubia only):

$$TU_c = 100/\text{geometric mean of NOEC and LOEC}$$

The acute toxicity unit (TU_a) is defined as 100 divided by the LC_{50} for the most sensitive test species:

$$TU_a = 100/LC_{50}$$

This equation applies outside the mixing zone for warmwater, modified warmwater, exceptional warmwater, coldwater, and seasonal salmonid use designations.

Reasonable Potential/ Effluent Limits/Hazard Management Decisions

The listings in Tables 5 reflect the hazard assessment done according to WLA procedures. Tables 6-9 show the draft NPDES limits for the DP&L Hutchings Plant.

Outfall 001/901:
The temperature/thermal loading requirements are being continued from the current permit. These limits, based on DP&L's 316(a) demonstration, allow the facility to exceed numeric temperature standards for short durations (a matter of hours) as long as the daily and monthly temperature standards are attained downstream of the discharge at calculated station 901. The 1995 biological survey data, which show no water quality impact associated with the thermal discharge, confirm the conclusions of the 1990 thermal management plan projections. The thermal loading limitation for outfall 001 is calculated to meet the water quality standard downstream of the discharge, based on the downstream standards for the specific time of year, and the upstream flow and temperature measured at stations 801 and 802.

Residual chlorine is a parameter regulated by the federal effluent guidelines. In recent years, DP&L has not used chlorine as a biocide in this discharge; this is reflected in the current permit condition that prohibits the discharge of chlorine, and therefore does not require monitoring. Ohio EPA proposes to continue this prohibition in the renewal permit to show that effluent guideline requirements are met.

Outfall 002:
Limits proposed for suspended solids and oil and grease are based on the federal effluent guidelines and existing permit conditions. These limits are concentration-based standards to be applied directly to the regulated wastestreams. Of the wastestreams tributary to outfall 002, the ash wastewaters, boiler blowdown waters and oily wastewaters are subject to: suspended solids limits of 30 mg/l (30-day average) and 100 mg/l (daily maximum), and oil& grease limits of 15 mg/l (30-day average) and 20 mg/l (daily maximum). These limits apply to ash transport waters and "Low Volume" wastewaters, which include boiler blowdown and oily wastewaters. The effluent guidelines for coal pile runoff are 50 mg/l (daily maximum) for suspended solids.

The daily maximum limit in the current permit (50 mg/l maximum) is more restrictive than the effluent guideline limits, and are proposed to be retained in the renewal permit. Limits for pH are based on Water Quality Standards (OAC 3745-1).

The Ohio EPA risk assessment (Table 5) places barium, chlorine residual, selenium and silver in group 5. Coal with less selenium content needs to be used in order to meet selenium concentration at the outfall. This placement as well as the data for total residual chlorine in Tables 1 and 4 indicate that the reasonable potential to exceed WQS exists for this parameter and limits are necessary to protect water quality. Limit based on IMZM (Inside Mixing Zone Maximum) standard is set to protect against rapidly lethal conditions in areas of the river near the outfall. This limit is less than the analytical quantification level (QL) for residual chlorine; as a result, the QL is listed in Part II, as the compliance level as required

by OAC Rule 3745-33-07(C). A compliance schedule for meeting selenium and TRC limits has been included in the permit.

For the parameters barium, and silver, there is no sufficient data for these parameters. The rule OAC 3745-33-07 (A)(5) allows the flexibility to make exceptions to the effluent limitations if the data used to determine the PEQ are unrepresentative. Therefore, monitoring has been recommended.

Ohio EPA risk assessment (Table 5) places mercury in group 4. This placement as well as the data in Tables 1 and 4 support that mercury (before and after phase out of mixing zone rule in 11/15/2010) should not pose an environmental hazard and limits are not necessary to protect water quality. Monitoring for group 4 parameters is required by OAC Rule 3745-33-07(A)(2). Low-level mercury monitoring must continue for the life of the permit. Mercury is known to be a trace contaminant in coal, and therefore is likely to be present in trace amounts in treated ash wastewaters

Internal monitoring station 621:
Limits for this monitoring point are based on the federal effluent guidelines for chemical metal cleaning. These guidelines have concentration-based limits for suspended solids, oil&grease, copper and iron, which have been applied directly to the discharge from this process.

Outfall 003:
This storm water outfall currently has an oil&grease limit of 15 mg/l (30-day) and 20 mg/l (daily max.), based on the performance of common oil removal equipment. The draft permit would continue these limits in the new permit.

Outfall 004:
Proposed limits for total suspended solids (TSS) and 5-day carbonaceous biochemical oxygen demand ($CBOD_5$) are based on plant design. The design limits are best professional judgment (BPJ) limits based on technology-based treatment standards included in 40 CFR Part 133, Secondary Treatment Regulation. Secondary treatment is defined by Best Practicable Waste Treatment Technology criteria, which are required of all publicly owned treatment works discharging to effluent limited stream segments (with respect to conventional pollutants).

The Ohio EPA risk assessment (Table 5) places silver in group 5. There is no sufficient data for this parameter. The rule OAC 3745-33-07 (A)(5) allows the flexibility to make exceptions to the effluent limitations if the data used to determine the PEQ are unrepresentative. Therefore, monitoring has been recommended. Barium has been consistently detected in the effluent and monitoring is needed for this parameter. The Total residual chlorine limit is based on IMZM standard.

Limits for pH are based on Water Quality Standards (OAC 3745-1).

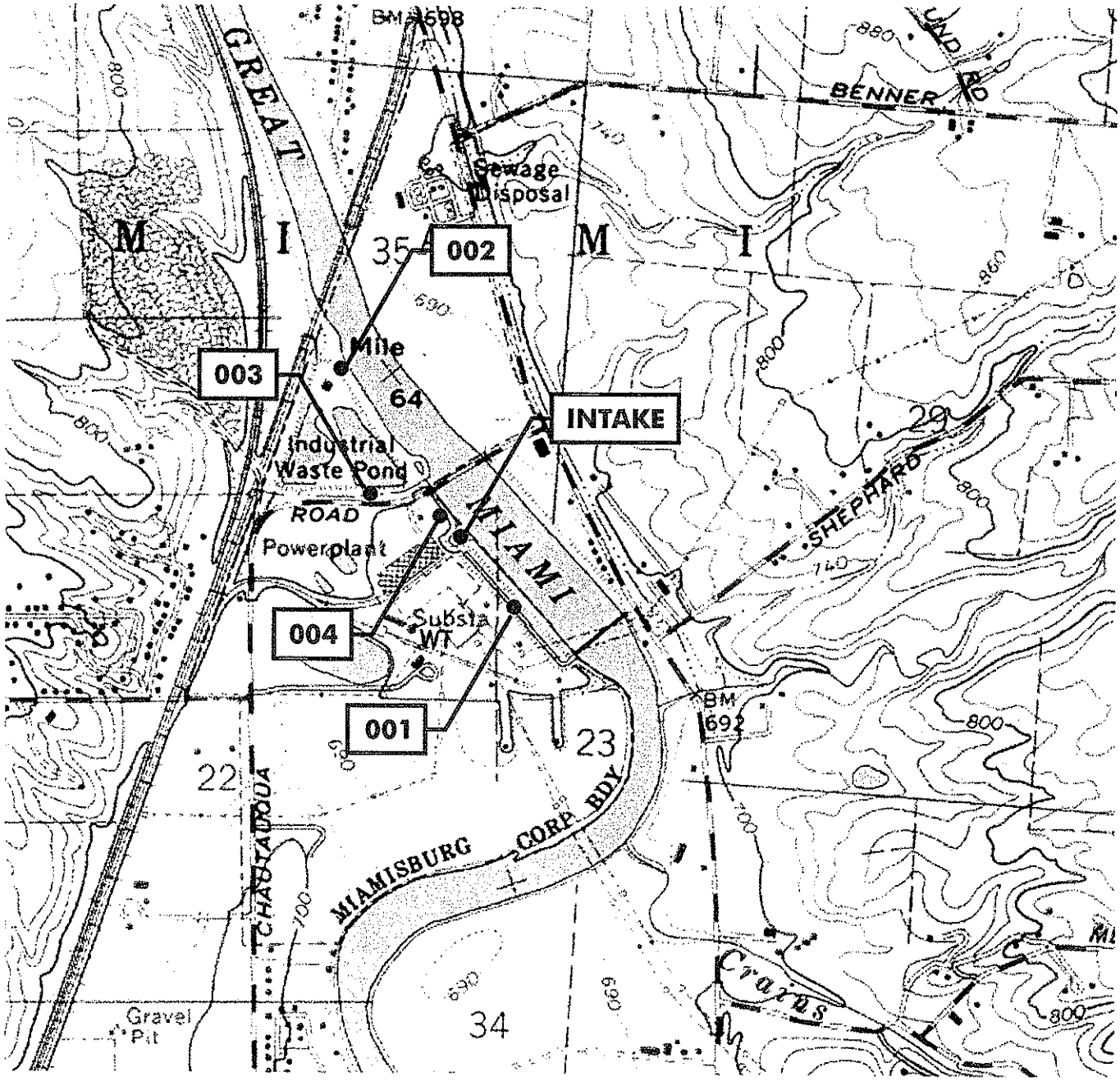
Whole Effluent Toxicity

The allowable effluent toxicity (AET) is a factor considered in evaluating whole effluent toxicity. The AET calculations are similar to those for aquatic life criteria (using the chronic toxicity unit (TU_c) and 7Q10 for average and the acute toxicity unit (TU_a) and 1Q10 for maximum). For DP&L Hutchings Station, the AET values are as follows;

Outfall 002 1.0 TU_a and 66.6 TU_c.

Outfall 004 1.0 TU_a and 20076. TU_c.

While there are no recent toxicity tests on DP&L's discharges, the generally mild impacts in the area of the discharge, attributed to impounded habitat, indicate the absence of toxic conditions. Biological communities found in the plant mixing zone were generally good. As a result, we are classifying this plant's discharges in Category 4 of Ohio's reasonable potential procedures (OAC Rule 3745-33-07(B)), and biomonitoring is not included in this draft permit.



Scale 1:24000

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

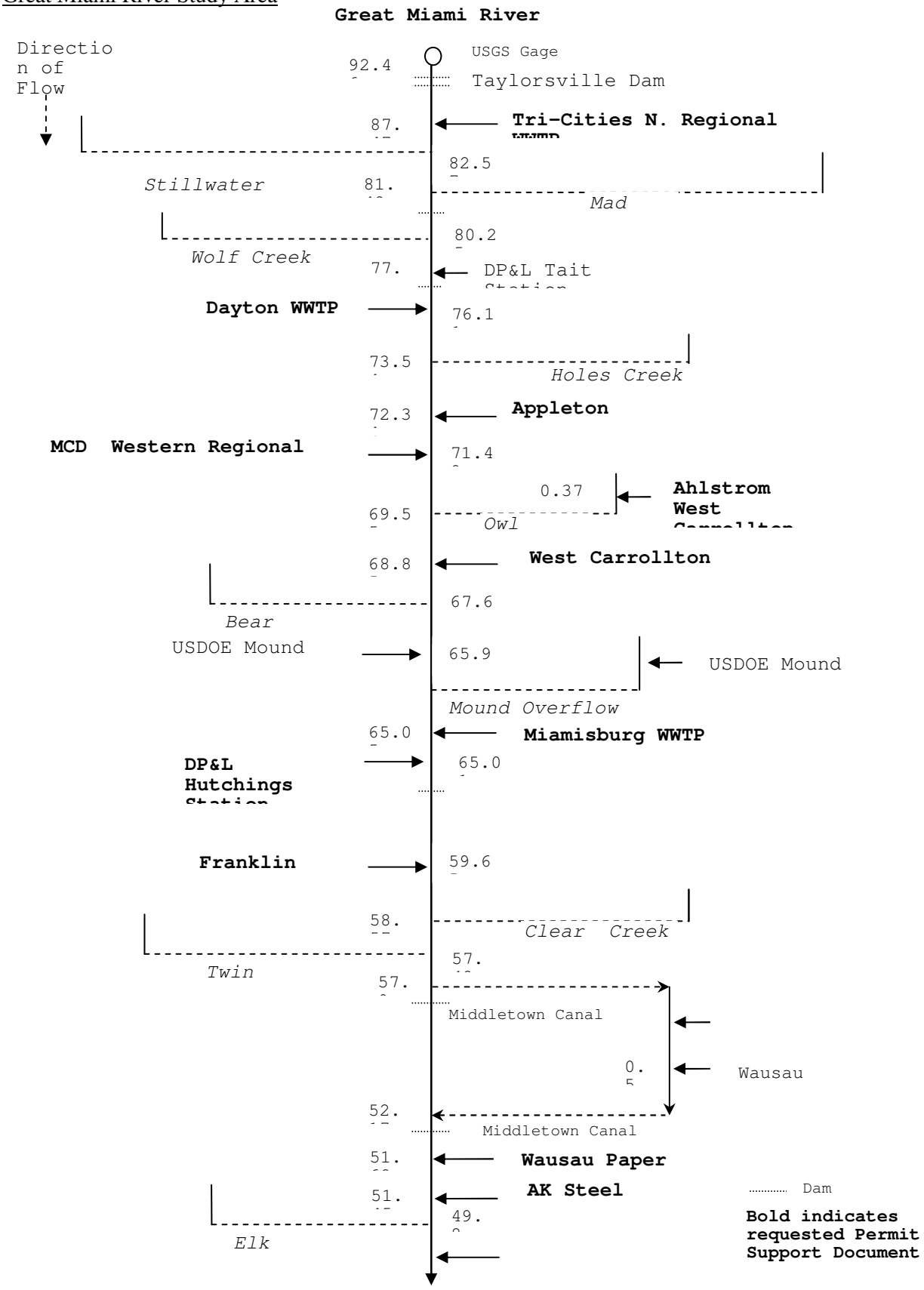
Quadrangle Location

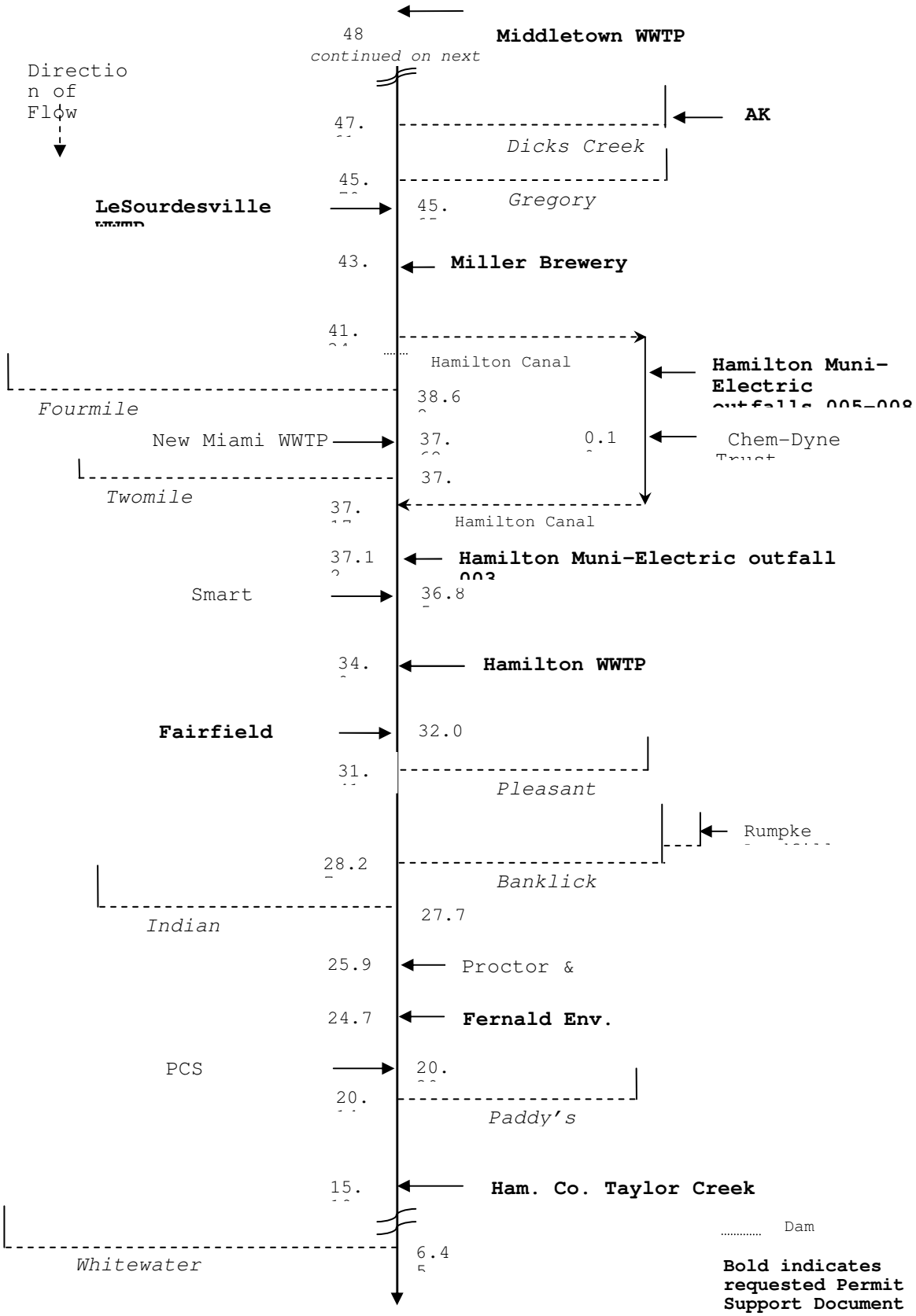
N

ENVIRONMENTAL QUALITY MANAGEMENT, INC. 1800 Carillon Boulevard Cincinnati, Ohio 45240 (513) 825-7500	**BASE MAP SOURCE:** USGS 7 1/2 minute topographic quadrangle map Franklin, Ohio 1992.	**Reference:** Dayton Power and Light Co. O.H. Hutchings Station 9200 Chautauqua Road Miamisburg, Ohio 45342 **Date:** January 2008	Site Location Map

Figure 1.

Great Miami River Study Area




48
Middletown WWTP
continued on next
Direction of Flow
47.
AK
Dicks Creek
45.
Gregory
LeSourdesville WWTP
45.
43.
Miller Brewery
41.
Hamilton Canal
Hamilton Muni-Electric outfalls 005-008
38.6
Fourmile
New Miami WWTP
37.
0.1
Chem-Dyne Trust
37.
Twomile
37.
Hamilton Canal
37.1
Hamilton Muni-Electric outfall 003
Smart
36.8
34.
Hamilton WWTP
Fairfield
32.0
31.
Pleasant
Rumpke
28.2
Banklick
27.7
Indian
25.9
Proctor &
24.7
Fernald Env.
PCS
20.
20.
Paddy's
15.
Ham. Co. Taylor Creek
Dam
Whitewater
6.4
Bold indicates requested Permit Support Document

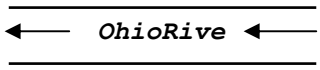

OhioRive

Table A. Summary of the aquatic life use attainment status for the warmwater habitat use designation in Great Miami River based on data collected by the Ohio EPA from June to October, 1995.

RIVER MILE Fish/Macro.	IBI	Mod. Iwb	ICI	QHEI	Use Attain-Ment Status	Comments
Great Miami River (1995)						
Eastern Corn Belt Plains - WWH Use Designation (Existing)						
69.0B/68.8	44	8.9	44	82.5	FULL	dst. W. Carrollton WWTP
-- /66.9	--	--	46	--	[FULL]	ust. Mound
65.9B/ --	30*	8.1ns	--	57.0	[PART]	Adj. Mound, imp.
65.0B/ --	*34*	*8.7*	*--*	*46.5*	*NA*	*M'burg WWTP mix zone, imp.*
64.8B/ --	33*	8.3ns	--	46.0	[PART]	dst. M'burg WWTP,imp.
64.3B/64.35	*40*	*8.9*	*VG,G*	*60.5*	*NA*	*DP&L Hutchings EGS m. zone*
-- /64.3	--	--	50	--	[FULL]	dst. *Hutchings EGS* Dam
64.0B/64.1	41ns	9.5	52	85.5	FULL	dst. DP&L Hutchings EGS
63.3B/62.6	50	9.6	G	81.0	FULL	Old Chautauqua dam
62.1B/62.6	40ns	8.6	G	83.5	FULL	ust. Franklin WWTP

* Significant departure from applicable biocriterion (>4 IBI or ICI units, >0.5 MIwb units);poor and very poor results are underlined.
ns Nonsignificant departure from biological criterion (<4 IBI, <4 ICI, <0.5 Miwb units). NS/EWH is based on nonsignificant departure from the recommended EWH criteria.
a Narrative evaluation used in lieu of ICI (E=Exceptional; VG= Very Good; G=Good; MG=Marginally good; F=Fair; P=Poor; VP=Very Poor).
b Qualitative Habitat Evaluation Index (QHEI) values based on Rankin (1989).
c Attainment status based on one organism group is parenthetically expressed.
B Fish sampled using the Boat Method.
H Headwater site (drainage area < 20 square miles) fish sampling was conducted using a wadeable method.
W Fish sampled using the Wading Method.

Ecoregional Biological Criteria: (From OAC 3745-1-07, Table 7-14)
E. Corn Belt Plains (ECBP)

INDEX - Site Type	WWH	EWH	MWHf	LRWg
IBI - Headwaters	40	50	24/NA	18
IBI - Wading	40	50	24/NA	18
IBI - Boat	42	48	24/30	16
Mod. Iwb - Wading	8.3	9.4	6.2/NA	4.5
Mod. Iwb - Boat	8.5	9.6	5.8/6.6	5.0
ICI	36	46	22/NA	14

f MWH (Modified Warmwater Habitat) for channelized habitats/impounded habitats.
g Interim Criteria for Limited Resource Water.

Table B unaltered monthly operation data

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range	Decision Criteria		
			30 day	Daily		50th	95th		# Obs.	PEQ_{ave}	PEQ_{max}
Outfall 002											
pH	Annual	S.U.			31	7.7	7.81	7.41-7.87	31	7.7699	7.8938
Total Suspended Solids	Annual	mg/l			294	7.55	26.5	0.1-38.7	294	23.474	34.915
Oil and Grease, Total	Annual	mg/l			287	0	0	0-97.5	287	2.9429	2.2187
Selenium, Total Recoverable	Annual	ug/l			25	10.4	13.8	0-43.6	24	13.177	16.642
Copper, Total Recoverable	Annual	ug/l			22	0	9.27	0-11.7			
Flow Rate	Summer	MGD			1032	1.48	2.97	0-5.24			
Flow Rate	Winter	MGD			997	1.74	3.32	0.033-5.45			
Flow Rate	Annual	MGD			2029	1.6	3.14	0-5.45	2029	2.1975	4.4279
Chlorine, Total Residual	Annual	mg/l			23	0.03	0.227	0-0.36	23	0.19559	0.33757
Mercury, Total (Low Level)	Annual	ng/l			22	2.54	5.76	0.36-11.9	22	7.5805	12.998
pH, Maximum	Annual	S.U.			263	7.62	7.96	6.86-8.76	263	7.8221	8.0239
pH, Minimum	Annual	S.U.			263	7.62	7.96	6.86-8.76	263	7.8221	8.0239
Chromium Hexavalent	Annual	ug/l			3	0	0	0-0	3	--	--
Copper, Total Recoverable	Annual	ug/l			3	0	9	0-10			

Table 1. Effluent Data for DP&L Hutchings Station

Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
Outfall 002					
Self-Monitoring (MOR) Data					
Selenium	µg/l	24	18	13.18	16.64
Copper	µg/l	25	10	8.995	13.79
Chlorine, tot. res.	µg/l	23	22	195.6	337.6
Mercury	µg/l	22	22	0.0076	0.013
Chromium^{+6}, diss.	µg/l	3	0	--	--
Form 2.C Application data					
Fluoride	µg/l	1	1	1403.	1922.
Nitrate+Nitrite	mg/l	1	1	11.04	15.13
Sulfate	mg/l	1	1	327.7	448.9
Aluminum	µg/l	1	1	516.	706.8
Barium	µg/l	1	1	742.3	1017.
Boron	µg/l	1	1	1190.	1631.
Iron	µg/l	1	1	511.4	700.6
Magnesium	mg/l	1	1	114.1	156.2
Molybdenum	µg/l	1	1	218.6	299.5
Manganese	µg/l	1	1	71.51	97.96
Arsenic	µg/l	1	1	68.34	93.62
Silver	µg/l	1	1	4.345	5.952
Thallium	µg/l	1	1	24.26	33.23
Outfall 004					
Self-Monitoring (MOR) Data					
Barium	µg/l	21	21	124.1	180.3
Chlorine, tot. res.	µg/l	813	504	15.28	29.53
Form 2.C Application data					
Fluoride	µg/l	1	1	1267.	1736.
Nitrate+Nitrite	mg/l	1	1	45.26	62.
Phosphorus	mg/l	1	1	3.064	4.197
Sulfate	mg/l	1	1	237.2	324.9
Boron	µg/l	1	1	2829.	3875.
Iron	µg/l	1	1	470.7	644.8
Magnesium	mg/l	1	1	113.2	155.
Molybdenum	µg/l	1	1	27.61	37.82
Manganese	µg/l	1	1	66.53	91.14
Silver	µg/l	1	1	5.929	8.122
Zinc	µg/l	1	1	180.1	246.8

Table 2. Water Quality Criteria in the Study Area

		Outside Mixing Zone Criteria				
			Average	Inside Max.	Mixing	
Parameter	Units	Human Health	Agri-culture	Aquatic Life	Aquatic Life	Zone Maximum
Aldrin	µg/l	0.0014	--	--	--	--
Antimony	µg/l	4300.	--	190.	900.	1800.
Arsenic	µg/l	--	100.	150.	340.	680.
Barium	µg/l	--	--	220.	2000.	4000.
Beryllium [A]	µg/l	280.	100.	67.	570.	1100.
Bis(2-ethylhexyl)phthalate	µg/l	59.	--	8.4	1100.	2100.
Boron	µg/l	--	--	950.	8500.	17000.
Bromodichloromethane	µg/l	460.	--	--	--	--
Bromoform	µg/l	3600.	--	230.	1100.	2200.
Bromomethane (Methyl Bromide)	µg/l	4000.	--	16.	38.	75.
Cadmium [A]	µg/l	--	50.	6.0	16.	32.
Chlorine, tot. res.	µg/l	--	--	11.	19.	38.
Chloroform	µg/l	4700.	--	140.	1300.	2600.
Chromium^{+6}, diss.	µg/l	--	--	11.	16.	31.
Chromium -TR[A]	µg/l	--	100.	220.	4500.	9100.
Cobalt	µg/l	--	--	24.	220.	440.
Copper [A]	µg/l	1300.	500.	24.	40.	81.
Cyanide, free	µg/l	220000.	--	12.	46.	92.
Dibromochloromethane	µg/l	340.	--	--	--	--
1,4-Dichlorobenzene	µg/l	2600.	--	9.4	57.	110.
Dichlorobromomethane	µg/l	460.	--	--	--	--
Dieldrin [B]	µg/l	0.0014	--	0.056	0.24	0.47
Endosulfan	µg/l	240.	--	--	--	--
Endrin Aldehyde	µg/l	0.81	--	--	--	--
Fluoride	µg/l	--	2000.	--	--	--
Heptachlor Epoxide	µg/l	0.0011	--	--	--	--
beta-BHC [B]	µg/l	0.46	--	--	--	--
gamma-BHC (Lindane) [B]	µg/l	0.63	--	0.057	0.95	1.9
Iron	µg/l	--	5000.	--	--	--
Lead [A]	µg/l	--	100.	27.	510.	1000.
Mercury [B]	µg/l	0.012	10.	0.91	1.7	3.4
Methylene Chloride	µg/l	16000.	--	1900.	11000.	22000.
Methyl Ethyl Ketone	µg/l	--	--	22000.	200000.	400000.
Molybdenum	µg/l	--	--	20000.	190000.	370000.
Nickel [A]	µg/l	4600.	200.	140.	1200.	2400.
Nitrate+Nitrite	mg/l	--	100.	--	--	--
Pentachlorophenol [C]	µg/l	82.	--	25.	32.	64.

Table 2. Water Quality Criteria in the Study Area -continued.

		Outside Mixing Zone Criteria				
			Average	Inside Max.	Mixing	
Parameter	Units	Human Health	Agri-culture	Aquatic Life	Aquatic Life	Zone Maximum
Phenol	µg/l	4600000.	--	400.	4700.	9400.
SAS-310	µg/l	--	--	0.61	5.0	10.
Selenium	µg/l	11000.	50.	5.0	--	--
Silver [A]	µg/l	--	--	1.3	11.	22.
Strontium	µg/l	--	--	21000.	40000.	81000.
Tetrachloroethylene	µg/l	89.	--	53.	430.	850.
1,1,2,2-Tetrachloroethane	µg/l	110.	--	260.	910.	1800.
Thallium	µg/l	6.3	--	17.	79.	160.
Tin	µg/l	--	--	180.	1600.	3200.
Toluene	µg/l	200000.	--	62.	560.	1100.
Total Dissolved Solids (TDS)	mg/l	--	--	1500.	--	--
1,1,1-Trichloroethane	µg/l	--	--	76.	690.	1400.
1,1,2-Trichloroethane	µg/l	420.	--	740.	3300.	6600.
2,4,6-Trichlorophenol	µg/l	65.	--	4.9	39.	79.
Zinc [A]	µg/l	69000.	25000.	310.	310.	620.

[A] Aquatic Life Criteria is hardness-based.
[B] Bioaccumulative Chemical of Concern (BCC)
[C] Aquatic Life Criteria is pH based.

Table 3. Instream Conditions and Discharger Flow

Parameter	Units		Value	Basis
Upstream Flow				
GMR at Taylorsville				
7Q10	cfs	summer	52.	USGS gage #03263000, 1921-97 data
		winter	83.	USGS gage #03263000, 1921-97 data
		annual	50.	USGS gage #03263000, 1921-97 data
1Q10	cfs	annual	43.	USGS gage #03263000, 1921-97 data
30Q10	cfs	summer	60.	USGS gage #03263000, 1921-97 data
		winter	116.	USGS gage #03263000, 1921-97 data
Harmonic Mean Flow	cfs	annual	241.	USGS gage #03263000, 1921-97 data
Mixing Assumption	%	average	100	Stream-to-discharge ratio
(GMR & Tribs.)	%	maximum	100	Stream-to-discharge ratio
Stillwater River at Mouth				
7Q10	cfs	summer	16.6	USGS gage #03266000, 1925-97 data
		winter	41.6	USGS gage #03266000, 1925-97 data
		annual	16.6	USGS gage #03266000, 1925-97 data
1Q10	cfs	annual	11.4	USGS gage #03266000, 1925-97 data
30Q10	cfs	summer	22.9	USGS gage #03266000, 1925-97 data
		winter	57.2	USGS gage #03266000, 1925-97 data
Harmonic Mean Flow	cfs	annual	111.3	USGS gage #03266000, 1925-97 data
Mad River at Mouth				
7Q10	cfs	summer	143.8	USGS gage #03270000, 1914-21, 24-97
		winter	182.1	USGS gage #03270000, 1914-21, 24-97
		annual	141.8	USGS gage #03270000, 1914-21, 24-97
1Q10	cfs	annual	134.5	USGS gage #03270000, 1914-21, 24-97
30Q10	cfs	summer	158.3	USGS gage #03270000, 1914-21, 24-97
		winter	212.1	USGS gage #03270000, 1914-21, 24-97
Harmonic Mean Flow	cfs	annual	391.1	USGS gage #03270000, 1914-21, 24-97
Wolf Creek at Mouth				
7Q10	cfs	summer	1.74	USGS gage #03271000, 1938-50, 86-97
		winter	3.38	USGS gage #03271000, 1938-50, 86-97
		annual	1.64	USGS gage #03271000, 1938-50, 86-97
1Q10	cfs	annual	1.33	USGS gage #03271000, 1938-50, 86-97
30Q10	cfs	summer	2.46	USGS gage #03271000, 1938-50, 86-97
		winter	6.35	USGS gage #03271000, 1938-50, 86-97
Harmonic Mean Flow	cfs	annual	12.4	USGS gage #03271000, 1938-50, 86-97

Table 3. Instream Conditions and Discharger Flow - continued.

Parameter	Units		Value	Basis
Twin Creek at Mouth				
7Q10	cfs	summer	5.4	USGS gage #03272000, 1914-23, 27-97
		winter	16.1	USGS gage #03272000, 1914-23, 27-97
		annual	5.4	USGS gage #03272000, 1914-23, 27-97
1Q10	cfs	annual	4.71	USGS gage #03272000, 1914-23, 27-97
30Q10	cfs	summer	7.24	USGS gage #03272000, 1914-23, 27-97
		winter	24.1	USGS gage #03272000, 1914-23, 27-97
Harmonic Mean Flow	cfs	annual	40.5	USGS gage #03272000, 1914-23, 27-97
Four Mile Creek at Mouth				
7Q10	cfs	summer	6.84	USGS gage #03272700, 1970-97 data
		winter	15.5	USGS gage #03272700, 1970-97 data
		annual	6.84	USGS gage #03272700, 1970-97 data
1Q10	cfs	annual	5.92	USGS gage #03272700, 1970-97 data
30Q10	cfs	summer	9.58	USGS gage #03272700, 1970-97 data
		winter	31.9	USGS gage #03272700, 1970-97 data
Harmonic Mean Flow	cfs	annual	50.7	USGS gage #03272700, 1970-97 data
Holes Creek at Mouth				
7Q10	cfs	summer	1.11	USGS gage #03271300, 1959-72 data
		winter	2.55	USGS gage #03271300, 1959-72 data
		annual	1.11	USGS gage #03271300, 1959-72 data
1Q10	cfs	annual	1.11	USGS gage #03271300, 1959-72 data
30Q10	cfs	summer	1.43	USGS gage #03271300, 1959-72 data
		winter	3.5	USGS gage #03271300, 1959-72 data
Harmonic Mean Flow	cfs	annual	8.31	USGS gage #03272000, 1914-23, 27-97
Indian Creek at Mouth				
7Q10	cfs	summer	0.2	USGS gage #03274200, 1961-69 data
		winter	0.5	USGS gage #03274200, 1961-69 data
		annual	0.2	USGS gage #03274200, 1961-69 data
1Q10	cfs	annual	0.2	USGS gage #03274200, 1961-69 data
30Q10	cfs	summer	0.3	USGS gage #03274200, 1961-69 data
		winter	0.8	USGS gage #03274200, 1961-69 data
Harmonic Mean Flow	cfs	annual	1.17	USGS gage #03272800, 1960-72 data
Clear Creek at Mouth				
7Q10	cfs	summer	0.4	USGS gage #03271700, 1959-69 data
		winter	1.5	USGS gage #03271700, 1959-69 data
		annual	0.4	USGS gage #03271700, 1959-69 data
1Q10	cfs	annual	0.4	USGS gage #03271700, 1959-69 data
30Q10	cfs	summer	0.6	USGS gage #03271700, 1959-69 data
		winter	2.5	USGS gage #03271700, 1959-69 data
Harmonic Mean Flow	cfs	annual	3.0	USGS gage #03272000, 1914-23, 27-97

Table 3. Instream Conditions and Discharger Flow - continued.

Parameter	Units		Value	Basis
Elk Creek at Mouth				
7Q10	cfs	summer	0.4	USGS gage #03272200, 1960-67 data
		winter	1.3	USGS gage #03272200, 1960-67 data
		annual	0.4	USGS gage #03272200, 1960-67 data
1Q10	cfs	annual	0.4	USGS gage #03272200, 1960-67 data
30Q10	cfs	summer	0.6	USGS gage #03272200, 1960-67 data
		winter	2.1	USGS gage #03272200, 1960-67 data
Harmonic Mean Flow	cfs	annual	3.0	USGS gage #03272000, 1914-23, 27-97
Bear Creek at Mouth				
7Q10	cfs	summer	2.21	USGS gage #03272000, 1914-23, 27-97
		winter	4.02	USGS gage #03272000, 1914-23, 27-97
		annual	2.21	USGS gage #03272000, 1914-23, 27-97
1Q10	cfs	annual	2.1	USGS gage #03272000, 1914-23, 27-97
30Q10	cfs	summer	2.52	USGS gage #03272000, 1914-23, 27-97
		winter	5.38	USGS gage #03272000, 1914-23, 27-97
Harmonic Mean Flow	cfs	annual	8.14	USGS gage #03272000, 1914-23, 27-97
Gregory Creek at Mouth				
7Q10	cfs	summer	0.26	USGS gage #03272200, 1960-67 data
		winter	0.84	USGS gage #03272200, 1960-67 data
		annual	0.26	USGS gage #03272200, 1960-67 data
1Q10	cfs	annual	0.26	USGS gage #03272200, 1960-67 data
30Q10	cfs	summer	0.39	USGS gage #03272200, 1960-67 data
		winter	1.35	USGS gage #03272200, 1960-67 data
Harmonic Mean Flow	cfs	annual	1.93	USGS gage #03272000, 1914-23, 27-97
Pleasant Run at Mouth				
7Q10	cfs	summer	0.04	USGS gage #03274200, 1961-69 data
		winter	0.10	USGS gage #03274200, 1961-69 data
		annual	0.04	USGS gage #03274200, 1961-69 data
1Q10	cfs	annual	0.04	USGS gage #03274200, 1961-69 data
30Q10	cfs	summer	0.06	USGS gage #03274200, 1961-69 data
		winter	0.16	USGS gage #03274200, 1961-69 data
Harmonic Mean Flow	cfs	annual	0.23	USGS gage #03272800, 1960-72 data
Banklick Creek at Mouth				
7Q10	cfs	summer	0.01	USGS gage #03274200, 1961-69 data
		winter	0.03	USGS gage #03274200, 1961-69 data
		annual	0.01	USGS gage #03274200, 1961-69 data
1Q10	cfs	annual	0.01	USGS gage #03274200, 1961-69 data
30Q10	cfs	summer	0.02	USGS gage #03274200, 1961-69 data
		winter	0.05	USGS gage #03274200, 1961-69 data
Harmonic Mean Flow	cfs	annual	0.07	USGS gage #03272800, 1960-72 data

Table 3. Instream Conditions and Discharger Flow - continued.

Parameter	Units		Value	Basis
Twomile Creek at Mouth				
7Q10	cfs	summer	0.02	USGS gage #03274200, 1961-69 data
		winter	0.04	USGS gage #03274200, 1961-69 data
		annual	0.02	USGS gage #03274200, 1961-69 data
1Q10	cfs	annual	0.02	USGS gage #03274200, 1961-69 data
30Q10	cfs	summer	0.02	USGS gage #03274200, 1961-69 data
		winter	0.06	USGS gage #03274200, 1961-69 data
Harmonic Mean Flow	cfs	annual	0.10	USGS gage #03272800, 1960-72 data
Paddy's Run at Mouth				
7Q10	cfs	summer	0.03	USGS gage #03274200, 1961-69 data
		winter	0.08	USGS gage #03274200, 1961-69 data
		annual	0.03	USGS gage #03274200, 1961-69 data
1Q10	cfs	annual	0.03	USGS gage #03274200, 1961-69 data
30Q10	cfs	summer	0.05	USGS gage #03274200, 1961-69 data
		winter	0.13	USGS gage #03274200, 1961-69 data
Harmonic Mean Flow	cfs	annual	0.19	USGS gage #03272800, 1960-72 data
Instream Hardness	mg/l	annual	308.	STORET/LEAPS; 822 values,2000-2008

Table 3. Instream Conditions and Discharger Flow - continued.

Parameter	Units		Value	Basis
Background Water Quality for the Great Miami River				
Aldrin	µg/l	annual	0.	No representative data available.
Antimony	µg/l	annual	0.	No representative data available.
Arsenic	µg/l	annual	1.9	STORET; 8 values,4<MDL, 1990-95
Barium	µg/l	annual	0.	No representative data available.
Bis (2-ethylhexyl) phthalate	µg/l	annual	0.	No representative data available.
Boron	µg/l	annual	0.	No representative data available.
Cadmium	µg/l	annual	0.1	STORET; 22 values,19<MDL, 1989-95
Chlorine, total res	µg/l	annual	0.	No representative data available.
Chloroform	µg/l	annual	0.	No representative data available.
Chromium^{+6}, diss	µg/l	annual	0.	No representative data available.
Chromium, total	µg/l	annual	0.	STORET; 17 values,17<MDL, 1989-94
Copper	µg/l	annual	5.	STORET; 22 values,20<MDL, 1989-95
Cyanide, free	µg/l	annual	0.	No representative data available.
Dieldrin	µg/l	annual	0.	No representative data available.
Fluoride	µg/l	annual	0.	No representative data available.
gamma-BHC	µg/l	annual	0.	No representative data available.
Heptachlor epoxide	µg/l	annual	0.	No representative data available.
Iron	µg/l	annual	1375.	STORET; 12 values,0<MDL, 1989-94
Lead	µg/l	annual	1.	STORET; 22 values,16<MDL, 1989-95
Mercury	µg/l	annual	0.	No representative data available.
Molybdenum	µg/l	annual	0.	No representative data available.
Nickel	µg/l	annual	0.	STORET; 22 values,22<MDL, 1989-95
Nitrate+Nitrite	mg/l	annual	2.91	STORET; 34 values,0<MDL, 1989-95
Pentachlorophenol	µg/l	annual	0.	No representative data available.
SAS-310	µg/l	annual	0.	No representative data available.
Selenium	µg/l	annual	1.25	STORET; 8 values,7<MDL, 1990-95
Silver	µg/l	annual	0.	No representative data available.
Strontium	µg/l	annual	0.	No representative data available.
TDS	mg/l	annual	408.	STORET; 11 values,0<MDL, 1990-95
Thallium	µg/l	annual	0.	No representative data available.
2,4,6-Trichlorophenol	µg/l	annual	0.	No representative data available.
Zinc	µg/l	annual	10.	STORET; 22 values,10<MDL, 1989-95

DP&L Hutchings Station effluent flows -cfs (mgd)

Outfall 002	6.03(3.9)	Monthly Avg.
Outfall 004	0.02 (0.013)	Monthly Avg.

Table 4. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria

Parameter	Units	Average			Maximum	Inside
		Human Health	Agri Supply	Aquatic Life	Aquatic Life	Mixing Zone Maximum
Outfall 002						
Arsenic	µg/l	--	529.	366.	815. [A]	680.
Barium	µg/l	--	--	337.	3345.	4000.
Boron	µg/l	--	--	63050. [A]	536100. [A]	17000.
Chlorine, tot. res.	µg/l	--	--	22.	37.	38.
Copper	µg/l	3875. [A]	1486. [A]	36.	59.	81.
Fluoride	µg/l	--	62610.	--	--	--
Mercury [B]	µg/l	0.052	44. [A]	1.9	3.4	3.4
Selenium	µg/l	47530.	215.	9.5	--	--
Silver	µg/l	--	--	2.7	21.	22.
Thallium	µg/l	491. [A]	--	712. [A]	3260. [A]	160.
Outfall 004						
Barium	µg/l	--	--	337.	3345.	4000.
Boron	µg/l	--	--	63050. [A]	536100. [A]	17000.
Chlorine, tot. res.	µg/l	--	--	22.	37.	38.
Fluoride	µg/l	--	62610.	--	--	--
Nitrate+Nitrite	mg/l	--	80530.	--	--	--
Silver	µg/l	--	--	2.7	21.	22.
Zinc	µg/l	276000. [A]	99990. [A]	569.	537.	620.

[A] Allocation must not exceed the Inside Mixing Zone Maximum.

[B] Bioaccumulative Chemical of Concern (BCC); no mixing zone allowed after 11/15/2010, WQS must be met at end-of-pipe, unless the requirements for an exclusion are met as listed in 3745-2-08 (L).

Table 5. Parameter Assessment for **Outfall 002**

Group 1: Due to a lack of criteria, the following parameters could not be evaluated at this time.
Aluminum Magnesium Manganese
Sulfate

Group 2: PEQ < 25% of WQS or all data below minimum detection limit; WLA not required. No limit recommended, monitoring optional.
Chromium^{+6}, diss. Iron Molybdenum
Nitrate+Nitrite

Group 3: PEQ_{max} < 50% of maximum PEL and PEQ_{avg} < 50% of average PEL. No limit recommended, monitoring optional.
Arsenic Boron Copper
Fluoride Mercury(<11/15/2010) Thallium

Group 4: $PEQ_{max} \geq$ 50% but <100% of the maximum PEL or $PEQ_{avg} \geq$ 50% but < 100% of the average PEL. Monitoring is appropriate.
Mercury(>11/15/2010)

Group 5: Maximum PEQ $\geq$ 100% of the maximum PEL or average PEQ $\geq$ 100% of the average PEL,or either the average or maximum PEQ is between 75 and 100% of the PEL and certain conditions that increase the risk to the environment are present. Limit recommended.

Limits to Protect Numeric Water Quality Criteria

Parameter	Units	Applicable Period	Recommended Effluent Limits Average	Maximum
Barium	µg/l	annual	337.	3345.
Chlorine, tot. res.	µg/l	summer only	22.	37.
Selenium	µg/l	annual	9.5	--
Silver	µg/l	annual	2.7	21.

Table 5. (Continued) Parameter Assessment for **Outfall 004**

Group 1: Due to a lack of criteria, the following parameters could not be evaluated at this time.
Aluminum Magnesium Manganese
Sulfate

Group 2: PEQ < 25% of WQS or all data below minimum detection limit; WLA not required. No limit recommended, monitoring optional.
Iron Molybdenum

Group 3: PEQ_{max} < 50% of maximum PEL and PEQ_{avg} < 50% of average PEL. No limit recommended, monitoring optional.
Barium Boron Fluoride
Nitrate+Nitrite Zinc

Group 4: $PEQ_{max} \geq$ 50% but <100% of the maximum PEL or $PEQ_{avg} \geq$ 50% but < 100% of the average PEL. Monitoring is appropriate.
Chlorine, tot. res.(>75%)

Group 5: Maximum PEQ ≥ 100% of the maximum PEL or average PEQ ≥ 100% of the average PEL,or either the average or maximum PEQ is between 75 and 100% of the PEL and certain conditions that increase the risk to the environment are present. Limit recommended.

Limits to Protect Numeric Water Quality Criteria

Parameter	Units	Applicable Period	Recommended Effluent Limits Average	Maximum
Silver	µg/l	annual	2.7	21.

Table 6. Final effluent limits and monitoring requirements for DP&L Hutchings outfall 1IB00004001

and the basis for their recommendation.

		Effluent Limits				
		Concentration		Loading (kg/day)[a]		
Parameter	Units	30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	Basis[b]
Outfall 001						
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Temperature	◦F	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Thermal Load	MBTU/hr	*	*	–	–	WQS/316(a)
Chlorine Residual	mg/l	- - - - - - - - - -	No Discharge	- - - - - - - - - - - -		EP
Bis(2-ethylhexyl) phthalate	µg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Intake 801						
Temperature	◦F	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Upstream Station 802						
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Temperature	◦F	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Downstream Station 901						
Temperature	◦F	**	**	–	–	WQS/316(a)

* Thermal loading limits are those needed to meet the downstream temperature limits listed below.
** Station 901 Temperature Limits (Calculated Mixed River Temperatures):

Time Period	30-day Avg.	Daily Avg.	Daily Max.
January 1-31	49	54	--
February 1-29	49	54	--
March 1-15	56	58	--
March 16-31	56	61	--
April 1-15	65	68	--
April 16-30	65	74	--
May 1-15	70	77	95
May 16-31	70	79	95
June 1-15	85	83	95
June 16-30	85	89	95
July 1-31	85	89	95
August 1-31	85	89	95
September 1-15	85	89	95
September 16-30	85	83	95
October 1-15	71	76	95
October 16-31	71	71	95
November 1-30	63	68	--
December 1-31	49	54	--

[a] Effluent loadings based on average design discharge flow of N/A MGD.

[b] Definitions: EP = Existing Permit; M = Monitoring; WQS = Ohio Water Quality Standards (OAC 3745-1); 316(a) = DP&L's alternative thermal limits under Section 316(a) of the Clean Water Act.

[c] Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Table 7. Final effluent limits and monitoring requirements for DP&L Hutchings outfall 1IB00004002 and the basis for their recommendation.

		Effluent Limits				
		Concentration		Loading (kg/day)[a]		
Parameter	Units	30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	Basis[b]
Flow	MGD	- - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				M[c]
Suspended Solids	mg/l	30	50	--	--	BCT/EP
Oil and Grease	mg/l	15	20	--	--	BCT/EP
pH	S.U.	- - - - - - - - - - - - - 6.5 to 9.0 - - - - - - - - - - - - -				WQS
Chlorine Residual	mg/l	--	0.037	--	--	WLA
Copper, T. R.	µg/l	- - - - - - - - - - - -Monitor - - - - - - - - - - - - - - -				BPJ
Selenium, T. R.	µg/l	9.5	--	0.08	--	WLA
Barium	ug/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				BPJ
Silver	ug/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				BPJ
Mercury	ng/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				WLA

[a] Effluent loadings based on average design discharge flow of 2.25 MGD.

[b] Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); AD = Antidegradation (OAC 3745-1-05); BCT = Best Conventional Pollutant Control Technology, 40 CFR Part 423, Steam Electric Power Generating Point Source Category; BPJ = Best Professional Judgment; EP = Existing Permit; M = Monitoring; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

[c] Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Table 8. Final effluent limits and monitoring requirements for DP&L Hutchings outfalls 1IB00004003 and 1IB00004004 and the basis for their recommendation.

		Effluent Limits				
		Concentration		Loading (kg/day)[a]		
Parameter	Units	30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	Basis[b]
Outfall 003						
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Oil and Grease	mg/l	15	20	–	–	BPJ/EP
Outfall 004						
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
$CBOD_5$	mg/l	25	40	1.42	2.271	EP/PD
Suspended Solids	mg/l	30	45	1.703	2.555	EP/PD
pH	S.U.	- - - - - - - - - - - - -	6.5 to 9.0	- - - - - - - - - - - - -		WQS
Chlorine Residual	mg/l	–	0.038	–	–	WLA/IMZM
Fecal coliform	#/100ml	1000	2000	–	–	WQS
Color, severity	units	- - - - - - - - - -	Observation	- - - - - - - - - - - -		M[c]
Odor, severity	units	- - - - - - - - - -	Observation	- - - - - - - - - - - -		M[c]
Turbidity, severity	units	- - - - - - - - - -	Observation	- - - - - - - - - - - -		M[c]
Barium, T.R.	µg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		BPJ
Silver	ug/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		BPJ

[a] Effluent loadings for outfall 004 are based on average design discharge flow of 0.015 MGD.

[b] Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); AD = Antidegradation (OAC 3745-1-05); BPJ = Best Professional Judgment; BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 133, Secondary Treatment Regulation; EP = Existing Permit; M = Monitoring; PD = Plant Design Criteria; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1).

[c] Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Table 9. Final effluent limits and monitoring requirements for DP&L Hutchings outfall 1IB00004621 and the basis for their recommendation.

		Effluent Limits				
		Concentration		Loading (kg/day)[a]		
Parameter	Units	30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	Basis[b]
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - - -		M[c]
Suspended Solids	mg/l	30	100	–	–	BCT
Oil and Grease	mg/l	15	20	–	–	BCT
pH	S.U.	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - - -		M[c]
Copper, T. R.	µg/l	1000	1000	–	–	BAT
Iron, T. R.	µg/l	1000	1000	–	–	BAT

[a] Effluent loadings based on average design discharge flow of N/A MGD.

[b] Definitions: BAT = Best Available Control Technology Currently Available, 40 CFR Part 423, Steam Electric Power Generating Point Source Category; BCT = Best Conventional Pollutant Control Technology, 40 CFR Part 423, Steam Electric Power Generating Point Source Category; M = Monitoring.

[c] Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.