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 **the Ohio Edison - R.E. Burger Plant**

Public Notice No.:
Public Notice Date:
Comment Period Ends:

OEPA Permit No.: **0IB00002*ID**
Application No.: (OH #) **OH0011592**

Name and Address of Applicant:

First Energy
76 South Main Street
Akron, Ohio 44308

Name and Address of Facility Where Discharge Occurs:

Ohio Edison - R.E. Burger Plant
57246 Ferry Landing Road
Shadyside, Ohio 43947
Belmont County

Receiving Water: Ohio River

Subsequent
Stream Network: Mississippi 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.

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
Lazarus Government Center
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
Water Resource Management Section
Lazarus Government Center
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.

Location of Discharge/Receiving Water Use Classification

The Ohio Edison Burger Plant (or the Burger Plant) discharges to the Ohio River at River Mile (RM) 102.5. The facility is located near Shadyside, Ohio in Belmont County. The approximate location of the Burger Plant is shown in Figure 1.

This segment of the Ohio River is described by Ohio EPA River Code: 25-600; USEPA River Reach #: 05030106-018; County: Belmont; Ecoregion: Western Allegheny Plateau. The Ohio River is presently designated for the following uses: warmwater habitat, agricultural water supply, public water supply, industrial water supply, and bathing waters.

The Ohio River study area is shown in Figure 2.

Facility Description

The Burger Plant is a coal-fired steam-electric generating station, owned by the Ohio Edison Company which is a subsidiary of the First Energy Corporation. This facility is involved in the generation, transmission, and distribution of electric power. The Burger Plant's processes generate wastewaters which are regulated by the federal effluent guidelines (FEGs) listed in 40 CRF Part 423, Steam Electric Power Generating Point Source Category. The process operations at this facility are also defined by the standard industrial classification (SIC) category 4911 - Electric Services.

Description of Existing Discharge

The Burger Plant operates eight outfalls which all discharge to the Ohio River. Outfall 001 discharges the once-through condenser cooling water as well as the boiler blowdown, and filter backwash. The flow rate for this outfall averages 223 MGD.

Outfall 002 discharges wastewater from the small fly ash pond and outfall 003 discharges effluent from the large ash pond. Plant flows to the ash ponds include fly ash and bottom ash sluice water, filter backwash, regenerates wastewater, and coal pile runoff. Ash pond wastewater is treated by sedimentation and neutralization prior to discharge into the Ohio River. The small fly ash pond has been operated only as a backup for the large fly ash pond, and has not been in use since 1994.

The sanitary wastewaters from the plant are discharged through outfalls 004 and 012. Prior to discharge, the effluent is treated by activated sludge, sedimentation, chlorine disinfection, and dechlorination. The treatment for outfall 012 also includes rapid sand filtration. The treatment plant discharging at outfall 012 handles the majority of the sanitary wastes from normal plant operations, while the WWTP discharging at outfall 004 is used primarily for sanitary wastes generated by contractors doing work on-site.

Table 1. Description of Ohio Edison Burger Plant Outfalls

Outfall #	Type of Wastewater	Treatment System Used	Discharge Point	Ave. Discharge (in MGD)
001	Condenser cooling water discharge, boiler blowdown, filter backwash	none	Ohio River	223
002*	Discharge from Small Fly Ash Pond	- Sedimentation - Neutralization	Ohio River	5.5
003	Discharge from Large Fly Ash Pond	- Sedimentation - Neutralization	Ohio River	5.5
004	Sanitary Wastewater	- Activated sludge - Sedimentation - Chlorine disinfection - Dechlorination	Ohio River	0.001
009	Storm water runoff	none	Ohio River	---
010	Storm water runoff	none	Ohio River	---
011	Storm water runoff	none	Ohio River	---
012	Sanitary wastewater	- Activated sludge - Sedimentation - Rapid sand filtration - Chlorine disinfection - Dechlorination	Ohio River	0.005
604	Boiler blowdown	none	Outfall 001	0.1

* Currently not discharging

The Burger Plant obtains the majority of its water from an Ohio River intake. This water is used for various purposes including cooling water, quenching the ash, sluice water for transporting the fly ash and bottom ash from the boilers to the ash ponds, and other miscellaneous uses. The County water system provides potable water for the Burger Plant for the sanitary system and for miscellaneous cooling. An on-site well provides water for the reverse osmosis system.

Table A presents a summary of analytical results for outfalls 001, 003, 004, 012 and intake monitoring station 801 from effluent/intake samples compiled from the 2004 NPDES 2C application for permit renewal.

Table B presents a summary of unaltered monthly operational report data for the period January 2000 through December 2004 for the Burger Plant.

Table A Concentrations of Chemicals Found in Effluent

Parameter	2004 Permit Application Renewal Form 2C ----------Effluent---------- No. of Samples	Average*	Maximum	Ohio EPA Testing
Outfall 001				
				Intake
Total Organic Carbon (mg/l)	1		3	3
Total Suspended Solids (mg/l)	1		15	14
Fluoride (mg/l)	1		0.5	0.5
Nitrate-Nitrite as N (mg/l)	1		0.7	0.8
Phosphorus (mg/l)	1		0.07	0.6
Copper (mg/l)	1		0.010	0.010
Iron (mg/l)	1		0.894	0.688
Sulfate (mg/l)	1		73.8	71.4
Aluminum (mg/l)	1		0.571	0.460
Barium (mg/l)	1		0.042	0.038
Boron (mg/l)	1		0.061	0.074
Magnesium (mg/l)	1		9.97	9.9
Thallium (mg/l)	1		0.007	0.011
Zinc (mg/l)	1		0.011	0.016
Manganese (mg/l)	1		0.080	0.060
Titanium (mg/l)	1		0.015	0.009
Chromium (mg/l)	1		0.004	0.003
Lead (mg/l)	1		0.002	<0.002
Phenols (mg/l)	4		0.290	0.126
Outfall 003				12/17/02
Ammonia (mg/l)	1		6.9	4.10
Total Suspended Solids (mg/l)	1		3	<5
Fluoride (mg/l)	1		1.3	0.33
Nitrate-Nitrite as N (mg/l)	1		2.5	1.39
Nitrogen, Total Organic as N (mg/l)	1		4.76	5.15
Phosphorus (mg/l)	1		0.06	0.069
Chromium (mg/l)	1		0.014	<30.0
Cobalt (mg/l)	1		0.002	
Copper (mg/l)	1		0.007	<0.010
Iron (mg/l)	1		0.019	0.155
Sulfate (mg/l)	1		393	
Aluminum (mg/l)	1		0.261	0.214
Arsenic (mg/l)	1		0.048	0.026
Barium (mg/l)	1		0.154	0.264
Boron (mg/l)	1		2.512	
Calcium (mg/l)	--		–	98
Hardness (mg/l)	--		–	290
Manganese (mg/l)	1		<0.030	0.068
Potassium (mg/l)	--		–	5
Sodium (mg/l)	--		–	26
Strontium (mg/l)	--		–	0.805
Mercury (ug/l)	1		<0.2	<0.2
Cadmium (mg/l)	1		<2.0	<1.0
Lead (mg/l)	1		<0.002	<0.002

Concentrations of Chemicals Found in Effluent (continued)

Parameter	2004 Permit Application Renewal Form 2C ----------Effluent---------- No. of Samples	Average*	Maximum	Ohio EPA Testing
Outfall 003 (continued)				12/17/02
Magnesium (mg/l)	1		14.72	11
Molybdenum (mg/l)	1		0.126	
Nickel (mg/l)	1		0.011	<40.0
Selenium (mg/l)	1		0.018	0.012
Thallium (mg/l)	1		0.009	
Zinc (mg/l)	1		<0.008	0.044
Total Dissolved Solids (mg/l)	1		–	490.00
Cyanide, total (mg/l)	4		<0.01	<0.01
Outfall 004				
Ammonia (mg/l)	1		0.1	
Biochemical Oxygen Demand (mg/l)	1		<3	
Chemical Oxygen Demand (mg/l)	1		68	
Total Suspended Solids (mg/l)	1		67	
Bromide (mg/l)	1		<0.05	
Fluoride (mg/l)	1		2	
Nitrate-Nitrite as N (mg/l)	1		13.1	
Nitrogen, Total Organic as N (mg/l)	1		1.88	
Oil and Grease (mg/l)	1		<5	
Phosphorus (mg/l)	1		3.25	
Chromium (mg/l)	1		0.007	
Cobalt (mg/l)	1		<0.002	
Copper (mg/l)	1		0.084	
Iron (mg/l)	1		3.587	
Sulfate (mg/l)	1		121	
Sulfide (mg/l)	1		<1	
Surfactants (mg/l)	1		<0.025	
Aluminum (mg/l)	1		0.848	
Barium (mg/l)	1		0.053	
Beryllium (mg/l)	1		<0.002	
Boron (mg/l)	1		0.098	
Magnesium (mg/l)	1		10.1	
Mercury (mg/l)	1		0.00072	
Nickel (mg/l)	1		0.008	
Thallium (mg/l)	1		<0.005	
Titanium (mg/l)	1		0.052	
Zinc (mg/l)	1		0.271	
Total Residual Chlorine (mg/l)	4		3.14	
Lead (mg/l)	1		0.015	

Concentrations of Chemicals Found in Effluent (continued)

	2004 Permit Application Renewal Form 2C			Ohio EPA Testing
	Effluent			
Parameter	No. of Samples	Average*	Maximum	
Outfall 012				
Chemical Oxygen Demand	1		44	
Total Organic Carbon (mg/l)	1		17	
Total Suspended Solids (mg/l)	1		5	
Bromide (mg/l)	1		<0.05	
Fluoride (mg/l)	1		1.9	
Nitrate-Nitrite as N (mg/l)	1		27.3	
Nitrogen, Total Organic as N (mg/l)	1		0.695	
Oil and Grease (mg/l)	4		<5	
Phosphorus (mg/l)	1		0.06	
Cobalt (mg/l)	1		<0.002	
Copper (mg/l)	1		0.017	
Sulfate (mg/l)	1		233	
Sulfide (mg/l)	1		<1	
Surfactants (mg/l)	1		<0.025	
Aluminum (mg/l)	1		0.115	
Barium (mg/l)	1		<0.015	
Beryllium (mg/l)	1		<0.002	
Boron (mg/l)	1		0.092	
Magnesium (mg/l)	1		18.05	
Thallium (mg/l)	1		<0.005	
Zinc (mg/l)	1		0.090	
Iron (mg/l)	1		0.115	
Antimony (mg/l)	1		0.004	
Chromium (mg/l)	1		0.010	
Lead (mg/l)	1		0.004	
Nickel (mg/l)	1		0.007	
Outfall 801				
Ammonia (mg/l)	1		<0.1	
Total Organic Carbon (mg/l)	1		3	
Total Suspended Solids (mg/l)	1		14	
Total Residual Chlorine (mg/l)	4		<0.05	
Fluoride (mg/l)	1		0.5	
Nitrate-Nitrite as N (mg/l)	1		0.8	
Nitrogen, Total Organic as N (mg/l)	1		0.239	
Oil and Grease (mg/l)	4		<5	
Phenols (mg/l)	4		0.126	
Phosphorus (mg/l)	1		0.06	
Cobalt (mg/l)	1		<0.002	
Copper (mg/l)	1		0.010	
Iron (mg/l)	1		0.688	
Sulfate (mg/l)	1		71.4	
Aluminum (mg/l)	1		0.460	
Barium (mg/l)	1		0.038	
Beryllium (mg/l)	1		<0.002	
Surfactants (mg/l)	1		<0.025	
Boron (mg/l)	1		0.074	
Magnesium (mg/l)	1		9.9	

Thallium (mg/l)	1	0.011
Molybdenum (mg/l)	1	<0.010
Manganese (mg/l)	1	0.060
Titanium (mg/l)	1	0.009
Antimony (mg/l)	1	<0.002
Arsenic (mg/l)	1	<0.010
Cadmium (mg/l)	1	<0.002
Chromium (mg/l)	1	0.003
Lead (mg/l)	1	<0.002
Mercury (mg/l)	1	<0.0002
Nickel (mg/l)	1	<0.005
Selenium (mg/l)	1	<0.008
Silver (mg/l)	1	<0.002
Zinc (mg/l)	1	0.016
Cyanide (mg/l)	1	<0.010

Table B

OHIO EPA/DSW - ANALYSIS OF LEAPS DATA - 27APR05

--- EFFLUENT CHARACTERIZATION DATA --- TABLE 1 ---
PH - 5TH PERCENTILE SHOWN INPLACE OF 50TH. ** DISSOLVED OXYGEN - 5TH PERCENTILE SHOWN INPLACE OF 95TH.

OHIO EDISON BURGER PLANT (0IB00002) OUTFALL=001

			CURRENT PERMIT		PERIOD = JAN00 THRU NOV04			
PARAMETER	SEASON	UNITS	30 DAY	DAILY	N	50 PCTL	95 PCTL	RANGE
CHLORINA DURATION	ANNUAL	MINUTES			1182	30	45	15-45
CONDUIT FLOW	ANNUAL	MGD			1766	244.8	365	5.1-365
	MAY-OCT	MGD			913	244.8	365	5.1-365
	NOV-APR	MGD			853	244.8	244.8	5.1-365
OXIDANTS TOT RESI	ANNUAL	MG/L			1165	0.01	0.02	0-0.05
		KG/DAY			1165	4.63284	18.5314	0-49.205
PH	ANNUAL	S.U.			65	6.7*	7.68	6.66-8.6
WATER TEMP.	ANNUAL	DEG C			1766	28.3	42.2	11.9-48.9
THERM DC ILLION	ANNUAL	MBTU/DAY			1766	1458	1984	123-7192

OHIO EDISON BURGER PLANT (0IB00002) OUTFALL=003

			CURRENT PERMIT		PERIOD = JAN00 THRU DEC04			
PARAMETER	SEASON	UNITS	30 DAY	DAILY	N	50 PCTL	95 PCTL	RANGE
CHROMIUM HEX-VAL	ANNUAL	UG/L			61	10	50	0-90
		KG/DAY			61	0.24587	1.00492	0-1.7958
CONDUIT FLOW	ANNUAL	MGD			1826	5.955	7.46	0-8.024
	MAY-OCT	MGD			920	6.023	7.525	0-8.024
	NOV-APR	MGD			906	5.915	7.271	0-8.012
COPPER TOT REC	ANNUAL	UG/L			62	8	26	0-37.6
		KG/DAY			62	0.17211	0.61191	0-1.0712
FLUORIDE F,TOT	ANNUAL	MG/L			55	0.4	0.6	0.22-0.7
		KG/DAY			55	9.5594	13.6873	0-17.4
OIL GRSE TOT	ANNUAL	MG/L			20	0	2	0-4
		KG/DAY			20	0	39.8863	0-85.647
PH	ANNUAL	S.U.			247	6.71*	8.79	6.52-9
RESIDUE TOT NFLT	ANNUAL	MG/L			243	6	15	1-27
		KG/DAY			243	130.374	307.584	0-688.48
SELENIUM TOT REC	ANNUAL	UG/L			25	10	27	0-34
		KG/DAY			25	0.15776	0.66897	0-0.9497
ZINC TOT REC	ANNUAL	UG/L			56	11	72	0-370
		KG/DAY			56	0.16896	1.80055	0-7.5092

OHIO EDISON BURGER PLANT (0IB00002) OUTFALL=004

			CURRENT PERMIT		PERIOD = JAN00 THRU DEC04			
PARAMETER	SEASON	UNITS	30 DAY	DAILY	N	50 PCTL	95 PCTL	RANGE
CBOD 5 DAY	MAY-OCT	MG/L			31	4	22	3-28
		KG/DAY			31	0.01514	0.08327	0.0114-0.106
	NOV-APR	MG/L			31	4	39	3-43

		KG/DAY			31	0.01514	0.14762	0.0114-0.1628
CHLORINE TOT RESD	ANNUAL	MG/L			116	0	0	0-3.14
		KG/DAY			116	0	0	0-0.0119
FEC COLI MFM-FCBR	ANNUAL	/100ML			57	10	10	10-10
COLOR SEVERITY	ANNUAL	'			1211	0	0	0-3
CONDUIT FLOW	ANNUAL	MGD			1735	0.001	0.001	0.001-0.001
	MAY-OCT	MGD			920	0.001	0.001	0.001-0.001
	NOV-APR	MGD			815	0.001	0.001	0.001-0.001
ODOR SEVERITY UNIT	ANNUAL	'			1207	0	0	0-3
PH	ANNUAL	S.U.			62	6.77*	8.16	6.56-8.72
RESIDUE TOT NFLT	ANNUAL	MG/L			65	19	35	2-42
		KG/DAY			65	0.07191	0.13248	0.0076-0.159
TURBID SEVERITY	ANNUAL	'			1212	0	0	0-3

OHIO EDISON BURGER PLANT (0IB00002) OUTFALL=012

			CURRENT PERMIT		PERIOD = JAN00 THRU DEC04			
PARAMETER	SEASON	UNITS	30 DAY	DAILY	N	50 PCTL	95 PCTL	RANGE
AMMONIA NH3-N	MAY-OCT	MG/L			29	0	2.9	0-11.9
		KG/DAY			29	0	0.05488	0-0.2252
	NOV-APR	MG/L			31	0.5	9.7	0-14.9
		KG/DAY			31	0.00946	0.18357	0-0.282
CBOD 5 DAY	MAY-OCT	MG/L			31	3	12	0-35
		KG/DAY			31	0.05678	0.2271	0-0.6624
	NOV-APR	MG/L			30	3	7	3-10
		KG/DAY			30	0.05678	0.13247	0.0568-0.1892
CHLORINE TOT RESD	ANNUAL	MG/L			115	0	0	0-0.019
		KG/DAY			115	0	0	0-0.0004
FEC COLI MFM-FCBR	ANNUAL	/100ML			59	10	30	10-2500
COLOR SEVERITY	ANNUAL	'			1212	0	0	0-1
CONDUIT FLOW	ANNUAL	MGD			1727	0.005	0.005	0.005-0.055
	MAY-OCT	MGD			828	0.005	0.005	0.005-0.005
	NOV-APR	MGD			899	0.005	0.005	0.005-0.055
COPPER TOT REC	ANNUAL	UG/L			54	20	33	9.6-44.6
		KG/DAY			54	0.00038	0.00062	0.0002-0.0008
FLUORIDE F,TOT	ANNUAL	MG/L			52	0.94	1.8	0.8-1.9
		KG/DAY			52	0.01779	0.03406	0.0151-0.036
NO2&NO3 N-TOT	ANNUAL	MG/L			51	22	32.4	7.9-37.6
		KG/DAY			51	0.41635	0.61317	0.1495-0.7116
ODOR SEVERITY UNIT	ANNUAL	'			1202	0	0	0-1
PH	ANNUAL	S.U.			60	6.55*	7.54	6.54-7.89
RESIDUE TOT NFLT	ANNUAL	MG/L			58	2	7	1-12
		KG/DAY			58	0.03785	0.13247	0.0189-0.2271
WATER TEMP.	ANNUAL	DEG C			1205	21	28	5-31
TURBID SEVERITY	ANNUAL	'			1201	0	0	0-1
ZINC TOT REC	ANNUAL	UG/L			54	84	250	0-690
		KG/DAY			54	0.00159	0.00473	0-0.0131

OHIO EDISON BURGER PLANT (0IB00002) OUTFALL=604

PARAMETER	SEASON	UNITS	CURRENT PERMIT 30 DAY	CURRENT PERMIT DAILY	PERIOD = JAN00 THRU DEC04 N	50 PCTL	95 PCTL	RANGE
CONDUIT FLOW	ANNUAL	MGD			1797	0.1	0.1	0.01-0.1
	MAY-OCT	MGD			920	0.1	0.1	0.1-0.1
	NOV-APR	MGD			877	0.1	0.1	0.01-0.1
OIL GRSE TOT	ANNUAL	MG/L			60	0	0	0-3
		KG/DAY			60	0	0	0-1.1355
RESIDUE TOT NFLT	ANNUAL	MG/L			60	1	5	0-11
		KG/DAY			60	0.3785	1.8925	0-4.1635

--- EFFLUENT CHARACTERIZATION DATA --- TABLE 2 ---

* PH - 5TH PERCENTILE SHOWN INPLACE OF 50TH. ** DISSOLVED OXYGEN - 5TH PERCENTILE SHOWN INPLACE OF 95TH.

OHIO EDISON BURGER PLANT (0IB00002) OUTFALL=001

PARAMETER	SEASON	UNITS	CURRENT PERMIT 30 DAY	CURRENT PERMIT DAILY	YEAR = 2000 N	50 PCTL	95 PCTL	RANGE	YEAR = 2004 N	50 PCTL	95 PCTL	RANGE
CHLORINA DURATION	ANNUAL	MINUTES			182	30	45	15-45	235	30	45	15-45
CONDUIT FLOW	ANNUAL	MGD			362	244.8	365	71.4-365	333	244.8	325	15.3-365
	MAY-OCT	MGD			180	244.8	365	71.4-365	182	244.8	348.3	15.3-365
	NOV-APR	MGD			121	244.8	365	109.4-365	181	239.5	244.8	13.3-254.6
OXIDANTS TOT RESI	ANNUAL	MG/L			188	0.01	0.02	0-0.04	235	0.01	0.02	0-0.04
		KG/DAY			188	9.26568	18.5314	0-27.797	235	4.63284	23.959	0-49.205
PH	ANNUAL	S.U.			12	6.84*	7.75	6.84-8.6	11	6.87*	7.68	6.87-7.92
WATER TEMP.	ANNUAL	DEG C			362	28.3	40.8	14.4-43.9	333	27.2	38	11.9-40.8
THERM DC ILLION	ANNUAL	MBTU/DAY			362	1498	1964	154-7192	333	1302	1766	266-2126

OHIO EDISON BURGER PLANT (0IB00002) OUTFALL=003

PARAMETER	SEASON	UNITS	CURRENT PERMIT 30 DAY	CURRENT PERMIT DAILY	YEAR = 2000 N	50 PCTL	95 PCTL	RANGE	YEAR = 2004 N	50 PCTL	95 PCTL	RANGE
CHROMIUM HEX-VAL	ANNUAL	UG/L			12	6	20	0-23	12	10	10	0-30
		KG/DAY			12	0.11679	0.44598	0-0.4587	12	0.25764	0.29001	0-0.7681
CONDUIT FLOW	ANNUAL	MGD			366	4.822	6.546	0-7.175	365	6.799	7.542	2.299-7.9
	MAY-OCT	MGD			184	4.778	6.67	0-7.175	184	6.908	7.57	3.788-7.9
	NOV-APR	MGD			121	4.976	6.363	2.166-7.014	182	6.306	7.02	3.587-7.755
COPPER TOT REC	ANNUAL	UG/L			12	7	10	0-11	12	7.9	14	3.3-37.6
		KG/DAY			12	0.12749	0.22755	0-0.228	12	0.20225	0.35249	0-1.0712
FLUORIDE F,TOT	ANNUAL	MG/L			6	0.4	0.7	0.315-0.7	12	0.4	0.5	0.34-0.6
		KG/DAY			6	8.54793	11.3664	5.3557-11.366	12	10.383	13.3289	0-17.4
OIL GRSE TOT	ANNUAL	MG/L			4	0	2	0-2	3	0	0	0-0
		KG/DAY			4	0	39.8863	0-39.886	0	NA	NA	NA
PH	ANNUAL	S.U.			51	6.74*	8.63	6.52-9	48	6.9*	8.7	6.87-8.85
RESIDUE TOT NFLT	ANNUAL	MG/L			50	8	18	3-27	48	6	21	3-27
		KG/DAY			50	151.589	405.691	57.683-681.64	48	145.321	493.011	63.058-688.48
SELENIUM TOT REC	ANNUAL	UG/L			8	12	27	0-27	4	0	15	0-15
		KG/DAY			8	0.28029	0.66897	0-0.669	4	0	0.43501	0-0.435

ZINC TOT REC	ANNUAL	UG/L			6	17	46	0-46	12	15.4	43.9	0-63.2
		KG/DAY			6	0.30963	0.8063	0-0.8063	12	0.24361	1.12392	0-1.8005

OHIO EDISON BURGER PLANT (0IB00002) OUTFALL=004

			CURRENT PERMIT		YEAR = 2000				YEAR = 2004			
PARAMETER	SEASON	UNITS	30 DAY	DAILY	N	50 PCTL	95 PCTL	RANGE	N	50 PCTL	95 PCTL	RANGE
CBOD 5 DAY	MAY-OCT	MG/L			7	3	28	3-28	6	6	24	4-24
		KG/DAY			7	0.01136	0.10598	0.0114-0.106	6	0.02271	0.09084	0.0151-0.0908
	NOV-APR	MG/L			4	3	5	3-5	4	3	5	3-5
		KG/DAY			4	0.01136	0.01892	0.0114-0.0189	4	0.01136	0.01892	0.0114-0.0189
CHLORINE TOT RESD	ANNUAL	MG/L			24	0	0	0-0	21	0	0	0-0
FEC COLI MFM-FCBR	ANNUAL	/100ML			12	10	10	10-10	10	10	10	10-10
COLOR SEVERITY	ANNUAL	'			257	0	0	0-2	213	0	1	0-3
CONDUIT FLOW	ANNUAL	MGD			366	0.001	0.001	0.001-0.001	305	0.001	0.001	0.001-0.001
	MAY-OCT	MGD			184	0.001	0.001	0.001-0.001	184	0.001	0.001	0.001-0.001
	NOV-APR	MGD			121	0.001	0.001	0.001-0.001	121	0.001	0.001	0.001-0.001
ODOR SEVERITY UNIT	ANNUAL	'			258	0	0	0-0	213	0	1	0-3
PH	ANNUAL	S.U.			12	6.96*	7.91	6.96-8.04	10	7.05*	8.34	7.05-8.34
RESIDUE TOT NFLT	ANNUAL	MG/L			15	16	32	2-35	10	18	29	8-29
		KG/DAY			15	0.06056	0.12112	0.0076-0.1325	10	0.06813	0.10976	0.0303-0.1098
TURBID SEVERITY	ANNUAL	'			258	0	1	0-1	213	0	1	0-3

OHIO EDISON BURGER PLANT (0IB00002) OUTFALL=012

			CURRENT PERMIT		YEAR = 2000				YEAR = 2004			
PARAMETER	SEASON	UNITS	30 DAY	DAILY	N	50 PCTL	95 PCTL	RANGE	N	50 PCTL	95 PCTL	RANGE
AMMONIA NH3-N	MAY-OCT	MG/L			6	0	0.2	0-0.2	3	0.1	2.9	0-2.9
		KG/DAY			6	0	0.00378	0-0.0038	3	0.00189	0.05488	0-0.0549
	NOV-APR	MG/L			4	0	1.11	0-1.11	6	4.5	9.8	3.2-9.8
		KG/DAY			4	0	0.02101	0-0.021	6	0.08516	0.18546	0.0606-0.1855
CBOD 5 DAY	MAY-OCT	MG/L			8	3	12	0-12	4	8	35	4-35
		KG/DAY			8	0.05678	0.2271	0-0.2271	4	0.1514	0.66237	0.0757-0.6624
	NOV-APR	MG/L			4	3	5	3-5	6	3	10	3-10
		KG/DAY			4	0.05678	0.09462	0.0568-0.0946	6	0.05678	0.18925	0.0568-0.1892
CHLORINE TOT RESD	ANNUAL	MG/L			23	0	0	0-0	19	0	0	0-0
FEC COLI MFM-FCBR	ANNUAL	/100ML			12	10	10	10-10	9	10	10	10-10
COLOR SEVERITY	ANNUAL	'			256	0	0	0-1	194	0	0	0-1
CONDUIT FLOW	ANNUAL	MGD			366	0.005	0.005	0.005-0.005	274	0.005	0.005	0.005-0.005
	MAY-OCT	MGD			184	0.005	0.005	0.005-0.005	92	0.005	0.005	0.005-0.005
	NOV-APR	MGD			121	0.005	0.005	0.005-0.005	182	0.005	0.005	0.005-0.005
COPPER TOT REC	ANNUAL	UG/L			6	13	22	12-22	9	15.4	44.6	9.6-44.6
		KG/DAY			6	0.00025	0.00042	0.0002-0.0004	9	0.00029	0.00084	0.0002-0.0008
FLUORIDE F,TOT	ANNUAL	MG/L			6	0.915	1	0.8-1	9	0.9	1.8	0.8-1.8
		KG/DAY			6	0.01732	0.01892	0.0151-0.0189	9	0.01703	0.03406	0.0151-0.0341
NO2&NO3 N-TOT	ANNUAL	MG/L			6	20	32	16.8-32	9	19.7	37.6	14.8-37.6
		KG/DAY			6	0.3785	0.6056	0.3179-0.6056	9	0.37282	0.71158	0.2801-0.7116
ODOR SEVERITY UNIT	ANNUAL	'			255	0	0	0-1	194	0	0	0-0
PH	ANNUAL	S.U.			12	6.75*	7.43	6.75-7.53	9	6.55*	7.89	6.55-7.89

RESIDUE TOT NFLT	ANNUAL	MG/L			12	2	4	1-5	9	2	12	1-12
		KG/DAY			12	0.03785	0.0757	0.0189-0.0946	9	0.03785	0.2271	0.0189-0.2271
WATER TEMP.	ANNUAL	DEG C			256	18	27	6-28	194	20	25	9-28
TURBID SEVERITY	ANNUAL	'			256	0	0	0-1	194	0	0	0-1
ZINC TOT REC	ANNUAL	UG/L			6	47	100	46-100	9	86.2	333	26.8-333
		KG/DAY			6	0.00089	0.00189	0.0009-0.0019	9	0.00163	0.0063	0.0005-0.0063

OHIO EDISON BURGER PLANT (0IB00002) OUTFALL=604

			CURRENT PERMIT		YEAR = 2000				YEAR = 2004			
PARAMETER	SEASON	UNITS	30 DAY	DAILY	N	50 PCTL	95 PCTL	RANGE	N	50 PCTL	95 PCTL	RANGE
CONDUIT FLOW	ANNUAL	MGD			336	0.1	0.1	0.1-0.1	366	0.1	0.1	0.1-0.1
	MAY-OCT	MGD			184	0.1	0.1	0.1-0.1	184	0.1	0.1	0.1-0.1
	NOV-APR	MGD			91	0.1	0.1	0.1-0.1	182	0.1	0.1	0.1-0.1
OIL GRSE TOT	ANNUAL	MG/L			12	0	1	0-2	12	0	0	0-0
		KG/DAY			12	0	0.3785	0-0.757	0	NA	NA	NA
RESIDUE TOT NFLT	ANNUAL	MG/L			12	1	4	0-11	12	1	1	0-2
		KG/DAY			12	0.3785	1.514	0-4.1635	12	0.3785	0.3785	0-0.757

Receiving Water Quality / Environmental Hazard Assessment

Recent biological data for the Ohio River is not available to assess the water quality impact of these spills or the authorized discharges from the Burger Plant.

Wasteload Allocation Results

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 of the Ohio River was divided among outfalls 001, 003, and 012 to account for possible interactivity of the discharges. The CONSWLA program was used to model conservative parameters requiring allocation.

Effluent data for the Ohio Edison Burger Plant were used to determine what parameters should undergo wasteload allocation. The sources of effluent data are as follows:

Self-monitoring data (LEAPS)	January 2000 through December 2004
2-C data	April 2004

In order to expedite the permit renewal process without affecting the accuracy of the reasonable potential assessment, the summary of effluent limits (Table 6) to maintain applicable water quality criteria for the parameters (required for reasonable assessment) has been rolled over from the 2000 WLA. No parameter from the current 2C data triggered a reasonable potential assessment. Therefore, the parameters currently regulated in the permit have only been assessed for WLA. It has been observed the slight difference in the discharge volume from outfall 001 would have insignificant effect on the existing resultant applicable water quality based limits (Table 6) for the parameters.

The average and maximum projected effluent quality (PEQ) values are presented in Table 3. For a summary of the screening results, refer to the parameter groupings in Tables 7, 8, and 9.

For those parameters that require a wasteload allocation (WLA), the results are based on the uses assigned to the receiving waterbody in OAC 3745-1. The applicable waterbody uses for this facility's discharge and the associated stream design flows are as follows:

Aquatic life (warmwater habitat - WWH)		
Toxics (metals, organics, etc.)	Average	10% Annual 7Q10
	Maximum	1% Annual 1Q10
Agricultural Water Supply		10% Harmonic mean flow
Human Health (non-drinking)		10% Harmonic mean flow

Allocations are developed using a percentage of stream design flow as specified in Table 5. The stream design flow in Table 5 and the water quality criteria in Table 4 are used to determine the effluent limits, or waste load allocation results shown in Table 6. The waste load allocation values in Table 6 would allow the Burger Plant to maintain all applicable water quality criteria. Allocations cannot exceed the Inside Mixing Zone Maximum criteria.

Effluent Limits/Hazard Management Decisions

After appropriate effluent limits are calculated by wasteload allocation, the lowest most restrictive average and maximum values are selected from Table 6 and are referred to as Preliminary Effluent Limits (PEL_{avg} and PEL_{max}, respectively). The reasonable potential of the discharger to exceed the wasteload allocation (PEL values) is determined by comparing the PEQ_{avg} (Table 3) to the PEL_{avg} and the PEQ_{max} to the PEL_{max} for each parameter. Based on this comparison, each parameter is placed in a defined "group". Parameters that do not have a water quality standard (WQS) or do not require a WLA based on the initial screening are assigned to either group 1 or 2. Parameters are assigned to group 3, 4, or 5 depending on how close the PEQ value is to the allocated value or PEL. The groupings listed in Tables 7, 8, and 9 reflect the reasonable potential hazard assessment done according to WLA procedures.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Tables 10, 11, 12, 13, 14 and 15 show the draft NPDES limits and monitoring requirements for the Burger Plant.

Federal and State laws/regulation require that dischargers meet both treatment-technology-based limits and any more stringent standards needed to comply with state WQS. Permit limits are based on the more restrictive of the two. Treatment-technology-based limits for the Burger Plant, found in 40 CFR Part 423, Steam Electric Power Generating Point Source Category, are based on the milligrams of pollutant allowed to be discharged per liter.

The Burger Plant's NPDES permit application did not request an increase in loadings of currently permitted pollutants. As a result, an anti-degradation review is not required and has not been performed in association with this permit renewal. Detailed discussion of the limits and monitoring requirements for each outfall are shown below.

Outfall 001 (091): Table 10 (11)

All the parameters in the existing permit have been incorporated into the draft permit. Parameters for thermal discharge (or thermal load) and water temperature are included as a result of a 316a thermal water quality standard variance which has been issued for the Burger Plant. The limits for total residual oxidants and total residual chlorine are based upon the total time period during which bromination or chlorination is occurring in a given day. If bromination occurs for two hours or less per day, the limit for total residual oxidants (TRO) is 0.05 mg/l. For bromination lasting longer than two hours per day, the TRO limit is 0.010 mg/l.

If chlorination occurs for two hours or less, the total residual chlorine (TRC) limit is 0.2 mg/l. For chlorination lasting more than two hours per day, Ohio EPA's risk assessment (Table 7) places chlorine in group 5. Waste load allocation procedures have determined a TRC daily maximum limit of 0.022 mg/l in order to maintain the maximum aquatic life criteria under these circumstances.

The NPDES renewal application for the Burger Plant contains sampling data for Phenols, Total which could result in recommended limit. However, due to the presence of this pollutant in the intake water for this outfall, Ohio EPA has determined that water quality-based effluent limits should not be included in the permit for this parameter at this time. The criteria to meet for direct dischargers to Ohio River is 5 ug/l. More data base (for both intake and effluent) is required before conclusion can be made on the inclusion of limit.This determination has been made in accordance with Rule 3745-2-06 of the Ohio Administrative Code, and has been based upon the data reported in the NPDES 2C permit renewal application. Accordingly, monthly monitoring of Phenols, Total and intake self monitoring have been recommended in the permit.

Outfall 002: Table 10-002

As discussed under Description of Discharges, this fly ash pond and its associated outfall (outfall 002) have not been used since 1994. However, in the event that this pond is placed into service, the wastewater currently discharged at outfall 003 would then be discharged at outfall 002. The pollutant concentrations and loadings discharged at outfall 002 should be the same as that discharged from outfall 003. For these reasons, the monitoring requirements and limits imposed for outfall 003 have also been applied to outfall 002.

Outfall 003: Table 12

The loadings at both outfalls 002 and 003 are based upon existing permit flow of 5.5 MGD. Ohio Edison has not requested an increase in loadings in the anti-degradation addendum. As a result, the flow and loadings used in the existing permit will be maintained in the draft permit for these two outfalls. Reported data over the past five years indicates that the Burger Plant should not have difficulty meeting these loading limits.

Ohio EPA risk assessment (Table 8) places hexavalent chromium and zinc in group 5. This placement as well as the data in Table B supports that hexavalent chromium poses environmental hazards and limits are necessary to protect water quality. A one-year compliance schedule has been provided in the permit. Regarding zinc limit, in absence of allocation to outfall 001 (it does not trigger reasonable assessment), the maximum aquatic life zinc limit at 003 would have been a larger value and that would not have triggered a limit. Therefore no limit for zinc is required. However, due to the nature of discharge, a quarterly monitoring for zinc, copper, fluoride and selenium have remained in the permit. Low-level mercury monitoring (Method 1631) has been recommended. Due to two significant detection of ammonia at this outfall, monitoring is needed to assess if ammonia is routinely present and its impact on the receiving stream.

The limits for the remaining parameters have been continued from the existing permit. The limits for total suspended solids and oil and grease are based upon the Federal Effluent Guidelines, 40 CFR 423.12(b)(4).

Outfall 004: Table 13

The parameters included in Table 10-004 have been continued from the existing permit. Limits for fecal coliform, total residual chlorine, and pH are based upon water quality standards. The other parameters are used to monitor the effectiveness of the treatment process for sanitary waste.

Outfall 012: Table 14

Ohio EPA's risk assessment places copper, nitrate-nitrite, and zinc in Group 5 and recommends limits for these parameters. Regarding zinc limit, in absence of allocation to outfall 001 (it does not trigger reasonable assessment), the maximum aquatic life zinc limit at 012 would have been a larger value and zinc would be limited by IMZM value of 300 ug/l; so also copper by 36 ug/l. Therefore limit for zinc is adjusted to 300 ug/l. Regarding nitrate-nitrite limit and fluoride group 4 monitoring, in absence of allocation to outfall 001 (it does not trigger reasonable assessment), the aquatic life limits for fluoride and nitrate-nitrite at 012 would have been a larger value and that would not have triggered limit and monitoring respectively. Therefore monitoring is not required for both these parameters.

The remaining parameters included for this outfall are continued from the existing permit. The inclusion of these parameters is necessary in order to monitor the effectiveness of the treatment process for the sanitary waste.

Outfall 604: Table 15

This internal outfall which discharges the boiler blowdown from units 3 through 5 has limits for total suspended solids and oil and grease which are based upon the Federal Effluent Guidelines, 40 CFR 423.12(b)(3). The parameters included in the draft permit for this outfall have been continued from the existing permit.

Station 588 has remained in this permit renewal as a sludge monitoring station, and requires the Burger Plant to report any sludge that is disposed.

Whole Effluent Toxicity

Whole effluent toxicity or "WET" is the total toxic effect of an effluent on aquatic life in the receiving stream 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. WET values are then compared to a calculated allowable effluent toxicity "AET" value. This comparison along with an assessment of the instream community are two ways in which whole effluent toxicity is evaluated.

AET calculations are similar to aquatic life criteria wasteload allocation calculations. The $Q_{7,10}$ and chronic toxicity unit (Tu_c) are used to calculated the average allowable AET and the $Q_{1,10}$ and acute toxicity unit (TU_a) are used to calculate the maximum allowable AET. For the Burger Plant, the chronic AET's and acute AET's are as follows:

	Chronic AET	Acute AET
Outfall 001	2.79	0.34
Outfall 003	143.2	1.0
Outfall 012	113071	1.0

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

$$TU_c = \frac{100}{IC_{25}}$$

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):

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

The acute toxicity unit (TU_a) is defined as 100 divided by the LC50 for the most sensitive test species:

$$TU_a = \frac{100}{LC50}$$

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

Table 2. shows the results of acute toxicity testing performed by Ohio EPA at outfall 003 in 1997. These tests show no evidence of toxicity due to the Burger Plant. Daphnia mortality was 20 percent in April 14, 1998 toxicity test. Two grab samples of outfall 003 effluents were used in December 2002 bioassay. A mixing zone sample was manually prepared in the field using equal aliquots of the Ohio River upstream water and effluent grab.The effluents were not acutely toxic. Two daphnids died in the manual mixing zone. No other mortality or adverse effects were observed in the Ohio river upstream water, manual mixing zone, and effluents for either species (Ceriodaphnia and fathead minnow). Therefore, toxicity testing has not been included in the draft permit for this facility.

Figure 1. Approximate Location of Ohio Edison Burger Plant

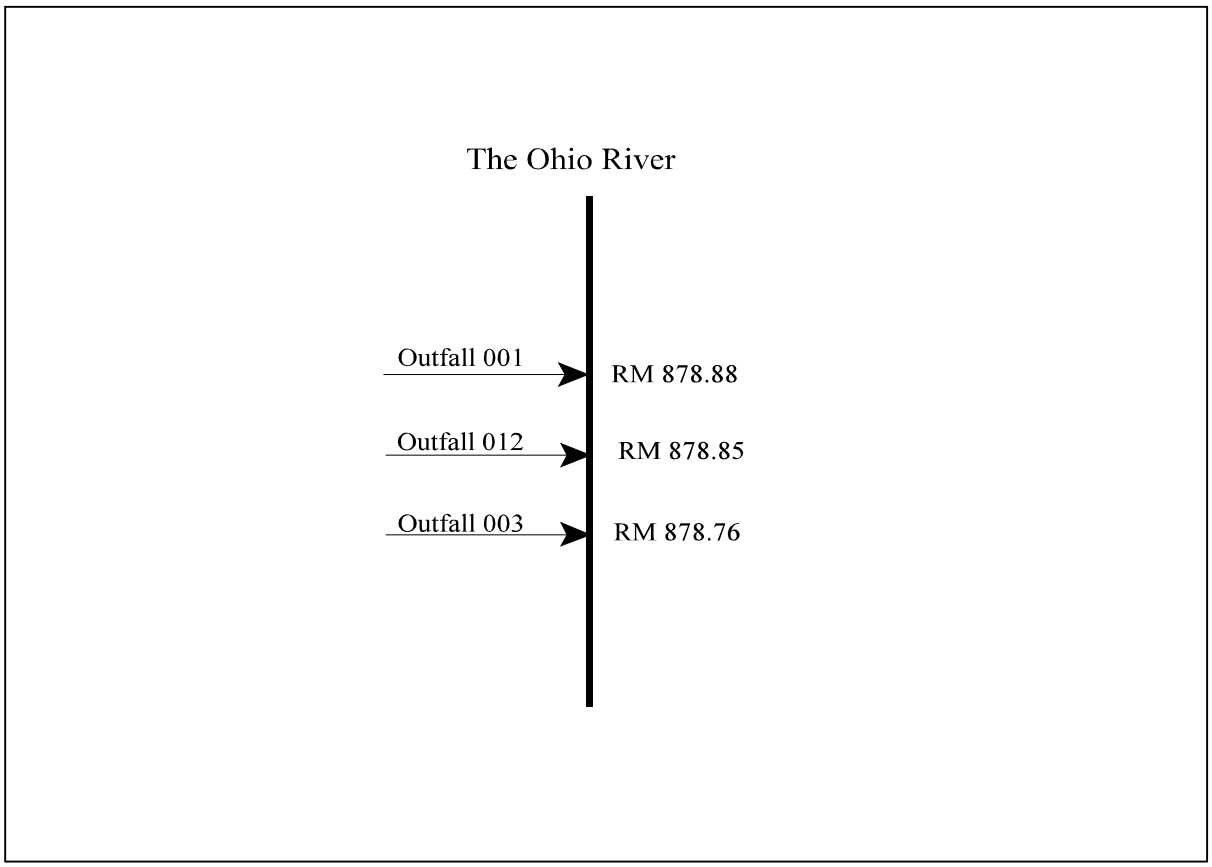

Figure 2. The Ohio River Study Area.

Table 2. **Summary of Acute Toxicity Test Results for Outfall 003**

TEST DATE(a)	*Ceriodaphnia dubia 48 hour*						*Fathead Minnows 48 hour*				
	UP[b]	C[c]	LC_{50}[d]	%M[e]	TUa[f]	NF[g]	UP[b]	C[c]	LC_{50}[d]	%M[e]	
O-G 10/06/97	0	0	> 100	0	< 1.0	0	0	0	> 100	0	
O-G 10/07/97			> 100	0	< 1.0				> 100	0	
O-C 10/06/97			> 100	0	< 1.0				> 100	0	

[a] O-G = EPA test, grab sample; O-C = EPA test, composite sample

E = Entity test

[b] UP = upstream control water

[c] C = laboratory water control

[d] LC_{50} = Median Lethal Concentration

NT = not tested

[e] %M = Percent Mortality in 100% effluent

[f] TU_a = Acute Toxicity Units

[g] Near Field Samples

Table 3. **Effluent Data for the Ohio Edison Burger Plant**

Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
LEAPS:					
Outfall 001					
Total Res. Oxidants	mg/l	1165	717	0.011	0.0168
Outfall 003					
Chromium, Hex-val	µg/l	61	49	39.14	62.13
Copper	µg/l	62	58	19.88	31.06
Selenium, tot. rec.	µg/l	25	16	24.24	38.4
Fluoride, tot.	mg/l	55	55	0.53	0.63
Total Suspended Solids	mg/l	243	243	11.68	16.87
Oil & Grease	mg/l	20	3	4.08	5.6
Zinc	ug/l	56	32	130.42	174.34
Outfall 012					
Chlorine	mg/l	115	2	0.0125	0.0171
Total Suspended Solids	mg/l	58	58	5.91	9.14
Ammonia - N (summer)	mg/l	20	2	0.1022	0.14
Nitrate-Nitrite	mg/l	51	51	31.11	41.14
Fluoride	mg/l	52	52	1.293	1.58
Zinc	ug/l	54	52	304.48	487.23
Copper	ug/l	54	54	30.009	40.6
CBOD5 (summer)	mg/l	20	20	14.789	25.347
Outfall 004					
Total Suspended Solids	mg/l	65	65	35.34	52.8
Total residual Chlorine	mg/l	116	1	2.06	2.82
CBOD5 (summer)	mg/l	21	21	19.44	33.48
CBOD5 (winter)	mg/l	18	18	35.97	64.49

Table 4. Water Quality Criteria in the Study Area

		Outside Mixing Zone Criteria				
		Average				
Parameter	**Units**	**Human Health**	**Agri-Wsupply**	**Aquatic Life**	**Maximum Aquatic Life**	**Inside Mixing Zone Maximum**
Chlorine	µg/l	–	--	11	19	38
Chromium, Hex-val	µg/l	–	--	11	16	31
Copper	µg/l	--	500	12	18	36(70*)
Fluoride	mg/l	--	2	1.	--	--
Nitrate-nitrite	mg/l	10	100	- -	--	--
Selenium, tot. rec.	µg/l	--	50	5	–	--
Zinc	µg/l	--	25000	150	150	300(550*)

* IMZM for outfall 003 calculated based on effluent hardness of 266.

Table 5. Instream Conditions and Discharger Flow

Parameter		Units	Value	Basis
7Q10	cfs	annual	5800	ORSANCO
Harmonic Mean Flow	cfs	annual	23000	ORSANCO
Mixing Assumption	%	average	10	7Q10, chronic criteria default assumption
%		maximum	1	7Q10, acute criteria default assumption
%		AWS, HH	10	Qhm, chronic criteria default assumption
Instream Hardness	mg/l	annual	130	ORSANCO
Effluent Hardness	mg/l	annual	266	Ohio Edison;26 values, 1996-99
Background Water Quality				
Arsenic	µg/l	annual	2.	STORET;16values,15<MDL,1992-97
Beryllium	µg/l	annual	3.	Intake, 2-C
Cadmium	µg/l	annual	0.	STORET;30 values,30<MDL,1992-97
Chlorine, total res	µg/l	annual	0.	No representative data available
Chromium^{+6}, diss	µg/l	annual	0.	No representative data available
Chromium, tot.	µg/l	annual	0.	STORET; 14 values,14<MDL,1992-97
Copper	µg/l	annual	2.5	STORET;30 values,19<MDL,1992-97
Cobalt	µg/l	annual	2.	Intake, 2-C
Fluoride	mg/l	annual	0.4	Intake, 2-C
Lead	µg/l	annual	1.5	STORET; 30 values,18<MDL, 1992-97
Molybdenum	µg/l	annual	0.	No representative data available
Nickel	µg/l	annual	0.	STORET; 15 values,15<MDL,1992-97
Nitrate+nitrite	mg/l	annual	0.84	STORET; 30 values,0 <MDL,1992-97
Selenium	µg/l	annual	0.	STORET;15 values,15<MDL, 1992-97
Thallium	µg/l	annual	13	Intake, 2-C
Zinc	µg/l	annual	26.	STORET;30 values, 5<MDL, 1992-97
Ohio Edison Burger Plant flow				
Outfall 001	cfs	current	324.56	DSW
Outfall 003	cfs	current	6.36	DSW
Outfall 012	cfs	current	.0077	DSW

Table 6.* **Summary of Effluent Limits to Maintain Applicable Water Quality Criteria**

Parameter	Units	Average Human Health	Average Agri Supply	Maximum Aquatic Life	Inside Aquatic Life	Mixing Zone Maximum
Outfall 001						
Chlorine	µg/l	–	–	30.	22.	38.
Nitrate+nitrite	mg/l	–	789.	26.	–	--
Zinc	µg/l	--	198600.[A]	367.	172.	550.
Fluoride	mg/l	--	13.	2.1	–	--
Outfall 003						
Chlorine, tot.res. summer	µg/l	–	–	30.	22.	38.
Chromium^{+6}, dissolved	µg/l	–	–	1576.[A]	978.[A]	31.
Copper	µg/l	--	205500.[A]	1361.[A]	949.[A]	70.
Fluoride	mg/l	--	13.	2.1	–	--
Nitrate+nitrite	mg/l	–	789.	26.	–	--
Selenium	µg/l	--	20680.	716.	–	--
Zinc	µg/l	--	198600.[A]	367.	172.	550.
Outfall 012						
Copper	µg/l	--	205500.[A]	1361.[A]	949.[A]	36.
Fluoride	mg/l	--	13.	2.1	–	--
Nitrate+nitrite	mg/l	–	789.	26.	–	--
Zinc	µg/l	--	198600.[A]	367.[A]	172.	300.

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

* These applicable limits are roll over from 2000 WLA. For outfall 001, fluoride, nitrate-nitrite and zinc do not trigger allocation this time.

Table 7. **Parameter Assessment for Outfall 001**

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

No parameter falls under this group

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

No parameter falls under this group

Group 3: PEQ_{max} < 50% of maximum PEL and PEQ_{avg} < 50% of average PEL. No limit recommended, monitoring optional.

No parameter falls under this group

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.

No parameter falls under this group

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
Chlorine, tot	µg/l	annual	--	22.

Table 8. Parameter Assessment for Outfall 003

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

Total Suspended Solids

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

No parameter falls under this group

Group 3: PEQ_{max} < 50% of maximum PEL and PEQ_{avg} < 50% of average PEL. No limit recommended, monitoring optional.

Copper Selenium Fluoride

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.

No parameter falls under this group

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
Chromium, Hex-val	µg/l	annual	--	31.
Zinc	µg/l	annual	--	172.

Table 9. Parameter Assessment for Outfall 012

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

Total Suspended Solids

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

No parameter falls under this group

Group 3: PEQ_{max} < 50% of maximum PEL and PEQ_{avg} < 50% of average PEL. No limit recommended, monitoring optional.

No parameter falls under this group

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.

Fluoride

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	Recommended Effluent Limits Maximum
Copper	µg/l	annual	–	36.
Nitrate+nitrite	mg/l	annual	26.	–
Zinc	µg/l	annual	–	172.

Table 10. Final Effluent Limits and Monitoring Requirements for Outfall 001

		Effluent Limits				
		Concentration		Loading (kg/day)[a]		
Parameter	Units	30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	Basis[b]
Water Temperature	°C	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Thermal Discharge	Million BTU/HR	-	3760	-	-	EP/316(a)
Total Res. Oxidants	mg/l	-	0.05	-	-	EP
Chlorine, Total Res.	mg/l	-	0.2	-	-	EP
Chlorination/Bromination Duration	MINS	-	120	-	-	EP
pH	S.U.	- - - - - - - - - - - - -	6.5 to 9.0	- - - - - - - - - - - -		WQS
Phenols, Total	ug/l	–	–	–	–	BPJ*

[b,c] See page at the end of the effluent tables for definition of terms and explanation of monitoring requirements.

* monthly intake monitoring shall be done along with effluent monitoring

Table 11. Final Effluent Limits and Monitoring Requirements for Outfall 091

		Effluent Limits				
		Concentration		Loading (kg/day)[a]		
Parameter	Units	30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	Basis[b]
Water Temperature	°C	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Thermal Discharge BTU/HR	Million	-	3760	-	-	EP/316(a)
Total Residual Oxidants	mg/l	-	0.010	-	-	EP
Chlorine, Total Residual	mg/l	-	0.022	-	-	WLA
Chlorination/Bromination Duration	MINS	-	-	-	-	EP
pH	S.U.	- - - - - - - - - - - - -	6.5 to 9.0	- - - - - - - - - - - -		WQS
Phenols, Total	ug/l	–	–	–	–	BPJ*

[b,c] See page at the end of the effluent tables for definition of terms and explanation of monitoring requirements.

* monthly intake monitoring shall be done along with effluent monitoring

Table 12. Final Effluent Limits and Monitoring Requirements for Outfall 002 & 003

		Effluent Limits				
		Concentration		Loading (kg/day)[a]		
Parameter	Units	30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	Basis[b]
Suspended Solids	mg/l	30	100	625	2082	EP/BPT
Oil and Grease	mg/l	15	20	312	416	EP/BPT
Fluoride, Total	mg/l	-	-	-	-	WLA/BPJ
Selenium, tot. rec.	µg/l	-	-	-	-	WLA/BPJ
Zinc, tot. rec.	µg/l	-	-	-	-	WLA/BPJ
Flow	MGD	- - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				M[c]
pH	S.U.	- - - - - - - - - - - - - - 6.5 to 9.0 - - - - - - - - - - - - -				WQS
Chromium, (Cr^{+6})	µg/l	-	31	-	0.645	WLA
Copper, tot. rec.	µg/l	-	-	-	-	WLA/BPJ
Ammonia - N	mg/l	-	-	-	-	BPJ
Mercury (low-level)	ng/l	-	-	-	-	BPJ

[a] Effluent loadings based on average design discharge flow of 5.5 MGD.
[b,c] See page at the end of the effluent tables for definition of terms and explanation of monitoring requirements.

Table 13. Final Effluent Limits and Monitoring Requirements for Outfall 004

		Effluent Limits				
		Concentration		Loading (kg/day)[a]		
Parameter	Units	30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	Basis[b]
Color, Severity	UNITS	-	-	-	-	EP
Suspended Solids	mg/l	30	45	0.114	0.170	EP/BPT
Odor, Severity	UNITS	-	-	-	-	EP
Turbidity, Severity	UNITS	-	-	-	-	EP
Fecal Coliform						
Summer	#/100 ml	200	400	-	-	EP/WQS
Winter	#/100 ml	1000	2000	-	-	EP/WQS
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Total Residual Chlorine	mg/l	-	0.038	-	-	EP/WQS
$CBOD_5$	mg/l	25	40	0.095	0.151	EP
pH	S.U.	- - - - - - - - - - - - -	6.5 to 9.0	- - - - - - - - - - - - -		WQS

[a] Effluent loadings based on average design discharge flow of 0.001 MGD.
[b,c] See page at the end of the effluent tables for definition of terms and explanation of monitoring requirements.

Table 14. Final Effluent Limits and Monitoring Requirements for Outfall 012

		Effluent Limits				
		Concentration		Loading (kg/day)[a]		
		30 Day	Daily	30 Day	Daily	
Parameter	Units	Average	Maximum	Average	Maximum	Basis[b]
Water Temperature	°C	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		EP/M[c]
Color, Severity	Units	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		EP/M[c]
Total Suspended Solids	mg/l	12	18	0.227	0.34	EP/
Nitrogen, Ammonia (NH_3)	mg/l	-	-	-	-	EP
Zinc, Total Rec.	µg/l	-	300	-	0.0056	WLA/BPJ
Copper, Total Rec.	µg/l	-	36	-	0.0007	WLA
Odor, Severity	Units	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Turbidity, Severity	Units	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Fecal Coliform Summer only	#/100ml	200	400	-	-	EP/WQS
Fecal Coliform Winter only	#/100ml	1000	2000	-	-	EP/WQS
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Chlorine, Total Residual	mg/l	-	0.038	-	-	EP
$CBOD_5$	mg/l	10	15	0.189	0.284	EP
pH	S.U.	- - - - - - - - - - - - -	6.5 to 9.0	- - - - - - - - - - - - -		EP/WQS

[a] Effluent loadings based on average design discharge flow of 0.005 MGD.
[b,c] See page at the end of the effluent tables for definition of terms and explanation of monitoring requirements.

Table 15. Final Effluent Limits and Monitoring Requirements for Outfall 604

		Effluent Limits				
		Concentration		Loading (kg/day)[a]		
		30 Day	Daily	30 Day	Daily	
Parameter	Units	Average	Maximum	Average	Maximum	Basis[b]
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Total Suspended Solids	mg/l	30	100	11.36	37.85	EP/BPT
Oil and Grease	mg/l	15	20	5.678	7.57	EP/BPT

[b,c] See page at the end of the effluent tables for definition of terms and explanation of monitoring requirements.
[a] Effluent loadings are based on 0.1 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;
EP = Existing Permit for the Burger Plant;
FEG-BAT = Best Available Control Technology Currently Available, 40 CFR Part 423.13(e);
FEG-BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 423.12(b)(3) and (b)(4);
M = Monitoring;
PD = Plant Design Criteria;
RP = Reasonable Potential for effluent to violate water quality standards, requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A));
316(a) = Water Quality Variance demonstration
WET = Whole Effluent Toxicity (OAC 3745-33-07(B)) ;
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.

Attachment A. Federal Effluent Guidelines Applicable to Ohio Edison Burger Plant

40 CFR 423.12(b)(3) Steam Electric Power Generating Point Source Category

Best Practicable Control Technology Available (BPT)

	---------- (mg/l) ----------	
Parameter	Daily Maximum	30-Day Average
Total Suspended Solids	100.0	30.0
Oil & Grease	20.0	15.0

40 CFR 423.12(b)(4) Steam Electric Power Generating Point Source Category

Best Practicable Control Technology Available (BPT)

	---------- (mg/l) ----------	
Parameter	Daily Maximum	30-Day Average
Total Suspended Solids	100.0	30.0
Oil & Grease	20.0	15.0

40 CFR 423.13(b) Steam Electric Power Generating Point Source Category

Best Available Technology Economically Achievable (BPT)

	---------- (mg/l) ----------	
Parameter	Daily Maximum	30-Day Average
Total Residual Chlorine	0.20	–