5268

OEPA PERMIT NO. 1I000004*BD

07/17/89

OEPA/DOE-FMPC
66
PERMIT

OhioEPA
State of Ohio Environmental Protection Agency
P.O. Box 1049, 1800 WaterMark Dr.
Columbus, Ohio 43266-0149

Original File Copy
5268

Richard F. Celeste
Governor

July 17, 1989

Re: OEPA Permit No. 1IO00004*BD
Facility Name: Feed Materials Production Center

U.S. Department of Energy
Feed Materials Production Center
P.O. Box 398705
Fernald, Ohio 45239

Transmitted herewith is one copy of the Public Notice, Fact Sheet and Draft Permit in the above-referenced matter.

The public has been invited to submit comments regarding this Draft Permit. If sufficient public interest is indicated, a public meeting will be held.

The permit as drafted will be issued as a final action unless the Director revises the permit after consideration of all written comments received during the 30 day period following Public Notice and consideration of the record of a public meeting, if one is held, or unless the draft is disapproved by the Regional Administrator, U.S. Environmental Protection Agency.

You should note that a general condition of your permit states that issuance of an NPDES permit does not relieve you of the duty of complying with all applicable Federal, State, and local laws, ordinances, and regulations.

John J. Sadzewicz, P.E. Manager
Permits Section
Division of Water Pollution Control

JJS/mbn

Certified Mail

Date Rec'd JUL 19 1989
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01

5268

Application No.: OH0009580

OEPA Permit No.: 1IO00004*BD

Public Notice No. OEPA-89-07-049

On the basis of preliminary staff review and application of standards and regulations, the Director of the Ohio Environmental Protection Agency will issue a permit for the discharge subject to certain effluent conditions and special conditions. The draft permit will 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. Any person may submit written comments on the draft permit and administrative record and may request a public hearing. A request for public hearing shall be in writing and shall state the nature of the issues to be raised. In appropriate cases, including cases where there is significant public interest, the Director may hold a public hearing on a draft permit or permits prior to final issuance of the permit or permits. Following final action by the Director, any aggrieved party has the right to appeal to the Environmental Board of Review.

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
Permits Section
P.O. Box 1049
1800 WaterMark Drive
Columbus, Ohio 43266-0149

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

The application, fact sheets, permit including effluent limitations, special conditions, comments received and other documents are available for inspection and may be copied at a cost of 20 cents per page at the Ohio Environmental Protection Agency at the address shown on Page 1 of the Public Notice any time between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday. Copies of the Public Notice are available at no charge at the same address.

Mailing lists are maintained for persons or groups who desire to receive Public Notice for all applications in the state or for certain geographical areas. Persons or groups may also request copies of fact sheets, applications or other documents pertaining to specific applications. Persons or groups may have their names put on such a list by making a written request to the Agency at the address shown above.

Form EPA 4434

IA

- 5268

31/SW

Application No.: OH0009580

OEPA Permit No.: 1IO00004*BD

National Pollutant Discharge Elimination System (NPDES) Permit Program

P U B L I C N O T I C E

NPDES Permit Renewal to Discharge to State Waters

Ohio Environmental Protection Agency
Permits Section
P.O. Box 1049
1800 WaterMark Drive
Columbus, Ohio 43266-0149
614-644-2001

Public Notice No. OEPA-89-07-049
Date of Issue of Public Notice: July 24, 1989

Name and Address of Applicant: U.S. Department of Energy, Feed Materials Production Center, P.O. Box 398705, Fernald, Ohio 45239

Name and Address of Facility where Discharge Occurs: Feed Materials Production Center, 7400 Willey Road, Fernald, Ohio

Location of Discharge: 001 39° 17' 53" N, 84° 40' 48" W
002 39° 17' 36" N, 84° 41' 21" W

Receiving Water: Paddy's Run and the Great Miami River

This applicant is a manufacturer of uranium metal and has 2 existing discharge points. The current operations of this discharger result in an average effluent flow of 1,588,000 gallons per day. Key parameters to be limited in the permit are as follows: Total Suspended Solids, Dissolved Oxygen, Total Oil & Grease, Total Cyanide, Total Copper, Total Lead, Total Silver, $CBOD_5$, pH, Total Chromium, Total Nickel, Dissolved Hexavalent Chromium, Total Fluoride, Fecal Coliform, Nitrate (N).

Form EPA 4434

02

DRAFT COPY
SUBJECT TO REVISION
OEPA

OEPA Permit No. 1IO00004*BD

Application No. OH0009580

Effective Date:

Expiration Date: 5 Years

OHIO ENVIRONMENTAL PROTECTION AGENCY

AUTHORIZATION TO DISCHARGE UNDER THE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et. seq. hereinafter referred to as "the Act"), and the Ohio Water Pollution Control Act (Ohio Revised Code Section 6111),

The Department of Energy

is authorized by the Ohio Environmental Protection Agency, hereafter referred to as "Ohio EPA", to discharge from the Feed Materials Production Center wastewater treatment works located at 7400 Willey Road, Fernald, Ohio, Hamilton County

and discharging to Paddy's Run and the Great Miami River

in accordance with the conditions specified in Parts I, II and III of this permit.

This permit is conditioned upon payment of applicable fees as required by Section 3745.11 of the Ohio Revised Code.

This permit and the authorization to discharge shall expire at midnight on the expiration date shown above. In order to receive authorization to discharge beyond the above date of expiration, the permittee shall submit such information and forms as are required by the Ohio EPA no later than 180 days prior to the above date of expiration.

Stephen A. Scoles
Acting Assistant Director

6297P

Form EPA 4428

PART I, A. - FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting until the expiration date, the permittee is authorized to discharge in accordance with the following limitations and monitoring requirements from the following outfall: 1I000004001. SEE PART II, OTHER REQUIREMENTS, for location of effluent sampling.

EFFLUENT CHARACTERISTIC		DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Concentration		Loading*			
REPORTING		Other Units (Specify)		kg/day		Measurement	Sample
CODE/UNITS	PARAMETER	30 DAY	DAILY	30 DAY	DAILY	Frequency	Type
00300 MG/L	Dissolved Oxygen	-	(5.0 Min)	-	-	1/Week	Grab
00530 MG/L	Residue, Total Nonfilterable	20	30	47	70	1/Week	24 Hr. Comp.
00550 MG/L	Oil and Grease, Total	15	15	35	35	1/Week	Grab
00610 MG/L	Nitrogen, Ammonia (NH_3)	-	-	-	-	1/Week	24 Hr. Comp.
00620 MG/L	Nitrate-N	-	-	-	-	1/Week	24 Hr. Comp.
00720 MG/L	Cyanide, Total	0.051	0.076	0.120	0.178	1/Week	Grab
00951 MG/L	Fluoride, Total (F)	-	-	-	-	1/Week	24 Hr. Comp.
01034 UG/L	Chromium, Total (Cr)	-	-	-	-	1/Week	24 Hr. Comp.
01042 UG/L	Copper, Total (Cu)	33	94	0.077	0.221	1/Week	24 Hr. Comp.
01051 UG/L	Lead, Total (Pb)	85	776	0.199	1 82	1/Week	24 Hr. Comp.
01067 UG/L	Nickel, Total (Ni)	-	-	-	-	1/Week	24 Hr. Comp.
01077 UG/L	Silver, Total (Ag)	17	26	0.040	0.061	1/Week	24 Hr. Comp.
01220 UG/L	Chromium, Dissolved Hexavalent	-	-	-	-	1/Week	24 Hr. Comp.
50050 MGD	Flow Rate	-	-	-	-	Daily	24 Hr. Total
80082 MG/L	Biochemical Oxygen Demand, Carb.	20	30	47	70	1/Week	24 Hr. Comp.

* Loadings are based on 0.620 MGD

2. The pH (Reporting Codes 00402 (minimum) and 00401 (maximum)) shall not be less than 6.5 S.U. nor greater than 9.0 S.U. and shall be monitored continuously.

3. Samples taken in compliance with monitoring requirements specified above shall be taken at Sampling Stations described in Part II, OTHER REQUIREMENTS.

PART I, A. - FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting until the expiration date, the permittee is authorized to discharge in accordance with the following limitations and monitoring requirements from the following outfall: 1I000004002. SEE PART II, OTHER REQUIREMENTS, for location of effluent sampling.

EFFLUENT CHARACTERISTIC		DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Concentration		Loading**			
REPORTING		Other Units (Specify)		kg/day		Measurement	Sample
CODE/UNITS	PARAMETER	30 DAY	DAILY	30 DAY	DAILY	Frequency*	Type
00530 MG/L	Residue, Total Nonfilterable	-	100	-	362	Daily	24 Hr. Comp.
00550 MG/L	Oil and Grease, Total	-	20	-	72	Daily	Grab
00610 MG/L	Nitrogen, Ammonia (NH_3)		-	-	-	Daily	24 Hr. Comp.
00620 MG/L	Nitrogen, Nitrate (NO_3)	-	-	-	-	Daily	24 Hr. Comp.
00951 MG/L	Fluoride, Total (F)	-	-	-	-	Daily	24 Hr. Comp.
01034 UG/L	Chromium, Total (Cr)	-	3986	-	14	Daily	24 Hr. Comp.
01042 UG/L	Copper, Total (Cu)	-	45	-	0.16	Daily	24 Hr. Comp.
01067 UG/L	Nickel, Total (Ni)	-	3137	-	11	Daily	24 Hr. Comp.
01077 UG/L	Silver, Total (Ag)	-	11.6	-	0.04	Daily	24 Hr. Comp.
01220 UG/L	Chromium, Hex. (Dissolved)	-	19	-	0.07	Daily	24 Hr. Comp.
50050 MGD	Flow Rate	-	-	-	-	Daily	24 Hr. Total

* When discharging.
** Loadings are based on 0.957 MGD.

This discharge shall consist only of stormwater.

2. The pH (Reporting Codes 00402 (minimum) and 00401 (maximum)) shall not be less than 6.5 S.U. nor greater than 9.0 S.U. and shall be monitored continuously while discharging.

3. Samples taken in compliance with monitoring requirements specified above shall be taken at Sampling Stations described in Part II, OTHER REQUIREMENTS.

PART I, A. - INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting until 22 months from the effective date of this permit, the permittee is authorized to discharge in accordance with the following limitations and monitoring requirements from the following outfall: 1I000004601. SEE PART II, OTHER REQUIREMENTS, for location of effluent sampling.

EFFLUENT CHARACTERISTIC		DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Concentration Other Units (Specify)		Loading* kg/day			
REPORTING CODE/UNITS	PARAMETER	30 DAY	DAILY	30 DAY	DAILY	Measurement Frequency	Sample Type
00310 MG/L	Biochemical Oxygen Demand, 5 Day	43	65	36	55	1/Week	24 Hr. Comp.
00530 MG/L	Residue, Total Nonfilterable	46	69	41	58	1/Week	24 Hr. Comp.
00610 MG/L	Nitrogen, Ammonia (NH_3)	-	-	-	-	1/Week	24 Hr. Comp.
00951 MG/L	Fluoride, Total (F)	2.6	7.4	2.2	6.3	1/Week	24 Hr. Comp.
01034 UG/L	Chromium, Total (Cr)	19	45	0.0162	0.0378	1/Week	24 Hr. Comp.
01042 UG/L	Copper, Total (Cu)	75	153	0.0637	0.1295	1/Week	24 Hr. Comp.
01067 UG/L	Nickel, Total (Ni)	48	69	0.0403	0.0586	1/Week	24 Hr. Comp.
31616 #/100ML	Fecal Coliform	1000	2000	-		1/Week	24 Hr. Comp.
50050 MGD	Flow Rate	-	-	-	-	Daily	24 Hr. Total

* Loadings are based on 0.223 MGD.

2. The pH (Reporting Codes 00402 (minimum) and 00401 (maximum)) shall not be less than 7.5 S.U. nor greater than 10.0 S.U. and shall be monitored continuously.

3. Samples taken in compliance with monitoring requirements specified above shall be taken at Sampling Stations described in Part II, OTHER REQUIREMENTS.

PART I, A. - FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning 22 months from the effective date of this permit and lasting until the expiration date, the permittee is authorized to discharge in accordance with the following limitations and monitoring requirements from the following outfall: 1I000004601. SEE PART II, OTHER REQUIREMENTS, for location of effluent sampling.

EFFLUENT CHARACTERISTIC		DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Concentration Other Units (Specify)		Loading** kg/day			
REPORTING CODE/UNITS	PARAMETER	30 DAY	DAILY	30 DAY	DAILY	Measurement Frequency	Sample Type
00310 MG/L	Biochemical Oxygen Demand, 5 Day	12.5	18.7	6	9	1/Week	24 Hr. Comp.
00530 MG/L	Residue, Total Nonfilterable	16	24	8	12	1/Week	24 Hr. Comp.
00610 MG/L	Nitrogen, Ammonia (NH_3)	-	-	-	-	1/Week	24 Hr. Comp.
00951 MG/L	Fluoride, Total (F)	2.1	4.8	1.08	2.43	1/Week	24 Hr. Comp.
01034 UG/L	Chromium, Total (Cr)	12	30	0.006	0.015	1/Week	24 Hr. Comp.
01042 UG/L	Copper, Total (Cu)	49	105	0.025	0.053	1/Week	24 Hr. Comp.
01067 UG/L	Nickel, Total (Ni)	30	45	0.015	0.023	1/Week	24 Hr. Comp.
31616 #/100ML	Fecal Coliform*	1000	2000	-	-	1/Week	24 Hr. Comp.
50050 MGD	Flow Rate	-	-	-	-	Daily	24 Hr. Total

* Summer only.
** Loadings are based on a flow rate of 0.134 MGD.

2. The pH (Reporting Codes 00402 (minimum) and 00401 (maximum)) shall not be less than 7.5 S.U. nor greater than 10.0 S.U. and shall be monitored continuously.

3. Samples taken in compliance with monitoring requirements specified above shall be taken at Sampling Stations described in Part II, OTHER REQUIREMENTS.

PART I, A. - FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting until the expiration date, the permittee is authorized to discharge in accordance with the following limitations and monitoring requirements from the following outfall: 1IO00004602. SEE PART II, OTHER REQUIREMENTS, for location of effluent sampling.

EFFLUENT CHARACTERISTIC		DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Concentration		loading*			
REPORTING		Other Units (Specify)		kg/day		Measurement	Sample
CODE/UNITS	PARAMETER	30 DAY	DAILY	30 DAY	DAILY	Frequency	Type
01034 UG/L	Chromium, Total (Cr)	16	21	0.010	0.013	1/Week	24 Hr. Comp.
01042 UG/L	Copper, Total (Cu)	25	42	0.016	0.027	1/Week	24 Hr. Comp.
01067 UG/L	Nickel, Total (Ni)	35	63	0.022	0.040	1/Week	24 Hr. Comp.
01220 UG/L	Chromium, Dissolved Hexavalent	4.3	6.5	0.003	0.004	1/Week	24 Hr. Comp.
50050 MGD	Flow Rate	-	-	-	-	Daily	24 Hr. Total

* Loadings are based on 0.17 MGD.

2. The pH (Reporting Codes 00402 (minimum) and 00401 (maximum)) shall not be less than 6.5 S.U. nor greater than 9.0 S.U. and shall be monitored continuously.

3. Samples taken in compliance with monitoring requirements specified above shall be taken at Sampling Stations described in Part II, OTHER REQUIREMENTS.

PART I, A. - FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting until the expiration date, the permittee is authorized to discharge in accordance with the following limitations and monitoring requirements from the following outfall: 1I000004603. SEE PART II, OTHER REQUIREMENTS, for location of effluent sampling.

EFFLUENT CHARACTERISTIC	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	Concentration		Loading			
REPORTING	Other Units (Specify)		kg/day		Measurement	Sample
CODE/UNITS PARAMETER	30 DAY	DAILY	30 DAY	DAILY	Frequency	Type

During the period in which all four of the biodenitrification towers will be temporarily out of operation (due to the construction of the biodenitrification facility) and lasting a minimum of 4 weeks and maximum 16 weeks inclusive of February 12, 1990, to June 1, 1990, the permittee will be permitted to discharge excess stormwater from the clearwell via internal monitoring station 1I000004603 to manhole #175.

Once the biodenitrification towers are back in operation, sometime within the above permitted time frame, stormwater from the clearwell shall then be pumped only to the biosurge lagoon without further exception.

PART I, A. - FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting until the expiration date, the permittee is authorized to discharge in accordance with the following limitations and monitoring requirements from the following outfall: 1IO00004604. SEE PART II, OTHER REQUIREMENTS, for location of effluent sampling.

EFFLUENT CHARACTERISTIC		DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Concentration		Loading*			
REPORTING		Other Units (Specify)		kg/day		Measurement	Sample
CODE/UNITS	PARAMETER	30 DAY	DAILY	30 DAY	DAILY	Frequency	Type
00530 MG/L	Residue, Total Nonfilterable	30	100	26	86	1/Week	24 Hr. Comp.
00550 MG/L	Oil and Grease, Total	15	15	13	13	1/Week	Grab
00620 MG/L	Nitrate-N	-	-	-	-	1/Week	24 Hr. Comp.
00951 MG/L	Fluoride, Total (F)	-	-	-	-	1/Week	24 Hr. Comp.
50050 MGD	Flow Rate	-	-	-	-	Daily	24 Hr. Total

* Loadings are based on 0.228 MGD

2. The pH (Reporting Codes 00402 (minimum) and 00401 (maximum)) shall not be less than 6.5 S.U. nor greater than 9.0 S.U. and shall be monitored continuously.

3. Samples taken in compliance with monitoring requirements specified above shall be taken at Sampling Stations described in Part II, OTHER REQUIREMENTS.

PART I, A. - FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting until the expiration date, the permittee is authorized to discharge in accordance with the following limitations and monitoring requirements from the following outfall: 1IO00004605. SEE PART II, OTHER REQUIREMENTS, for location of effluent sampling.

EFFLUENT CHARACTERISTIC		DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Concentration		Loading*			
REPORTING		Other Units (Specify)		kg/day		Measurement	Sample
CODE/UNITS	PARAMETER	30 DAY	DAILY	30 DAY	DAILY	Frequency	Type
00310 MG/L	Biochemical Oxygen Demand, 5 Day	30	45	10	15	1/Week	24 Hr. Comp.
00530 MG/L	Residue, Total Nonfilterable	30	45	10	15	1/Week	24 Hr. Comp.
00610 MG/L	Nitrogen, Ammonia (NH_3)	-	-	-	-	1/Week	24 Hr. Comp.
00620 MG/L	Nitrate-N	182	364	62	124	1/Week	24 Hr. Comp.
00951 MG/L	Fluoride, Total (F)	3.3	11.2	1.1187	3.8247	1/Week	24 Hr. Comp.
01034 UG/L	Chromium, Total (Cr)	30	66	0.0101	0.0226	1/Week	24 Hr. Comp.
01042 UG/L	Copper, Total (Cu)	114	226	0.0387	0.0770	1/Week	24 Hr. Comp.
01067 UG/L	Nickel, Total (Ni)	74	106	0.0251	0.0361	1/Week	24 Hr. Comp.
01220 UG/L	Chromium, Dissolved Hexavalent	-	-	-	-	1/Week	24 Hr. Comp.
50050 MGD	Flow Rate	-	-	-	-	Daily	24 Hr. Total

* Loadings are based on 0.09 MGD

2. The pH (Reporting Codes 00402 (minimum) and 00401 (maximum)) shall not be less than 7.5 S.U. nor greater than 10.0 S.U. and shall be monitored continuously.

3. Samples taken in compliance with monitoring requirements specified above shall be taken at Sampling Stations described in Part II, OTHER REQUIREMENTS.

PART I, A. - FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting until the expiration date, the permittee is authorized to discharge in accordance with the following limitations and monitoring requirements from the following outfall: 1I000004606. SEE PART II, OTHER REQUIREMENTS, for location of effluent sampling.

EFFLUENT CHARACTERISTIC		DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Concentration		Loading			
REPORTING		Other Units (Specify)		kg/day		Measurement	Sample
CODE/UNITS	PARAMETER	30 DAY	DAILY	30 DAY	DAILY	Frequency	Type
00530 MG/L	Residue, Total Nonfilterable	-	-	-	-	Daily*	24 Hr. Comp.
00550 MG/L	Oil and Grease	-	-	-	-	Daily*	Grab
50050 MGD	Flow Rate	-	-	-	-	Daily*	24 Hr. Total

* When discharging.

2. The pH (Reporting Codes 00402 (minimum) and 00401 (maximum)) shall not be less than 6.5 S.U. nor greater than 9.0 S.U. and shall be monitored continuously.

3. Samples taken in compliance with monitoring requirements specified above shall be taken at Sampling Stations described in Part II, OTHER REQUIREMENTS.

PART I, C. - SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the Final Effluent Limitations for outfall 1I000004601 as specified in Part I.A. of this NPDES permit as expeditiously as practicable. In any event the permittee shall attain final compliance not later than the dates developed in accordance with the following schedule:

   A. Within 6 months of the effective date of this NPDES permit, the permittee shall submit to the Ohio EPA Southwest District Office, a complete and approvable Permit-to-Install (PTI) application and detailed plans for achieving final compliance for outfall 1I000004601.

   B. Within 3 months of the effective date of the PTI the permittee shall initiate construction.

   C. Within 22 months of the effective date of this NPDES permit the permittee shall have completed construction and attained full compliance with the Final Effluent Limitations for Outfall 1I000004601.

2. The permittee shall submit written verification to the Ohio EPA Southwest District Office of the completion of steps 1.B and 1.C of this schedule of compliance within 14 days after completion of each step.

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PART II, OTHER REQUIREMENTS

A. Description of the location of the required sampling stations are as follows:

Sampling Station	Description of Location
1I000004001	Manhole 175, final effluent before Great Miami River
1I000004002	Spillway from stormwater retention basin to Paddy's Run
1I000004601	Sewage treatment plant effluent, after disinfection, prior to mixing with other wastestreams discharged via manhole 175 and final outfall (001)
1I000004602	General sump, effluent directed to manhole 175 then discharged via final outfall (001)
1I000004603	Clearwell effluent pumped through 605, manhole 175 and discharged via final outfall (001)
1I000004604	Storm sewer lift station effluent pumped to manhole 175 and discharged via final outfall (001)
1I000004605	Effluent from biodenitrification after settling and/or biological treatment discharged via manhole 175 and final outfall (001)
1I000004606	Stormwater retention basin pump station effluent discharged via manhole 175 and final outfall (001)

B. In the event the permittee's operation shall require the use of cooling water treatment additives, written permission must be obtained from the Ohio Environmental Protection Agency. The permittee shall demonstrate that the use of the additive in the concentrations expected will not be harmful or inimical to aquatic life as determined by acute static bioassays.

C. Permit limitations may be revised in order to meet water quality standards after a stream use determination and waste load allocation are completed and approved. This permit may be modified, or, alternatively, revoked and reissued, to comply with any applicable water quality effluent limitations.

D. 1. The permittee shall submit to the Ohio EPA Southwest District Office quarterly production reports. These reports shall provide the following information:
   a. The number of days the refinery operated during the previous quarter.
   b. The number of days that effluent was discharged through sampling point 1I000004605 the previous quarter.
   c. Production figures for the previous quarter expressed as metric tons per year for uranium processed in the refinery, uranium trioxide produced, uranium metal produced by magnesium reduction, uranium sawn or ground and uranium surface treated.

   2. The permittee shall submit to the Ohio EPA Southwest District Office by October 1 of each year a production prediction report for the next Federal Fiscal Year. This report shall estimate the production for each of the parameters listed under D.1.c above, expected for that Federal Fiscal Year.

PART II, OTHER REQUIREMENTS (Cont.)

E. On Outfalls where pH is monitored continuously, the permittee shall maintain the pH of such wastewater within the range specified in this permit. Excursions from the range are permitted subject to the following provisions.

1. The total time during which pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month.

2. No individual excursion from the range of pH values shall exceed 60 minutes.

3. The permittee shall report each month for each monitoring station where pH is monitored continuously the following:

   a. the number of pH excursions,

   b. the duration of each excursion,

   c. the date of each excursion, and

   d. the total time of all excursions combined.

F. There shall be no detectable amount of any priority pollutant attributable to cooling tower maintenance chemicals in the cooling tower blowdown wastewater.

G. The permittee shall implement the Best Management Practices (BMP) Plan submitted March, 1988, as approved by Ohio EPA July 10, 1989.

H. The permittee shall amend the BMP plan whenever there is a change in facility design, construction, operation or maintenance which materially affects the facility's potential for discharge of industrial wastes or other wastes into the waters of the State. Proposed changes shall be submitted to Ohio EPA, Southwest District Office for review and approval.

PART III - GENERAL CONDITIONS

1. DEFINITIONS

"daily load limitations" is the total discharge by weight during any calendar day. If only one sample is taken during a day, the weight of pollutant discharge calculated from it is the daily load.

"daily concentration limitation" means the arithmetic average (weighted by flow) of all the determinations of concentration made during the day. If only one sample is taken during the day its concentration is the daily concentration. Coliform bacteria limitations compliance shall be determined using the geometric mean.

"7-day load limitation" is the total discharge by weight during any 7-day period divided by the number of days in that 7-day period that the facility was in operation. If only one sample is taken in a 7-day period the weight of pollutant discharge calculated from it is the 7-day load. If more than one sample is taken during the 7-day period the 7-day load is calculated by determining the daily load for each day sampled, totaling the daily loads for the 7-day period and dividing by the number of days sampled.

"7-day concentration limitation" means the arithmetic average (weighted by flow) of all the determinations of daily concentration limitation made during the 7-day period. If only one sample is taken during the 7-day period, its concentration is the 7-day concentration limitation for that 7-day period. Coliform bacteria limitations compliance shall be determined using the geometric mean.

"30-day load limitation" is the total discharge by weight during any 30-day period divided by the number of days in the 30-day period that the facility was in operation. If only one sample is taken in a 30-day period the weight of pollutant discharge calculated from it is the 30-day load. If more than one sample is taken during one 30-day period the 30-day load is calculated by determining the daily load for each day sampled, totaling the daily loads for the 30-day period and dividing by the number of days sampled.

"30-day concentration limitation" means the arithmetic average (weighted by flow) of all the determinations of daily concentration made during the 30-day period. If only one sample is taken during the 30-day period, its concentration is the 30-day concentration for that 30-day period. Coliform bacteria limitations compliance shall be determined using the geometric mean.

"85 percent removal limitations" means the arithmetic mean of the values for effluent samples collected in a period of 30 consecutive days shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

Absolute Limitations. Compliance with limitations having descriptions of "shall not be less than", "nor greater than", "shall not exceed", "minimum", or "maximum", shall be determined from any single value for effluent samples and/or measurements collected.

"Net concentration" shall mean the difference between the concentration of a given substance in a sample taken of the discharge and the concentration of the same substances in a sample taken at the intake which supplies water to the given process. For the purpose of this definition samples that are taken to determine the net concentration shall always be 24-hour composite samples made up of at least six increments taken at regular intervals throughout the plant day.

"Net load" shall mean the difference between the load of a given substance as calculated from a sample taken of the discharge and the load of the same substance in a sample taken at the intake which supplies water to given process. For purposes of this definition samples that are taken to determine the net loading shall always be 24-hour composite samples made up of at least six increments taken at regular intervals throughout the plant day.

"MGD" means million gallons per day

"mg/l" means milligrams per liter

"ug/l" means micrograms per liter

"Reporting Code" is a five digit number used by the Ohio EPA in processing reported data. The reporting code does not imply the type of analysis used nor the sampling techniques employed.

Quarterly sampling frequency means the sampling shall be done in the months of March, June, August and December.

Yearly sampling frequency means the sampling shall be done in the month of September.

Semi-annual sampling frequency means the sampling shall be done during the months of June and December.

Winter shall be considered to be the period from November 1 thru April 30.

"Bypass" means the intentional diversion of waste streams from any portion of the treatment facility.

Summer shall be considered to be the period from May 1 thru October 31.

"Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

2. GENERAL EFFLUENT LIMITATIONS

The effluent shall, at all times, be free of substances:

A. In amounts that will settle to form putrescent, or otherwise objectionable, sludge deposits; or that will adversely affect aquatic life or water fowl;

B. Of an oily, greasy, or surface-active nature, and of other floating debris, in amounts that will form noticeable accumulations of scum, foam or sheen;

C. In amounts that will alter the natural color or odor of the receiving water to such degree as to create a nuisance;

D. In amounts that either singly or in combination with other substances are toxic to human, animal, or aquatic life;

E. In amounts that are conducive to the growth of aquatic weeds or algae to the extent that such growths become inimical to more desirable forms of aquatic life, or create conditions that are unsightly, or constitute a nuisance in any other fashion;

F. In amounts that will impair designated instream or downstream water uses.

3. FACILITY OPERATION AND QUALITY CONTROL

All wastewater treatment works shall be operated in a manner consistent with the following:

A. At all times, the permittee shall maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee necessary to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with conditions of the permit.

B. The permittee shall effectively monitor the operation and efficiency of treatment and control facilities and the quantity and quality of the treated discharge.

C. Maintenance of wastewater treatment works that results in degradation of effluent quality shall be scheduled during non-critical water quality periods and shall be carried out in a manner approved by the Ohio EPA as specified in the Paragraph in this PART III entitled, "UNAUTHORIZED DISCHARGES".

4. REPORTING

A. Monitoring data required by this permit shall be reported on the Ohio EPA report form (4500) on a monthly basis. Individual reports for each sampling station for each month are to be received no later than the 15th day of the next month. The original plus first copy of the report form must be signed and mailed to:

Ohio Environmental Protection Agency
Div Water Pollution Control
Enforcement Section, ES/MOR
PO Box 1049
Columbus, Ohio 43266-0149

B. If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified below, the results of such monitoring shall be included in the calculation and reporting of the values required in the reports specified above.

C. Analyses of pollutants not required by this permit, except as noted in the preceding paragraph, shall not be reported on Ohio EPA report form (4500) but records shall be retained as specified

5. SAMPLING AND ANALYTICAL METHODS

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored flow. Test procedures for the analysis of pollutants shall conform to regulation 40 CFR 136, "Test Procedures For The Analysis of Pollutants" unless other test procedures have been specified in this permit. The permittee shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals to insure accuracy of measurements.

6. RECORDING OF RESULTS

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

A. The exact place and date of sampling;(time of sampling not required on EPA 4500)

B. The person(s) who performed the sampling or measurements;

C. The date the analyses were performed on those samples;

D. The person(s) who performed the analyses;

E. The analytical techniques or methods used; and

F. The results of all analyses and measurements

7. RECORDS RETENTION

The permittee shall retain all of the following records for the wastewater treatment works for a minimum of three years, including:

A. All sampling and analytical records (including internal sampling data not reported);

B. All original recordings for any continuous monitoring instrumentation;

C. All instrumentation, calibration and maintenance records; and

D. All plant operation and maintenance records.

E. All reports required by this permit.

F. Records of all data used to complete the application for this permit for a period of at least three years from the date of the sample, measurement, report or application.

These periods will be extended during the course of any unresolved litigation, or when so requested by the Regional Administrator or the Ohio EPA. The three year period for retention of records shall start from the date of sample, measurement, report or application.

8. AVAILABILITY OF REPORTS

Except for data determined by the Ohio EPA to be entitled confidential status, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the appropriate District Offices of the Ohio EPA. Both the Clean Water Act and Section 6111.05 Ohio Revised Code state that effluent data and receiving water quality data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in the Ohio Revised Code Section 6111.99.

9. DUTY TO PROVIDE INFORMATION

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

10. RIGHT OF ENTRY

The permittee shall allow the Director, or an authorized representative upon presentation of credentials and other documents as may be required by law to;

A. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit.

B. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit.

C. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit.

D. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

11. UNAUTHORIZED DISCHARGES

A. Bypassing or diverting of wastewater from the treatment works is prohibited unless:

1. Bypass was unavoidable to prevent loss of life, personal injury or severe property damage;

2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of downtime. This condition is not satisfied if adequate back up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

3. The permittee submitted notices as required under paragraph C. of this section.

B. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.

C. The Director may approve an unanticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed in paragraph 11. A. of this section.

D. The permittee shall submit notice of an unanticipated bypass as required in section 12 (one hour notice).

E. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded if that bypass is for essential maintenance to assure efficient operation.

12. NONCOMPLIANCE NOTIFICATION

A. The permittee shall by telephone report any of the following within one hour of discovery, at (toll free) 1-800-282-9378:

1. Any noncompliance which may endanger health or the environment;

2. Any unanticipated bypass which exceeds any effluent limitation in the permit;

3. Any upset which exceeds any effluent limitation in the permit; or

4. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the permit to be reported within 24 hours.

B. For these telephone reports, the following information must be included:

1. The times at which the discharge occurred, and was discovered;

2. The approximate amount and the characteristics of ths discharge;

3. The stream(s) affected by the discharge;

4. The circumstances which created the discharge;

5. The names and telephone numbers of the persons who have knowledge of these circumstances;

6. What remedial steps are being taken; and

7. The names and telephone numbers of the persons responsible for such remedial steps.

C. These telephone reports shall be confirmed in writing within five days of the discharge and submitted to the appropriate Ohio EPA District office. The report shall include the following:

1. The limitation(s) which has been exceeded;

2. The extent of the exceedance(s);

3. The cause of the exceedance(s);

4. The period of the exceedance(s) including exact dates and times;

5. If uncorrected, the anticipated time the exceedance(s) is expected to continue, and

6. Steps being taken to reduce, eliminate and/or prevent recurrence of the exceedance(s).

D. Compliance Schedule Events:

If the permittee is unable to meet any date for achieving an event, as specified in the Schedule of Compliance, the permittee shall submit a written report to the appropriate District Office of the Ohio EPA within 14 days of becoming aware of such situation. The report shall include the following:

1. The compliance event which has been or will be violated;

2. The cause of the violation;

3. The remedial action being taken;

4. The probable date by which compliance will occur; and

5. The probability of complying with subsequent and final events as scheduled.

E. The permittee shall report all instances of noncompliance not reported under paragraphs A, C, or D of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph C of this section.

F. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.

13. RESERVED

14. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

15. AUTHORIZED DISCHARGES

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than, or at a level in excess of, that authorized by this permit shall constitute a violation of the terms and conditions of this permit. Such violations may result in the imposition of civil and/or criminal penalties as provided for in Section 309 of the Act, and Ohio Revised Code Sections 6111.09 and 6111.99

16. DISCHARGE CHANGES

The following changes must be reported to the appropriate Ohio EPA District Office as soon as practicable.

A. For all treatment works, any significant change in character of the discharge which the permittee knows or has reason to believe has occurred or will occur which would constitute cause for modification or revocation and reissuance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. Notification of permit changes or anticipated noncompliance does not stay any permit condition.

B. For publicly owned treatment works:

1. Any proposed plant modification, addition and/or expansion that will change the capacity or efficiency of the plant;
2. The addition of any new significant industrial discharge; and
3. Changes in the quantity or quality of the wastes from existing tributary industrial discharges which will result in significant new or increased discharges of pollutants.

C. For non-publicly owned treatment works, any proposed facility expansions, production increases, or process modifications, which will result in new, different, or increased discharges of pollutants.

Following this notice, modifications to the permit may be made to reflect any necessary changes in permit conditions, including any necessary effluent limitations for any pollutants not identified and limited herein. A determination will also be made as to whether a National Environmental Policy Act (NEPA) review will be required. Sections 6111.44 and 6111.45, Ohio Revised Code, require that plans for treatment works or improvements to such works be approved by the Director of the Ohio EPA prior to initiation of construction.

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D. In addition to the reporting requirements under 40 CFR 122.41(l) and per 40 CFR 122.42(a), all existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:

1. That any activity has occurred or will occur which would result in the discharge on a routine or frequent basis of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the "notification levels" specified in 40 CFR Sections 122.42(a)(1)(i) through 122.42(a)(1)(iv).

2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the "notification levels" specified in 122.42(a)(2)(i) through 122.42(a)(2)(iv).

17. TOXIC POLLUTANTS

The permittee shall comply with effluent standards or prohibitions established under Section 307 (a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement. Following establishment of such standards or prohibitions, the Director shall modify this permit and so notify the permittee.

18. PERMIT MODIFICATION OR REVOCATION

A. After notice and opportunity for a hearing, this permit may be modified or revoked, by the Ohio EPA, in whole or in part during its term for cause including, but not limited to, the following:

1. violation of any terms or conditions of this permit;
2. obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
3. a change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

B. Pursuant to rule 3745-33-06, Ohio Administrative Code the permittee may at any time apply to the Ohio EPA for modification of any part of this permit. The filing of a request by the permittee for a permit modification or revocation does not stay any permit condition. The application for modification should be received by the appropriate Ohio EPA District Office at least ninety days before the date on which it is desired that the modification become effective. The application shall be made only on forms approved by the Ohio EPA.

19. TRANSFER OF OWNERSHIP OR CONTROL

This permit cannot be transferred or assigned nor shall a new owner or successor be authorized to discharge from this facility, until the following requirements are met:

A. The permittee shall notify the succeeding owner or successor of the existence of this permit by a letter, a copy of which shall be forwarded to the appropriate Ohio EPA District Office. The copy of that letter will serve as the permittee's notice to the Director of the proposed transfer. The copy of that letter shall be received by the appropriate Ohio EPA District Office sixty days prior to the proposed date of transfer;

B. A written agreement containing a specific date for transfer of permit responsibility and coverage between the current and new permittees (including acknowledgement that the existing permittee is liable for violations up to that date, and that the new permittee is liable for violations from that date on) shall be submitted to the appropriate Ohio EPA District Office within sixty days after receipt by the District Office of the copy of the letter from the permittee to the succeeding owner;

C. The Director does not exercise his right within thirty days after receipt of the written agreement to notify the current permittee and the new permittee of his or her intent to modify or revoke the permit and to require that a new application be filed; and

D. The new owner or successor receives written confirmation and approval of the transfer from the Director of the Ohio EPA.

20. OIL AND HAZARDOUS SUBSTANCE LIABILITY

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalities to which the permittee is or may be subject under Section 311 of the Act.

21. SOLIDS DISPOSAL

Collected screenings, slurries, sludges and other solids shall be disposed of in such a manner as to prevent entry of those wastes into waters of the State. For publicly owned treatment works these shall be disposed of in accordance with the approved OEPA Sludge Management Plan.

22. CONSTRUCTION AFFECTING NAVIGABLE WATERS

This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any navigable waters.

23. CIVIL AND CRIMINAL LIABILITY

Except as exempted in the permit conditions on UNAUTHORIZED DISCHARGES or UPSETS, nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

24. STATE LAWS AND REGULATIONS

Nothing in this permit shall be construed to preclude the institution of any legal action nor relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Act.

25. PROPERTY RIGHTS

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, state, or local laws or regulations.

26. UPSET

The provisions of 40 CFR Section 122.41(n), relating to "Upset," are specifically incorporated herein by reference in their entirety. For definition of "upset", see Part 1.

27. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

28. SIGNATORY REQUIREMENTS

All applications submitted to the Director shall be signed and certified in accordance with the requirements of 40 CFR 122.22(b) and (c).

All reports submitted to the Director shall be signed and certified in accordance with the requirements of 40 CFR Section 122.22(b) and (c).

29. OTHER INFORMATION

A. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.

B. ORC 6111.99 provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $25,000 per violation.

C. ORC 6111.99, states that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $25,000 per violation.

D. ORC 6111.99 provides that any person who violates Sections 6111.04, 6111.042, 6111.05, or division (A) of Section 6111.07 of the Revised Code shall be fined not more than twenty-five thousand dollars or imprisoned not more than one year, or both.

30. NEED TO HALT OR REDUCE ACTIVITY

40 CFR 122.41(c), states that it shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with conditions of this permit.

31. APPLICABLE FEDERAL RULES

All references to 40 CFR in this permit mean the version of 40 CFR which is effective as of the effective date of this permit.

Division of Water Pollution Control
Permits Section

F A C T S H E E T

Regarding an NPDES Permit to Discharge to Waters of the State of Ohio for the U.S. Department of Energy-Feed Materials Production Center

Public Notice No.: 89-07-049
Public Notice Date: July 24, 1989
Comment Period Ends: August 24, 1989

OEPA Permit No.: 1IO00004*BD
Application No.: OH0009580

Name and Address of Applicant:

U.S. Department of Energy (DOE)
P.O. Box 398705
Cincinnati, Ohio 45239

Name and Address of Facility where Discharge occurs:

U.S. DOE
Feed Materials Production Center
7400 Willey Road
Fernald, Ohio 45030

Receiving Waters: Paddy's Run (002)
Great Miami River (001)

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, Sections 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 of OEPA 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
P. O. Box 1049
1800 WaterMark Drive
Columbus, Ohio 43266-0149

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
John Sadzewicz, Manager
Permits Section
P. O. Box 1049
1800 WaterMark Drive
Columbus, Ohio 43266-0149

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.

The application, fact sheet, public notice, permit including effluent limitations, special conditions, comments received and other documents are available for inspection and may be copied at a cost of 20 cents per page at the Ohio Environmental Protection Agency at the address shown above any time between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday. Copies of the Public notice are available at no charge at the same address.

Discharge Location

The U.S. DOE Feed Materials Production Center (FMPC) located in Fernald, Ohio (Hamilton County) discharges via outfall 001 to the Great Miami River at river mile (RM) 24.73 and via outfall 002 to Paddy's Run at RM 2.50. Paddy's Run flows into the Great Miami River at RM 20.2 and the Great Miami River flows into the Ohio River. Figure 1 shows the general location of this facility.

Several in-plant outfalls (601-605) are either direct or indirect tributaries to outfall 001. Table 1 provides a description of these internal outfalls (plus a proposed new internal outfall 606), as well as outfalls 001 and 002.

Facility Description

The FMPC is owned and operated by the U.S. DOE with mission and program direction administered through the Oak Ridge Operations Office in Oak Ridge, Tennessee.

The FMPC is a fully integrated, large-scale facility for producing and fabricating uranium metal having various isotopic assays ranging from enriched to depleted. Currently the feed stock consists of recycle uranium materials (hexafluoride, trioxides, and elemental metal). The product uranium metal is fabricated into fuel cores and target elements for use in nuclear reactors at other DOE sites. The processes at the FMPC are classified under the Standard Industrial Classification (SIC) Code 2819 - Industrial Inorganic Chemicals, not elsewhere classified.

Natural uranium (U) contains three isotopes: U-238, 99.3%; U-235, 0.7%; and U-234, a trace. Enriched/depleted refers to the percentage of U-235. Any uranium product containing greater than 0.7% U-235 is enriched, conversely, anything less than that is depleted. The FMPC products normally range from 0.2% to 2.0% U-235.

Production at the FMPC is conducted on a campaign basis and usually is in batches. Large-scale chemical and metallurgical operations at the FMPC consist of the following:

* Dissolving uranium recycle materials (elemental metal and oxides) in nitric acid to produce an impure uranyl nitrate solution.

* Purification of the uranyl nitrate solution by extraction with a mixture of tributyl phosphate/kerosene followed by re-extraction with deionized water.

* Concentration of the purified uranyl nitrate solution by evaporation followed by conversion to uranium trioxide (UO_3) by thermal denitration.

* Conversion of UO_3 to uranium tetrafluoride (UF_4) with dissociated ammonia and hydrogen fluoride.

* Reduction of UF_4 to uranium metal in a thermite-type reaction with magnesium.

* Casting of cylindrical ingots and billets.

* Metal pickling and chip briquetting.

* Furnacing and wet chemical processing of lowgrade uranium recycle materials to produce refinery feed.

* Ingot and billet machining.

* Chemical decladding of zirconium, copper and aluminum clad fuel cores.

Figure 2 provides the wastewater flow diagram for the FMPC once the improvements described in footnote f on page 8 are completed. Table 1 provides a description of the FMPC outfalls, the types of waste, the treatment systems used, and the discharge points.

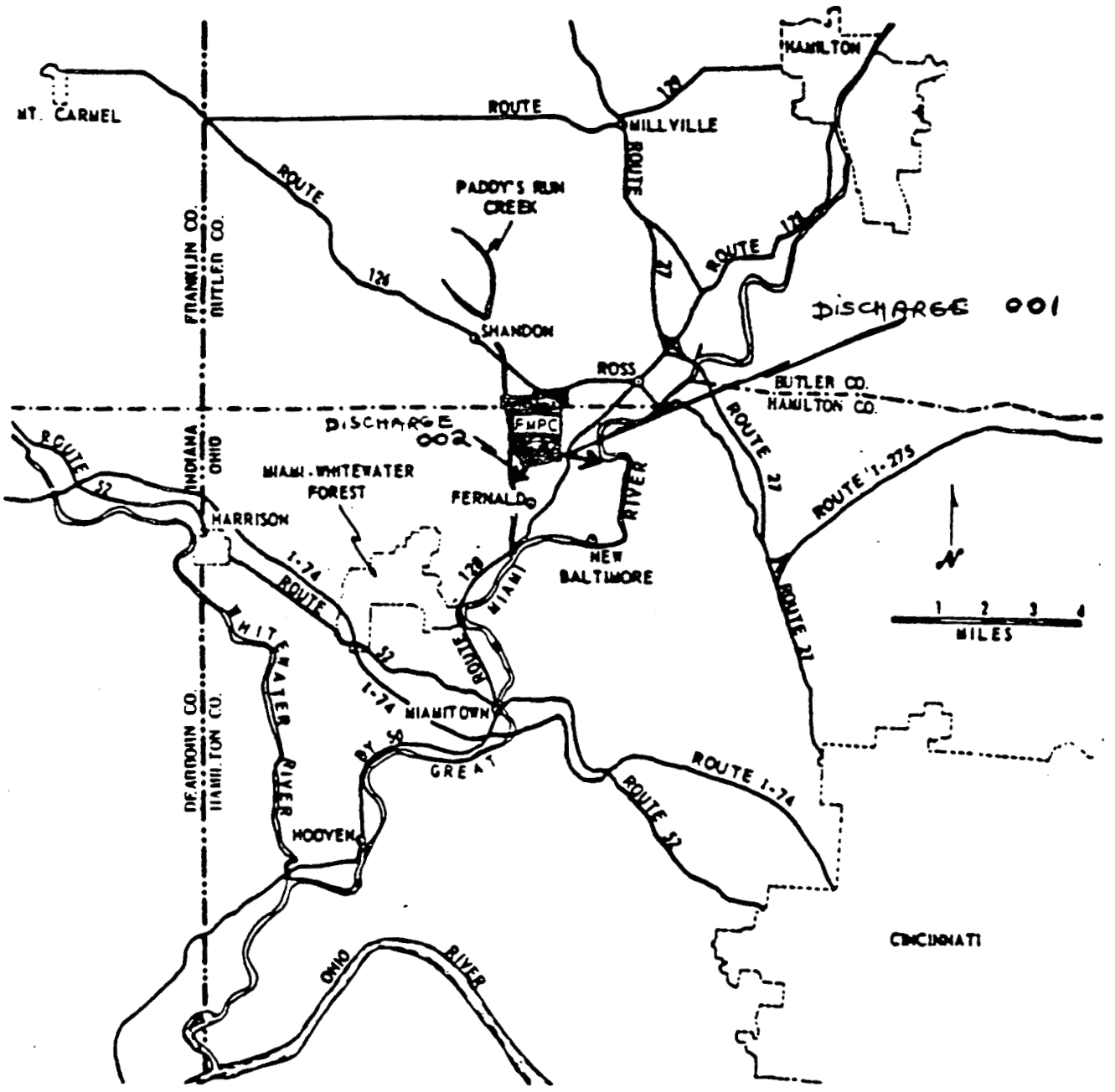

Figure 1. Approximate location of the FMPC discharges to the Great Miami River (001) and to Paddy's Run (002) in Hamilton County.

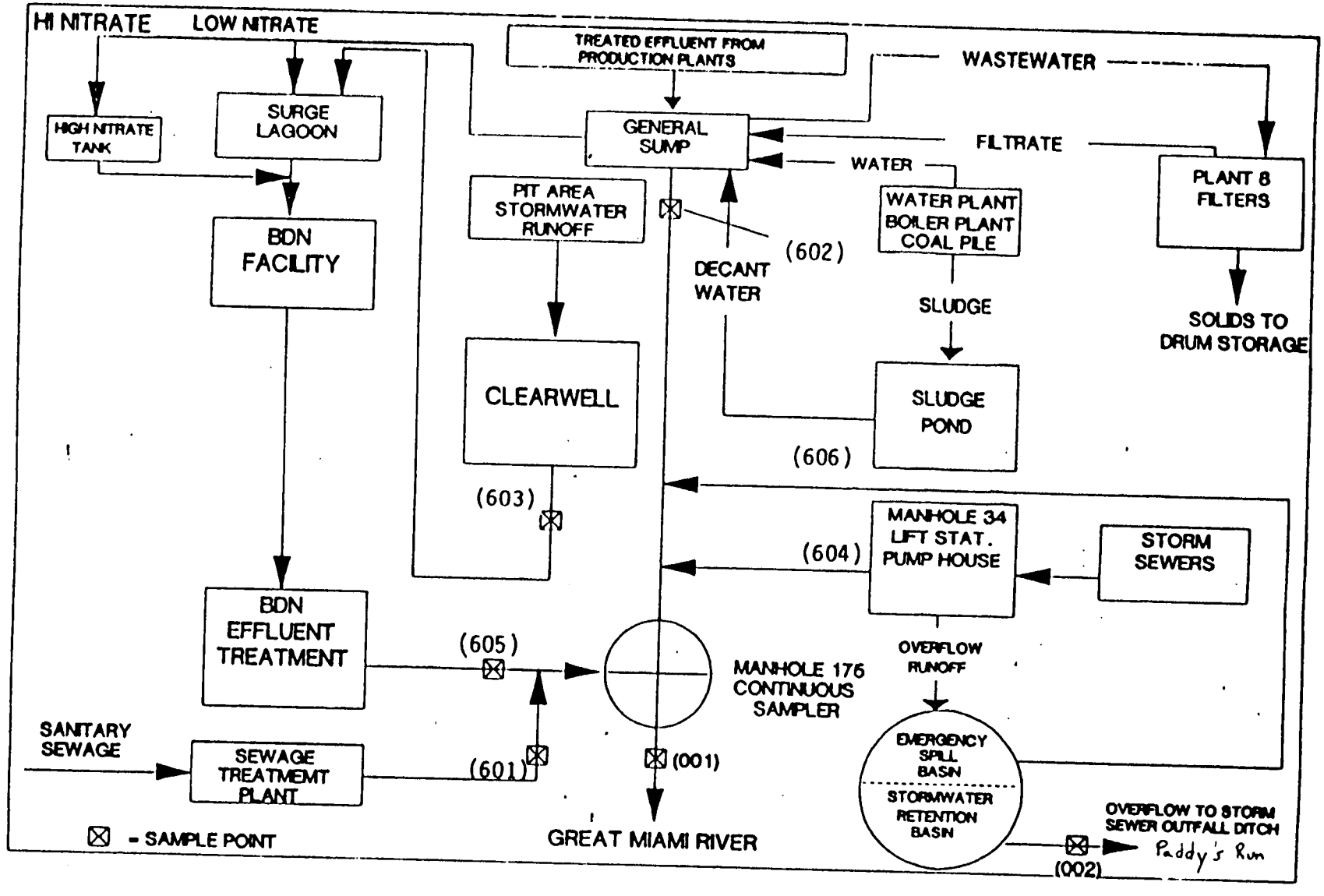

Figure 2. Future FMPC Wastewater Flow Diagram.

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5268

0132F (H-11)

Table 1. Description of the FMPC outfalls and treatment systems used. 5268

Outfall/ Internal Monitoring Station	Type of Waste	Treatment System Used	Discharge Point
001	Stormwater Runoff, Sanitary Wastewater, Process Wastewater, Cooling Water	Manhole 175 - No treatment at this location; treated waste streams converge here	Great Miami River
002	Stormwater Runoff	Stormwater Retention Basin-Sedimentation	Paddy's Run[a]
601	Sanitary Wastewater,[f] Laundry Washwater	Secondary Sewage Treatment Plant - communition, grit removal, settling, trickling filtration, UV disinfection	Internal to 001
602	Regeneration/Blowdowns, Water Plant, Process Wastewater, Coal Pile Runoff	General Sump[b] - flocculation, sedimentation, coagulation, neutralization	Internal to 001
603	Waste Pit Area Stormwater Runoff	Clearwell[c] - sedimentation	Internal to 605
604	Facility Area Runoff, Infiltration, Condensate	Storm Sewer Lift Station - No treatment here	Internal to 001[d]
605	Waste Pit Area Runoff, Process Wastewater	Sedimentation, biodenitrification[e]	Internal to 001[f]
606	Stormwater Runoff	Stormwater Retention Basin Lift Station - No treatment here	Internal to 001

a Outfall 002 only discharges to Paddy's Run in the event of rainfall exceeding the 10 year, 24 hour storm.

b The General Sump is primarily a transfer facility for raw wastewater streams and pretreated effluent streams from the production plants [e.g., Plant 2/3 (Refinery); Plant 5 (Metals Production); Plant 6 (Metal Fabrication)]. Uranium bearing wastewaters are transferred to Plant 8 (Scrap Recovery and Filtration) for recovery. Nitrate bearing wastewaters are transferred to the biodenitrification facilities for treatment. The remainder of the wastewaters are discharged through internal outfall 602 in batches, one to two times daily, to outfall 001.

Table 1. (Cont.)

c Prior to 2/25/87, process wastewater from the General Sump was pumped to Wet Chemical Pit #5, which overflowed to the Clearwell, and was pumped to outfall 001. Currently, the Clearwell receives only Waste Pit Area Runoff. This runoff is pumped to the Bio-Surge Lagoon, except under heavy runoff when it has been pumped directly to outfall 001. However, the renewed permit will require that wastewater from the Clearwell shall be pumped only to the Bio-Surge Lagoon except under the conditions described in the permit.

d Stormwater is routed to outfall 001 from 604 under low flow, but is diverted to the stormwater retention basin (SWRB) when flow is high enough to overflow the weir at 604. Once in the SWRB, the water is usually routed through 606 to outfall 001, but may overflow to outfall 002.

e U.S. DOE is in the process of completing a full-scale biodenitrification facility at the FMPC. A Demonstration Biodenitrification facility has been in sustained operation since July 1987. The Bio-Surge Lagoon was drained for liner repairs during 1988 and completed in 12/88.

f U.S. DOE is required by Consent Decree to submit a Permit to Install application, including detail plans, within 180 days of issuance of the renewed FMPC NPDES permit, for a biodenitrification effluent treatment system as shown in Figure 2 which is designed to meet the BOD_5 and suspended solids limits in the renewed FMPC NPDES permit. Currently, the effluent from the biodenitrification treatment system is discharged into the FMPC Sewage Treatment Plant (STP) and the high BOD and suspended solids in this effluent has had a very negative impact on the STP's operation. With the completion of the biodenitrification effluent treatment system, outfall 605 would discharge directly to outfall 001, not outfall 601 (see Figure 2).

Description of Existing Discharge

The process wastewater and laundry washwater discharges from the FMPC are regulated by effluent guidelines for the Nonferrous Metals Manufacturing Point Source Category, Secondary Uranium Subcategory (40 CFR 421 Subpart AD).

Tables 2-7 present summaries of the FMPC outfalls 001, 601-605, and 002 effluent quality based on unaltered monthly operating report (MOR) data for 1987 and the years 1984-1988. Current permit final effluent limitations for these outfalls are also shown for comparison. When reviewing this data, it should be noted that several operational changes took place at the FMPC during 1987 (e.g., see Table 1, footnotes b, c & d).

Table 8 shows the results of priority pollutant organic chemical analyses of the FMPC outfall 001 effluent. Tables 9 and 10 show the results of metal and conventional pollutant analyses of the FMPC outfalls 001 and 002, respectively.

Bioassays were conducted on the FMPC 001 effluent in 1988. Ohio EPA tests conducted in February 1988 showed no mortality to fathead minnows or Ceriodaphnia. In tests conducted by U.S. DOE in May 1988, the effluent exhibited no acute toxicity to fathead minnows or Daphnia pulex.

Table 2. U.S. DOE/Fernald outfall 001 current permit limits and a summary of the monthly operating report data for 1987 and 1984-88. Values are in ug/l unless otherwise noted; n = number of analyses; NA = not analyzed.

Parameter	Current Permit Limits 30 day	daily	1987 n	50th. %ile	95th. %ile	Range	1984-1988 n	50th. %ile	95th. %ile	Range
Ammonia-N,T. mg/l	*	*	39	0.42	2.08	0.08-3.35	174	0.42	8.40	0.01-26.4
TSS mg/l	20	40	40	10	29	2-88	181	5	23	2-88
O & G mg/l		15	40	5	5	5-6	179	5	6	0-9
TRC mg/l		0.10	22	0.1	0.1	0.0-0.1	97	0.0	0.1	0.0-0.1
pH S.U.	6.5 to 9.0		249	8.3	8.8	7.2-9.0	1225	8.2	9.0	6.9-9.7
					7.6 (5th perc)				7.6 (5th perc)	

* at a level not to exceed WQS.

Table 3. U.S. DOE/Fernald outfall 601 current permit limits and a summary of the monthly operating report data for 1987 and 1984-88. Values are in ug/l unless otherwise noted; n = number of analyses; NA = not analyzed.

Parameter	Current Permit Limits 30 day	daily	1987 n	50th. %ile	95th. %ile	Range	1984-1988 n	50th. %ile	95th. %ile	Range
BOD_5 mg/l	20	40	39	15	65	3-183	181	8	36	0-183
TSS mg/l	20	40	39	26	76	1-82	179	6	55	0-82
F. Coli. #/100 ml	1000	2000	23	3000	8000	0-11000	103	420	5000	0-11000
pH S.U.	6.5 to 9.0		275	8.4	8.8	7.2-8.9	1251	7.7	8.7	7.0-8.9
					7.5 (5th perc)				7.4 (5th perc)	

Table 4. U.S. DOE/Fernald outfall 602/603 current permit limits and a summary of the monthly operating report data for 1987 and 1984-88. Limits apply to the sum of the loads from each outfall. Reported loads are the sum of applicable loads (50th or 95th perc.) for each outfall. Values are in ug/l unless otherwise noted; n = number of analyses; NA = not analyzed.

Parameter	Current Permit Limits 30 day	daily	1987 n	50th. %ile	95th. %ile	Range	1984-1988 n	50th. %ile	95th. %ile	Range
TSS kg/day	6.2	12.8	-	1.9	38.9	1.22-41.5	-	3.3	13.9	0.17-134
TSS mg/l (602)			39	2	23	0-23	175	2	16	0-138
TSS mg/l (603)			8	8	23	4-23	131	8	20	2-31
Hex. Chrome kg/day	0.004	0.008	-	.002	.013	.002-.013	-	.004	.013	.001-.057
Hex. Chrom. (602)			39	1	5	0-16	175	1	4	0-16
Hex. Chrom. (603)			8	6	8	0-8	131	9	18	0-25
Chromium kg/day	0.050	0.102	-	.003	.022	.002-.029	-	.008	.031	.002-.068
Chromium (602)			39	2	7	0-30	175	4	20	0-30
Chromium (603)			8	9	20	0-20	132	18	52	0-77
Copper kg/day	0.025	0.051	-	.003	.032	.002-.032	-	.011	.046	.002-.119
Copper (602)			39	3	18	0-88	175	6	38	0-88
Copper (603)			8	12	20	0-20	132	23	78	0-136
Iron kg/day	0.41	0.85	-	.017	.767	.009-.812	-	.061	.617	.006-1.58
Iron (602)			39	54	192	0-254	175	82	567	0-2450
Iron (603)			8	58	858	1-858	132	130	568	1-1305
Nickel kg/day	0.124	0.256	-	.005	.041	.002-.046	-	.019	.095	.001-.170
Nickel (602)			39	3	23	0-25	175	9	40	0-66
Nickel (603)			8	20	35	0-35	132	40	174	0-210

Table 5. U.S. DOE/Fernald outfall 604 current permit limits and a summary of the monthly operating report data for 1987 and 1984-88. Values are in ug/l unless otherwise noted; n = number of analyses; NA = not analyzed.

Parameter	Current Permit Limits 30 day	daily	1987 n	50th. %ile	95th. %ile	Range	1984-1988 n	50th. %ile	95th. %ile	Range
TSS mg/l	30	100	39	2	13	2-64	170	2	22	2-82
O & G mg/l		15	39	5	5	5-5	203	5	5	0-7

Table 6. U.S. DOE/Fernald outfall 605 current permit limits and a summary of the monthly operating report data for 1987 and 1986-88. Values are in ug/l unless otherwise noted; n = number of analyses; NA = not analyzed.

Parameter	Current Permit Limits 30 day	daily	1987 n	50th. %ile	95th. %ile	Range	1986-1988 n	50th. %ile	95th. %ile	Range
Ammonia-N mg/l			22	0.51	10.0	0.04-10	79	0.89	5.53	0.04-11
Ammonia-N kg/day	12	18	22	0.35	2.95	0.01-2.95	79	0.12	1.63	0.01-3.82
Nitrate-N mg/l			23	12	252	0.2-292	80	4	290	0.2-803
Nitrate-N kg/day	62	124	23	4.8	71	0.1-144	80	0.45	93	0.1-261

Table 7. U.S. DOE/Fernald outfall 002 current permit limits and a summary of the monthly operating report data for 1987 and 1984-88. Values are in ug/l unless otherwise noted; n = number of analyses; NA = not analyzed.

Parameter	Current Permit Limits 30 day	daily	1987 n	50th. %ile	95th. %ile	Range	1984-1988 n	50th. %ile	95th. %ile	Range
TSS mg/l	30	100	1	-	-	50	203	3	64	2-223
O & G mg/l		15	1	5	5	5-5	203	5	5	5-17
pH S.U.	6.5 to 9.0		1	-	-	8.5	203	7.7	8.1 7.5 (5th perc)	7.4-8.5

Table 8. Concentrations (ug/l) of chemicals found present in Priority Pollutant GC/MS Organic Chemical Analyses of U.S. DOE outfall 001 wastewater. Effl. = effluent K = less than; ND = not detected; NA = not analyzed.

Parameter	Ohio EPA 02/22/88 Effl.	Ohio EPA 02/23/88 Effl.	U.S. DOE 1988 Form 2C Effl.
Chloroform	0.7	K0.5	K0.5
1,1,1-Trichloroethane	1.3	1.3	0.9
Trichloroethylene	0.5	K0.5	K0.5
Tetrachloroethylene	1.2	1.2	1.8*
Isophorone	NA	K3.6	4.1

* 1.4 ug/l was reported present in the facility's intake water.

Table 9. Concentrations of chemicals found present in Metal and Conventional Pollutant Analyses of U.S. DOE outfall 001 wastewater. Units are ug/l unless otherwise stated. Effl. = effluent K = less than; ND = not detected; NA = not analyzed.

Parameter	U.S. DOE 1984 Form 2C avg.	U.S. DOE 1984 Form 2C max.	U.S. DOE 1988 Form 2C avg.	U.S. DOE 1988 Form 2C max.
Ammonia-N mg/l	3.94	25.0	0.67	3.35
Nitrate/Nitrite-N mg/l	197	598	42	202
Cadmium	–	0.85	K1.0	K1.0
Chromium	4*	14*	29	32
Copper	4*	12*	K25	K25
Lead	–	90	K5	K5
Nickel	13*	43*	K26	69
Silver	–	24	2	3
Zinc	–	46	47	53
Cyanide, T.	–	42	K5	K5
Phenolics	–	ND	14	30

* – Data reported is for monitoring points 602 and 603.

Table 10. Concentrations of chemicals found present in Metal and Conventional Pollutant Analyses of U.S. DOE outfall 002 wastewater. Units are ug/l unless otherwise stated. Effl. = effluent K = less than; ND = not detected; NA = not analyzed.

Parameter	U.S. DOE 1988 Form 2C avg.	U.S. DOE 1988 Form 2C max.
Arsenic	–	4
Chromium	–	17
Silver	–	3
Zinc	–	23

Receiving Stream Impacts

The Ohio EPA conducted a comprehensive field survey of the lower mainstem of the Great Miami River in 1980. The biological index values measured in the 1980 field survey show that the Warmwater Habitat use is not being attained in this segment of the Great Miami River. The river is impacted both upstream and downstream of the FMPC discharge. The index values decrease slightly just downstream of the FMPC discharge, but the lack of documented effluent toxicity (see discussion under "Description of Existing Discharge") makes it unlikely that FMPC discharges are the cause.

A few violations of Ohio Water Quality Standards (WQS) were documented in the 1980 Great Miami River survey. WQS for copper were exceeded upstream and downstream of the FMPC discharge. The FMPC discharge could be contributing slightly to this exceedance. Also, iron WQS were exceeded both upstream and downstream from the FMPC discharge. Effluent data indicate that the FMPC is not contributing significant amounts of iron to the stream.

Assessment of the impact of the 002 discharge on Paddy's Run is hampered by the lack of data. No impact analysis or bioassay test results exist for this discharge. The data from the FMPC's 1988 Form 2C application (1 sample in most cases) do not suggest an acute toxicity problem. Metals concentrations (See Table 10) are generally low in the 002 effluent.

Wasteload Allocation Results

Table 11 presents the results of wasteload allocation (WLA) procedures conducted for the FMPC outfall 001 and internal outfalls 601, 602, and 605. The WLA was not revised for the non-conservative parameters because the 1984 Comprehensive Water Quality Report (CWQR) for the Great Miami River recommended that entities in segment 2, including the FMPC, retain their existing permit limitations for the non-conservative parameters and the FMPC current final table permit limitations for the non-conservative parameters can maintain the instream WQS. The conservative parameter WLA has been updated to comply with current procedures and the current FMPC discharge system. Due to the large amount of dilution water available under annual $Q_{30,10}$ conditions or annual $Q_{7,10}$ conditions, the allocations were mainly limited to existing effluent quality or Final Acute Values (FAV). Effluent data for the time period January 1983 through May 1988 was used in the application of the antidegradation policy.

Table 11. Wasteload allocation results for the FMPC outfall 1I000004001 and internal outfalls 1I000004601, 1I000004602 and 1I000004605. Loadings for outfalls 001, 601, 602 and 605 are based upon flow rates of 0.62 MGD, 0.14 MGD, 0.17 MGD and 0.09 MGD, respectively.

	YEAR ROUND EFFLUENT LIMITS			
	30-DAY AVERAGE		DAILY MAXIMUM	
	(ug/l)	(kg/day)	(ug/l)	(kg/day)
Outfall 001				
Cadmium	8.1	0.019	238.[A]	0.559
Copper	33.	0.077	94.[A]	0.221
Cyanide, Free	-	-	76.[A]	0.178
Lead	85.	0.199	776.[A]	1.821
Zinc	-	-	1538.[A]	3.61
Silver	-	-	26.[A]	0.061
Internal Outfall 601				
Chromium	12.[C]	0.006	29.[C]	0.015
Copper	33.	0.017	94.[A]	0.048
Nickel	29.[C]	0.015	45.[C]	0.023
Internal Outfall 602				
Chromium	16.[B]	0.010	21.[B]	0.013
Copper	25.[B]	0.016	42.[B]	0.027
Nickel	35.[B]	0.022	63.[B]	0.040
Internal Outfall 605				
Chromium	29.[C]	0.010	67.[C]	0.023
Copper	33.	0.011	94.[A]	0.032
Nickel	73.[C]	0.025	105.[C]	0.036

COMMENTS: A) Limited to Final Acute Value (FAV).
B) Limited by Antidegradation.
C) Limited to Best Available Technology (BAT).

Use Classification, Water Quality Standards, Effluent Limitations and Significant Factual and Legal Questions Considered

Paddy's Run is presently designated for the following uses based upon Ohio WQS (OAC 3745-1-21): Warmwater Habitat (WWH), Agricultural and Industrial Water Supply (AWS & IWS), and Primary Contact Recreation (PCR). These use designations are based on the 1978 Ohio WQS, rather than a field survey. There is insufficient data to warrant a change in the uses at this time. The reach of the Great Miami River to which the FMPC discharges is presently designated for the following uses based upon Ohio WQS (OAC 3745-1-21): WWH, AWS, IWS, and PCR. The 1980 field survey confirmed these uses are appropriate.

Table 12 presents the final effluent limitations and their justification for the FMPC outfall 001. The limitation for pH is based upon Ohio WQS. Limitations for total suspended solids reflect the current effluent quality for this parameter. Monitoring only is required for ammonia-N and nitrate-N. Although no WLAs were conducted for ammonia-N and nitrate-N, Ohio EPA Modeling Section staff indicate that if WLAs were developed for these pollutants (and total phenolics as well), limitations would not be necessary since current effluent concentrations of these parameters would be much less than 50% of the WLA values and thus these parameters should not pose an environmental hazard. Limitations for $CBOD_5$ and D.O. are based on the 1984 Great Miami River CWQR and will maintain instream WQS. The oil and grease limitations are in accordance with agency policy which is based upon the Ohio WQS (however, the daily maximum was limited to the more stringent current permit limit). Limitations for cyanide, copper, lead, and silver are based on the WLA and are necessary since these parameters have been detected at concentrations greater than 50% of the WLA output. The daily maximum limitations for these parameters were limited by the Final Acute Value (FAV) to protect against acute toxicity in the mixing zone. The 30-day average limitations for cyanide and silver were developed by dividing the maximum WLA by 1.5 per Ohio EPA administrative policy. Monitoring only is required for chromium and nickel since the Best Available Technology (BAT) limitations for these parameters at internal outfalls 601 and 605, along with the current discharge concentrations at internal outfall 602, are sufficient to assure that these parameters will be detected at concentrations less than 50% of the mass balanced WQS limits at outfall 001. Monitoring for hexavalent chromium and fluoride is required based on site usage. No chemical specific recommendations are necessary at this time for cadmium and zinc as these parameters were detected at concentrations greater than 10% of the chronic criteria, but less than 10% of the WLA and therefore do not pose an environmental hazard. In addition, no chemical specific recommendations are necessary at this time for the organic chemicals identified in Table 8. These organic chemicals were detected at less than 10% of the chronic criteria and therefore do not pose an environmental hazard.

Table 13 presents the final effluent limitations and their justification for the FMPC outfall 002. This discharge shall consist of stormwater only. Limitations for total suspended solids are based on Best Professional Judgment (BPJ) which reflects the design specifications of the Stormwater Retention Basin (SWRB). Oil and grease limitations are in accordance with agency policy which is based on Ohio WQS and also reflect the design specifications of the SWRB. The SWRB is designed to overflow only in the event of rainfall in excess of a 10 year, 24 hour storm or a series of storms of equivalent precipitation. Under these conditions, the background flow in Paddy's Run will be high. The mode of operation of the SWRB and the likely condition of Paddy's Run at the time of the discharge renders average limitations unnecessary. Monitoring of ammonia-N, nitrate-N, and fluoride is required on a BPJ basis reflecting site usage and as indicator parameters. Limitations for chromium (detected in 1988 2C analysis), hexavalent chromium, copper, nickel and silver (detected in 1988 2C analysis) are based upon the Acute Aquatic Criteria for these parameters. Although arsenic and zinc were detected in the outfall 002 effluent in the 1988 2C analysis, these parameters were detected at low concentrations and no chemical specific recommendations are necessary at this time.

Table 14 presents the final effluent limitations and their justification for the FMPC internal outfall 601. These final effluent limitations reflect the discharge of sanitary wastewater and laundry washwater only from this outfall. Interim effluent limitations have been provided in the draft permit for this outfall for the time period when this outfall is also receiving wastewaters from the biodenitrification facilities (i.e., outfall 605). The final total suspended solids and BOD_5 limitations are based upon the effluent quality reflective of the performance of the sewage treatment plant without any contribution from the biodenitrification facility effluent. Fecal coliform limitations are based upon Ohio WQS. A total residual chlorine limitation is not necessary since UV disinfection is utilized. The pH limitation is based upon Best Practicable Control Technology (BPT) effluent guidelines for the Nonferrous Metals Manufacturing Point Source Category, Secondary Uranium Subcategory, Laundry wastewater [40 CFR 421.322(i)]. Limitations for total chromium, copper, nickel and fluoride are based upon BPJ of the BAT effluent guidelines for the Nonferrous Metals Manufacturing Point Source Category, Secondary Uranium Subcategory, Laundry wastewater [40 CFR 421.323(i)], with an allowance provided on the basis of the BAT effluent guidelines for the Nonferrous Metals Forming Point Source Category, Uranium Forming Subcategory, Laundry washwater [40 CFR 471.72(m)]. The 40 CFR 471 Uranium Forming effluent guidelines do not apply to operations at the FMPC because the plant does not employ any of the metal forming processes. All uranium forming operations on FMPC product is performed off site. However, many of the ancillary operations listed under 40 CFR 471 are performed at the FMPC. The wastewaters produced by these ancillary operations are treated with the same lime and settle technology identified by U.S. EPA as best available technology for 40 CFR 471. Since these wastestreams carry significant pollutant loads, allowances have been provided for each regulated parameter under 40 CFR 421 based on 40 CFR 471 effluent guidelines. Additional special points of note related to the BAT calculations for the FMPC include the following: Production at FMPC is conducted on a campaign basis and usually in batches. Discharge of treated process wastewater lags production and occurs over a longer period. Thus, allowable BAT allocations of pollutants per production day are multiplied by the ratio of production days to discharge days. In this case, 80/235 = 0.34. Limitations in this draft permit are based on 40% of the maximum production rate expected at the FMPC facility. Should production increase significantly beyond this level during the life of this permit, the permit may be modified accordingly.

Table 15 presents the final effluent limitations and their justification for the FMPC internal outfall 602. Limitations for chromium, copper, and nickel are based on the wasteload allocation which was limited by the application of the Antidegradation Policy. The hexavalent chromium limitations are based on BPJ and should be achievable based on effluent characteristics. - 5268

No final effluent limitations are provided for internal outfall 603 as all wastewater from the Clearwell is required to be pumped only to the Bio-Surge Lagoon (except as described in Table 16) and monitoring will be conducted at internal outfall 605. An allocation for several metals from the Clearwell has been included in the limitations for internal outfall 605.

Table 17 presents the final effluent limitations and their justification for the FMPC internal outfall 604 (storm sewer lift station). Current permit limitations for total suspended solids and oil and grease are recommended to be continued based on BPJ. Monitoring only for nitrate-N and fluoride is required at this time based upon BPJ which reflects site usage.

Table 18 presents the final effluent limitations and their justification for the FMPC internal outfall 605. Limitations for total suspended solids and BOD_5 are based on BPJ. The current permit loading limitations for nitrate-N have been continued since the FMPC is required by Consent Decree to submit detail plans for the construction of a full-scale biodenitrification facility to maintain these nitrate-N limitations. Concentration limitations have been back-calculated from these loading limitations based upon a flow rate of 0.09 MGD from the 1988 2C application form. Limitations for pH are based upon BPT effluent guidelines outlined at 40 CFR 421.322(a)-(e) and (h). Limitations for chromium, copper, nickel and fluoride are based upon BPJ of the BAT effluent guidelines outlined at 40 CFR 421.323(a)-(e) and (h) and at 40 CFR 471.72(e)-(h) and (j). Please see the discussion concerning the BPJ/BAT effluent limitations for internal outfall 601 as regards 40 CFR 471 and other special notes regarding the calculation of BAT limitations as this discussion is also applicable to the BAT calculations for internal outfall 605. An allowance was also provided in these BPJ/BAT limitations for the pit area runoff utilizing the 1988 2C data for the Clearwell (outfall 603).

Table 19 presents the final effluent limitations and their justification for the FMPC internal outfall 606. This internal outfall is limited to stormwater runoff only.

Table 12. Final effluent limitations for the FMPC outfall 1I000004001 and their justification.

Parameter	Units	Effluent Limits: Concentration 30 day Average	Concentration Daily Maximum	Loading (kg/day)[a] 30 day Average	Loading (kg/day)[a] Daily Maximum	Basis[b]
Flow	MGD	- - - - - - - Monitor - - - - - - - -				OEPA Policy[c]
Total Suspended Solids	mg/l	20	30	47	70	EC
Dissolved Oxygen	mg/l	- - - - - Not less than 5.0 - - - - -				CWQR
$CBOD_5$	mg/l	20	30	47	70	CWQR
Ammonia-N	mg/l	- - - - - - - Monitor - - - - - - - -				BPJ
Nitrate(N)	mg/l	- - - - - - - Monitor - - - - - - - -				BPJ
Oil and Grease	mg/l	15	15	35	35	---[d]
pH	S.U.	- - - - - - - 6.5 to 9.0 - - - - - - -				WQS
Cyanide	mg/l	0.051	0.076	0.120	0.178	WLA/FAV, AP
Chromium (Total)	ug/l	- - - - - - - Monitor - - - - - - - -				WQBEL
Hex. Chromium (Dissolved)	ug/l	- - - - - - - Monitor - - - - - - - -				BPJ
Copper	ug/l	33	94	0.077	0.221	WLA/FAV
Lead	ug/l	85	776	0.199	1.82	WLA/FAV
Nickel	ug/l	- - - - - - - Monitor - - - - - - - -				WQBEL
Silver	ug/l	17	26	0.040	0.061	WLA/FAV, AP
Fluoride	mg/l	- - - - - - - Monitor - - - - - - - -				BPJ

a Effluent loadings based on a flow rate of 0.62 MGD.

b Definitions: AP = Administrative Policy (30-day average limit developed by dividing the maximum wasteload allocation by 1.5); BPJ = Best Professional Judgment; CWQR = 1984 Comprehensive Water Quality Report for the Great Miami River; EC = Effluent Characteristics; WLA/FAV = Wasteload Allocation Procedures/Limited by Final Acute Value; WQBEL = Water Quality Based Effluent Limits Report for U.S. DOE/Fernald; WQS = Ohio Water Quality Standards (OAC 3745-1).

c Agency policy requires monitoring of flow to assist in the evaluation of effluent quality.

d Industrial wastewater policy limits oil and grease to these levels for discharges to streams with a mixing zone (however, in this case, the daily maximum was limited to the more stringent current permit limit).

Table 13. Final effluent limitations for the FMPC outfall 1I000004002 and their justification.

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Parameter	Units	Effluent Limits: Concentration 30 day Average	Concentration Daily Maximum	Loading (kg/day)[a] 30 day Average	Loading (kg/day)[a] Daily Maximum	Basis[b]
Flow	MGD	- - - - - - - Monitor - - - - - - -				OEPA Policy[c]
Total Suspended Solids	mg/l	—	100	—	362	BPJ
Ammonia-N	mg/l	- - - - - - - Monitor - - - - - - -				BPJ
Nitrate(N)	mg/l	- - - - - - - Monitor - - - - - - -				BPJ
Oil and Grease	mg/l	—	20	—	72	—[d]
pH	S.U.	- - - - - - - 6.5 to 9.0 - - - - - - -				WQS
Chromium (Total)	ug/l	—	3,986	—	14	AAC
Hex. Chromium (Dissolved)	ug/l	—	19	—	0.07	AAC
Copper	ug/l	—	45	—	0.16	AAC
Nickel	ug/l	—	3,137	—	11	AAC
Silver	ug/l	—	11.6	—	0.04	AAC
Fluoride	mg/l	- - - - - - - Monitor - - - - - - -				BPJ

This discharge shall consist only of stormwater.

a Effluent loadings based on a flow rate of 0.957 MGD per event.

b Definitions: AAC = Acute Aquatic Criteria; BPJ = Best Professional Judgment; WQS = Ohio Water Quality Standards (OAC 3745-1).

c Agency policy requires monitoring of flow to assist in the evaluation of effluent quality.

d Industrial wastewater policy limits oil and grease to these levels for stormwater discharges to streams with a mixing zone present.

Table 14. Final effluent limitations for the FMPC outfall 1I000004601 and their justification.

Parameter	Units	Effluent Limits: Concentration 30 day Average	Concentration Daily Maximum	Loading (kg/day)[a] 30 day Average	Loading (kg/day)[a] Daily Maximum	Basis[b]
Flow	MGD	- - - - - - - Monitor - - - - - - -				OEPA Policy[c]
Total Suspended Solids	mg/l	16	24	8	12	EC
BOD_5	mg/l	12.5	18.7	6	9	EC
Ammonia-N	mg/l	- - - - - - - Monitor - - - - - - -				OEPA Policy[c]
pH	S.U.	- - - - - - - 7.5 to 10.0 - - - - - -				BPT
Feral Coliform (Summer Only)	#/100ml	1,000	2,000	-	—	WQS
Chromium (Total)	ug/l	12	30	0.006	0.015	BPJ/BAT
Copper	ug/l	49	105	0.025	0.053	BPJ/BAT
Nickel	ug/l	30	45	0.015	0.023	BPJ/BAT
Fluoride	mg/l	2.1	4.8	1.08	2.43	BPJ/BAT

a Effluent loadings based on a flow rate of 0.134 MGD. BAT loadings based upon applicable production rates and employee-days and concentrations back-calculated based on 0.134 MGD.

b Definitions: BPJ/BAT = Best Professional Judgment of the Best Available Technology outlined at 40 CFR 421.323(i) and 40 CFR 471.72(m); BPT = Best Practicable Control Technology outlined at 40 CFR 421.322(i); EC = Effluent Characteristics; WQS = Ohio Water Quality Standards (OAC 3745-1).

c Agency policy requires monitoring of flow and indicator parameters to assist in the evaluation of effluent quality and treatment plant performance.

Table 15. Final effluent limitations for the FMPC outfall 1I000004602 and their justification.

Parameter	Units	Effluent Limits: Concentration 30 day Average	Concentration Daily Maximum	Loading (kg/day)[a] 30 day Average	Loading (kg/day)[a] Daily Maximum	Basis[b]
Flow	MGD	- - - - - - - - Monitor - - - - - - - -				OEPA Policy[c]
pH	S.U.	- - - - - - - - 6.5 to 9.0 - - - - - - - -				WQS
Chromium (Total)	ug/l	16	21	0.010	0.013	WLA/AD
Hex. Chromium, (Dissolved)	ug/l	4.3	6.5	0.003	0.004	BPJ
Copper	ug/l	25	42	0.016	0.027	WLA/AD
Nickel	ug/l	35	63	0.022	0.040	WLA/AD

a Effluent loadings based upon a flow rate of 0.17 MGD.

b Definitions: BPJ = Best Professional Judgment; WLA/AD = Wasteload Allocation/Antidegradation Procedures.

c Agency policy requires monitoring of flow to assist in the evaluation of effluent quality.

Table 16. Final effluent limitations for the FMPC outfall 1I000004603 and their justification.

Parameter	Units	Effluent Limits: Concentration 30 day Average	Concentration Daily Maximum	Loading (kg/day) 30 day Average	Loading (kg/day) Daily Maximum	Basis
WASTEWATER FROM THE CLEARWELL SHALL BE PUMPED ONLY TO THE BIOSURGE LAGOON, EXCEPT DURING THE PERIOD IN WHICH ALL FOUR OF THE BIODENITRIFICATION TOWERS WILL BE OUT OF OPERATION (DUE TO THE CONSTRUCTION OF THE BIODENITRIFICATION FACILITY) AND LASTING A MINIMUM OF 4 WEEKS, MAXIMUM OF 16 WEEKS INCLUSIVE OF FEBRUARY 12, 1990 TO JUNE 1, 1990. DURING THIS TIME PERIOD, EXCESS STORMWATER FROM THE CLEARWELL MAY BE DISCHARGED VIA INTERNAL OUTFALL 603 TO MANHOLE #175.						

Table 17. Final effluent limitations for the FMPC outfall 1I000004604 and their justification.

Parameter	Units	Effluent Limits: Concentration 30 day Average	Concentration Daily Maximum	Loading (kg/day)[a] 30 day Average	Loading (kg/day)[a] Daily Maximum	Basis[b]
Flow	MGD	- - - - - - - Monitor - - - - - - - -				OEPA Policy[c]
Total Suspended Solids	mg/l	30	100	26	86	BPJ
Oil & Grease	mg/l	15	15	13	13	—[d]
pH	S.U.	- - - - - - - - 6.5 to 9.0 - - - - - - -				WQS
Nitrate-N	mg/l	- - - - - - - Monitor - - - - - - - -				BPJ
Fluoride	mg/l	- - - - - - - Monitor - - - - - - - -				BPJ

a Effluent loadings based upon a flow rate of 0.228 MGD.

b Definitions: BPJ = Best Professional Judgment; WQS = Ohio Water Quality Standards (OAC 3745-1).

c Agency policy requires monitoring of flow to assist in the evaluation of effluent quality.

d Industrial wastewater policy limits oil and grease to these levels for discharges to streams with a mixing zone (however, in this case, the daily maximum was limited to the more stringent current permit limit).

Table 18. Final effluent limitations for the FMPC outfall 1I000004605 and their justification.

Parameter	Units	Effluent Limits: Concentration 30 day Average	Concentration Daily Maximum	Loading (kg/day)[a] 30 day Average	Loading (kg/day)[a] Daily Maximum	Basis[b]
Flow	MGD	- - - - - - - Monitor - - - - - - - -				OEPA Policy[c]
Total Suspended Solids	mg/l	30	45	10	15	BPJ
BOD_5	mg/l	30	45	10	15	BPJ
Ammonia-N	mg/l	- - - - - - - Monitor - - - - - - - -				BPJ
Nitrate(N)	mg/l	182	364	62	124	EP
pH	S.U.	- - - - - - - 7.5 to 10.0 - - - - - - -				BPT
Chromium (Total)	ug/l	30	66	0.0101	0.0226	BPJ/BAT
Hex. Chromium (Dissolved)	ug/l	- - - - - - - Monitor - - - - - - - -				BPJ
Copper	ug/l	114	226	0.0387	0.0770	BPJ/BAT
Nickel	ug/l	74	106	0.0251	0.0361	BPJ/BAT
Fluoride	mg/l	3.3	11.2	1.1187	3.8247	BPJ/BAT

a Effluent loadings based upon a flow rate of 0.09 MGD. BAT loadings based upon applicable production rates and concentrations back-calculated based on 0.09 MGD.

b Definitions: BPJ = Best Professional Judgment; BPJ/BAT = Best Professional Judgment of the Best Available Technology outlined at 40 CFR 421.323(a), (b), (c), (d), (e), & (h) and 40 CFR 471.72 (e), (f), (g), (h), & (j); BTP = Best Practicable Control Technology outlined at 40 CFR 421.322(a), (b), (c), (d), (e) & (h); EP = Existing Permit.

c Agency policy requires monitoring of flow to assist in the evaluation of effluent quality.

Table 19. Final effluent limitations for the FMPC outfall 1I000004606 and their justification.

Parameter	Units	Effluent Limits: Concentration 30 day Average	Concentration Daily Maximum	Loading (kg/day) 30 day Average	Loading (kg/day) Daily Maximum	Basis[a]
Flow	MGD	- - - - - - -	Monitor	- - - - - - - -		OEPA Policy[b]
Total Suspended Solids	mg/l	- - - - - - -	Monitor	- - - - - - - -		BPJ
Oil & Grease	mg/l	- - - - - - -	Monitor	- - - - - - - -		BPJ
pH	S.U.	- - - - - - -	6.5 to 9.0	- - - - - - - -		WQS

[a] Definitions: BPJ = Best Professional Judgment; WQS = Ohio Water Quality Standards (OAC 3745-1).

[c] Agency policy requires monitoring of flow to assist in the evaluation of effluent quality.

REPORT ON WATER QUALITY BASED EFFLUENT LIMITS

ENTITY NAME: U.S. DOE/FERNALD
OHIO NPDES #: 1IO00004/USEPA #: OH0009580

Ohio Environmental Protection Agency

Division of Water Quality Monitoring and Assessment

Date: June 27, 1989

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Stream System File 14-001C (Lower Great Miami River) Toxics Report File

Water Quality Based Effluent Limits (WQBEL) for U.S. DOE/Fernald is a report of the Division of Water Quality Monitoring and Assessment (DWQMA) at the Ohio EPA to assist in the development of permit limits for this entity. Stream use designations, factors evaluated in the risk assessment of environmental hazards (Table 1), recommended limits along with an assessment of the risk associated with water quality based parameters (Table 2, text), and supporting material (Tables 3-13, WLA values) are provided. Raw data and analyses are kept in DWQMA's files for technical justification.

STREAM USE DESIGNATIONS

Receiving Stream Network: U.S. DOE directly discharges at River Mile (RM) 24.73 (001) to the Great Miami River and at RM 2.50 to Paddy's Run (002) (confluence with Great Miami at RM 20.2). Several in-plant outfalls (601-605) are tributary to outfall 001. The Great Miami River flows into the Ohio River.

Paddy's Run (Ohio EPA Stream System #: 14-005, USEPA River Reach #: 05080002-NA). Paddy's Run is presently designated for the following uses: Warmwater Habitat (WWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS) and Primary Contact Recreation (PCR). These designations are based on the 1978 Ohio Water Quality Standards, rather than a field survey. There is insufficient data to warrant a change in the uses.

Great Miami River (Ohio EPA Stream System #: 14-001, USEPA River Reach #: 05080002-004). This reach of 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 field survey conducted during 1980 confirmed the above uses are appropriate.

Table 1. Factors evaluated in the risk assessment of the environmental hazards associated with water quality based parameters in the U.S. DOE 001 and 002 effluents.

1. Aquatic Life Water Quality Criteria/Standards
2. Water Quality Criteria/Standards Assumptions
3. WLA
4. Modeling Procedures and Assumptions
5. Effluent and Instream Chemical Evaluation (solids, oxygen demanding substances, nutrients, metals)
6. Effluent Chemical Evaluation (Metals and GC/MS organic compounds)
7. Effluent and Instream Bioassays (Bioassay Report Numbers: 88-565-SW, U.S. DOE test - May 1988)
8. Instream macroinvertebrate and fish community biosurvey
9. Effluent Characterization: a)MOR Data and b)OEPA Effluent Samples
10. Current Permit Limits
11. Reported Fish Kills and Chemical Spills

RISK ASSESSMENT STATEMENTS

I. ENVIRONMENTAL HAZARD ASSESSMENT

The biological index values measured in the 1980 field survey show that the WWH use is not being attained in this segment of the Great Miami River (Table 12). The river is impacted both upstream and downstream of the discharge. The index values decrease slightly just downstream of the U.S. DOE discharge, but the lack of effluent toxicity makes it unlikely that toxicity from plant discharges are the cause.

Two bioassays were conducted on U.S. DOE's 001 effluent in 1988. The Ohio EPA test showed no mortality to fathead minnows or Ceriodaphnia. In a test by U.S DOE, the effluent exhibited no acute toxicity to fathead minnows or Daphnia pulex.

A few violations of WQ criteria were documented in the 1980 Great Miami River survey. WQS for copper were exceeded upstream and downstream of the discharge. U.S. DOE could be contributing slightly to this exceedance. Also, iron WQS were exceeded both upstream and downstream from U.S. DOE. Effluent data indicate that U.S. DOE is not contributing significant amounts of iron to the stream.

Assessment of the impact of the 002 discharge on Paddy's Run is hampered by the lack of data. No impact analysis or bioassay test results exist for this discharge. The data from the plant's Form 2C application (1 sample in most cases) does not suggest an acute toxicity problem. Metals concentrations (see Table 5B) are generally low.

II. RISK ASSESSMENT OF WATER QUALITY BASED PARAMETERS

Recommended water quality based limits to protect against an environmental hazard are summarized in Table 2. These limits were developed to protect against both acute and chronic toxicity. Rationale for limits are presented below following the guidelines in the Ohio EPA 1988 Users Manual for Establishing Water Quality Based Effluent Limits.

Table 2. Recommended Water Quality Based Effluent Limits (WQBELs) to protect against an environmental hazard. These limits were developed following the procedures in the Ohio EPA's Users Manual for Establishing WQBELs.

Parameter	Recommended WQBELs			
	Average		Maximum	
	Concentration ug/l	Loading kg/d	Concentration ug/l	Loading kg/d
OUTFALLS 11000004001				
Chromium		Monitor		
Copper	33	0.077	94	0.221
Lead	85	0.199	776	1.82
Nickel		Monitor		
Silver	--	--	26	0.061
Free Cyanide	--	--	76	0.178

The following parameters were identified, or are suspected of being present in the effluent. The following water quality determinations were made with regard to each parameter using the following groupings:

1) does not require a WLA because there is insufficient information to develop criteria.
2) does not reqire a WLA but criteria are available.
3) does not require inclusion of any WQBEL conditions in the permit.
4) recommended inclusion of monitoring conditions.
5) recommended limits based upon WLA output.
6) recommended limits based on adjusted WLA output.

Group

Parameter(s)
rationale

OUTFALL 11000004001

Group 2

Chloroform, Isophorone
1,1,1-Trichloroethane
Trichloroethylene
Tetrachloroethylene

These parameters were detected at less than 10% of the Chronic Criteria and therefore do not pose an environmenal hazard. No chemical specific recommendations are suggested for these compounds.

Group 3

Ammonia-N, Nitrate-N
Cadmium, Zinc,
Total Phenolics

Cadmium and zinc were detected at concentrations greater than 10% of the Chronic Criteria but less than 10% of the WLA and therefore do not pose an environmental hazard. Wasteload allocations were not conducted for ammonia-N, nitrate-N and total phenolics. Modelling Section staff indicated that if WLAs had been developed for these pollutants, discharges of these pollutants would fall into this group. No chemical specific recommendations are suggested for these parameters.

Parameter(s) rationale	Group

Outfall 11000004001 - CONTINUED

Group 4

Chromium, Nickel

Monitoring is the recommended permit condition. WLAs for chromium and nickel indicate that BAT concentrations at outfalls 601 and 605, along with existing discharge concentrations at outfall 602, are sufficient to meet mass balanced WQS limits at outfall 001. However, these parameters may be detected at concentrations between 10% and 50% of the WLA in outfall 001. Monitoring is recommended to determine if these parameters are routinely present and, if present, what effluent variability exists.

Group 5

Copper, Lead,
Silver, Free Cyanide

WLA output is the recommended limit. Note that BAT limits for copper are not sufficiently restrictive to meet WQS at 001 given the flow assumptions used in the WLA.

ENTITY NAME: U.S. DOE/FERNALD

RISK ASSESSMENT ATTACHMENTS/TECHNICAL SUPPORTING MATERIAL

Table 3. Chronic Aquatic Criteria (CAC) - the highest concentration that should not cause unacceptable toxicity during a long term exposure and Acute Aquatic Criteria (AAC) - The highest short term concentration that should not result in unacceptable effects on aquatic organisms and their uses. Metal criteria are based on the typical instream hardness during the field surveys in the Great Miami River downstream from U.S. DOE of 202 to 414 mg/l. Ammonia criteria is based on the pH range of 7.5 to 8.4 and the temperature range of 18 - 29 degrees C. This Criteria Table was developed for comparison with the instream water chemistry data and is not used in the WLA process. Values are in ug/l unless otherwise noted.

Parameter	CAC	AAC
Ammonia-N, T. (mg/l)	0.3 - 3.0	1.5 - 13.0
Cadmium, T.R.	1.1 - 2.4	64 - 150
Hexavalent Chromium, T.	10	19
Trivalent Chromium, T.R.	55 - 100	2740 - 4950
Copper, T.R.	9.1 - 18	29 - 56
Lead, T.R.	30	200 - 498[a]
Nickel, T.R.	218 - 425	2060 - 4010
Zinc, T.R.	126 - 230	495 - 901
Cyanide, free	8.1	38
Chloroform	79	1800
1,1,1-Trichloroethane	88	2000
Trichloroethylene	75	1700
Tetrachloroethylene	73	540
Isophorone	900	6000

[a] Acute lead criteria based on U.S. EPA criteria document (1984).

Table 4. Summary of the analyses of the samples collected in the Great Miami River upstream from U.S. DOE (River Mile [RM] 26.2), of the U.S. DOE 001 effluent (RM 24.7) and downstream from U.S. DOE (RM 21.7). Upstream, downstream and effluent samples were collected during the 1980 Ohio EPA Field Survey. 1988 effluent samples were collected during bioassay sampling. Concentrations are in ug/l unless otherwise noted. n = number of samples; K = less than; NA = not analyzed.

Parameter	Upstream from U.S. DOE RM 26.2	U.S. DOE's 001 Effluent RM 24.73		Downstream from U.S. DOE RM 21.7
	n / mean / range	1980	1988	n / mean / range
Temperature C	21/22.0/20.2-23.0	19.5	NA	39/22.4/18.2-28.8
D. O.(mg/l)	21/10.3/7.3-14.8	6.1-8.0	NA	39/9.5/6.5-15.4
pH (S.U.)	3/8.2/8.0-8.3	7.4-9.0	NA	20/8.3/7.5-8.4
BOD_5 (mg/l)	6/11.6/10.7-14.4	0.6-3.9	NA	23/4.5/2.2-7.2
COD (mg/l)	3/38/35-41	4-20	NA	21/36/12-61
TDS (mg/l)	6/558/488-620	356-644	NA	8/561/520-588
Ammonia-N,T.(mg/l)	9/0.08/K0.01-0.20	0.01-0.24	1.09	26/0.12/K0.01-1.43
Nitrite-N,T.(mg/l)	6/0.07/0.04-0.09	0.05	0.16	20/0.08/0.02-0.23
NO_2-NO_3-N(mg/l)	9/2.73/2.11-3.06	0.08-8.35	22.7	26/3.17/1.75-7.40
Phosphorus,T.(mg/l)	6/0.50/0.34-0.70	0.18-0.62	1.00	24/0.56/0.32-1.20
Cyanide, T.	3/12/K3-20	3-22	8	21/K5/K5-42
Hardness,T.(mg/l)	3/299/216-346	220-259	318	21/327/202-414
Cadmium, T.	3/ - /K1	K1	0.3	21/K0.5/K0.5-1.0
Total Chrom.,T.	3/ - /K40	K40	K30	21/K40/K40-70
Copper, T.	3/20/10-35	K5-10	10	21/12/K5-25
Iron, T.	3/1190/980-1560	K10-240	580	21/3843/550-20240
Lead, T.	2/ - /K5-8	K5	K2	20/K5/K5-24
Nickel, T.	3/ - /K40	K40	K40	21/K40/K40-70
Zinc, T.	3/55/50-65	10-30	40	21/46/20-100

Table 5A. Concentrations (ug/l) of chemicals found present in Priority Pollutant GC/MS Organic Chemical Analyses of U.S. DOE outfall 001 wastewater. Effl. = effluent K = less than; ND = not detected; NA = not analyzed.

Parameter	Ohio EPA 02/22/88 Effl.	Ohio EPA 02/23/88 Effl.	U.S. DOE 1988 Form 2C Effl.
Chloroform	0.7	K0.5	K0.5
1,1,1-Trichloroethane	1.3	1.3	0.9
Trichloroethylene	0.5	K0.5	K0.5
Tetrachloroethylene	1.2	1.2	1.8*
Isophorone	NA	K3.6	4.1

* 1.4 ug/l was reported present in the facility's intake water.

Table 5B. Concentrations of chemicals found present in Metal and Conventional Pollutant Analyses of U.S. DOE outfall 002 wastewater. Units are ug/l unless otherwise stated. Effl. = effluent K = less than; ND = not detected; NA = not analyzed.

Parameter	U.S. DOE 1988 Form 2C avg.	U.S. DOE 1988 Form 2C max.
Arsenic	-	4
Chromium	-	17
Silver	-	3
Zinc	-	23

Table 5C. Concentrations of chemicals found present in Metal and Conventional Pollutant Analyses of U.S. DOE outfall 001 wastewater. Units are ug/l unless otherwise stated. Effl. = effluent K = less than; ND = not detected; NA = not analyzed.

Parameter	U.S. DOE 1984 Form 2C avg.	U.S. DOE 1984 Form 2C max.	U.S. DOE 1988 Form 2C avg.	U.S. DOE 1988 Form 2C max.
Ammonia-N mg/l	3.94	25.0	0.67	3.35
Nitrate/Nitrite-N mg/l	197	598	42	202
Cadmium	-	0.85	K1.0	K1.0
Chromium	4*	14*	29	32
Copper	4*	12*	K25	K25
Lead	-	90	K5	K5
Nickel	13*	43*	K26	69
Silver	-	24	2	3
Zinc	-	46	47	53
Cyanide, T.	-	42	K5	K5
Phenolics	-	ND	14	30

* - Data reported is for monitoring points 602 and 603.

Table 6. U.S. DOE/Fernald outfall 001 current permit limits and a summary of the monthly operating report data for 1987 and 1984-88. Values are in ug/l unless otherwise noted; n = number of analyses; NA = not analyzed.

Parameter	Current Permit Limits 30 day	daily	1987 n	50th. %ile	95th. %ile	Range	1984-1988 n	50th. %ile	95th. %ile	Range
Ammonia-N,T. mg/l	•	•	39	0.42	2.08	0.08-3.35	174	0.42	8.40	0.01-26.4
TSS mg/l	20	40	40	10	29	2-88	181	5	23	2-88
O & G mg/l		15	40	5	5	5-6	179	5	6	0-9
TRC mg/l		0.10	22	0.1	0.1	0.0-0.1	97	0.0	0.1	0.0-0.1
pH S.U.	6.5 to 9.0		249	8.3	8.8 7.6 (5th perc)	7.2-9.0	1225	8.2	9.0 7.6 (5th perc)	6.9-9.7

• at a level not to exceed WQS.

Table 7. U.S. DOE/Fernald outfall 601 current permit limits and a summary of the monthly operating report data for 1987 and 1984-88. Values are in ug/l unless otherwise noted; n = number of analyses; NA = not analyzed.

Parameter	Current Permit Limits 30 day	daily	1987 n	50th. %ile	95th. %ile	Range	1984-1988 n	50th. %ile	95th. %ile	Range
BOD_5 mg/l	20	40	39	15	65	3-183	181	8	36	0-183
TSS mg/l	20	40	39	26	76	1-82	179	6	55	0-82
F. Coli. #/100 ml	1000	2000	23	3000	8000	0-11000	103	420	5000	0-11000
pH S.U.	6.5 to 9.0		275	8.4	8.8 7.5 (5th perc)	7.2-8.9	1251	7.7	8.7 7.4 (5th perc)	7.0-8.9

Table 8. U.S. DOE/Fernald outfall 602/603 current permit limits and a summary of the monthly operating report data for 1987 and 1984-88. Limits apply to the sum of the loads from each outfall. Reported loads are the sum of applicable loads (50th or 95th perc.) for each outfall. Values are in ug/l unless otherwise noted; n = number of analyses; NA = not analyzed.

Parameter	Current Permit Limits		1987				1984-1988			
	30 day	daily	n	50th. %ile	95th. %ile	Range	n	50th. %ile	95th. %ile	Range
TSS kg/day	6.2	12.8	-	1.9	38.9	1.22-41.5	-	3.3	13.9	0.17-134
TSS mg/l (602)			39	2	23	0-23	175	2	16	0-138
TSS mg/l (603)			8	8	23	4-23	131	8	20	2-31
Hex. Chrome kg/day	0.004	0.008	-	.002	.013	.002-.013	-	.004	.013	.001-.057
Hex. Chrom. (602)			39	1	5	0-16	175	1	4	0-16
Hex. Chrom. (603)			8	6	8	0-8	131	9	18	0-25
Chromium kg/day	0.050	0.102	-	.003	.022	.002-.029	-	.008	.031	.002-.068
Chromium (602)			39	2	7	0-30	175	4	20	0-30
Chromium (603)			8	9	20	0-20	132	18	52	0-77
Copper kg/day	0.025	0.051	-	.003	.032	.002-.032	-	.011	.046	.002-.119
Copper (602)			39	3	18	0-88	175	6	38	0-88
Copper (603)			8	12	20	0-20	132	23	78	0-136
Iron kg/day	0.41	0.85	-	.017	.767	.009-.812	-	.061	.617	.006-1.58
Iron (602)			39	54	192	0-254	175	82	567	0-2450
Iron (603)			8	58	858	1-858	132	130	568	1-1305
Nickel kg/day	0.124	0.256	-	.005	.041	.002-.046	-	.019	.095	.001-.170
Nickel (602)			39	3	23	0-25	175	9	40	0-66
Nickel (603)			8	20	35	0-35	132	40	174	0-210

Table 9. U.S. DOE/Fernald outfall 604 current permit limits and a summary of the monthly operating report data for 1987 and 1984-88. Values are in ug/l unless otherwise noted; n = number of analyses; NA = not analyzed.

Parameter	Current Permit Limits 30 day	daily	1987 n	50th. %ile	95th. %ile	Range	1984-1988 n	50th. %ile	95th. %ile	Range
TSS mg/l	30	100	39	2	13	2-64	170	2	22	2-82
O & G mg/l		15	39	5	5	5-5	203	5	5	0-7

Table 10. U.S. DOE/Fernald outfall 605 current permit limits and a summary of the monthly operating report data for 1987 and 1986-88. Values are in ug/l unless otherwise noted; n = number of analyses; NA = not analyzed.

Parameter	Current Permit Limits 30 day	daily	1987 n	50th. %ile	95th. %ile	Range	1984-1988 n	50th. %ile	95th. %ile	Range
Ammonia-N mg/l			22	0.51	10.0	0.04-10	79	0.89	5.53	0.04-11
Ammonia-N kg/day	12	18	22	0.35	2.95	0.01-2.95	79	0.12	1.63	0.01-3.82
Nitrate-N mg/l			23	12	252	0.2-292	80	4	290	0.2-803
Nitrate-N kg/day	62	124	23	4.8	71	0.1-144	80	0.45	93	0.1-261

Table 11. U.S. DOE/Fernald outfall 002 current permit limits and a summary of the monthly operating report data for 1987 and 1984-88. Values are in ug/l unless otherwise noted; n = number of analyses; NA = not analyzed.

Parameter	Current Permit Limits		1987				1984-1988			
	30 day	daily	n	50th. %ile	95th. %ile	Range	n	50th. %ile	95th. %ile	Range
TSS mg/l	30	100	1	-	-	50	203	3	64	2-223
O & G mg/l		15	1	5	5	5-5	203	5	5	5-17
pH S.U.	6.5 to 9.0		1	-	-	8.5	203	7.7	8.1 7.5 (5th perc)	7.4-8.5

Table 12. Biological index values determined for data collected during the 1980 Lower Great Miami River Survey. WWH criteria for the Interior Plateau Ecoregion are IBI = 38, Modified Iwb = 8.8. Benthic macroinvertebrate data were not collected at these sites.

River Mile	IBI Values	Iwb Values
28.9	20	6.5
26.1	25	7.4
(U.S. DOE discharges at RM 24.73)		
23.6	20	6.6
18.2	27	7.7

WASTELOAD ALLOCATION FOR

U.S. DEPARTMENT OF ENERGY
FEED MATERIALS PRODUCTION (FERNALD)

JUNE 1989

PREPARED BY

Division of Water Quality Monitoring and Assessment

Ohio Environmental Protection Agency

WLA For USDOE - Fernald

The Comprehensive Water Quality Report (CWQR) for the Great Miami River, prepared in 1984, recommended that the entities in segment 2 including USDOE - Fernald retain their existing permit limitations for the non-conservative parameters. The current final table permit limitations for non-conservative parameters can maintain the instream WQS. Therefore, it was not necessary to revise the WLA for USDOE for the non-conservative parameters.

The conservative parameter WLA was revised in April 1989 to comply with an existing discharge system, since Internal Outfall 603 was discontinued and additional flows were added to Internal Outfalls 602 and 605. However, it was necessary to revise the WLA again to apply updated BAT values for internal outfall 605. Due to the large amount of dilution water available under annual $Q_{30,10}$ conditions or annual $Q_{7,10}$ conditions, the allocations were mainly limited to existing effluent quality or Final Acute Values (FAV). The effluent data for Fernald used in the application of the antidegradation policy was for the time period January, 1983 through May, 1988. The data used in the allocation is listed in the model input table.

DATE: 6/27/89

REVISION: Supersedes limits in 6/12/89 WLA.

ENTITY: U.S. Department of Energy - Feed Materials Production (Fernald)

DISCHARGE FLOW: .96 cfs (for 001)

RECEIVING STREAM: Great Miami River

APPLICABLE USE DESIGNATION: WWH

WQS: Effective 1/3/89 and Ohio EPA Aquatic Life Water Quality Criteria

	YEAR ROUND EFFLUENT LIMITS			
	AVERAGE		MAXIMUM	
	(ug/l)	(kg/day)	(ug/l)	(kg/day)
Outfall 001				
Cadmium	8.1	0.019	238.[A]	0.559
Copper	33.	0.077	94.[A]	0.221
Cyanide, Free	-	-	76.[A]	0.178
Lead	85.	0.199	776.[A]	1.821
Zinc	-	-	1538.[A]	3.61
Silver	-	-	26.[A]	0.061
Internal Outfall 601				
Chromium	12.[C]	0.006	29.[C]	0.015
Copper	33.	0.017	94.[A]	0.048
Nickel	29.[C]	0.015	45.[C]	0.023
Internal Outfall 602				
Chromium	16.[B]	0.010	21.[B]	0.013
Copper	25.[B]	0.016	42.[B]	0.027
Nickel	35.[B]	0.022	63.[B]	0.040
Internal Outfall 605				
Chromium	29.[C]	0.010	67.[C]	0.023
Copper	33.	0.011	94.[A]	0.032
Nickel	73.[C]	0.025	105.[C]	0.036

COMMENTS: A) Limited to FAV.
B) Limited by Antidegradation.
C) Limited to BAT.

ANALYSIS CONDUCTED BY: T. Kim ANALYSIS REVIEWED BY: Mark A. Hum

Model Input

PARAMETER (ug/l)	WQS CC	WQS AAC	WQS FAV	UPSTREAM CC	UPSTREAM AAC	SOURCE
Cadmium	2.	119.	238.	1.99	8.48	CONSWLA*
Chromium	86.	4247.	8494.	85.8	4212.	CONSWLA*
Copper	14.7	47.	94.	14.67	45.0	CONSWLA*
Cyanide, Free	8.1	38.	76.	0.	0.	Assumed
Lead	30.	388.	776.	29.91	65.2	CONSWLA*
Nickel	355.	3360.	6720.	81.9	114.9	CONSWLA*
Silver	1.3	13.	26.	0.	0.	Assumed
Zinc	196.	769.	1538.	179.5	238.3	CONSWLA*

CONSWLA* Simulated upstream water quality from Conservative Substance Wasteload Allocation (CONSWLA) run for Lower GMR.

Parameter		Value	Source
Effluent Flows (cfs)			
	601	0.21	DWPC
	602	0.26	DWPC
	604	0.35	DWPC
	605	0.14	DWPC
	001	0.96	DWPC
Upstream $Q_{7,10}$ (cfs)		544.0	CONSWLA
Upstream $Q_{30,10}$ (cfs)		581.7	CONSWLA
Hardness (mg/l)		340.0	STORET