Appendix A

NRC NEPA Issues for License Renewal of Nuclear Power Plants

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A-1 Donald C. Cook Nuclear Plant Environmental Report
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A.1 Introduction

I&M has prepared this environmental report in accordance with the requirements of NRC regulation 10 CFR 51.53. The NRC included in the regulation a list of National Environmental Policy Act issues for license renewal of nuclear power plants. Table A-1 lists these 92 issues, as identified in 10 CFR 51, Subpart A, Table B-1, and identifies the section in which I&M addressed each issue in the environmental report. For expediency, I&M has assigned a number to each issue and uses the issue numbers throughout the environmental report.

Table A-1. Donald C. Cook Nuclear Plant Environmental Report Cross-Reference of License Renewal NEPA Issues.

Issue		Category	Section of this Environmental Report
1.	Impacts of refurbishment on surface water quality	1	4.0
2.	Impacts of refurbishment on surface water use	1	4.0
3.	Altered current patterns at intake and discharge structures	1	4.0
4.	Altered salinity gradients	1	4.0
5.	Altered thermal stratification of lakes	1	4.0
6.	Temperature effects on sediment transport capacity	1	4.0
7.	Scouring caused by discharged cooling water	1	4.0
8.	Eutrophication	1	4.0
9.	Discharge of chlorine or other biocides	1	4.0
10.	Discharge of sanitary wastes and minor chemical spills	1	4.0
11.	Discharge of other metals in waste water	1	4.0
12.	Water use conflicts (plants with once-through cooling systems)	1	4.0
13.	Water use conflicts (plants with cooling ponds or cooling towers using make-up water from a small river with low flow)	2	4.1
14.	Refurbishment impacts to aquatic resources	1	4.0
15.	Accumulation of contaminants in sediments or biota	1	4.0
16.	Entrainment of phytoplankton and zooplankton	1	4.0
17.	Cold shock	1	4.0
18.	Thermal plume barrier to migrating fish	1	4.0
19.	Distribution of aquatic organisms	1	4.0
20.	Premature emergence of aquatic insects	1	4.0
21.	Gas supersaturation (gas bubble disease)	1	4.0
22.	Low dissolved oxygen in the discharge	1	4.0
23.	Losses from predation, parasitism, and disease among organisms exposed to sublethal stresses	1	4.0
24.	Stimulation of nuisance organisms (e.g., shipworms)	1	4.0
25.	Entrainment of fish and shellfish in early life stages for plants with once-through and cooling pond heat dissipation systems	2	4.2
26.	Impingement of fish and shellfish for plants with once-through and cooling pond heat dissipation systems	2	4.3

Table A-1. Donald C. Cook Nuclear Plant Environmental Report Cross-Reference of License Renewal NEPA Issues. (Continued)

Issue	Category	Section of this Environmental Report
27. Heat shock for plants with once-through and cooling pond heat dissipation systems	2	4.4
28. Entrainment of fish and shellfish in early life stages for plants with cooling-tower-based heat dissipation systems	1	4.0
29. Impingement of fish and shellfish for plants with cooling-tower-based heat dissipation systems	1	4.0
30. Heat shock for plants with cooling-tower-based heat dissipation systems	1	4.0
31. Impacts of refurbishment on groundwater use and quality	1	4.0
32. Groundwater use conflicts (potable and service water; plants that use < 100 gpm)	1	4.0
33. Groundwater use conflicts (potable, service water, and dewatering; plants that use > 100 gpm)	2	4.5
34. Groundwater use conflicts (plants using cooling towers withdrawing make-up water from a small river)	2	4.6
35. Groundwater use conflicts (Ranney wells)	2	4.7
36. Groundwater quality degradation (Ranney wells)	1	4.0
37. Groundwater quality degradation (saltwater intrusion)	1	4.0
38. Groundwater quality degradation (cooling ponds in salt marshes)	1	4.0
39. Groundwater quality degradation (cooling ponds at inland sites)	2	4.8
40. Refurbishment impacts to terrestrial resources	2	4.9
41. Cooling tower impacts on crops and ornamental vegetation	1	4.0
42. Cooling tower impacts on native plants	1	4.0
43. Bird collisions with cooling towers	1	4.0
44. Cooling pond impacts on terrestrial resources	1	4.0
45. Power line right-of-way management (cutting and herbicide application)	1	4.0
46. Bird collisions with power lines	1	4.0
47. Impacts of electromagnetic fields on flora and fauna (plants, agricultural crops, honeybees, wildlife, livestock)	1	4.0
48. Floodplains and wetlands on power line right-of-way	1	4.0
49. Threatened or endangered species	2	4.10
50. Air quality during refurbishment (nonattainment and maintenance areas)	2	4.11

Table A-1. Donald C. Cook Nuclear Plant Environmental Report Cross-Reference of License Renewal NEPA Issues. (Continued)

Issue		Category	Section of this Environmental Report
51.	Air quality effects of transmission lines	1	4.0
52.	Onsite land use	1	4.0
53.	Power line right-of-way land use impacts	1	4.0
54.	Radiation exposures to the public during refurbishment	1	4.0
55.	Occupational radiation exposures during refurbishment	1	4.0
56.	Microbiological organisms (occupational health)	1	4.0
57.	Microbiological organisms (public health) (plants using lakes or canals, or cooling towers or cooling ponds that discharge to a small river)	2	4.12
58.	Noise	1	4.0
59.	Electric shock from transmission-line-induced currents	2	4.13
60.	Electromagnetic fields, chronic effects	NA	4.0
61.	Radiation exposures to public (license renewal term)	1	4.0
62.	Occupational radiation exposures (license renewal term)	1	4.0
63.	Housing impacts	2	4.14
64.	Public services: public safety, social services, and tourism and recreation	1	4.0
65.	Public services: public utilities	2	4.15
66.	Public services: education (refurbishment)	2	4.16
67.	Public services: education (license renewal term)	1	4.0
68.	Offsite land use (refurbishment)	2	4.17.1
69.	Offsite land use (license renewal term)	2	4.17.2
70.	Public services: transportation	2	4.18
71.	Historic and archaeological resources	2	4.19
72.	Aesthetic impacts (refurbishment)	1	4.0
73.	Aesthetic impacts (license renewal term)	1	4.0
74.	Aesthetic impacts of transmission lines (license renewal term)	1	4.0
75.	Design basis accidents	1	4.0
76.	Severe accidents	2	4.20
77.	Offsite radiological impacts (individual effects from other than the disposal of spent fuel and high-level waste)	1	4.0
78.	Offsite radiological impacts (collective effects)	1	4.0

Table A-1. Donald C. Cook Nuclear Plant Environmental Report Cross-Reference of License Renewal NEPA Issues. (Continued)

Issue		Category	Section of this Environmental Report
79.	Offsite radiological impacts (spent fuel and high-level waste disposal)	1	4.0
80.	Nonradiological impacts of the uranium fuel cycle	1	4.0
81.	Low-level waste storage and disposal	1	4.0
82.	Mixed waste storage and disposal	1	4.0
83.	Onsite spent fuel	1	4.0
84.	Nonradiological waste	1	4.0
85.	Transportation	1	4.0
86.	Radiation doses (decommissioning)	1	4.0
87.	Waste management (decommissioning)	1	4.0
88.	Air quality (decommissioning)	1	4.0
89.	Water quality (decommissioning)	1	4.0
90.	Ecological resources (decommissioning)	1	4.0
91.	Socioeconomic impacts (decommissioning)	1	4.0
92.	Environmental justice	NA	2.6.2

Source: 10 CFR 51, Subpart A, Appendix A, Table B-1. (Issue numbers added to facilitate discussion.)

NA = Regulation does not categorize this issue.

NEPA = National Environmental Policy Act.

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Appendix B

Michigan Department of Environmental Quality Permits

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PERMIT NO. MI0005827

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
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; the "Federal Act"), Michigan Act 451, Public Acts of 1994, as amended (the "Michigan Act"), Parts 31 and 41, and Michigan Executive Orders 1991-31, 1995-4 and 1995-18,

Indiana Michigan Power Company
subsidiary of American Electric Power Company
Donald C. Cook Nuclear Plant
One Cook Place
Bridgman, Michigan 49106

is authorized to discharge from the facility located at

Donald C. Cook Nuclear Plant
One Cook Place
Bridgman, Michigan 49106

designated as American Elec Power-Cook Plt

to the receiving water named Lake Michigan in accordance with effluent limitations, monitoring requirements and other conditions set forth in this permit.

This permit takes effect on January 1, 2001. Any person who is aggrieved by this permit may file a sworn petition with the Office of Administrative Hearings of the Michigan Department of Environmental Quality, setting forth the conditions of the permit which are being challenged and specifying the grounds for the challenge. The Department may reject any petition filed more than 60 days after issuance as being untimely. If any condition of this permit is administratively challenged, th entire challenged permit is stayed and the previous permit will remain in effect until the Department takes final action afi the Administrative Hearing.

This permit and the authorization to discharge shall expire at midnight, October 1, 2003. In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit an application which contains such information and forms as are required by the Michigan Department of Environmental Quality to the Plainwell District Supervisor of the Surface Water Quality Division by April 1, 2003.

In accordance with Section 324.3118 of the Michigan Act, the permittee shall make payment of a $200.00 annual storm water fee to the Department, which shall be postmarked no later than March 15 of each year.

This permit is based on a complete application submitted on April 1, 1999, and amended on May 24, 1999. The provisions of this permit are severable. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term in accordance with applicable laws and rules. On its effective date this permit shall supersede NPDES Permit No. MI0005827, expiring October 1, 1999, and Certificate of Coverage No. MIS520011, issued May 4, 2000, which is hereby revoked upon the effective date of this permit.

Issued September 21, 2000 .

William E. McCracken
Chief, Permits Section
Surface Water Quality Division

PERMIT NO. MI0005827 Page 2 of 24

PART I

Section A. Effluent Limitations And Monitoring Requirements

1. Final Effluent Limitations, Monitoring Points 001A and 002A (Combined Discharge)

During the period beginning on the effective date of this permit and lasting until the expiration date of this permit, the permittee is authorized to discharge a maximum of one billion five hundred million (1,500,000,000) gallons per day of noncontact condenser cooling water, miscellaneous low volume wastes, and storm water runoff from Monitoring Point 001A through Outfall 001 to Lake Michigan; and one billion eight hundred twenty million (1,820,000,000) gallons per day of noncontact condenser cooling water, miscellaneous low volume wastes, and storm water runoff from Monitoring Point 002A through Outfall 002 to Lake Michigan. Such discharges shall be limited and monitored by the permittee as specified below.

Parameter	Maximum Limits for Quantity or Loading			Maximum Limits for Quality or Concentration			Frequency of Analysis	Sample Type
	Monthly	Daily	Units	Monthly	Daily	Units		
Flow	(report)	(report)	MGD	---	---	---	Daily	Report Total Daily Flow
Total Residual Oxidant (TRO)								
During Chlorination - No Bromine Use								
Discharge Mode								
Continuous (greater than 160 min/day)	---	---		---	38	ug/l	5X/Week	Grab
Intermittent (less than/equal to 160 min/day)	---	---		---	200	ug/l	5X/Week	Grab
ring Bromine Use - the discharge of bromine shall not exceed 120 min/day								
termittent (less than/equal to 120 min/day)	---	---		---	50	ug/l	5X/Week	Grab
TRO Discharge Time	---	---	---	---	(report)	min/day	5X/Week	Report Total Discharge Time
Temperature								
Intake	---	---	---	---	(report)	° F	Daily	Reading
Discharge	---	---	---	---	(report)	° F	Daily	Reading
Heat Addition*	---	17,300	Million BTU/Hr	---	---	---	Daily	Calculation
Outfall Observation	(report)	---	---	---	---	---	Daily	Visual
				Minimum Daily	Maximum Daily			
pH	---	---	---	6.5	9.0	S.U.	Weekly	Grab

*The daily maximum limit of 17,300 Million BTU/Hour is for the total power plant discharge. The permittee shall report the total of heat loads discharged through outfalls 001 and 002 under outfall 001, in addition to reporting the heat loads discharged individually for the outfalls 001 and 002, in the discharge monitoring reports.

a. Narrative Standard
The receiving water shall contain no unnatural turbidity, color, oil films, floating solids, foams, settleable solids, suspended solids, or deposits as a result of this discharge.

PART I

Section A. Effluent Limitations And Monitoring Requirements

b. Monitoring Location
Samples, measurements, and observations taken in compliance with the monitoring requirements above shall be taken prior to discharge to Lake Michigan.

c. Outfall Observation
Any unusual characteristics of the discharge (i.e., unnatural turbidity, color, oil film, floating solids, foams, settleable solids, suspended solids, or deposits) shall be reported within 24 hours to the Plainwell District Supervisor of the Surface Water Quality Division followed with a written report within five (5) days detailing the findings of the investigation and the steps taken to correct the condition. For turbidity caused by the discharge of bentonite clay, the permittee is only required to verbally report to the Plainwell District Supervisor.

d. Water Treatment Additives
This permit does not authorize the discharge of water additives without approval from the Department. Water additives include any material that is added to water used at the facility or to a wastewater generated by the facility to condition or treat the water. In the event a permittee proposes to discharge water additives, the permittee shall submit a request to the Department for approval. See Part I.A.6. for information on requesting water treatment additive use.

e. TRO (Chlorine and Bromine) Requirements
Total Residual Oxidant (TRO) shall be analyzed for using EPA Method 330.1 (alternate methods may be used upon approval of the Plainwell District Supervisor of the Surface Water Quality Division). TRO monitoring is only required during periods of chlorine or bromine use and subsequent discharge. Limitations for the intermittent discharge of chlorine apply only when the discharge of chlorine is less than or equal to 160 minutes per day, otherwise the limitations for continuous discharge of chlorine apply. The intermittent discharge limitations shall apply when the service water system is chlorinated continuously and the noncontact condenser cooling water is chlorinated intermittently on the same day. Authorization to discharge bromine with or without chlorine is lim to 120 minutes per day at the limitations specified above with the additional requirement that any discharge of chlorine is restricted to a concurrent discharge with bromine (no additional discharge of chlorine is authorized for that day).

During the intermittent discharge of chlorine without bromine ("During Chlorination - No Bromine Use" limitations given above), the daily concentration value reported for TRO shall be the average of a minimum of three (3) equally spaced grab samples taken during a chlorine discharge event, with the additional limitation that no single sample may exceed 300 ug/l.

During the intermittent discharge of bromine with or without chlorine ("During Bromine Use" limitations given above), the daily concentration value reported for TRO shall be the maximum of at least three (3) equally spaced grab samples taken during a bromine discharge event (no single sample may exceed 50 ug/l).

The permittee shall enter a zero ("0") on the Discharge Monitoring Report for the TRO discharge modes not being used.

The permittee may use dehalogenation techniques to achieve the applicable TRO limitations, using sodium thiosulfate, sodium sulfite, sodium bisulfite, or other dehalogenating reagents approved by the Plainwell District Supervisor. The quantity of reagent(s) used shall be limited to 1.5 times the stoichiometric amount of applied chlorine/bromine oxidant. Each month the permittee shall report the quantity of each dehalogenation reagent used per day.

f. Power Plants - PCB Prohibition
Beginning upon the effective date of this permit, the permittee shall not discharge any polychlorinated biphenyls to the receiving waters of the state of Michigan as a result of plant operations other than due to the presence of such compounds in the intake water.

g. Chemical Metal Cleaning Wastes
The permittee shall not discharge chemical metal cleaning wastes to the receiving waters of the state of Michigan as a result of plant operations.

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Permit M 00988

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

AUTHORIZATION TO DISCHARGE TO THE

GROUNDWATERS OF THE STATE OF MICHIGAN

In compliance with the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451) being Sections 324.3101 through 324.3119 of the Compiled Laws of Michigan, and the Administrative Rules promulgated thereunder,

American Electric Power Company
D.C. Cook Nuclear Plant
One Cook Place
Bridgman, Michigan 49106

is authorized to discharge a maximum of 2,400,000 gallons per day (876,000,000 gallons per year) of process wastewater to be disposed of via two seepage lagoons and a maximum of 60,000 gallons per day (21,900,000 gallons per year) of sanitary wastewater to be disposed via two seepage beds in accordance with discharge limitations, monitoring requirements, and other conditions set forth in Parts I and II of this permit.

This permit for a new use takes immediate effect on the date of issuance, unless the applicant either administratively or judicially challenges any condition of this permit, in which case the entire permit is stayed and all authorizations explicitly or implicitly contained in the permit cease. Any person who feels aggrieved by this permit may file a sworn petition with the Director of the Department of Environmental Quality setting forth the conditions of the permit which are being challenged and specifying the grounds for the challenge. The Director may reject any petition filed more than 60 days after issuance as being untimely. During the course of any administrative proceeding brought by a person other than the applicant, the conditions of this permit will remain in effect, unless the Director decides otherwise.

This permit and the authorization to discharge shall expire at midnight on September 1, 2005. In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit such information and forms as are required by the Michigan Department of Environmental Quality no later than 180 days prior to the date of expiration.

This permit is based on the permittee's application dated March 1, 1990, and amended through December 21, 1999.

Permit M 00988

Page 2 of 22

Issued this 29th day of September 2000, for the Michigan Department of Environmental Quality.

Lonnie C. Lee, Chief
Groundwater Program Section
Waste Management Division
Michigan Department of Environmental Quality

PERMIT CONDITIONS

PART I

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

1. **Authorization**

During the period beginning with the date of issuance of this permit and lasting until September 1, 2005, the permittee is authorized to discharge a maximum of 2,400,000 gallons per day (876,000,000 gallons per year) of process wastewater to be disposed via two seepage lagoons and a maximum of 60,000 gallons per day (21,900,000 gallons per year) of sanitary wastewater to be disposed via two seepage beds located in Section 6, Lake Township, Berrien County.

2. **Wastewater Limitations and Monitoring Requirements**

The process wastewater, the treated sanitary wastewater, the seepage lagoons and the seepage beds shall be limited and monitored by the permittee as specified below. Analyses and inspections shall be conducted for the parameters listed below at least at the frequencies indicated. Reports of such monitoring shall be submitted to the Michigan Department of Environmental Quality in accordance with Part I, Section E.1 of this permit.

Sample Location ID	Parameter/ Substance	Units/ Limitations	Measurement Frequency	Sample Type
Process Wastewater/Turbine Room Sump (Outfall 00D)				
EF-1	Flow volume	2,400,000 gpd (max.)	Daily	Total Flow
Process Wastewater/Turbine Room Sump (Outfall 00D)				
EQ-1	Dissolved Sodium	mg/l	Weekly	**
	pH	5.5-9.0 s.u.	Continuous	Grab
	Sulfate	250 mg/l (monthly ave.)	Weekly	**
	Hydrazine		Weekly	Grab
	Ethanolamine		Weekly	Grab
	Oil Sheen (Absorption Pond)		Daily	Visual Observatio
Sanitary Wastewater (Outfall 00E)				
EF-2	Flow	60,000 gpd (max.)	Daily	Total Flow

Permit M 00988 Page 4 of 22

Sample Location ID	Parameter/ Substance	Units/ Limitations	Measurement Frequency	Sample Type
Sanitary Wastewater Influent (Outfall 00E)				
IQ-2	BOD_5	mg/l	Weekly	**
	Ammonia Nitrogen	mg/l	Weekly	**
	Total Phosphorus	mg/l	Weekly	**
	pH	s.u.	Weekly	Grab
	Total Suspended Solids	mg/l	Weekly	**
Sanitary Wastewater Effluent (Outfall 00E) ***				
EQ-2	BOD_5	35 mg/l (max)	Weekly	Grab
	Total Inorganic Nitrogen	85 mg/l (max)	Weekly	Calculation
		50 mg/l (monthly ave)	Weekly	Calculation
	Ammonia Nitrogen	mg/l	Weekly	**
	Nitrite Nitrogen	mg/l	Weekly	**
	Nitrate Nitrogen	mg/l	Weekly	**
	Total Phosphorus	15 mg/l	Weekly	**
	pH	5.5-9.0 s.u.	Weekly	Grab
	Total Suspended Solids	mg/l	Weekly	**
Seepage Beds (Outfall 00E)				
LA-1 & LA-2	Dike Inspection		Weekly	Visual Observation
	Freeboard	2 feet minimum	Weekly	Direct Measurement

* Total Inorganic Nitrogen is the total of ammonia plus nitrate plus nitrite, expressed as nitrogen.

** 24-Hour Composite Samples.

*** The limitation for BOD_5, ammonia nitrogen and total suspended solids shall be as stated (EQ2) or 85% reduction from the influent levels (15% of IQ2), **whichever is less**.

3. Lagoon Dike Inspection

Any problems with dike integrity (for example, erosion or animal burrowing) shall be reported immediately to the Waste Management Division District Office. Vegetation shall be kept groomed to discourage animal burrowing. Adequate freeboard shall be maintained to prevent lagoon overtopping.

4. Discharge of Wastewater to Seepage Beds

Wastewater shall be evenly distributed over the entire seepage bed being utilized. Seepage bed usage shall be rotated evenly. Discharge quantity shall not be allowed to exceed the hydraulic capacity of the site. Discharge shall be managed as to cause no adverse hydraulic impact on adjacent property.

5. Other Monitoring Program

Other wastewater monitoring programs may be substituted for the one required above if required or approved by the Waste Management Division, Michigan Department of Environmental Quality.

B. GROUNDWATER LIMITATIONS AND MONITORING REQUIREMENTS

1. Groundwater Monitoring Program

The groundwater monitoring program for the turbine room sump (00D) and the treated sanitary wastewater (00E) shall consist of one (1) upgradient well, EW-8, and four (4) downgradient wells, EW-1A, EW-12, EW-13 and EW-19.

2. Groundwater Limitations and Monitoring Requirements

All groundwater monitoring wells shall be sampled and the groundwater analyzed for the parameters listed below at least at the frequencies indicated. Reports of such monitoring shall be submitted to the Department of Environmental Quality on a quarterly basis in accordance with Part I, Section E.1 of this permit. The background monitoring well is EW-8. Compliance with the limits established in this section will be measured at monitoring wells EW-1A, EW-12, EW-13 and EW-19.

PARAMETERS	CONCENTRATION LIMITATIONS	FREQUENCY OF ANALYSIS	SAMPLE TYPE
Static Water Elevation	USGS-F	Quarterly	Measurement
pH	S.U.	Quarterly	Grab
Chloride	250 mg/l	Quarterly	Grab
Specific Conductance	umhos/cm	Quarterly	Grab
Total Inorganic Nitrogen*	5 mg/l	Quarterly	Calculation
Ammonia Nitrogen	mg/l	Quarterly	Grab
Nitrite Nitrogen	mg/l	Quarterly	Grab
Nitrate Nitrogen	mg/l	Quarterly	Grab
Total Phosphorus	1 mg/l	Quarterly	Grab
Sulfate	**	Quarterly	Grab
Dissolved Sodium	**	Quarterly	Grab
Total Dissolved Solids	**	Quarterly	Grab

(continued on following page)

c. Notification

The permittee shall notify the Plainwell District Office of the Waste Management Division, Michigan Department of Environmental Quality in writing of the proposed implementation of closure activities at least four (4) weeks prior to commencing closure activities.

d. Closure

Closure shall be accomplished in accordance with the approved plan and its schedule.

e. Certification

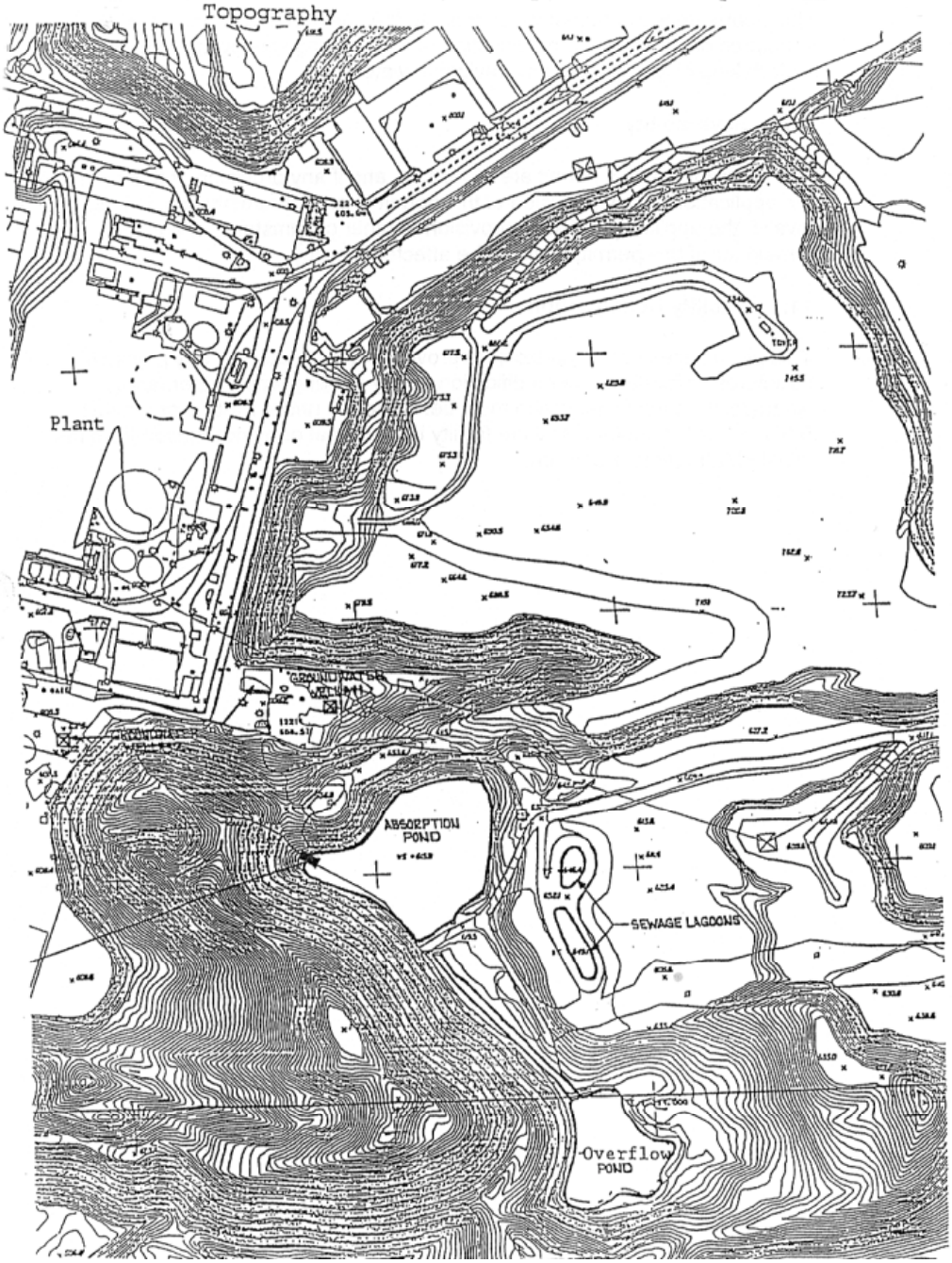
Within 30 days of completion of the closure of the wastewater treatment and disposal areas, the permittee shall certify in writing to the Plainwell District Office of the Waste Management Division, Michigan Department of Environmental Quality that the facilities were closed in accordance with the approved closure plan.

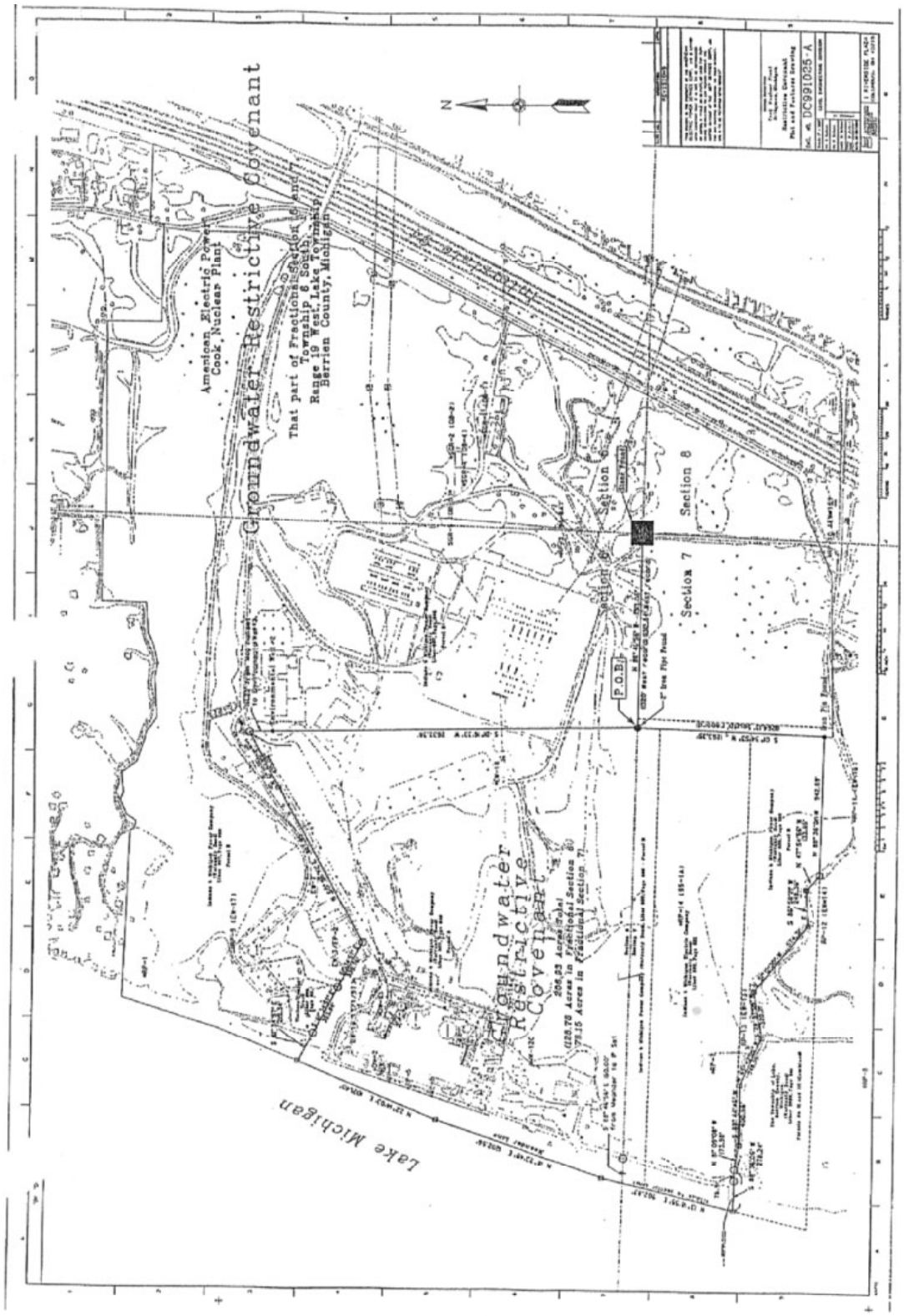
The certification shall include the submittal of sample results for materials removed, disposal documents (if applicable) or other records indicating the volume removed and disposal location, proposed site remediation (if required), and the proposed groundwater monitoring plan outlining well locations and water quality data.

2. Restrictive Covenant

A restrictive covenant shall be maintained on all property owned by the permittee extending from the discharge area to where groundwater in the aquifer receiving the discharge vents into surface water. The restrictive covenant shall clearly state that the groundwater may not be usable and water supply wells cannot be installed unless written authorization is provided by the director of the Department of Environmental Quality (DEQ). Proof that the restrictive covenant has been entered shall be submitted no later than 30 days after the effective date of issuance of this permit. Upon written request, the DEQ may approve removal of the restrictive covenant if the permittee successfully demonstrates that the groundwater meet the Part 22 standards, as described in R 323.2222 and R 323.2224.

Figure 1 - Cook Nuclear Plant, Absorption Pond Complex and Topography




Groundwater Restrictive Covenant
American Electric Power
Cook Nuclear Plant
That part of Fractional Section 6 and
Township 6 South
Range 19 West, Lake Township
Berrien County, Michigan
Section 6
Section 7
Section 8
P.O.B.
Groundwater
Restrictive
Covenant
Lake Michigan
N

STATE OF MICHIGAN

JOHN ENGLER, Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY

HOLLISTER BUILDING, PO BOX 30473, LANSING MI 48909-7973

RUSSELL J. HARDING, Director

REPLY TO:

AIR QUALITY DIVISION
PO BOX 30260
LANSING MI 48909-7760

January 5, 1996

RECEIVED

JAN 1 2 1996

ENVIRONMENTAL AFFAIRS

Mr. Barry A. Smith
Environmental Affairs Administrator
Indiana Michigan Power Company
P.O. Box 60
Fort Wayne, Indiana 46801

Dear Mr. Smith:

This letter is in reference to your Permit to Install application for a fuel oil fired space heating boiler and four diesel emergency generators located at Red Arrow Highway, Bridgman, Michigan. This application, identified as No. 460-93, has been evaluated and approved by the Air Quality Division, pursuant to the delegation of authority from the Michigan Department of Environmental Quality.

This approval is based upon and subject to compliance with all administrative rules of the Department and conditions stipulated in the attached supplement. **Please review these conditions thoroughly so that you may take the actions necessary to ensure compliance with all of these conditions.**

You are advised that contaminants discharged to the surface waters and/or groundwaters; materials disposed of on land; hazardous waste storage, treatment, and disposal; and resource recovery facilities must be approved by other divisions of the Department of Environmental Quality. Additionally, your plant environment must be in compliance with all applicable requirements of the Departments of Public Health and Labor.

Please contact me if you have any questions regarding this permit.

Sincerely,

Lynn Fiedler, Supervisor
Thermal Process Unit
Permit Section
Air Quality Division
517-373-7087

LF:rag
Enclosure
cc: Lynn Spurr, District Supervisor

EQP 0100-26e
(10/95)

SUPPLEMENT TO PERMIT NO. 460-93

Indiana Michigan Power Company
Bridgman, Michigan

January 3, 1996

GENERAL CONDITIONS

1. Rule 201(1) - The process or process equipment covered by this permit shall not be reconstructed, relocated, altered, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule.

2. Rule 201(4) - If the installation, reconstruction, relocation, or alteration of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the person to whom this permit was issued, or the designated authorized agent, shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, reconstruction, relocation, or alteration of the equipment allowed by this Permit to Install.

3. Rule 201(6)(a) - If this Permit to Install is issued for a process or process equipment located at a stationary source which is subject to a Renewable Operating Permit pursuant to Rule 210, trial operation is allowed if the equipment performs in accordance with the terms and conditions of this Permit to Install and until the appropriate terms and conditions of this Permit to Install have been incorporated into the Renewable Operating Permit as a modification pursuant to Rule 216 or upon renewal pursuant to Rule 217. Upon incorporation of the appropriate terms and conditions into the Renewable Operating Permit, this Permit to Install shall become void.

4. Rules 201(6)(b)(i) or 216(1)(a)(v)(A) - Except as provided in General Condition No. 3, operation of the process or process equipment is allowed if, not more than 30 days after completion of the installation, construction, reconstruction, relocation, alteration, or modification authorized by this Permit to Install, the person to whom this Permit to Install was issued, or the authorized agent pursuant to Rule 204, notifies the District Supervisor, Air Quality Division, in writing, of the completion of the activity. Completion of the installation, construction, reconstruction, relocation, alteration, or modification is considered to occur not later than commencement of trial operation of the process or process equipment.

5. Rule 201(6)(b)(ii) - Except as provided in General Condition No. 3, not more than 18 months after completion of the installation, construction, reconstruction, relocation, alteration, or modification authorized by this Permit to Install, the person to whom this permit was issued, or the authorized agent pursuant to Rule 204, shall notify the District Supervisor, Air Quality Division, in writing, of the status of compliance of the process or process equipment with the terms and conditions of the Permit to Install. The notification shall include all of the following:

   A. The results of all testing, monitoring, and recordkeeping performed to determine the actual emissions from the process or process equipment and to demonstrate compliance with the terms and conditions of the Permit to Install.

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B. A schedule of compliance for the process or process equipment as described in Rule 119(a).

C. A statement, signed by the person owning or operating the process or process equipment, that, based on information and belief formed after reasonable inquiry, the statements and information in the notification are true, accurate, and complete.

6. Rule 201(7) and Section 5510 of Act 451, P.A. 1994 - The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Departments' rules or the Clean Air Act.

7. Rule 219 - A new owner or operator of the process or process equipment covered by this Permit to Install shall immediately make a written request to the Department for a change of ownership or operational control. The request shall include all of the information required in Rule 219(1)(a), (b) and (c). If the request for a change in ownership or operational control is approved, the terms and conditions of this Permit to Install shall apply to the person or legal entity which hereafter owns or operates the process or process equipment for which this Permit to Install is issued. The written request shall be sent to the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909.

8. Rule 901 - Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property.

9. Rule 912 - The owner or operator of a source, process, or process equipment shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant in excess of standards for more than one hour, or of any air contaminant in excess of standards for more than two hours, as required in this rule, to the District Supervisor, Air Quality Division. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the District Supervisor within 10 days, with the information required in this rule.

10. Approval of this permit does not exempt the person to whom this permit was issued from complying with any future regulations which may be promulgated under Part 55 of Act 451, P.A. 1994.

11. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

12. Operation of this equipment may be subject to other requirements of Part 55 of Act 451, P.A. 1994, and the rules promulgated thereunder.

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SPECIAL CONDITIONS

13. The sulfur dioxide emission rate from the boiler shall not exceed 0.33 pound per million BTUs heat input, based upon a 24-hour period. This is equivalent to using oil with a 0.3% sulfur content and a heat value of 18,000 BTUs per pound.

14. The nitrogen oxides emission rate from the boiler when firing oil shall not exceed 0.15 pound per million BTUs heat input, based on a 24-hour average.

15. The sulfur dioxide emission rate from the boiler shall not exceed 74.6 pounds per hour nor 130.5 tons per year.

16. The nitrogen oxides emission rate from the boiler shall not exceed 35.0 pounds per hour nor 61.3 tons per year.

17. Visible emissions from the boiler shall not exceed a 6-minute average of 20% opacity, except as specified in Rule 301(1)(a) .

18. Rules 1001, 1003 and 1004 - Verification of sulfur dioxide and/or nitrogen oxides emission rates from the boiler by testing, at owner's expense, in accordance with Department requirements, may be required for operating approval. Verification of emission rates includes the submittal of a complete report of the test results. If a test is required, stack testing procedures and the location of stack testing ports must have prior approval by the District Supervisor, Air Quality Division, and results shall be submitted within 120 days of the written requirement for such verification.

19. Applicant shall not use more than 10,000 gallons per year of blended fuel oil (waste oil, reprocessed oil, reused used oil, etc.). Records of the blended fuel usage rate in the boiler shall be kept on file for a period of at least two years and made available to the Air Quality Division upon request.

20. Applicant shall not burn any hazardous waste (as defined in state or federal law), or any blended fuel oil containing any contaminant that exceeds the following concentrations:

Contaminant	Maximum Concentration Parts per million by weight
Arsenic	5.0
Cadmium	2.0
Chromium	10.0
Lead	100.0
PCBs	1.0
Total Halogens	1000.0
Sulfur	0.3 (% by weight)

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21. Applicant shall obtain a copy of the blended fuel oil analysis from the fuel supplier for each shipment of blended fuel oil. The analysis shall report the content of arsenic, cadmium, chromium, lead, PCBs, and total halogens (all in units of parts per million by weight), and sulfur (percent by weight) in the blended fuel oil and the detection limit for each component analyzed. This information shall be kept on file for a period of at least two years and made available to the Air Quality Division upon request.

22. Records of the sulfur content and usage rate of the virgin oil in the boiler shall be kept on file for a period of at least two years and made available to the Air Quality Division upon request.

23. The exhaust gases from the boiler shall be discharged unobstructed vertically upwards to the ambient air from a stack with a maximum diameter of 60 inches at an exit point not less than 124 feet above ground level.

24. The sulfur dioxide emission rate from the emergency generators shall not exceed 0.33 pound per million BTUs heat input, based upon a 24-hour period. This is equivalent to using oil with a 0.3% sulfur content and a heat value of 18,000 BTUs per pound.

25. Visible emissions from the emergency generators shall not exceed a 6-minute average of 20% opacity, except as specified in Rule 301(1)(a) .

26. Applicant shall not operate the emergency generators when electric power is available, except during periods of maintenance checks and operator training.

LF:rag

DEPARTMENT OF NATURAL RESOURCES
AIR QUALITY DIVISION
P.O. BOX 30028
LANSING, MICHIGAN 48909

STATE OF MICHIGAN

AIR USE PERMIT

APPLICATION

APPLICATION NO. 460-93

7PA-4

FOR AUTHORITY TO INSTALL, CONSTRUCT, RECONSTRUCT, RELOCATE, OR ALTER, AND OPERATE PROCESS FUEL-BURNING, OR REFUSE-BURNING EQUIPMENT AND/OR CONTROL EQUIPMENT (PERMITS TO INSTALL AND OPERATE ARE REQUIRED BY ADMINISTRATIVE RULES PURSUANT TO ACT 348, P.A. 1965, AS AMENDED).

AIR QUALITY DIVISION
JUN 3 - 1993
PERMIT SECTION

1. APPLICANT: Business License Name of Corporation, Partnership, Individual Owner, Government Agency
Indiana Michigan Power Company

2. MAILING ADDRESS: Number and Street; City or Village; State; Zip Code
P. O. Box 60, Fort Wayne, IN 46801

3. EQUIPMENT OR PROCESS LOCATION: Number and Street; City, Village or Township
Red Arrow Hwy, Bridgman MI

COUNTY: Berrien

ZIP CODE: 49106

4. GENERAL NATURE OF BUSINESS:
Nuclear Electric Power Generating Station

5. EQUIPMENT OR PROCESS DESCRIPTION:
one 187.5 x 10^6BTU/hr No. 2 Fuel oil-fired space heating boiler

four 3500 KW each Large bore diesel emergency generators

6. ESTIMATED COST:
Air Pollution Control Equipment $ 0 Total Project $1.9 million

7. ACTION AND TIMING:

		ESTIMATED STARTING DATE	ESTIMATED COMPLETION DATE
[X] Installation, construction, reconstruction, or alteration	space heating boiler	installed 1971	installed 1971
	Diesel generators	1971	1977
[ ] Relocation			
[ ] Change of Ownership			

8. NAME OF PRIOR OWNER AS IN ITEM 1 ABOVE, AND PRIOR AIR USE PERMIT NUMBER, IF ANY:
NAME NA PERMIT NO.

9. NAME AND TITLE OF OWNER OR AUTHORIZED MEMBER OF FIRM
Name D. L. Baker Signature DL Baker
Title: Environmental Affairs Director Date: 5-26-93 Phone No. (219) 425-2118

10. CONTACT PERSON IF DIFFERENT THAN ITEM 9:
Name Barry A. Smith Phone No. (219) 425-2392

11. DISPOSITION OF APPLICATION: FOR DNR USE ONLY

Receipt of all information required by Rule 203	10/18/95	
Permit to install approved * on	1/3/96	Signature Dennis A. Chambers
Permit to operate approved * on		Signature
Application/permit voided on		Signature
Application/permit denied on		Signature

Subject to compliance with all Commission Rules and Conditions stipulated in the attached supplement.

AQ-1 INSTRUCTIONS FOR COMPLETING AND FILING ARE ON REVERSE SIDE PR 5615 3/88

DEQ

Michigan Department of Environmental Quality
Air Quality Division

RULE 208a ANNUAL RENEWAL REGISTRATION

LIMITING POTENTIAL TO EMIT BASED ON ACTUAL EMISSIONS

Pursuant to Michigan Rule 336.1208a (4) completion of this renewal registration is required to legally maintain a limit on a stationary source's potential emissions in accordance with Rule 336.1208a. Certification for this annual renewal registration by the owner or operator will allow the source to avoid being subject to Michigan's Renewable Operating Permit program requirements. Failure to comply with any of the applicable provisions of Rule 208a shall constitute a violation of this rule.

FOR AQD USE ONLY	INITIAL REGISTRATION NUMBER:_____
	RENEWAL REGISTRATION NUMBER:_____

Please print clearly.

REGISTRATION IDENTIFICATION:

AQD Source ID (SRN): B4252 Primary SIC Code: 4911

Source Name: American Electric Power - Donald C. Cook Nuclear Plant

Facility Address: One Cook Place

City: Bridgman State: MI ZIP: 49106 County No.: 11

RENEWAL INFORMATION:

Specify 12 month reporting period: 01 / 2001 thru 12 / 2001 (month/year)

OWNER/OPERATOR REGISTRATION CERTIFICATION:

Name: Pollock, Joseph E.
(Last, First)
Title: Site Vice President

Phone: 616-465-5901 Ext.: 2424

Contact for Technical Information, if other than Owner/Operator:
Name: Long, Jeffery / Mallen, Eric
(Last, First)
Title: Environmental Superintendent (acting) / Environmental Specialist

Phone: 616-465-5901 Ext.: 2165 / 1540

CERTIFICATION: I hearby certify to the following for the preceding 12 month period: I) Based on information and belief formed after reasonable inquiry, the information on the registration form is true, accurate, and complete. II) That all threshold levels specified in subrule (1) of this rule were met during the preceding 12-month period and will continue to be complied with as legally enforceable conditions for the stationary source and that the recordkeeping and reporting requirements of subrules (5) and (6) of this rule are being met and will continue to be met. (III) That, during the preceding 12-month period, the air pollution control equipment was maintained and operated in a manner consistent with good air pollution control practice for minimizing emissions as specified in subrule (2) of this rule and shall continue to be maintained and operated in a manner consistent with good air pollution control practices for minimizing emissions as specified in subrule (2)of this rule.

Joseph E. Pollock 3/8/02
Signature of Owner or Operator Date

Submit completed registration to the address of the appropriate district office or Wayne County as listed on reverse side of this form.

EQP 5735 (10/97)

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