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TO: Mr Rusche

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ACKNOWLEDGED

PLANT NAME: Cook #1

ENCLOSURE

Amdt to OL/Change to the Tech Specs: Consist
of revision to Appendix B with regard to
periphyton collection methods.....

3p

SAFETY

FOR ACTION/INFORMATION

ENVIRO

1-11-77 ehf

ASSIGNED AD:

BRANCH CHIEF:

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OPERATING TECH.

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BAER

BUTLER

GRIMES

EXTERNAL DISTRIBUTION

LPDR: St Joseph, MI

TIC:

NSIC:

ASLB:

ACRS 16 CYS HOLDING SENT AS CAT B

NAT. LAB:

REG V.IE

LA PDR

CONSULTANTS:

BROOKHAVEN NAT. LAB.

ULRIKSON (ORNL)

CONTROL NUMBER

101

ENVIRO

12-24-77

1-6-77

Indian Affairs
New York, NY
16 June

Page 10

3 pages

and to change to the following: Consider
of revision to Appendix 1 with regard to
performance of election methods.....

and to change to the following: Consider

1-11-77 648

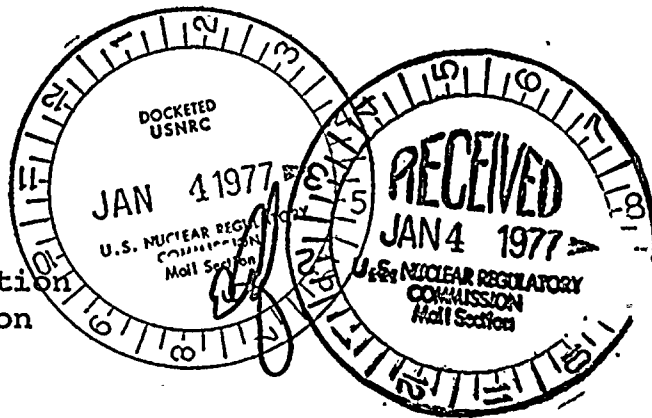
INDIANA & MICHIGAN POWER COMPANY

P. O. BOX 18
BOWLING GREEN STATION
NEW YORK, N. Y. 10004

December 28, 1976

Donald C. Cook Nuclear Plant
Docket No. 50-315
License No. DPR-58

Mr. Benard C. Rusche, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555



Dear Mr. Rusche:

This letter is a request for changes to our Appendix B Technical Specification Section 4.1.2.1.1.4 and Table 4.1.2-1. We have attached revised pages 4.1-21 and 4.2-6 to indicate the changes we propose.

Section 4.1.2.1.1.4, "Periphyton," currently requires the use of artificial substrates set in the lake at specified locations for periphyton collection. Dr. J. C. Ayers of the Great Lakes Research Division of the University of Michigan, under whose direction all aquatic studies are performed at the site, believes that the objective of this section would be better served by diving to observe periphyton growth on the intake and discharge structures and the surrounding riprap and by analysis of samples hand collected during such dives. (Such observations and sampling of periphyton are being carried out during the dives required by section 4.1.2.1.4). The reasons for our request to modify this specification are:

- 1) The natural conditions of shifting sand bottom and severe wave action along the shore of southeastern Lake Michigan are such that stable substrates are absent, and the region preoperationally was essentially devoid of periphyton. Postoperationally, the region is still essentially devoid of periphyton and post-operational bottom conditions are not different from preoperational conditions.
- 2) The only substantial aggregation of periphyton between New Buffalo harbor 15 miles to the south

and St. Joseph harbor 11 miles to the north is on the Cook Plant's submerged intake and discharge structures and the riprap surrounding them. From these substrates we have preoperational (1973, 1974) and post operational data on species composition and growth, from visual inspection and collections by our divers.

- 3) Periphyton organisms loosened from the intake structures by waves, currents, and winter ice are entrained into the plant where they are sampled monthly in entrained phytoplankton. From these samples we have species compositions and organism densities for the preoperational months of 1975 and the postoperational months of 1975 and 1976.
- 4) From items 2. and 3. immediately above, we receive (from an existing periphyton community) more data than could be obtained from artificial substrates deployed in April through November and harvested in May through November, as Specification 4.1.2.1.1.4 now requires.
- 5) From items 2. and 3. above, we receive data ideally suited to determinations of abundance changes, changes in population composition, changes in diversity, or changes in other population parameters which might be due to plant operation--as Specification 4.1.2.1.1.4 requires.
- 6) The use of artificial substrates at 1 meter below stillwater level, as Specification 4.1.2.1.1.4 now requires, would be open to the dual criticisms that the substrate might differentially favor or suppress colonization by periphytic organisms (thus acquiring a population different from that on Cook Plant's iron and stone) and that differences in amounts of light reaching the artificial collectors and the riprap might produce differences between the populations (this is pointed out in the Specification).

1. The first part of the report discusses the general situation of the country and the progress of the work. It also mentions the results of the survey and the conclusions drawn from it.

2. The second part of the report deals with the specific details of the work, including the methods used, the data collected, and the analysis of the results.

3. The third part of the report contains the conclusions and recommendations of the study. It also mentions the limitations of the study and the need for further research.

4. The fourth part of the report is a summary of the findings and a list of references.

5. The fifth part of the report is a list of appendices and a list of figures.

6. The sixth part of the report is a list of tables and a list of footnotes.

7. The seventh part of the report is a list of abbreviations and a list of symbols.

8. The eighth part of the report is a list of acronyms and a list of initials.

9. The ninth part of the report is a list of dates and a list of times.

10. The tenth part of the report is a list of locations and a list of names.

Therefore, we request that section 4.1.2.1.1.4 be changed as shown on the attached revised pages 4.1-21 and 4.2-6. A diving schedule consistent with section 4.1.2.1.4 is included.

In addition we request a change in the schedule of fish larvae tows in the lake as specified in Table 4.1.2-1, (also on page 4.2-6). The fish section of this table indicates that fish larvae open water field samples, also used for fish egg collection, shall be taken April-November during ecological monitoring of the Cook Plant. During October and November we are presently required to sample for fish larvae and eggs at the following open water stations: Stations C and D--South Cook at the 20 and 30 foot contours; Station G and H--at the 20 and 30 foot contours off Warren Dunes State Park; and Station I--North Cook at the 20 foot contour.

The accompanying table gives the results of our field larvae open water sampling for 1973-75. In summary, no larvae or eggs were collected in October 1973 at any station. November was not sampled due to bad weather. In 1974 a few alewife larvae (34/1000m³ at the surface and 60/1000m³ at 8m) were collected at Station H, Warren Dunes. No other larvae were collected in either month during 1974. In October 1975, 168 alewife larvae/1000m³ were captured at Station G, Warren Dunes. At Station C, South Cook, 131 trout-perch larvae/1000m³ were also taken in October. No other larvae were taken in either month during 1975. No fish eggs have been collected in any open water field tows during October-November of 1973-1975.

The above data may be compared with that of our 1973 annual report, Section C--"Vertical, diel and seasonal distribution of fish larvae and eggs in the inshore waters of southeastern Lake Michigan" (In: Inshore Lake Michigan fish populations near the Donald C. Cook Nuclear Plant, 1973. Jude et al., 1975. Spec. Rep. No. 52, Great Lakes Research Division, Univ. of Mich., Ann Arbor). This section demonstrates that many more larvae and eggs are collected during peak fish spawning periods in the study area (spring-summer) than in October and November. Larvae and eggs in spring and

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99

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summer samples frequently reach thousands of organisms per 1000m³. It is evident from our data that October and November larvae sampling occurs well after most fish have spawned in the study area.

In addition, no larvae of any Great Lakes fish known to spawn in lakes during fall and winter have ever been observed in October-November field larvae samples. Such fall-winter spawners would include lake herring, fourhorn (deepwater) sculpin, lake whitefish, brown trout, brook trout, burbot, lake trout and bloater. Relative scarcity of these species in the study area is believed to be responsible for absence of their larvae.

Alewives, spottail shiners and smelt, whose larvae are frequently encountered in the study area numerically comprised 95.5% of our standard series catch in 1973 and 93.2% in 1974. To date we have never captured brook trout. Fourhorn sculpin, lake herring, and bloater prefer deeper (30 ft.) water for spawning. Burbot spawn later in southern Lake Michigan, probably into December and January (indicated by our gonad data). Lake trout are reported to spawn over rocks and rubble rather than over sand. Brown and brook trout spawn more often in rivers and streams than in lakes.

Because we collect so few larvae and no eggs in October and November, and because fall-winter spawners do not appear to breed near the Cook Plant during these months, we propose omission of October and November open water field larvae sampling in the future. This would include stations C,D,G,H, and I, described above. We believe we have already obtained sufficient data regarding October-November fish larvae and egg abundance and identity to justify this request for the change shown on the bottom of the attached revised page 4.2-6.

These proposed changes would not change the intent of the specifications which are to monitor periphyton as an indicator of the effects of Cook Nuclear Plant operation

היום יצאנו לטיול ביער הנational. הטיול היה מרתון של 10 ק"מ. היער היה יפה מאוד, עם עצים גבוהים וירוקים. אנחנו חשנו מרענן ונעים. הטיול היה מרתון של 10 ק"מ. היער היה יפה מאוד, עם עצים גבוהים וירוקים. אנחנו חשנו מרענן ונעים.

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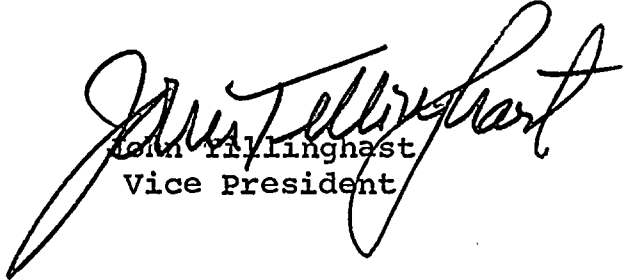
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December 28, 1976

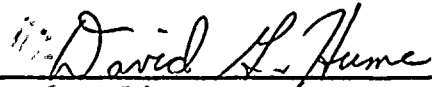
on the aquatic environment, and to determine the environmental impact of plant operation on the fish populations in the vicinity of the plant.

Very truly yours,


John Fillingham
Vice President

JT:mam
Attachment

Sworn and subscribed to before me
this 28th day of December, 1976 in
New York County, New York



Notary Public

DAVID G. HUME
NOTARY PUBLIC, State of New York
No. 31-4608113
Qualified in New York County
Commission Expires March 30, 1977

cc: G. Charnoff
R. C. Callen
P. W. Steketee
R. Walsh
R. J. Vollen
R. W. Jurgensen - Bridgman
R. S. Hunter

1. The first of the two main parts of the report is a description of the work done during the year. This is followed by a summary of the results of the work.

2. The second part of the report is a discussion of the results of the work.

3. The third part of the report is a conclusion.

4. The fourth part of the report is a list of references.

5. The fifth part of the report is a list of figures.

6. The sixth part of the report is a list of tables.

7. The seventh part of the report is a list of appendices.

TABLE 1. Number of fish larvae (<25.4 mm total length) per 1000 m³ captured during October and November of 1973, 1974 and 1975 from the Cook Plant and Warren Dunes open water stations. Larvae tows only. AL = alewife, TP = trout-perch.

Month	Depth(m)	C		I		D		G		H		E		M	
		6m-S. Cook		6m-N. Cook		9m-S. Cook		6m-W. Dunes		9m-W. Dunes		*21.2/m-Cook		*21.4m-W. Dunes	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
<u>1973</u>															
Oct	0	0	0	-	-	0	0	0	0	0	0	0	-	-	-
	1 (8)*	0	0	-	-	0	0	0	0	0	0	0	-	-	-
	2 (14)*	0	0	-	-	0	0	0	0	0	0	0	-	-	-
	ST (20)*	0	0	-	-	0	0	0	0	0	0	0	-	-	-
Nov	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ST	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<u>1974</u>															
Oct	0	0	0	-	-	0	0	0	0	0	34AL	-	-	-	-
	2	0	0	-	-	0	0	0	0	0	0	-	-	-	-
	4	0	0	-	-	0	0	0	0	0	0	-	-	-	-
	6	0	0	-	-	0	0	0	0	0	0	-	-	-	-
	8	-	-	-	-	0	0	-	-	0	60AL	-	-	-	-
Nov	0	-	0	-	-	-	0	-	0	-	0	-	-	-	-
	2	-	0	-	-	-	0	-	0	-	0	-	-	-	-
	4	-	0	-	-	-	0	-	0	-	0	-	-	-	-
	6	-	0	-	-	-	0	-	0	-	0	-	-	-	-
	8	-	-	-	-	-	0	-	-	-	0	-	-	-	-
<u>1975</u>															
Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2 (8)*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4 (14)*	0	131TP	0	0	0	0	0	0	0	0	0	0	0	0
	6 (20)*	0	0	0	0	0	0	0	168AL	0	0	0	0	0	0
	8	-	-	-	-	0	0	-	-	0	0	-	-	-	-
Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2 (8)*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4 (14)*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6 (20)*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	-	-	-	-	0	0	-	-	0	0	-	-	-	-

*The depths for tows at stations E and W are given in parenthesis.

Specification

Field Method

Periphyton on the intake and discharge structures and the surrounding riprap shall be visually inspected and samples hand-collected during the months of April through October (see Specification 4.1.2.1.4.).

Monthly samples of entrained phytoplankton at the intake shall be examined for periphytic species and the abundances thereof obtained.

Preservation of samples shall be the same as for samples collected in the regular sampling scheme of the general ecological survey.

Laboratory Method

The laboratory methods used shall be the same as those used for phytoplankton in the regular sampling scheme of the general ecological survey--see Specification 4.1.2.1.1.2.--except that each month from April through October a wet-mounted sample from the intake structure shall be examined also.

Reporting Requirement

As specified in Section 5.4.

Basis

Periphyton are attached algae growing upon solid substrates, consequently they are fixed in position. If their substrates are located where the Plant discharge can reach them, the periphyton may respond by abundance changes, changes in population composition, changes in diversity, or changes in other population parameters. Statistically significant differences between preoperational and operational population parameters will be noted and the relationship to Plant operation investigated.

TABLE 4.1.2-1 (Continued)

MONTHS AND STATIONS USED FOR GENERAL ECOLOGICAL SURVEY
(See Table 4.1.2-2 for transect locations and distances from shore)

Short surveys: None

Major surveys: 3 months (April, July, October)
30 stations (as shown below)

		Zone		
		0	1	2
Inner		SDC-1-1	SDC-1-2	SDC-1-3
		SDC-.5-1	SDC-.25-1	SDC-.5-3
		DC-1	DC-2	DC-3
		NDC-.5-1	NDC-.25-1	DC-4
		NDC-1-1	NDC-1-2	NDC-.5-3
Outer		SDC-7-1	SDC-7-3	SDC-7-5
		SDC-4-1	SDC-7-2	SDC-7-4
		SDC-2-1	SDC-2-3	SDC-4-3
		NDC-4-1	NDC-2-3	NDC-4-3
		NDC-7-1	NDC-7-3	NDC-7-5

Periphyton

Diving:

Months: 7 (April, May, June, July, August, September, October)

One sample from the intake structure to be examined in wet-mount each month.

Entrained Periphyton

Months: 12

Duplicate samples from the intake forebay shall, each month, be identified and counted by the method used for phytoplankton in the regular sampling scheme of the general ecological survey.

Fish

Months: 8 (April through November)

Eleven permanent stations were established in the area of the Cook Plant and Warren Dunes State Park (control site). Two seining stations (A and B) north and south of the plant and three gillnetting, trawling and fish larvae stations (C and D) south of the plant and I north of the plant in 20 and 30 feet of water were established. A gillnetting station is located at station J north of the plant (30 ft of water). A fish larvae station (E) in 70 feet of water was also established for the months of April through August.

At Warren Dunes State Park (control location) one seining station (F); two stations (G and H) in water depths of 20 and 30 feet for gillnetting, trawling and fish larvae; and one station (M) fished during April through August at 70 foot of water depth for fish larvae were established. Fish larvae tows shall be conducted at ten stations. No fish larvae tows need be taken during October and November.

