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 FITZPATRICK, E. Illinois Power Co.
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SUBJECT: Forwards change of process notification which increases capacity of reverse osmosis unit & adds dry layup method for plant heating boiler.

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December 9, 1996

AEP:NRC:1208T

Docket Nos.: 50-315
50-316

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Gentlemen:

Donald C. Cook Nuclear Plant Units 1 and 2
NPDES CHANGE OF PROCESS NOTIFICATION

The attached notification is forwarded for your information pursuant to Appendix B of Donald C. Cook Nuclear Plant Environmental Technical Specifications. The subject concerns a change of process notification for our NPDES permit. The changes increase the capacity of a reverse osmosis unit and add a dry layup method for the plant heating boiler.

Should you have any questions or concerns regarding this notification, please contact Walter T. MacRae at 616-697-5067.

Sincerely,

A handwritten signature in cursive script, appearing to read 'E. E. Fitzpatrick'.

E. E. Fitzpatrick
Vice President

jmb

Attachment

cc: A. A. Blind
A. B. Beach
MDEQ - DW & RPD
NRC Resident Inspector
J. R. Padgett

1/1
C/P/1

9612160092 961209
PDR ADOCK 05000315
PDR

ATTACHMENT 1 TO AEP:NRC:1208T

COOK NUCLEAR PLANT

NPDES PERMIT NO. MI0005827

American Electric Power
Cook Nuclear Plant
One Cook Place
Bridgman, MI 49106
616 465 5901



Mr. Fred Morley, Surface Water Quality Division
Michigan Department of Environmental Quality
621 North Tenth St.
P.O. Box 355
Plainwell, Michigan 49080

November 14, 1996

Subject: Cook Nuclear Plant
NPDES Permit No. MI0005827

Dear Mr. Morley:

As required by Part I.A.1.d and Part II.A.2 of the Donald C. Cook Nuclear Plant National Pollutant Discharge Elimination System (NPDES) Permit No. MI0005827, we are providing a "change of process" notification. These changes will increase the capacity of a Reverse Osmosis (RO) unit, and add a dry layup method for the plant heating boiler.

1. Reverse Osmosis. (RO) Unit

Cook Nuclear Plant is in the process of installing an increased capacity RO unit for the Makeup water system, to replace the rental unit now in place. The permanently installed RO unit will be placed in operation within the next year, and will result in environmental and production improvements.

The process water flow will be approximately 100,000,000 gallons per year (200 gpm), whereas the current RO produces 78,840,000 gallons per year (150 gpm). The new unit will reduce the number of required Makeup Plant resin regenerations and the amount of chemicals (sulfuric acid and sodium hydroxide) used for regeneration. The associated regeneration waste stream directed to Outfall 00D will be reduced.

The amount of reject water directed to Outfall 00G will increase to approximately 32,000,000 gallons per year (60 gpm) when the new RO unit is in operation. The reject water is approximately 1/3 of the output flow and is water temperature dependent. The reject water from the RO unit consists of concentrated Lake Michigan water and a small amount of sulfuric acid to inhibit scale buildup on the membranes. Adding sulfuric acid optimizes RO efficiency by reducing the influent pH to approximately 5.0. We estimate approximately 11,000 gallons per year (1.3 gallons per hour) of 66°Be° sulfuric acid will be added to the RO intake to achieve this pH.

During periodic cleaning of the RO membranes, approximately 15 lbs. (100 wt. %) Sodium Hydroxide (NaOH) will be used per cleaning. We estimate that the membranes will be cleaned approximately four times per year with a dilute sodium hydroxide solution

consisting of about 2 gallons of 50% sodium hydroxide diluted with 1600 gallons of water. Approximately 8 gallons of 50% NaOH will be used per year. Other solid chemicals such as detergent (Tide) and sodium bisulfite will be used in similar quantities as they have been used in the present RO unit. Present use rate for detergent (Tide) is approximately 15 lbs/year, and the use rate for sodium bisulfite is also approximately 15 lbs/yr.

Chemical usage is summarized in the following table:

| Chemical Use Summary for Current RO unit and Proposed RO unit. | | |
|--|---|---|
| Chemical | Current Amount/Year | Proposed Amount/Year |
| Sulfuric Acid | 8200 Gallons (35% H ₂ SO ₄) | 11,000 gallons (66% Be° H ₂ SO ₄) |
| Sodium Hydroxide (50% solution) | 120 gallons | 8 gallons |
| Detergent - Tide (Dry) | 15 lbs. | 15 lbs. |
| Sodium Bisulfite (Dry) | 15 lbs. | 15 lbs. |

2. Heating Boiler Dry Layup

The Cook Nuclear Plant will evaluate a new dry layup procedure for the plant heating boiler. When the boiler will not be run for extended periods, it will be placed in a dry layup condition instead of in the normal wet layup configuration. If the evaluation is acceptable, this will result in less hydrazine and ethanolamine (ETA) discharged to Outfall 00D. (During the evaluation, wet layup conditions as described in the NPDES Permit application will still be used when the boiler is shut down for periods less than 5 days.)

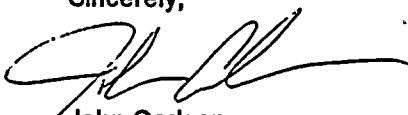
During normal shutdown procedures, the boiler will be drained via Outfall 00C until empty. An additional volume of approximately 6,000 gallons of 15 ppm ETA, and 0.15 ppm hydrazine will be drained to the circulating water forebay. The boiler is then dried by supplied air. Implementation of this layup procedure may have an annual savings of up to 32,000 gallons of approximately 50 ppm ETA, and 400 ppm hydrazine being drained to Outfall 00D.

The following table represents potential yearly chemical reduction/savings if the dry layup program for the heating boiler proves acceptable.

| Heating Boiler Chemical Discharge Reduction Proposal (Based on the reduction of boiler wet layup drains from 30/yr to 10/yr) | | |
|--|---------------------|----------------------|
| Chemical | Current Amount/Year | Proposed Amount/Year |
| ETA (Betz 1440) | 194.3 gallons | 190.4 gallons |
| Hydrazine (Betz 1205) | 55.6 gallons | 20.4 gallons |

Should you have any questions on our plans, please contact me at 616/465-5901, extension 1153.

Sincerely,



John Carlson
Environmental Compliance Supervisor

c: M. Fields - MDEQ Plainwell
S. Heaton - MDEQ Lansing
D. Mackenzie - Taylor - MDEQ Lansing
T. Unseld - MDEQ Plainwell

NPDES Permit No. MI0005827
November 14, 1996

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this and all attached documents; and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A handwritten signature in cursive script, appearing to read "Diane Fitzgerald", written in dark ink.

D. M. Fitzgerald
Environmental Affairs Manager

