Docket No. 50-317

# AUG 0 1976

Baltimore Gas and Electric Company ATTN: Mr. A. E. Lundvall, Jr. Vice President - Supply Gas & Electric Building Charles Center Baltimore, Maryland 21203

Gentlemen:

The Commission has issued the enclosed Amendment No. 16 to Facility Operating License No. DPR-53 for the Calvert Cliffs Nuclear Power Plant Unit No. 1. The amendment consists of temporary changes to the Appendix B Technical Specifications in accordance with your application dated June 21, 1976.

This amendment modifies the conditions for Special Studies (Specification 4.4) associated with main condenser cooling water discharge temperature. The change extends the permissible duration of the special studies from 100 hours per year to about 3 1/2 months.

The State of Maryland has issued a National Pollutant Discharge Elimination System (NPDES) permit effective June 7, 1976, for Calvert Cliffs authorizing the special studies. The NPDES limits the DT for the special studies to 12°F. During manual cleaning of the condenser the AT is limited to 14°F for a period of 36 hours per month.

Your proposed change to Specification 2.1.2 was not approved since the existing specification already provides for an exception to the specification in accordance with Specification 4.4.

Since the amendment applies only to short-term temporary changes to the environmental technical specifications relating to condenser cooling water temperature limitations for special studies, it does not involve significant new safety issues of a type not considered by a previous Commission safety review of the facility. It does not involve a significant increase in the probability or consequences of an accident, and does not involve a significant decrease in a safety margin; therefore, it does not involve a significant hazards consideration. We have also concluded that Baltimore Gas and Electric Company - 2 -

AUG 0 1976

(1) there is reasonable assurance that the health and safety of the public will not be endangered by this action, (2) the issuance of this amendment will not be inimical to the common defense and security, and (3) the activities approved by the amendment will be conducted in compliance with the Commission's regulations.

Copies of the Environmental Impact Appraisal and the "Notice of Issuance of Amendment to Facility Operating License and Negative Declaration" also are enclosed.

> Original Signed by: Dennis L. Ziemann

Sincerely,

Dennis L. Ziemann, Chief Operating Reactors Branch #2 Division of Operating Reactors

DISTRIBUTION Enclosures: Docket rigocia 1. Amendment No. 16 to NRC PDR -DS ils **DPR-53** Local PDR TOPber 2. Environmental Impact JEB ORB #2 Reaiding Appraisal KRGoller Notice 3. tJCarter Colled 10 50 Am 8-5-76 Joise Hat been to advise to had been Amend 1 EAreeves OELD -BHSmith Tourlellotte RMDiggs OI&E (5) BJones (4) BScharf (10) oldi **JMcGough** AESteen ACRS (16) VStello DRoss BHarless OPA, J. Jou cha DOR:AD/ORs DOR: ORB #2 DOR: ORB #2 DOR:ORB #2 OFFICE > DLZiemann RMDA EAReeyes: ah KRGoller SURNAME 🗲 7/26/76 /76 8/3 /76 13176 DATE

V. S. GOVERNMENT PRINTING OFFICE: 1974-526-166

Baltimore Gas and Electric Company

cc w/enclosures: James A. Biddison, Jr. General Counsel Gas and Electric Building Charles Center Baltimore, Maryland 21203

James C. Cawood, Jr., Esquire Vice President Chesapeake Environmental Protection Association 4700 Auth Place Camp Springs, Maryland 20023

George F. Trowbridge, Esquire Shaw, Pittman, Potts and Trowbridge 1800 M Street, N. W. Washington, D. C. 20036

Bechtel Power Corporation ATTN: Mr. R. L. Ashley Chief Nuclear Engineer P. O. Box 607 Gaithersburg, Maryland 20760

Combustion Engineering, Inc. ATTN: Mr. J. A. Honey Project Manager P. O. Box 500 Windsor, Connecticut 06095

Calvert County Library Prince Frederick, Maryland 20678

Mr. Bernard Fowler President, Board of County Commissioners Prince Frederick, Maryland 20678 AUG 0 5 1976

- 3 -

cc w/4 cys. of enclosures and 1 cy. of 6/21/76 BG&E filing: Mr. Warren Hodges, Director Department of State Planning 301 West Preston Street Baltimore, Maryland 21201

 $V \leq l' \omega \omega$ 

cc w/enclosures and 6/21/76
BG&E filing:

Dr. Neill Thomasson (AW-459)
Chief, Energy Systems Analysis Branch
Office of Radiation Programs
Environmental Protection Agency
401 M Street S.W.
Washington, D. C. 20460

Lee Bettenhausen, Ph.D. Regional Health Physicist U. S. Environmental Protection Agency Sixth and Walnut Streets Philadelphia, Pennsylvania 19106

#### BALTIMORE GAS AND ELECTRIC COMPANY

#### DOCKET NO. 50-317

#### CALVERT CLIFFS UNIT NO. 1

#### AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 16 License No. DPR-53

1. The Nuclear Regulatory Commission (the Commission) has found that:

- A. The application for amendment by Baltimore Gas and Electric Company (the licensee) dated June 21, 1976, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
- B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
- C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
- D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
- E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

				•
office >				
SURNAME 🇲		·		
DATE 🇲		 	 	
Form AFC 318 (Bar 0	52) ARCM 02(0	 · · · · · · · · · · · · · · · · · · ·		

Form AEC-318 (Rev. 9-53) AECM 0240

VU. S. GOVERNMENT PRINTING OFFICE: 1974-526-166

- 2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment.
- 3. This license amendment is effective as of the date of its issuance.

- 2 -

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed by: Dennis L. Ziemann

Dennis L. Ziemann, Chief Operating Reactors Branch #2 Division of Operating Reactors

Attachment: Changes to the Technical Specifications

Date of Issuance: SHS 0 5 1978

OFFICE > SURNAME > 

X U. S. GOVERNMENT PRINTING OFFICE: 1974-526-166

# ATTACHMENT TO LICENSE AMENDMENT NO. 16

# FACILITY OPERATING LICENSE NO. DPR-53

# DOCKET NO. 50-317

Specifications with the attached revised pages bearing the same numbers. The changed areas on the pages are shown by a marginal line.

> NOTE: The revised pages are printed on one side only, Therefore, the existing page in the Technical Specifications should not be destroyed if the reverse side contains an unrevised page.

OFFICE 🎾	 			
		· .		
SURNAME ≻	 		 	
DATE 🆈	 		 	

2.0	ENVIRONMENTAL	PROTECTION	CONDITION

2.1 Thermal

2.1.1 Maximum AT Across Condenser

#### Objective

The purpose of this specification is to limit thermal stress to organisms which may be entrained in the condenser cooling water of the plant.

# Specification-

This limit applies to the temperature rise of the cooling water as it passes through the condensers. The difference between the flow-weighted hourly average discharge and intake temperatures of the condenser cooling water shall not exceed 10°F during periods of normal operation. During each period when less than the full cooling water flow is available, the flow-weighted hourly average temperature rise shall not exceed 12°F for more than two hours.

The limits of this Specification may be exceeded for performance of special studies as described in Section 4.4.

#### Basis

The condenser cooling water system was designed to operate with a 10°F temperature rise in order to minimize thermal stress to organisms which may be entrained in the cooling water and to limit the maximum discharge temperature. However, it is inevitable that unscheduled pump outages and/or emergency maintenance requirements will necessitate a higher temperature rise during certain periods. During these periods enough time to make an orderly shift of load to other operating units in the system is allowed before a reduction in power is necessary. 3.0 MONITORING REQUIREMENTS

3.1 Thermal

3.1.1 Maximum AT Across Condenser

# Objective.

The purpose of this monitoring requirement is to assure that the cooling water temperature rise across the condenser is maintained within the technical specifications.

# Specification

The plant computer will scan the temperature sensors located in each of the 6 condenser inlet pipes and i the discharge tunnels at least once each minute. These temperature readings will be used to calculate a flow-weighted hourly temperature average for both the inlet and outlet condenser cooling water. These averages along with the difference between them will be logged every hour by the computer. During operating periods when the computer is inoperative or under repair operating condenser inlet and outlet temperature readings shall be logged each hour. The precision of the temperature instrumentation is 0.5°F and the overall accuracy of the system is 1.0°F.

# Basis

- 2 -

By using flow-weighted hourly average temperatures to calculate the temperature rise across the condenser, the environmental protection conditions as stated in section 2.1.1 can be meaningfully and accurately interpreted. A flow-weighted hourly average temperature rise is useful for estimating the overall thermal effect that the plant may have on organisms entrained in the condenser cooling water.

Amendment No. 16

# 4.4 Special Studies

# Objective

To determine the effect of condenser cooling water  $\Delta T$ 's above 10°F and/or discharge temperatures above 90°F on the physical and/or biological characteristics of the entrained and/or receiving water in the vicinity of the plant.

#### Specification

Special field studies may be conducted to meet the above stated objective. These field studies may consist of determining the time-dependent areal extent of the heated water zone and/or biological studies such as fish trawls, oyster and crab studies, productivity studies, and/or entrainment studies. If it is decided to conduct such studies, a detailed program shall be submitted to the NRC for approval prior to the implementation of such studies. During periods when research, as approved by the NRC, is being conducted to meet the stated objective the following thermal limits shall apply:

- 1. The flow-averaged hourly temperature rise of the cooling water as it passes through the condenser may exceed 10°F for a maximum of 100 hours per year but shall be no greater than 20°F.
- The flow-averaged hourly discharge temperatures shall not exceed 90°F for more than 100 hours per year and shall in no case exceed 93°F.

The following test limits supercede the above limits until November 1, 1976:

- 1. The flow-averaged hourly temperature rise ( $\Delta T$ ) of the cooling water as it passes through the condenser shall not exceed 12°F during normal operation. The  $\Delta T$  shall not exceed 14°F for up to 36 hours per month during manual cleaning of the condenser.
- 2. The flow-averaged hourly discharge temperatures shall in no case exceed 93°F.

#### Basis

It is expected that by limiting condenser cooling water temperature rise to  $10^{\circ}$ F and the discharge temperature to  $90^{\circ}$ F, the operation of Calvert Cliffs Nuclear Power Plant shall have a minimal impact upon the local ecosystem. However, it is not certain what effect a larger  $\Delta$ T, higher discharge temperature and associated reduction in cooling water flow would have on the entrained and receiving water biota. It is conceivable that a different configuration of  $\Delta$ T, maximum discharge temperature and cooling water flow might have less impact on the aquatic ecosystem. In order to investigate this possibility, certain special studies may be conducted during which it will be necessary to allow the temperature specifications presented in section 2.0 to be superseded by those stated above.

#### ENVIRONMENTAL IMPACT APPRAISAL BY THE DIVISION OF OPERATING REACTORS

#### SUPPORTING AMENDMENT TO DPR-53

#### BALTIMORE GAS AND ELECTRIC COMPANY

#### CALVERT CLIFFS NUCLEAR POWER PLANT UNIT NO. 1

#### INTRODUCTION

By letter dated June 21, 1976, the Baltimore Gas and Electric Company (the licensee) requested changes to the Technical Specifications appended to Facility Operating License DPR-53 for the Calvert Cliffs Nuclear Power Plant Unit No. 1. The proposed changes would revise the conditions for Special Studies (Specification 4.4) until November 1, 1976.

#### DISCUSSION

Specification 4.4-Special Studies permits studies to determine the effects of condenser cooling water AT's above 10°F and/or discharge temperature above 90°F on the physical and/or biological characteristics of the entrained and/or receiving water in the vicinity of the plant. The AT for normal operation is limited to 10°F by Specification 2.1.1, and the maximum discharge temperature for normal operation is limited to 90°F by Specification 2.1.2. Specification 4.4 allows field studies to be conducted for a period of 100 hours per year during operation of the plant in excess of the limits of Specification 2.1.1 and 2.1.2. However, Specification 4.4 does not allow AT to exceed 20°F nor the maximum discharge temperature to exceed 93°F during the 100 hour per year period.

The National Pollutant Discharge Elimination System (NPDES) permit for Calvert Cliffs Nuclear Power Plant issued by the State of Maryland on June 7, 1976, allows a similar special study except:

- 1. The  $\Delta T$  under normal operating conditions is limited to 12°F. During manual cleaning of fouling organisms the AT is limited to 14°F for 36 hours per month;
- 2. No maximum temperature limitation is included; and
- 3. The special study must terminate on November 1, 1976.

OFFICE 🇲						
SURNAME >						
DATE						
Form AEC-318 (Rev. 9-53) AECM 0240						

During the first year of operation, the licensee has had to reduce the power level to avoid exceeding the  $10^{\circ}F \Delta T$  and  $90^{\circ}F$  temperature limits of their Technical Specifications. This occurred for approximately 200 hours during July, August and September 1975. The time periods, however, were unpredictable and typically of such short duration that the licensee was unable to carry out any special testing.

The licensee's proposed technical specification changes are to retain the  $\Delta T$  and maximum discharge temperature limitations of Specification 4.4, but change the allowable period for the study from 100 hours per year to the time period from the date of issuance of this amendment until November 1, 1976, as specified in the NPDES permit.

Since the licensee is bound to the limitations of both the NPDES and the NRC-Environmental Technical Specificatons (ETS), the proposed changes would permit the following operation: (1) the  $\Delta T$  could be  $12^{\circ}F$  during the study period provided the discharge temperature does not exceed 93°F; (2) the  $\Delta T$  could be 14°F for a maximum of 36 hours per month provided the discharge temperature does not exceed 93°F. We have, therefore, reduced the maximum allowable  $\Delta T$  of Specification 4.4 from 20°F to the 12°F and 14°F (for 36 hours per month) as specified in the NPDES permit. The change would lengthen the period of time in which the maximum discharge temperature may reach its peak value. The change does not revise the maximum discharge temperature. We recognize that there is a need for development of coordination between the State of Maryland NPDES requirements and the NRC technical specifications. We expect to complete this coordination in the near future.

Potential impacts, therefore, must be evaluated for operation of the plant during an extended study period rather than for the existing 100 hour period.

#### EVALUATION

Operation of the plant during the special studies will principally affect organisms which are passed through the plant in the cooling water (entrainment). The entrained organisms will be subjected to a 2°F (an occasionally 4°F) higher temperature in transit during the special studies than during the normal operation. Thus the probability of organisms reaching their maximum lethal temperature is greater.

The 3°F higher discharge temperature permitted during the special studies could affect organisms residing in the thermal plume. These organisms would primarily be fish and benthos inhabiting the bottom substrate. However, the diffuser discharge design of the Calvert Cliffs plant directs the heated water away from the bottom; therefore,

OFFICE	 	 	
SURNAME >		 	 
DATE	 	 	 

and the second second

benthic organisms will not be affected by the higher discharge temperature. The high velocity of water as it exits the discharge structure precludes fish from residing in the higher temperature parts of the plume. Therefore, fish will not be affected by the small increase in discharge temperatures of the plume.

The licensee's second semi-annual report, which covers the first year of plant operation, indicates that three major groups are entrained in the condenser cooling water. Preliminary mortality estimates for these groups are also provided. The three major groups are phytoplankton (e.g., algae), zooplankton (e.g., minute crustaceans), and ichthyoplankton (e.g., fish eggs and larvae).

# A. Phytoplankton

The mortality rate of phytoplankton passing through the plant during the first year of operation was variable but typically low. Field studies in the vicinity of the plant have not detected any significant changes to this group as a result of normal plant operation with at 10°F  $\Delta$ T. The 2°F increase in the  $\Delta$ T may cause some additional mortality to certain sensitive species but will not affect the population of these species in the Chesapeake Bay for the following reasons:

- 1. The duration of the period of higher  $\Delta T$ 's will be less than four months.
- 2. Plankton have a very short generation time, normally reproducing in 12 hours. 1/
- 3. The amount of water withdrawn by the plant is less than 1% of the average tidal flow past the station.

#### B. Zooplankton

Mortality estimates for zooplankton have been hampered by collection problems and the difficulty of determining live from dead organisms. However, data analyzed from the first half of 1975 indicate that mortality is of the order of 5% at a  $\Delta T$  of 10°F. The higher  $\Delta T$ 's may increase the mortality

Fox, J. L., and M. S. Moyer. 1973. Some effects of a Power Plant on Marine Microbiota. Ches. Sci. 14:1-10.

OFFICE	 •••••••••••••••••••••••••••••••••••••••	 	 
SURNAME 🇲			
		 	 •••••

X U. S. GOVERNMENT PRINTING OFFICE: 1974-526-166

- 3 -

rate for sensitive species during periods of maximum ambient water temperature, but laboratory studies on the common zooplankton species<sup>2/</sup> have shown that they can withstand temperatures of 93°F if the exposure period is short (less than 10 minutes). At Calvert Cliffs the exposure period is 5 minutes. Field studies on zooplankton at operating plants at higher  $\Delta T$ 's than that at Calvert Cliffs have not shown significant effects to local populations. For example, at the Millstone Point Unit 1 facility on Long Island Sound a  $\Delta T$  of 23°F and a 6 to 9 hour exposure period resulted in an entrainment mortality rate of 70% to copepods, the dominant member of the zooplankton; but the high loss rate resulted in a near-field zooplankton reduction of only 0.1 to 0.3%<sup>24</sup>. The staff, therefore, concludes that the higher  $\Delta T$ 's will not significantly affect local zooplankton population for the following reasons:

- 1. The duration of the higher  $\Delta T$ 's is for only four months.
- 2. The exposure time through the plant is short.
- 3. Zooplankton have a short generation time, normally reproducing in two to three days.
- 4. The amount of water withdrawn by the plant is less than 1% of the average tidal flow past the station.

# C. Ichthyoplankton

Ichthyoplankton sampling was conducted in the near-field area during 1975. Two species of eggs and four species and one family of larvae were identified. Species found at the egg stage were bay anchovy and hogchoker, with anchovies accounting for 96% of the total number collected. Larva species were bay anchovy, naked goby, skilletfish, silversides and feather blennies in decreasing order of abundance. All of these forage species have a wide geographical distribution and are abundant in the Chesapeake Bay. This preliminary study indicates that the Calvert Cliffs plant site is not a significant spawning area for important fish species in the Chesapeake Bay. Entrainment mortality studies on fish eggs and larvae have been unsuccessful due to the problems of sampling and statistically analyzing the low numbers which have been found

2/ Bauereis, E. I. 1975. Power Plants and Estuaries - Neither Robinson Crusoe or Frankenstein. Estuarine Research Federation Biennial Meeting, Galveston, Texas. Oct. 6-9, 1975.

3/ Carpenter, E. J., B. B. Peck, and S. J. Anderson. 1974. Survival of Copepods Passing Through a Nuclear Power Station on Northwestern

office > I	ong Island So	and, U. S. A.	Marine Biology	24:49-55.	northwestern	
SURNAME 🇲			·····			
DATE						
IFC allo (P a						••••••••••••••••••••••••••••••••••••

Form AEC-318 (Rev. 9-53) AECM 0240

X U. S. GOVERNMENT PRINTING OFFICE: 1974-526-166

- 4 -

passing through the plant. The staff concludes that operation of the Calvert Cliffs plant at a higher  $\Delta T$  and higher discharge temperature until November 1, 1976, will not affect important fish species populations because:

- The site vicinity has not been found to be a spawning area for "important" fish species.
- 2. The duration of the period of higher  $\Delta T$ 's will be less than four months.

Numerous field studies are required by the Environmental Technical Specifications for Unit No. 1 to evaluate the effect the plant is having on the physical and biological characteristics of the entrained and receiving water in the vicinity of the plant. As entrainment has been identified as the most sensitive area, during the study period the licensee plans to schedule the monthly entrainment studies while the plant is operating with a  $\Delta T$  greater than 10°F and a maximum discharge temperature greater than 90°F.

#### CONCLUSION

We have reviewed the proposed change to Specification 4.4 to allow special testing to determine the impact of operating the Calvert Cliffs Plant Unit No. 1 at a higher AT and maximum discharge temperature until November 1, 1976. We find that the licensee's proposed changes to Specification 4.4 are acceptable. Biological impact resulting from this change will be negligible based on the short duration of the increases in AT. Furthermore, preliminary studies of fish eggs and larvae show that important species are not entrained and pumped through the plant. Primarily based on the short duration of the proposed special studies, we have concluded that the changes will not significantly affect the quality of the human environment, and that there will be no environmental impact attributable to the proposed action significantly greater than has already been predicted and described in the Commission's FES for Calvert Cliffs Nuclear Power Plant issued April 1973. A negative declaration is, therefore, warranted.

Date:

AUG 0 5 1976



Form AEC-318 (Rev. 9-53) AECM 0240

X U. S. GOVERNMENT PRINTING OFFICE: 1974-526-166

# UNITED STATES NUCLEAR REGULATORY COMMISSION

#### DOCKET NO. 50-317

# BALTIMORE GAS AND ELECTRIC COMPANY

# NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE AND NEGATIVE DECLARATION

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 16 to Facility Operating License No. DPR-53, issued to Baltimore Gas and Electric Company (the licensee), which revised Technical Specifications for operation of the Calvert Cliffs Nuclear Power Plant Unit No. 1 (the facility) located in Calvert County, Maryland. The amendment is effective as of its date of issuance.

The amendment modifies the Environmental Technical Specifications for the facility during Special Studies by temporarily extending the duration of special studies from 100 hours to about 3 1/2 months. The purpose of the special studies is to determine the effects of condenser cooling water temperature on organisms.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

Form AEC-318 (Rev. 9	-53) AECM 0240	\$ U. S. GOVERNMENT PRIN	TING OFFICE: 1974-526-	166	
DATE		 			
SURNAME <b>&gt;</b>		 			
OFFICE >		 			
				1	·····

The Commission has prepared an environmental impact appraisal for the revisions to the Technical Specifications and has concluded that an environmental impact statement for this particular action is not warranted because there will be no environmental impact attributable to the proposed action other than that which has already been predicted and described in the Commission's Final Environmental Statement issued April 1973 for the facility (published on April 6, 1973 in the FEDERAL REGISTER - 38 F.R. 8759).

For further details with respect to this action, see (1) the application for amendment dated June 21, 1976, (2) Amendment No. 16 to License No. DPR-53, and (3) the Commission's related Environmental Impact Appraisal. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Calvert County Library, Prince Frederick, Maryland 20678. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 5 day of August, 1976.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signal by: Dennis L. Ziemann

Dennis L. Ziemann, Chief Operating Reactors Branch #2 Division of Operating Reactors

	 	 	 · .
OFFICE 🎔			
SURNAME 🗩	 	 	 
DATE	 	 	 

Form AEC-318 (Rev. 9-53) AECM 0240

X U. S. GOVERNMENT PRINTING OFFICE: 1974-526-166

- 2 -

During the first year of operation, the licensee has had to reduce the power level to avoid exceeding the  $10^{\circ}$ F  $\Delta$ T and  $90^{\circ}$ F temperature limits of their Technical Specifications. This occurred for approximately 200 hours during July, August and September 1975. The time periods, however, were unpredictable and typically of such short duration that the licensee was unable to carry out any special testing.

The licensee's proposed technical specification changes are to retain the  $\Delta T$  and maximum discharge temperature limitations of Specification 4.4, but change the allowable period for the study from 100 hours per year to the time period from the date of issuance of this amendment until November 1, 1976, as specified in the NPDES permit.

Since the licensee is bound to the limitations of both the NPDES and the NRC-Environmental Technical Specificatons (ETS), the proposed changes would permit the following operation: (1) the  $\Delta T$  could be 12°F during the study period provided the discharge temperature does not exceed 93°F; (2) the  $\Delta T$  could be 14°F for a maximum of 36 hours per month provided the discharge temperature does not exceed 93°F. We have, therefore, reduced the maximum allowable  $\Delta T$  of Specification 4.4 from 20°F to the 12°F and 14°F (for 36 hours per month) as specified in the NPDES permit.

Potential impacts, therefore, must be evaluated for operation of the plant during an extended study period rather than for the existing 100 hour period.

#### EVALUATION

٩.

Operation of the plant during the special studies will principally affect organisms which are passed through the plant in the cooling water (entrainment). The entrained organisms will be subjected to a 2°F (an occasionally 4°F) higher temperature in transit during the special studies than during the normal operation. Thus the probability of organisms reaching their maximum lethal temperature is greater.

The 3°F higher discharge temperature permitted during the special studies could affect organisms residing in the thermal plume. These organisms would primarily be fish and benthos inhabiting the bottom substrate. However, the diffuser discharge design of the Calvert Cliffs plant directs the heated water away from the bottom; therefore,

OFFICE >	 	 	 
SURNAME 🗲	 	 	 
DATE	 	 ·····	 

July 30, 1976

Note to James R. Tourtellotte Assistant Chief Hearing Counsel

# CALVERT CLIFFS UNIT NO. 1 - AMENDMENT CONCERNING CHANGES TO TESTING PROCEDURES

This amendment would allow the licensee to conduct certain tests relating to discharge temperatures for a period of approximately 100 days rather than 100 hours. I would concur in this amendment subject to the following language being added to the SER at page 2, paragraph 4, following the words "NPDES Permits".

"The change would lengthen the period of time in which the maximum discharge temperature may reach its peak reaction value. The change does not revise the maximum discharge temperature. We recognize that there is a need for development of coordination between the State of Maryland permit and the NRC requirements. We expect to complete the coordination in the near future."

This language is necessary because our technical specification limitations are more stringent than the recently issued NPDES permit. The Project Manager has agreed to make this change.

Barry H Smith

Barry H. Šmith Attorney, OELD

Roved 08 50 8.3-76 SAR

 $\checkmark$