

UNITED STATES NUCLEAR REGULATORY COMMISSION

WASHINGTON, D. C. 20555

JUN 1 0 1986

Docket Nos. 50-443 and 50-444

Mr. Robert J. Harrison President and Chief Executive Officer Public Service Company of New Hampshire Manchester, New Hampshire 03105

Dear Mr. Harrison:

SUBJECT: ISSUANCE OF AMENDMENTS TO CONSTRUCTION PERMITS CPPR-135 AND CPPR-136 - SEABROOK STATION, UNITS 1 AND 2

The Nuclear Regulatory Commission has issued the enclosed Amendments No. 7 to Construction Permits CPPR-135 and CPPR-136 for the Seabrook Station, Units 1 and 2, located in Rockingham County, New Hampshire. The amendments are in response to your letters, dated August 9, 1984, February 1, 1985, and July 10, 1985, concerning the partial exemption from General Design Criterion (GDC) 4 of 10 CFR 50, Appendix A.

You should note that effective May 12, 1986, General Design Criteria (GDC) 4 of Appendix A to 10 CFR 50 has been modified to exclude from the design basis the protection of structures, systems and components against the dynamic effects associated with postulated pipe ruptures of primary coolant loop piping in PWRs when analyses demonstrate the probability of rupture of such piping to be extremely low under design basis conditions (51 FR 12502 April 11, 1986). However, the exemption to which this amendment relates was granted by the NRC on November 22, 1985, which was before the effective date of the rule change.

A copy of the safety evaluation supporting Amendment No. 7 is enclosed. Also enclosed is a copy of a related notice which has been forwarded to the Office of the Federal Register for publication.

Sincerely, Horent S. Noonan, Director PWR Project Directorate #5 Division of PWR Licensing-A

Enclosures: 1. Amendment No. 7 to CPPR-135 & CPPR-136 2. Safety Evaluation 3. Federal Register Notice

cc with enclosure: See next page

8606200254 860610

PDR

Δ,

ADOCK 05000443

PDR

Docket Nos. 50-443 and 50-444

JUN 1 0 1986

Mr. Robert J. Harrison President and Chief Executive Officer Public Service Company of New Hampshire Manchester, New Hampshire 03105

Dear Mr. Harrison:

SUBJECT: ISSUANCE OF AMENDMENTS TO CONSTRUCTION PERMITS CPPR-135 AND CPPR-136 - SEABROOK STATION, UNITS 1 AND 2

The Nuclear Regulatory Commission has issued the enclosed Amendments No. 7 to Construction Permits CPPR-135 and CPPR-136 for the Seabrook Station, Units 1 and 2, located in Rockingham County, New Hampshire. The amendments are in response to your letters, dated August 9, 1984, February 1, 1985, and July 10, 1985, concerning the partial exemption from General Design Criterion (GDC) 4 of 10 CFR 50, Appendix A.

You should note that effective May 12, 1986, General Design Criteria (GDC) 4 of Appendix A to 10 CFR 50 has been modified to exclude from the design basis the protection of structures, systems and components against the dynamic effects associated with postulated pipe ruptures of primary coolant loop piping in PWRs when analyses demonstrate the probability of rupture of such piping to be extremely low under design basis conditions (51 FR 12502 April 11, 1986). However, the exemption to which their amendment relates was granted by the NRC on November 22, 1985, which was before this effective date of the rule change.

A copy of the safety evaluation supporting Amendment No. 7 is enclosed. Also enclosed is a copy of a related notice which has been forwarded to the Office of the Federal Register for publication.

> Sincerely, Vincent S. Noonan, Director PWR Project Directorate #5 Division of PWR Licensing-A

		Enclosures: 1. Amendment No. 7 to CPPR-135 & CPPR-136 2. Safety Evaluation 3. Federal Register Notice								
		cc with See next Distribu			* See	next page	for previo	ous concurr	ences	
		Docket F NRC PDR PD#5 R/F	iles) Jordan Grimes	M. Ru ACRS J. Pa	(10) rtlow _{lo}	. Novâk		
OFC	:PD#5		:PD#5	:OELD*	$-\partial$	OELDeneur	DIR:PD#5		:	
NAME	MAUS	hbrook*	:VNerses*	:	N	Scinto	:VSNoonad	<i>N</i>		
DATE	: 3/1	9/86	: 4/18/86	: 5/09/8	36 :	(, / 2/86	: 5/9/86	:	:	

OFFICIAL RECORD COPY

Docket Nos. 50-443 and 50-444

Mr. Robert J. Harrison President and Chief Executive Officer Public Service Company of New Hampshire Manchester, New Hampshire 03105

Dear Mr. Harrison:

SUBJECT: ISSUANCE OF AMENDMENTS TO CONSTRUCTION PERMITS CPPR-135 AND CPPR-136 - SEABROOK STATION, UNITS 1 AND 2

The Nuclear Regulatory Commission has issued the enclosed Amendments No. 7 to Construction Permits CPPR-135 and CPPR-136 for the Seabrook Station, Units 1 and 2, located in Rockingham County, New Hampshire. The amendments are in response to your letters, dated August 9, 1984, February 1, 1985, and July 10, 1985, concerning the partial exemption from General Design Criterion (GDC) 4 of 10 CFR 50, Appendix A.

You should note that effective May 12, 1986, General Design Criteria (GDC) 4 of Appendix A to 10 CFR 50 has been modified to exclude from the design basis the protection of structures, systems and components against the dynamic effects associated with postulated pipe ruptures of primary coolant loop piping in PWRs when analyses demonstrate the probability of rupture of such piping to be extremely low under design basis conditions (51 FR 12502 April 11, 1986). However, the exemption to which their amendment relates was granted by the NRC on November 22, 1985, which was before the effective date of was granted by the NRC on November 22, 1985, which was before the effective date, of the rule change.

A copy of the safety evaluation supporting Amendment No. 7 is enclosed. Also enclosed is a copy of a related notice which has been forwarded to the Office of the Federal Register for publication.

Sincerely,

Vincent S. Noonan, Director PWR Project Directorate #5 Division of PWR Licensing-A

Enclosures:

1. Amendment No. 7 to CPPR-135 & CPPR-136

2. Safety Evaluation

3. Federal Register Notice

cc with enclosure:* See next page for previous concurrencesSee next pageDistribution:Docket FilesNRC PDRPD#5 R/FB. GrimesJ. Partlow

	:PD#5						•
NAME	:MRushbrook*	:VNerses*	•	:JScinto	:VSNoonan	: :	:
	: 3/19/86	•	•	•	-		

•	' Docket Nos. an	50-443 🤍 d 50-444			\sim			
	Public Servi	. Harrison d Chief Execut ce Company of New Hampshire	New Hampshire	2				
	Dear Mr. Hari	rison:						
		SUANCE OF AMEN D CPPR-136 - S				PPR-135		
	Construction and 2, locate response to y 1985, concern	Permits CPPR- ed in Rockingh your letters,	135 and CPPR- am County, Ne dated August	136 for w Hamps 9, 1984	the Seabroo hire. The a , February 1	Amendments No. k Station, Unit mendments are i , 1985, and Jul Criterion (GDC	ts 1 in ly 10, c) 4 - fo -	.l.
	of Appendix (the protection effects asso piping in PW	A to 10 CFR 50 on of structur ciated with po Rs when analys) has been moo res, systems a stulated pipe res demonstrat	lified t ind comp ruptur e the p	o exclude fr onents again es of primar probability o	n Criteria (-6D(om the design t st the dynamic y coolant loop f rupture of ons (51 FR 1250 by the NRC on ese amendments	pasis rula	
	A copy of the enclosed is a	e safety evalu	ation support flated notice	ing Ame which h	ndment No. 7	is enclosed. arded to the Of	Also	'
				Sincer	ely,			
				PWR Pr	t S. Noonan, oject Direct on of PWR Li	orate #5		
	2. Safety E	t No. 7 to CPF valuation Register Notic		136		and the second	Le Mores	2
	cc with encl See next page Distribution	e	* See nex	t page	for previous	concurrences	infiber	-
	Docket Files NRC PDR PD#5 R/F	- C E	ELD . Jordan . Grimes	M. Rus ACRS (J. Par	10)	Novak	5/201	86
OFC	:PD#5 :PD#	5 :OELD)* :0EL[)	.DIR:PD#5		•	
NAME	:MRushbrook* :VNe	rses*	:JSci	ntg	:VSNoonan		•	
DATE	: 3/19/86 : 4/	18/86 : 5/0	9/86 /	/86	: 5/9/86		•	
	OFFICIAL REC	ORD COPY						

4

•

Docket Nos. 50-443 and 50-444

Mr. Robert J. Harrison President and Chief Executive Officer Public Service Company of New Hampshire Manchester, New Hampshire 03105

Dear Mr. Harrison:

SUBJECT: ISSUANCE OF AMENDMENTS TO CONSTRUCTION PERMITS CPPR-135 AND CPPR-136 - SEABROOK STATION, UNITS 1 AND 2

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 7 to Construction Permits CPPR-135 and CPPR-136 for the Seabrook Station, Units 1 and 2, located in Rockingham County, New Hampshire. The amendments are in response to your letters, dated August 9, 1984, February 1, 1985, and July 10, 1985, concerning the partial exemption from General Design Criterion (GDC) 4 of 10 CFR 50, Appendix A. Effective May 12, 1986, General Design Criteria (GDC) 4 of Appendix A to 10 CFR 50 has been modified to exclude from the design basis the protection of structures, systems and components against the dynamic effects associated with postulated pipe ruptures of primary coolant loop piping in PWRs when analyses demonstrate the probability of rupture of such piping to be extremely low under design basis conditions (51 FR 12502 April 11, 1986). The amendments modify the construction permits to reflect issuance, by the NRC, of an Exemption, dated November 22, 1985. The amendments are effective as of their date of issuance.

A copy of the safety evaluation supporting Amendment No. 7 is enclosed. Also enclosed is a copy of a related notice which has been forwarded to the Office of the Federal Register for publication.

Sincerely,

Vincent S. Noonan, Director PWR Project Directorate #5 Division of PWR Licensing-A

Enclosures:

- 1. Amendment No. 7 to CPPR-135 & CPPR-136
- 2. Safety Evaluation
- 3. Federal Register Notice

cc with enclosure: See next page Distribution:	* See nex	t page for previous concurrences
Docket Files NRC PDR Local PDR PD#5 Reading Files T. Novak	OELD E. Jordan B. Grimes J. Partlow V. Nerses	M. Rushbrook ACRS (10)

	:PD#5		:OELD*		:DIR:PD#5	
NAME	MRushprook*	:VNerses*	:	:JScinto	:VSNoonan	
DATE	3/19/86	: 4/18/86	: 5/09/86	: / /86	5/9/86	

Docket Nos. 50-443 and 50-444

Mr. Robert J. Harrison President and Chief Executive Officer Public Service Company of New Hampshire Manchester, New Hampshire 03105

Dear Mr. Harrison:

SUBJECT: ISSUANCE OF AMENDMENT'S TO CONSTRUCTION PERMITS CPPR-135 AND CPPR-136 - SEABROOK STATION, UNITS 1 AND 2/

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 7 to Construction Permits CPPR-135 and CPPR-136 for the Seabrook Station, Units 1 and 2, located in Rockingham County, New Hampshire. The amendments are in response to your letters, dated August 9, 1984, February 1, 1985, and July 10, 1985, concerning the partial exemption from General Design Criterion (GDC) 4 of 10 CFR 50, Appendix A. The amendments modify the construction permits to reflect issuance, by the NRC, of an Exemption, dated November 22, 1985. The amendments are effective as of their date of issuance.

A copy of the safety evaluation supporting Amendment No. 7 is enclosed. Also enclosed is a copy of a related notice which has been forwarded to the Office of the Federal Register for publication.

Sincerely,

Vincent S. Noonan, Director PWR Project Directorate #5 Division of PWR Licensing-A

Enclosures:

1. Amendment No. 7 to CPPR-135 & CPPR-136

2. Safety Evaluation

3. Federal Register Notice

* See next page for previous concurrences cc with enclosure: See next page Distribution: OELD M. Rushbrook Docket Files ACRS (10) NRC PDR E. Jordan Local PDR B. Grimes PD#5 Reading Files J. Partlow V. Nerses T. Novak . n

•.•	:PD#5	• • • • • •		-	:DIR PD#5	
NAME	:MRushbrook*	:VNerses*	•	:JScinto	:VSNoonan	
DATE	: 3/19/86	: 4/18/86	: 5/09/86	: / /86	519186	

Docket Nos. 50 - 443and 50-444

Mr. Robert J. Harrison President and Chief Executive Officer Public Service Company of New Hampshire Manchester, New Hampshire 03105

Dear Mr. Harrison: ISSUANCE OF AMENDMENTS TO\CONSTRUCTION PERMITS CPPR-135 SUBJECT: AND CPPR-136 - SEABROOK STATION, UNITS 1 AND 2 The Nuclear Regulatory Commission has issued the enclosed Amendment No. 7 to Construction Permits CPPR-135 and CPPR-136 for the Seabrook Station, Units 1 and 2, located in Rockingham County, New Hampshire. The amendments are in response to your letters, dated August 9, 1984, February 1, 1985, and July 10, 1985, concerning the partial exemption from General Design Criterion (GDC) of 10 CFR 50, Appendix A. The amendments modify the construction permits to reflect issuance, by the NRC, of an Exemption, dated November 22, 1985. The amendments are effective as of their date of issuance. A copy of the safety evaluation supporting Amendment No. 7 is enclosed. Also enclosed is a copy of a related notice which has been forwarded to the Office of the Federal Register for publication. Sincerely Vincent S. Noonan, Director PWR Project Directorate #5 Division of PWR Licensing-A Enclosures: Amendment No. /7 to CPPR-135 & CPPR-136 1. Safety Evaluation 2. Federal Register Notice 3. cc with enclosure: See next page Distribution: Docket Files OFLD M. Rushbrook E. Jordan ACRS (10) NRC PDR B. Grimes Local PDR J. Partlow PD#5 Reading Files V. Nerses T. Novak OELD teler ;PD#5 • DTR• PD#5 :PD#5 ĸ JScinto :VSNoonan NAME : MRishbrook. Neriuln *4/10*/86 :5/0486 /86

/86

OFFICIAL RECORD COPY

OFC

DATE

Mr. Robert J. Harrison Public Service Company of New Hampshire

cc: Thomas Dignan, Esq. John A. Ritscher, Esq. Ropes and Gray 225 Franklin Street Boston, Massachusetts 02110

5

Mr. Bruce B. Beckley, Project Manager Public Service Company of New Hampshire Post Office Box 330 Manchester, New Hampshire 03105

Dr. Mauray Tye, President Sun Valley Association 209 Summer Street Haverhill, Massachusetts 01839

Robert A. Backus, Esq. O'Neil, Backus and Spielman 116 Lowell Street Manchester, New Hampshire 03105

William S. Jordan, III Diane Curran Harmon, Weiss & Jordan 20001 S Street, NW Suite 430 Washington, D.C. 20009

Mr. Philip Ahrens, Esq. Assistant Attorney General State House, Station #6 Augusta, Maine 04333

Mr. Warren Hall Public Service Company of New Hampshire Post Office Box 330 Seabrook, New Hampshire 03874

Seacoast Anti-Pollution League Ms. Jane Doughty 5 Market Street Portsmouth, New Hampshire 03801

Mr. Diana P. Randall 70 Collins Street Seabrook, New Hampshire 03874

Richard Hampe, Esq. New Hampshire Civil Defense Agency 107 Pleasant Street Concord, New Hampshire 03301 Seabrook Nuclear Power Station

E. Tupper Kinder, Esq. G. Dana Bisbee, Esq. Assistant Attorney General Office of Attorney General 208 State Hosue Annex Concord, New Hampshire 03301

Resident Inspector Seabrook Nuclear Power Station c/o US Nuclear Regulatory Commission Post Office Box 700 Seabrook, New Hampshire 03874

Mr. John DeVincentis, Director Engineering and Licensing Yankee Atomic Electric Company 1671 Worchester Road Framingham, Massachusetts 01701

Mr. A. M. Ebner, Project Manager United Engineers & Constructors 30 South 17th Street Post Office Box 8223 Philadelphia, Pennsylvania 19101

Jo Ann Shotwell, Esq. Office of the Assistant Attorney General Environmental Protection Division One Ashburton Place Boston, Massachusetts 02108

D. Pierre G. Cameron, Jr., Esq. General Counsel Public Service Company of New Hampshire Post Office Box 330 Manchester, New Hampshire 03105

Regional Administrator, Region I U.S. Nuclear Regulatory Commission 631 Park Avenue King of Prussia, Pennsylvania 19406

APR 7 1986

Public Service Company of New Hampshire

÷.,

cc: Mr. Calvin A. Canney, City Manager City Hall 126 Daniel Street Portsmouth, New Hampshire 03801

Ms. Letty Hett Town of Brentwood RFD Dalton Road Brentwood, New Hampshire 03833

Ms. Roberta C. Pevear Town of Hampton Falls, New Hampshire Drinkwater Road Hampton Falls, New Hampshire 03844

Ms. Sandra Gavutis Town of Kensington, New Hampshire RDF 1 East Kingston, New Hampshire 03827

Chairman, Board of Selectmen RFD 2 South Hampton, New Hampshire 03827

Mr. Angie Machiros, Chairman Board of Selectmen for the Town of Newbury Newbury, Massachusetts 01950

Ms. Cashman, Chairman Board of Selectmen Town of Amesbury Town Hall Amesbury, Massachusetts 01913

Honorable Peter J. Matthews Mayor, City of Newburyport Office of the Mayor City Hall Newburyport, Massachusetts 01950

Mr. Donald E. Chick, Town Manager Town of Exeter 10 Front Street Exeter, New Hampshire 03823 Seabrook Nuclear Power Station

- 2 -

Mr. Alfred V. Sargent, Chairman Board of Selectmen Town of Salisbury, MA 01950

Senator Gordon J. Humphrey ATTN: Tom Burack U.S. Senate Washington, D.C. 20510

Mr. Owen B. Durgin, Chairman Durham Board of Selectmen Town of Durham Durham, New Hampshire 03824

Charles Cross, Esq. Shaines, Mardrigan and McEaschern 25 Maplewood Avenue Post Office Box 366 Portsmouth, New Hampshire 03801

Mr. Guy Chichester, Chaiman Rye Nuclear Intervention Committee c/o Rye Town Hall 10 Central Road Rye, New Hampshire 03870

Jane Spector Federal Energy Regulatory Commission 825 North Capital Street, NE Room 8105 Washington, D. C. 20426

Mr. R. Sweeney
New Hampshire Yankee Division
Public Service of New Hampshire Company
7910 Woodmont Avenue
Bethesda, Maryland 20814

Mr. William B. Derrickson Senior Vice President Public Service Company of New Hampshire Post Office Box 700, Route 1 Seabrook, New Hampshire 03874

APR 7 1986

SEABROOK - OTHER

2 -

÷.

Governor ofNew Hampshire State House Concord, New Hampshire 03301

Massachusetts Department of Environmental Quality Engineering 100 Cambridge Street Boston, Massachusetts 02108

State Planning Officer Executive Department State of Maine 189 State Street Augusta, Maine 04330

Chairman New Hampshire Public Utilities Commission 26 Pleasant Street Concord, New Hampshire 03301

Chairman Massachusetts Department of Public Utilities 100 Cambridge Street Boston, Massachusetts 02202

Federal Energy Regulatory Commission 825 North Capitol Street, N. E. Washington, D. C. 20426

Office of the First Selectman Town of Seabrook Seabrook, New Hampshire 03874

Chairman Vermont Public Service Board 120 State State Office Building Montpelier, Vermont 05502

Public Service Board State of Vermont 120 State Street Montpelier, Vermont 05602

Director, Criteria and Standards (SSERS) (ANR-460) Office of Radiation Programs U. S. Environmental Protection Agency Washington, D. C. 20460 Director, Eastern Environmental (SSERS) Radiation Facility U. S. EPA P. O. Box 3009 Montgomery, Alabama 36193

.

EIS Review Coordinator EPA Region I JFK Federal Building Boston, MAssachusetts 02203



UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D. C. 20555

PUBLIC SERVICE COMPANY OF NEW HAMSPSHIRE ET. AL*

DOCKET NO. 50-443

SEABROOK STATION, UNIT 1

AMENDMENT TO CONSTRUCTION PERMIT

Amendment No. 7 Construction Permit No. CPPR-135

- 1. The Nuclear Regulatory Commission (the Commission) having found that:
 - A. The application for amendment filed by Public Service Company of New Hampshire on behalf of itself and the other applicants*, in a letter, dated August 9, 1984, February 1, 1985, and July 10, 1985 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. 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
 - C. The issuance of this amendment will not result in any environmental impacts not previously considered.
- 2. Accordingly, Construction Permit No. CPPR-135 is amended as follows:
 - A. Change paragraph 3 to read:
 - 3. This permit shall be deemed to contain and be subject to the conditions specified in Sections 50.54 and 50.55, of said regulations, and orders of the Commission now or hereafter in effect, as modified by duly authorized exemptions; and is subject to the conditions specified or incorported below:
 - B. Change paragraph 3.C to read:

This construction permit authorizes the applicant to construct the facility described in the application (as modified by duly

8606200259 860610 PDR ADOCK 05000443 A PDR

^{*}The current construction permit holders for Seabrook Station are: Bangor Hydro-Electric Company, Canal Electric Company, Central Maine Power Company, Central Vermont Public Service Corporation, Connecticut Light & Power Company, Fitchburg Gas & Electric Light Company, Hudson Light and Power Department, Maine Public Service Company, Massachusetts Municipal Wholesale Electric Company, Montaup Electric Company, New England Power Company, New Hampshire Electric Cooperative, Inc., Public Service Company of New Hampshire, Taunton Municipal Lighting Plant, the United Illuminating Company, Vermont Electric Generation and Transmission Cooperative, Inc., and Washington Electric Cooperative, Inc.

authorized exemptions) and in the hearing record, in accordance with the principal architectural and engineering criteria and environmental protection commitments set forth therein.

3. This amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

S Rule Stande

Thomas M. Novak, Acting Director Division of PWR Licensing-A

Date of Issuance: JUN 1 0 1385

.

authorized exemptions) and in the hearing record, in accordance with the principal architectural and engineering criteria and environmental protection commitments set forth therein.

3. This amendment is effective as of the date of issuance.

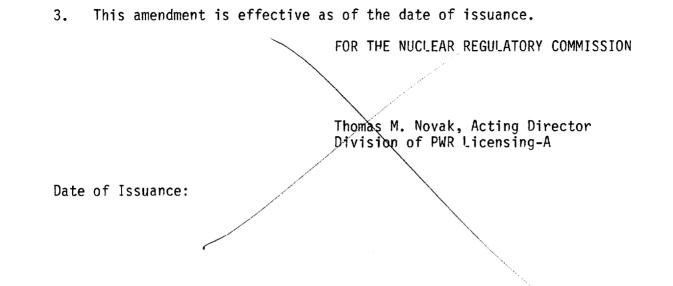
FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by: Thomas M. Novak

Thomas M. Novak, Acting Director Division of PWR Licensing-A

Date of Issuance: JUN 1 0 1986

	* S	iee next page	for previ	ous, concur	rences				
			teco	1 byec				/	
OFC	ñ,	:PD#5	POELD LO	WW :OELD		:DVR:PD#5	:AD: PWR-AL	enstein	
NAME	:MRushbrook*	:VNerses*	Sherwin	Tunkcin	ity	:VSNoonan	F. TMNovak	:	
DATE	: 3/28/86	: 4/18/86	:5/0°X86		86	517186	:(,/10/86	:	
	OFFICIAL	RECORD COPY			1				



	., 0,,0			:OELD	:DIR:PD#5	:AD:PWR-A	•
NAME	MRushbrook	: Verley's As.	:	:JScinto	:VSNoonan	:TMNovak	·
DATE	:3/2886	× 118/86	•	: / /86	: / /86	. / /86	•

OFFICIAL RECORD COPY

authorized exemptions) and in the hearing record, in accordance with the principal architectural and engineering criteria and environmental protection commitments set forth therein.

3. This amendment is effective as of the date of issuance.

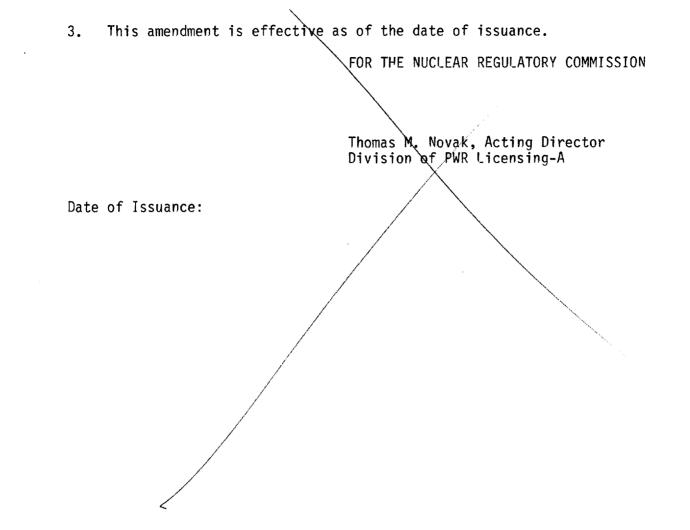
FOR THE NUCLEAR REGULATORY COMMISSION

Thomas M. Novak, Acting Director Division of PWR Licensing-A

	* See	e next page for pro	evious concurrences		
Date	e of Issuance:	tilicon	rme		
C		Durn v	Viection		
OFC :PD#5	:PD#5	:OELD legal :OE	$z = \mathbf{v}$ $z = -\gamma \cdot \mathbf{v} \cdot \mathbf{J} \cdot \mathbf{v}$		
NAME MRUShord	ook* :VNerses*	Sherwin Turks	into :VSNoonan	GovTMNovak	
DATE :3/19/86	:4/18/86	:5 /og/86	/ 186 51 186	: (6//0/86	

OFFICIAL RECORD COPY

× ···



OFC			:OELD	:OELD	:DIR:PD#5	:AD:PWR-A	
NAME	:	: Ville); sas		:JScinto	:VSNoonan	:TMNovak	
DATE	m/ 486	4/10/86	/ /86	/ /86	/ /86	. / /86	·



UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D. C. 20555

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE ET. AL*

DOCKET NO. 50-444

SEABROOK STATION, UNIT 2

AMENDMENT TO CONSTRUCTION PERMIT

Amendment No. 7 Construction Permit No. CPPR-136

- 1. The Nuclear Regulatory Commission (the Commission) having found that:
 - A. The application for amendment filed by Public Service Company of New Hampshire on behalf of itself and the other applicants*, in a letter, dated August 9, 1984, February 1, 1985, and July 10, 1985, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. 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
 - C. The issuance of this amendment will not result in any environmental impacts not previously considered.
- 2. Accordingly, Construction Permit No. CPPR-136 is amended as follows:
 - A. Change paragraph 3 to read:
 - 3. This permit shall be deemed to contain and be subject to the conditions specified in Sections 50.54 and 50.55, of said regulations, and orders of the Commission now or hereafter in effect, as modified by duly authorized exemptions; and is subject to the conditions specified or incorported below:
 - B. Change paragraph 3.C to read:

This construction permit authorizes the applicant to construct the facility described in the application (as modified by duly

^{*}The current construction permit holders for Seabrook Station are: Bangor Hydro-Electric Company, Canal Electric Company, Central Maine Power Company, Central Vermont Public Service Corporation, Connecticut Light & Power Company, Fitchburg Gas & Electric Light Company, Hudson Light and Power Department, Maine Public Service Company, Massachusetts Municipal Wholesale Electric Company, Montaup Electric Company, New England Power Company, New Hampshire Electric Cooperative, Inc., Public Service Company of New Hampshire, Taunton Municipal Lighting Plant, the United Illuminating Company, Vermont Electric Generation and Transmission Cooperative, Inc., and Washington Electric Cooperative, Inc.

authorized exemptions) and in the hearing record, in accordance with the principal architectural and engineering criteria and environmental protection commitments set forth therein.

3. This amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

X & Michaelen je

Thomas M. Novak, Acting Director Division of PWR Licensing-A

Date of Issuance: JUN 1 0 1986

21

SAFETY EVALUATION BY THE OFFICE NUCLEAR REACTOR REGULATION

RELATING TO AMENDMENT NO. 7 TO CONSTRUCTION PERMITS CPPR-135 AND CPPR-136

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

SEABROOK STATION, UNITS 1 AND 2

DOCKET NOS. 50-443 AND 50-444

INTRODUCTION

* **u**

By letters dated August 9, 1984, February 1, 1985, and July 10, 1985, Public Service Company of New Hampshire (applicant) on behalf of itself and its joint owners* requested an amendment to Construction Permit CPPR-135 and Construction Permit CPPR-136 to incorporate the partial Exemption pertaining to General Design Criterion (GDC) 4 of 10 CFR 50, Appendix A. The limited schedular exemption granted by the Commission permits the applicants to eliminate the installation of protective devices and the consideration of the dynamic effects and loading conditions associated with postulated pipe breaks in the four primary loops in the Seabrook Station, Units 1 and 2 primary coolant system for a period ending at the completion of the second refueling outage, pending the outcome of rulemaking on this subject. The February 1, 1985 letter also included an analysis of the occupational radiation dose reduction which constituted a value-impact analysis associated with the exemption request. The value-impact analysis together with the technical information contained in Westinghouse Report WCAP-10567, provide a comprehensive justification in support of applicant's request for a partial exemption from the requirements of GDC-4.

EVALUATION

The staff's detailed evaluation and basis for granting the partial exemption to the requirements of GDC-4 are delineated in the Exemption enclosed with the staff's November 22, 1985, letter. A summary of the staff's evaluation findings and conclusions are immediately below.

SUMMARY OF EVALUATION FINDINGS

From its evaluation of the analysis contained in Westinghouse Report WCAP-10567 for the Seabrook Station, Units 1 and 2, the staff found that the applicants presented an acceptable technical justification which adequately addressed the staff's evaluation criteria, to: (1) eliminate the need to postulate longitudinal and circumferential pipe breaks in the reactor coolant loop (RCL) piping (hot leg, cold leg, and cross over leg piping); (2) eliminate the

*The current construction permit holders for Seabrook Station are: Bangor Hydro-Electric Company, Canal Electric Company, Central Maine Power Company, Central Vermont Public Service Corporation, Connecticut Light & Power Company, Fitchburg Gas & Electric Light Company, Hudson Light and Power Department, Maine Public Service Company, Massachusetts Municipal Wholesale Electric Company, Montaup Electric Company, New England Power Company, New Hampshire Electric Cooperative, Inc., Public Service Company of New Hampshire, Taunton Municipal Lighting Plant, the United Illuminating Company, Vermont Electric Generation and Transmission Cooperative, Inc., and Washington Electric Cooperative, Inc.

8606200263 860610 PDR ADDCK 05000443 A PDR need to install associated pipe whip restraints in the RCL primary piping and (3) eliminate the requirement to analyze and design for the dynamic effects of these breaks including jet impingement, reactor cavity pressurization and load combination assumptions.

This finding does not in any way affect the design bases for the containment, the emergency core cooling system, environmental qualification, engineered safety feature systems response, or the design of the Reactor Coolant System (RCS) heavy components support. This finding is predicated on the fact that each of the parameters evaluated for Seabrook Station, Units 1 and 2 is enveloped by the generic analysis performed by Westinghouse, contained in Westinghouse Report WCAP-9558, Revision 2, and accepted by the staff in Enclosure (1) to NRC Generic Letter 84-04 (February 1, 1984). Specifically, the NRC determined that:

- (1) The loads associated with the highest stressed location in the main loop primary coolant system piping are 2332 kips (axial), 37,045 in-kips (bending moment) and result in maximum stresses of about 97% of the bounding stress used by Westinghouse in Reference 1. Further, these loads are approximately 88% of those established by the staff as limits.
- (2) For Westinghouse plants, there is no history of cracking failure in reactor primary coolant system loop piping. The Westinghouse reactor coolant system primary loop has an operating history which demonstrates its inherent stability. This includes a low susceptibility to cracking failure from the effects of corrosion (e.g. intergranular stress corrosion cracking), water hammer, or fatigue (low and high cycle). This operating history totals over 400 reactor-years, including five (5) plants each having 15 years of operation and 15 other plants with over 10 years of operation.
- (3) The leak rate calculations performed for the Seabrook plants using an initial through-wall crack of 7.5 inches are identical to those of Enclosure 1 Reference 2. The Seabrook Station has an RCS pressure boundary leak detection system which is consistent with the guidelines of Regulatory Guide 1.45, and it can detect leakage of one (1) gpm in one hour. The calculated leak rate through the postulated flaw results in a factor of at least 10 relative to the sensitivity of the Seabrook plants' leak detection system.
- (4) The margin in terms of load based on fracture mechanics analyses for the leakage-sized crack under normal plus SSE loads is within the bounds calculated by the staff in Section 4.2.3 of Enclosure 1 to Reference 2. Based on a load-limit analysis, the load margin is about 2.0 and based on the J-limit, the margin is at least 1.1.

- (5) The margin between the leakage-size crack and the critical-size crack was calculated by a limit-load analysis. Again, the results demonstrated that a margin of at least 3 on crack size exists and is within the bounds of Section 4.2.3 of Enclosure 1 to Reference 2.
- (6) In addition to the wrought stainless steel pipes, the Seabrook plants have cast stainless steel fittings and associated welds in the RCS. As an integral part of its review, the staff's evaluation of the material properties data of Reference 3 is enclosed as Appendix I in the Exemption enclosed with the staff's November 22, 1985 letter. In Reference 3, data for ten (10) plants are presented and lower bound or "worst case" material properties were identified and used in the analysis performed in the Reference 4 report by Westinghouse. The applied J for the Seabrook plants in Reference 4 for cast stainless steel fittings was less than 3000 in-1b/in². Hence the staff's upper bound 3000 in-1b/in² on the applied J (refer to Appendix I, page 6) was not exceeded.

ENVIRONMENTAL ASSESSMENT

In advance of issuing the Exemption, the Commission published in the <u>Federal Register</u> on November 19, 1985 (50FR 47468) an "Environmental Assessment and Finding of No Significant Impact." It was stated in that assessment that the planned Exemption action would not have a significant effect on the quality of the human environment. The Exemption granted involves design features located entirely within the plant restricted area as defined in 10 CFR Part 20; does not affect plant radioactive and nonradioactive effluents; has no other environmental impact and does not involve the use of resources not previously considered in the Final Environmental Statement (construction permit) for Seabrook Station, Units 1 and 2.

The staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has determined that the amendments involve no significant hazards considerations. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22 (c) (9). Pursuant to 10 CFR 51.22 (b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

CONCLUSION

In granting the limited schedular Exemption, the staff found that the advanced fracture mechanics techniques used by the applicants provided assurance that flaws in primary system piping will be detected before they reach a size that could lead to unstable crack growth. For this reason, further protection

provided by protective devices against the dynamic effects resulting from the discharge from postulated breaks in the primary piping is unnecessary. Additionally, consideration of such dynamic effects associated with previously postulated pipe breaks is unnecessary. With full protection against dynamic effects provided by advanced analysis techniques, and based on the considerations discussed above, we conclude that: (1) the proposed amendments to Construction Permits CPPR-135 and CPPR-136 permitting the use of the Exemption in construction of Seabrook Station, Units 1 and 2 do not involve a significant increase in the probability or consequences of accidents previously considered, do not create the possibility of an accident of a type different from any evaluated previously, do not involve a significant decrease in a safety margin, and thus do no involve a significant hazards consideration; (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; and (3) such activities will be in compliance with the Commission's regulations, and the issuance of the amendments will not be inimical to the common defense and security, or to the health and safety of the public.

Date of Issuance: **MIN 10 1986**

provided by protective devices against the dynamic effects resulting from the discharge from postulated breaks in the primary piping is unnecessary. Additionally, consideration of such dynamic effects associated with previously postulated pipe breaks is unnecessary. With full protection against dynamic effects provided by advanced analysis techniques, and based on the considerations discussed above, we conclude that: (1) the proposed amendments to Construction Permits permits CPPR-135 and CPPR-136 permitting the use of the Exemption in construction of Seabrook Station, Units 1 and 2 does not involve a significant increase in the probability or consequences of accidents previously considered, do not create the possibility of an accident of a type different from any evaluated previously, do not involve a significant decrease in a safety margin, and thus do no involve a significant hazards consideration; (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; and (3) such activities will be in compliance with the Commission's regulations, and the issuance of the amendments will not be inimical to the common defense and security, or to the health and safety of the public.

Date of Issuance: JUN 1 0 1986

* See next page for previous concurrences

OFC :PD#5/	:PD#5	:DIR:1PD#5	•	:	•	•
NAME MOLICOPPORK	:	:VSNoonan	•:	:	:	:
NAME :MRughbrook* (2:	:>	:	-:	-:	-:
DATE : 4/02/86	: 4/18/86	: 5/ /86	•	•	•	•

amendments to Construction Permits permits CPPR-135 and CPPR-136 permitting the use of the Exemption in construction of Seabrook Station, Units 1 and 2 does not involve a significant increase in the probability or consequences of accidents previously considered, do not create the possibility of an accident of a type different from any evaluated previously, do not involve a significant decrease in a safety margin, and thus do no involve a significant hazards consideration; (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; and (3) such activities will be in compliance with the Commission's regulations, and the issuance of the amendments will not be inimical to the common defense and security, or to the health and safety of the public.

Date of Issuance:

OFC	:PD#5	:PD#5	:DIR:PD#5		*	*
NAME	MRusharook	:VNenses	:VSNoonan		•	•
DATE	:040786	:4/18/86	/ /86	 	•	•

LIST OF REFERENCES

- Mechanistic Fracture Evaluation of Reactor Coolant Pipe Containing a Postulated Circumferential Throughwall Crack, WCAP-9558, Rev. 2, May 1981, Westinghouse Class 2 proprietary.
- (2) NRC Generic Letter 84-04, "Safety Evaluation of Westinghouse Topical Reports Dealing with Elimination of Postulated Breaks in PWR Primary Main Loops," February 1, 1984.
- (3) Westinghouse Report WCAP-10456, "The Effects of Thermal Aging on the Structural Integrity of Cast Stainless Steel Piping for Westinghouse Nuclear Steam Supply Systems," November 1983, Westinghouse Class 2 proprietary.
- (4) Westinghouse Report WCAP-10567, "Technical Bases for Eliminating Large Primary Loop Pipe Ruptures as the Structural Design Basis for Seabrook Station, Units 1 and 2," June 1984, Westinghouse Class 2 proprietary.

7590-01

UNITED STATES NUCLEAR REGULATORY COMMISSION DOCKET NOS. 50-443 AND 50-444 PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, ET.AL* NOTICE OF ISSUANCE OF AMENDMENT TO CONSTRUCTION PERMITS

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 7 to Construction Permits Nos. CPPR-135 and CPPR-136 for the Seabrook Station, Units 1 and 2. The amendments modify the construction permits to reflect issuance, by the Commission, of an Exemption, dated November 22, 1985, from the requirements of 10 CFR part 50, Appendix A, General Design Criterion 4 with respect to installation of certain protective devices and consideration of certain dynamic effects.

Effective May 12, 1986, General Design Criteria (GDC) 4 of Appendix A to 10 CFR 50 has been modified to exculude from the design basis the protection of structures, systems, and components against the dynamic effects associated with postulated pipe ruptures of primary coolant loop piping in PWRs when analyses demonstrate the probability of rupture of such piping to be be extremely low under design basis conditions (51 FR 12502 April 11, 1986). However, the exemption to which this amendment relates was granted by the NRC on November 22, 1985, which was before the effective date of the rule change. The amendments are effective as of the date of issuance.

The application for the amendments comply with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the

^{*}The current construction permit holders for Seabrook Station are: Bangor Hydro-Electric Company, Canal Electric Company, Central Maine Power Company, Central Vermont Public Service Corporation, Connecticut Light & Power Company, Fitchburg Gas & Electric Light Company, Hudson Light and Power Department, Maine Public Service Company, Massachusetts Municipal Wholesale Electric Company, Montaup Electric Company, New England Power Company, New Hampshire Electric Cooperative, Inc., Public Service Company of New Hampshire, Taunton Municipal Lighting Plant, the United Illuminating Company, Vermont Electric Generation and Transmission Cooperative, Inc., and Washington Electric Cooperative, Inc.

Commission's regulations. The Commission has made appropriate findings as required by the Act and the Commission's regulations in 10 CFR Chapter I, which is set forth in the amendments. Prior public notice of these amendments were not required, since the amendments do not involve a significant hazards consideration.

For further details with respect to the action, see (1) the application for amendments dated August 9, 1984, February 1, 1985, and July 10, 1985, (2) Amendments No. 7 to Construction Permits CPPR-135 and CPPR-136, (3) the Commission's related Safety Evaluation, (4) the Exemption dated November 22, 1985, and (5) the Notice of Environmental Assessment and Finding of No Significant Impact dated November 12, 1985. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W. Washington, DC 20555, and at the Local Public Document Room at Exeter Public Library, Front Street, Exeter, New Hampshire 03833. In addition, a copy of items (2), (3), (4), and (5) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Director, Division of PWR Licensing-A, Office of Nuclear Reactor Regulation.

Dated at Bethesda, Maryland, this $q \frac{T_{\rm H}}{2}$

day of line 1986

FOR THE NUCLEAR REGULATORY COMMISSION

bonan

PWR Project/Directorate #5 Division of PWR Licensing-A

Commission's regulations. The Commission has made appropriate findings as required by the Act and the Commission's regulations in 10 CFR Chapter I, which is set forth in the amendments. Prior public notice of these amendments were not required, since the amendments do not involve a significant hazards consideration.

For further details with respect to the action, see (1) the application for amendments dated August 9, 1984, February 1, 1985, and July 10, 1985, (2) Amendments No. 7 to Construction Permits CPPR-135 and CPPR-136, (3) the Commission's related Safety Evaluation, (4) the Exemption dated November 22, 1985, and (5) the Notice of Environmental Assessment and Finding of No Significant Impact dated November 12, 1985. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W. Washington, DC 20555, and at the Local Public Document Room at Exeter Public Library, Front Street, Exeter, New Hampshire 03833. In addition, a copy of items (2), (3), (4), and (5) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Director, Division of PWR Licensing-A, Office of Nuclear Reactor Regulation.

Dated at Bethesda, Maryland, this 9 to day of June, 1986

FOR THE NUCLEAR REGULATORY COMMISSION

6

					11			
				ncent S. Noor				
			PW	R Project Di	rectorate #5	5		
			Di	vision of PWI	R Licensing-	-A . /	0:	11
		* See next	page for pr	evious concur			age a le	ela
OFC	:PD#5	:PD#5	WELL CO	HTR: PU#5	[]:	:		
NAME	:MRUSINDPOOK*	:VNerses*	. WR	:VSNoonan/				
DATE	: 3/28/86	: 4/18/86	6/2/86	: 5/9/86U	Flip.	:	:	
	OFFICIAL	RECORD COPY		,	4/14			

Commission's regulations. The Commission has made appropriate findings as required by the Act and the Commission's regulations in 10 CFR Chapter I, which is set forth in the amendments. Prior public notice of these amendments were not required, since the amendments do not involve a significant hazards consideration.

For further details with respect to the action, see (1) the application for amendments dated August 9, 1984, February 1, 1985, and July 10, 1985, (2) Amendments No. 7 to Construction Permits CPPR-135 and CPPR-136, (3) the Commission's related Safety Evaluation, (4) the Exemption dated November 22, 1985, and (5) the Notice of Environmental Assessment and Finding of No Significant Impact dated November 12, 1985. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W. Washington, DC 20555, and at the Local Public Document Room at Exeter Public Library, Front Street, Exeter, New Hampshire 03833. In addition, a copy of items (2), (3), (4), and (5) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Director, Division of PWR Licensing-A, Office of Nuclear Reactor Regulation.

Dated at Bethesda, Maryland, this day of 1986

FOR THE NUCLEAR REGULATORY COMMISSION

Janice A. Stevens, Acting Director PWR Project Directorate #5 Division of PWR Licensing-A * See next page for previous concurrences

			:OELD	DIR:PD#5	•	•
NAME	:MRushbrook*	:VNerses*	•	VSNoonan*		•
	•	•	/ /86			 ; :

OFFICIAL RECORD COPY

For further details with respect to the action, see (1) the application for amendments dated August 9, 1984, February 1, 1985, and July 10, 1985, (2) Amendments No. 7 to Construction Permits CPPR-135 and CPPR-136, (3) the Commission's related Safety Evaluation, (4) the Exemption dated November 22, 1985, and (5) the Notice of Environmental Assessment and Finding of No Significant Impact dated November 12, 1985. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W. Washington, DC 20555, and at the Local Public Document Room at Exeter Public Library, Front Street, Exeter, New Hampshire 03833. In addition, a copy of items (2), (3), (4), and (5) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Director, Division of PWR Licensing-A, Office of Nuclear Reactor Regulation. Dated at Bethesda, Maryland, this day of 1986

FOR THE NUCLEAR REGULATORY COMMISSION

* See next page for previous concurrences

Elizabeth L. Doolittle, Acting Director PWR Project Directorate #5 Division of PWR Licensing-A

OFC	:PD#5	:PD#5	:OELD	:DIR PD#5	 · · · · · · · · · · · · · · · · · · ·	•
NAME	MRasharook*	:VNerses*	: J. Scinto	:VSNoonan	 ·	•
DATE	3/28/86	4/18/86	. / /86	517186	•	•

OFFICIAL RECORD COPY

For further details with respect to the action, see (1) the application for amendments dated August 9, 1984, February 1, 1985, and July 10, 1985, (2) Amendments No. 7 to Construction Permits CPPR-135 and CPPR-136, (3) the Commission's related Safety Evaluation, (4) the Exemption dated November 22, 1985, and (5) the Notice of Environmental Assessment and Finding of No Significant Impact dated November 12, 1985. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W. Washington, DC 20555, and at the Local Public Document Room at Exeter Public Library, Front Street, Exeter, New Hampshire 03833. In addition, a copy of items (2), (3), (4), and $(5^{1/2})$ may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Director, Division of PWR Licensing-A, Office of Nuclear Reactor Regulation. day of 1986

Dated at Bethesda, Maryland, this

FOR THE NUCLEAR REGULATORY COMMISSION

* See next page for previous concurrences

			Vincent S. Noonan, Director 						
OFC	:PD#5	:PD#5	: DECD	DIR:PD#5	:	•	•		
NAME	:MRushbnppk*	:VNerses*	Sherwin Tur	VSNoonan		:	·		
DATE	: 3/28/86	: 4/18/86	:05 0886	/ /86	•	•	•		

For further details with respect to the action, see (1) the application for amendments dated August 9, 1984, (2) Amendments No. 7 to Construction Permits CPPR-135 and CPPR-136, (3) the Commission's related Safety Evaluation, (4) the Exemption dated November 22, 1985, and (5) the Notice of Environmental Assessment and Finding of No Significant Impact dated November 12, 1985. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W. Washington, DC 20555, and at the Local Public Document Room at Exeter Public Library, Front Street, Exeter, New Hampshire 03833. In addition, a copy of items (2), (3), (4), and (5) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Director, Division of PWR Licensing-A, Office of Nuclear Reactor Regulation.

Dated at Bethesda, Maryland, this

1986

FOR THE NUCLEAR REGULATORY COMMISSION

Vincent S. Noonan, Director PWR Project Directorate #5 Division of PWR Licensing-A

day of

OFC	:PD#5	:PD#5	:OELD :	DIR:PD#5	•	•	:
NAME	MRDShorook	:VNenses	:	VSNoonan			•
DATE	3 6 886	4/19/86	: / /86	/ /86	· · · · · · · · · · · · · · · · · · ·		·

OFFICIAL RECORD COPY

SUBJECT: ISSUANCE OF AMENDMENT NO. 7 TO CPPR-135 AND CPPR-136 FOR SEABROOK STATION, UNITS 1 & 2

.

INTERNAL DISTRIBUTION: Docket Files - 50-443 & 50-444 NRC PDR LPDR PWR#5 Reading V. Nerses (2) M. Rushbrook (5) T. Novak J. Saltzman, SP I. Dinitz, SP **OPA** H. Denton W. Lamb, P&RAB R. Diggs, LFMB J. Partlow B. Grimes E. Jordan L. Harmon T. Barnhart (8) I. Bailey S. Turk, OELD R. Perlis, OELD J. Rutberg/B. Vogler, OELD J. Scinto, OELD ACRS (10)