North Atlantic

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The Northeast Utilities System

August 30, 2001

Docket No. 50-443
NYN-01078

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Seabrook Station
Administrative Addendum to the
Seabrook Station Updated Final Safety Analysis Report, Revision 7

On July 26, 2001, North Atlantic Energy Service Corporation (North Atlantic) submitted Revision 7 of the Seabrook Station Updated Final Safety Analysis Report (UFSAR) to the NRC pursuant to the requirements of 10CFR50.71(e). Subsequent to the July 26 submittal, an administrative error was discovered with some of the errata pages. Enclosed is an Administrative Addendum and change instructions to Revision 7 of the Updated Final Safety Analysis Report.

The signed original and ten copies of the Administrative Addendum and change instructions to the Updated Final Safety Analysis Report, Revision 7 are being submitted to the Document Control Desk, Washington, DC. A copy has been sent to the Regional Office, King of Prussia, PA and a copy to the Resident Inspector at Seabrook Station. This distribution complies with the requirements of 10CFR50.4(b)(6).

Should you have any questions regarding this letter, please contact Mr. James M. Peschel, Manager-Regulatory Programs, at (603) 773-7194.

Very truly yours,

NORTH ATLANTIC ENERGY SERVICE CORP.

Gene F. St.Pierre
Station Director

cc: H. J. Miller, NRC Region I Administrator
G. F. Wunder, NRC Project Manager, Project Directorate I-2
G.T. Dentel, NRC Senior Resident Inspector

A053

STATE OF NEW HAMPSHIRE

Rockingham, ss. August 30, 2001

Then personally appeared before me, the above-named, Gene F. St.Pierre, Station Director, North Atlantic Energy Service Corporation that he is duly authorized to execute and file the foregoing information in the name and on the behalf of North Atlantic Energy Service Corporation and that to the best of his knowledge and belief, the enclosed 10 CFR50.71(e)(2)(i) submittal accurately presents changes made since the previous submittal.

Marilyn R. Sullivan

Marilyn R. Sullivan, Notary Public
My Commission Expires: March 19, 2002

267283

CHANGE INSTRUCTIONS *(ADDENDUM)*

UPDATED FINAL SAFETY ANALYSIS REPORT

(UFSAR)

Revision 7

REMOVE	INSERT

***Additional change instructions:** After following the change instructions issued with Rev. 7 of the UFSAR, perform the following changes. These changes are a result of photocopying problems and a misidentified Figure.*

REMOVE	INSERT
Page 4.3-41, Table 4.3-1 Sh 1 thru Table 4.3-3	*Page 4.3-41, Table 4.3-1 Sh 1 thru Table 4.3-3*
Figure 15.5-1 (Shts 1 thru 3)	*Figure 15.5-1 (Shts 1 thru 3)*

NOTE: Correction - The original change instructions should have read as follows: (No action is required.)

REMOVE	INSERT
List of Effective Pages (Pages 1-34)	**List of Effective Pages (Pages 1-25)**

13. Poncelet, C. G. and Christie, A. M., "Xenon-Induced Spatial Instabilities in Large PWRs," WCAP-3680-20, (EURAEC-1974) March 1968.

14. Skogen, F. B. and McFarlane, A. F., "Control Procedures for Xenon-Induced X-Y Instabilities in Large PWRs," WCAP-3680-21, (EURAEC-2111), February 1969.

15. Skogen, F. B. and McFarlane, A. F., "Xenon-Induced Spatial Instabilities in Three-Dimensions," WCAP-3680-22 (EURAEC-2116), September 1969.

16. Lee, J. C., et al., "Axial Xenon Transient Tests at the Rochester Gas and Electric Reactor," WCAP-7964, June 1971.

TABLE 4.3-1
(Sheet 1 of 2)

REACTOR CORE DESCRIPTION
(Typical Low Leakage Cycle Design)

Active Core	
Equivalent diameter (in.)	132.7
Active fuel height, first core (in.)	144.0
Height-to-diameter ratio	1.08
Total cross section area (ft^2)	96.06
H_2O/U molecular ratio, lattice (Cold)	2.41
Reflector Thickness and Composition	
Top, water plus steel (in.)	~10
Bottom, water plus steel (in.)	~10
Side, water plus steel (in.)	~15
Fuel Assemblies	
Number	193
Rod array	17x17
Rods per assembly	264
Rod pitch (in.)	0.496
Overall transverse dimensions (in.)	8.426x8.426
Fuel weight (as UO_2) (lb.)	~223,017
Zircaloy weight (lb.)	46,920 - 49,273
Number of grids per assembly	8-Type R
Composition of grids	Inconel or Zirconium Alloy
Weight of grids, effective in core (lb.)	2324 - 2668
Number of guide thimbles per assembly	24
Composition of guide thimbles	Zirconium Alloy
Diameter of guide thimbles, upper part (in.)	
(17x17 STD)	0.450 I.D. x 0.482 O.D.
(V5H w/P-grid)	0.442 I.D. x 0.474 O.D.
Diameter of guide thimbles, lower part (in.)	
(17x17 STD)	0.397 I.D. x 0.430 O.D.
(V5H w/P-grid)	0.397 I.D. x 0.430 O.D.
Diameter of instrument guide thimbles (in.)	
(17x17 STD)	0.448 I.D. x 0.484 O.D.
(V5H w/P-grid)	0.440 I.D. x 0.476 O.D.
Fuel Rods	
Number	50,952
Outside diameter (in.)	0.374
Diameter gap (in.)	0.0065
Clad thickness (in.)	

TABLE 4.3-1
(Sheet 2 of 2)

REACTOR CORE DESCRIPTION
(Typical Low Leakage Cycle Design)

Fuel Pellets	
Material	UO_2 Sintered
Density (percent of theoretical)	95
Fresh Fuel enrichments w/o	
Typical Low Enrichment in Split	3.6-4.4
Typical High Enrichment in Split	4.0-4.8
Diameter (in.)	0.3225
Length (in.)	0.530
Mass of UO_2 per foot of fuel rod (lb./ft)	0.364
Rod Cluster Control Assemblies	
Neutron absorber	Ag-In-Cd
Composition	80%-15%-5%
Diameter (in.)	0.341 Ag-In-Cd
Density (lb./in.^{3})	0.367 Ag-In-Cd
Cladding material	Type 304, Cold Worked Stainless Steel
Clad thickness (in.)	0.0185
Number of clusters - full length	57
Number of absorber rods per cluster	24
Integral Fuel Burnable Absorbers (IFBA)	
Number	~10,000
Material	Zr_2B
Coating Thickness (in.)	0.004
Boron loading (mg/in)	1.57 - 3.14
Initial reactivity worth (%$\Delta\rho$)	Dependent on Number in Assembly
Excessive Reactivity	
Maximum fuel assembly k_∞ (cold clean, unborated water)	1.430
Maximum core reactivity (cold, zero power, beginning of cycle)	1.210

TABLE 4.3-2
(Sheet 1 of 2)

NUCLEAR DESIGN PARAMETERS
(Typical Low Leakage Cycle Design)

Core Average Linear Power, kW/ft, including densification effects	5.44	
Total Heat Flux Hot Channel Factor, F_Q	2.50	
Nuclear Enthalpy Rise Hot Channel Factor, $F^N_{\Delta H}$	1.65	
Reactivity Coefficients+	Design Limits	Best Estimate
Doppler-only Power, Lower Curve Coefficients, pcm/% power++	-19.4 to -12.6	-15 to -11
(See Figure 15.1-3, Sh. 1), Upper Curve	-9.55 to -6.05	-14 to -8.5
Doppler Temperature Coefficient pcm/°F++	-2.9 to -1.2	-2.0 to -1.3
Moderator Temperature Coefficient, pcm/°F++	+5. to -47	+2. to -39.
Boron Coefficient, pcm/ppm++	-16 to -7	-14.5 to -7.3
Rodded Moderator Density, pcm/gm/cc++	$\leq 0.50 \times 10^5$	$\leq 0.28 \times 10^5$
Delayed Neutron Fraction and Lifetime		
β_{eff} BOL, (EOL)	0.0075, (0.0044)	
Control Rods		
Rod Requirements	See Table 4.3-3	
Maximum Bank Worth, pcm	< 2000	
Maximum Ejected Rod Worth	See Chapter 15	

\+ Uncertainties are given in Subsection 4.3.3.3

++Note: 1 pcm = (percent mille) 10^{-5} $\Delta\rho$ where $\Delta\rho$ is calculated from two statepoint values of k_{eff} by $\ln(K_2/K_1)$.

TABLE 4.3-2
(Sheet 2 of 2)

NUCLEAR DESIGN PARAMETERS
(Typical Low Leakage Cycle Design)

Radial Factor Peak Pin FΔh (BOL to EOL)	
Unrodded	1.44 to 1.40
D bank	1.44 to 1.40
D + C	1.55 to 1.44
Boron Concentrations	
Zero Power, k_{eff} = 0.99, Cold Rod Cluster Control Assemblies Out	1745
Zero Power, k_{eff} = 0.99, Hot Rod Cluster Control Assemblies Out	1873
Design Basis Refueling Boron Concentration	2000
Zero Power, $k_{eff} \leq 0.95$, Cold Rod Cluster Control Assemblies In	1424
Zero Power, k_{eff} = 1.00, Hot Rod Cluster Control Assemblies Out	1739
Full Power, No Xenon, k_{eff} = 1.0, Hot Rod Cluster Control Assemblies Out	1564
Full Power, Equilibrium Xenon, k_{eff} = 1.0, Hot Rod Cluster Control Assemblies Out	1179
Reduction with Fuel Burnup Cycle ppm/GWd/Mtu++++	See Figure 4.3-3

++++ Gigiwatt Day (GWd) = 1000 Megawatt Day (1000 MWd).

TABLE 4.3-3

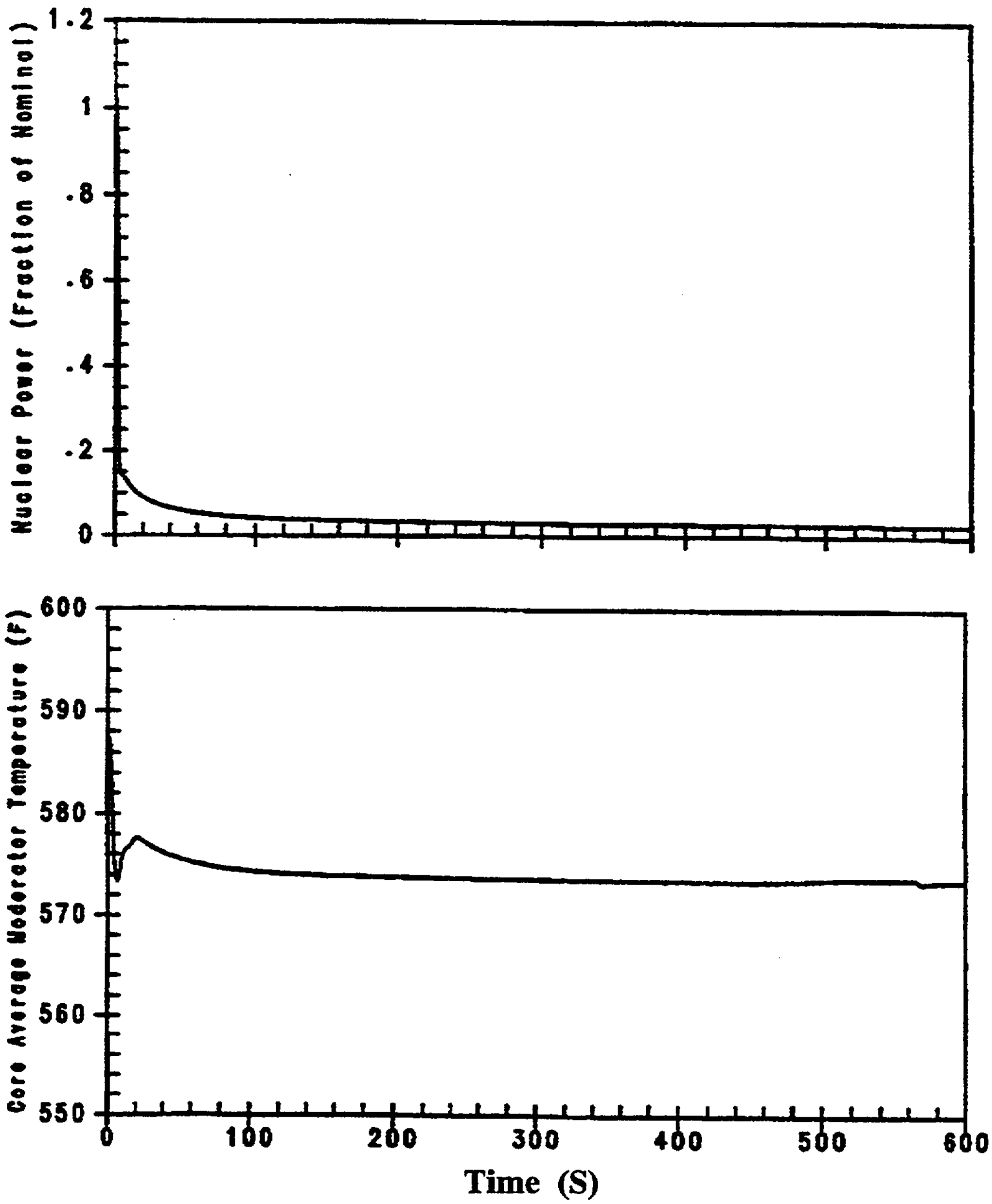
REACTIVITY REQUIREMENTS FOR ROD CLUSTER CONTROL ASSEMBLIES

Reactivity Effects, Percent	Beginning-of-Life (First Cycle)	End-of-Life (First Cycle)	End-of-Life (Typical Low Leakage Cycle)
1. Control requirements			
Fuel temperature, Doppler (%Δρ)	1.36	1.12	1.53
Moderator temperature** (%Δρ)	0.15	1.22	1.20
Redistribution (%Δρ)	0.50	0.85	***
Rod insertion allowance (%Δρ)	0.50	0.50	0.45
2. Total control (%Δρ)	2.51	3.69	3.18
3. Estimated Rod Cluster Control Assembly worth (57 rods, Ag-In-Cd)			
a. All full length assemblies inserted (%Δρ)	8.73	8.83	7.42
b. All but one (highest worth) assemblies inserted (%Δρ)	7.69	7.76	6.58
4. Estimated Rod Cluster Control Assembly credit with 10 percent adjustment to accommodate uncertainties, 3b - 10 percent (%Δρ)	6.92	6.98	5.93
5. Shutdown margin available, 4-2 (%Δρ)	4.41	3.29	2.75****

** Includes void effects

*** Redistribution included in Doppler portion

**** The design basis minimum shutdown is 1.3%.



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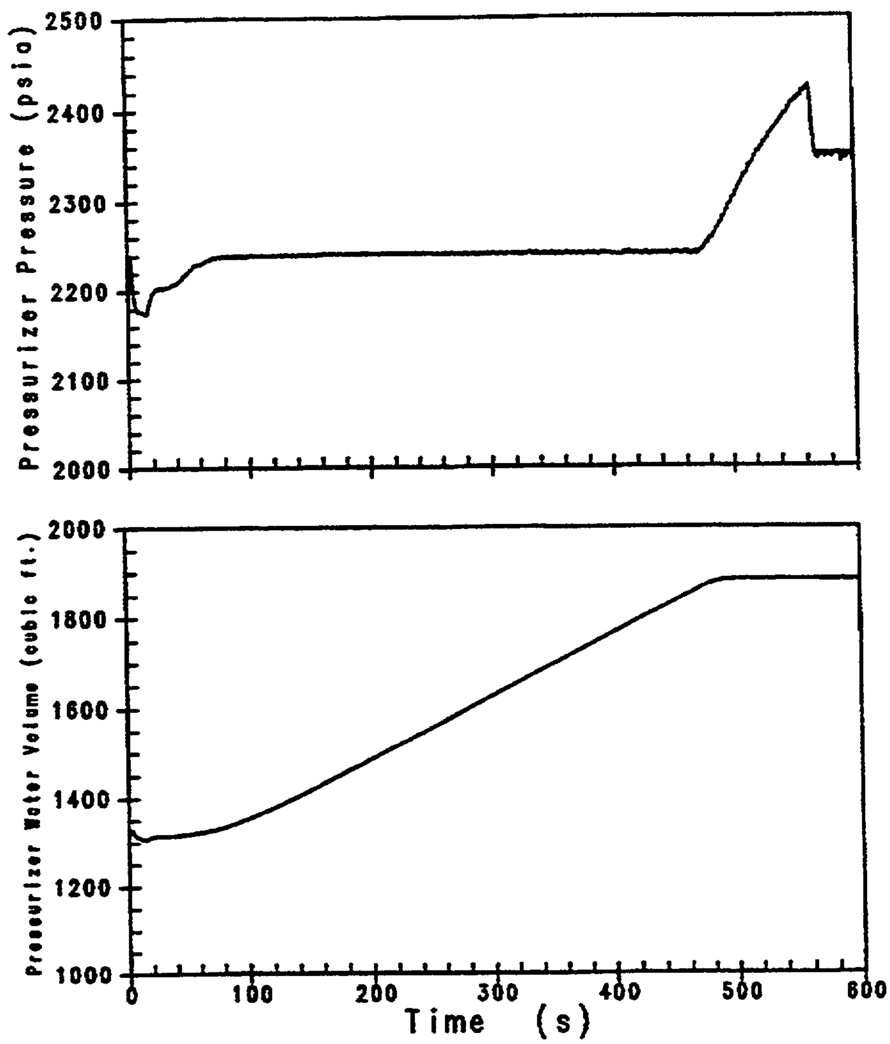
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Nuclear Power and Core Average Coolant Temperature Transients for an Inadvertent ECCS Actuation During Power Operation	
	REV. 07	FIGURE 15.5-1 SH. 1



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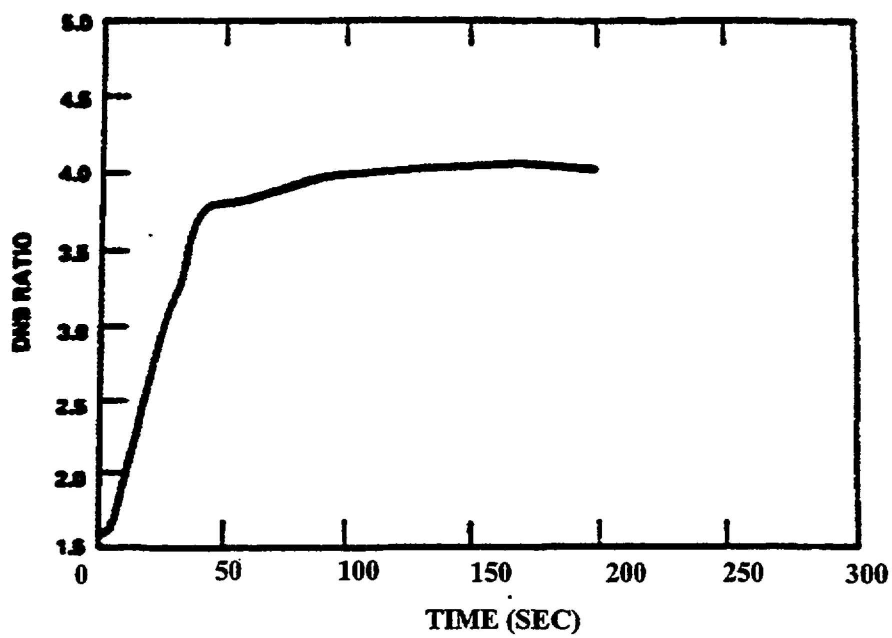
SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Pressurizer Pressure and Pressurizer Water Volume Transients for an inadvertent ECCS Actuation During Power Operation	
	REV. 07	FIGURE 15.5-1 SH.2



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SEABROOK STATION UPDATED FINAL SAFETY ANALYSIS REPORT	Steam Flow and Typical DNBR Transients for an Inadvertent ECCS Actuation During Power Operation	
	REV. 07	FIGURE 15.5-1 SH. 3