TWX 710-390-0739 WYR 76-84

YANKEE ATOMIC ELECTRIC COMPANY



20 Turnpike Road Westborough, Massachusetts 01581

August 23, 1976

United States Nuclear Regulatory Commission Washington, D. C. 20555

Attention: Office of Nuclear Reactor Regulation

Upper Hemispherical Head Temperature Effect on Subject:

Yankee Rowe Core XII LOCA Analysis

Reference: (1) License No. DPR-3 (Docket No. 50-29)

(2) Proposed Change No. 125, Supplement No. 8

(February 20, 1976)

Dear Sir:

The Yankee Rowe Core XII LOCA Analysis presented in Reference (2) was performed using T $_{\rm cold}$ (515°F) for the temperature of the upper hemispherical head. The basis for using T $_{\rm cold}$ is the relatively high bypass flow in that region (1%).

The assumption of using T (560°F) for the upper hemispherical heat temperature is felt to be overly conservative. However, as per our recent communication, we are performing additional LOCA analyses to determine the effect of using T in the upper head region on peak clad temperature (PCT) and allowable linear heat generation rate (LHGR) .

Our preliminary analysis indicates higher clad temperatures at End-of-Bypass (EOBY). In order to ascertain the full effect of the The assumption, analysis to the point of PCT will be required. Therefore, we agree to submit results of this analysis to you no later than Friday, August 27, 1974

Any further questions regarding this analysis should be directed to Mr. W. J. Szymczak at our Engineering Office, 20 Turnpike Road, Westborc, Massachusetts, 01581, (617) 366-9011, Extension 2844.

Respectfully submitted,

YANKEE ATOMIC ELECTRIC COMPANY

Vice President

WJS/kg

	NICTORM 105 U.S. NUCLEAR REGULATORY COMMISSION				
					50-29
NRC DISTRIBUTION	ON ron PAR	T 50 DOCKET	MATI	RIAL	The state of the s
TO: NRC		FROM: Yankee Atomic Elec Co Westborough, Mass W P Johnson			DATE OF DOCUMENT
					8-23-76
					8-30-76
SLETTER CINOTOR	IZED	PROP		INPUT FORM	NUMBER OF COPIES RECEIVED
MORIGINAL BUNCLASSIFIED					one signed
DESCRIPTION			ENCL	OSURE	•
PLANT NAME: Yankee Ro					
SAFETY		FOR ACTION	I/INFOI		0 8-30-76 ehf
ASSIGNED AD:					
ASSIGNED AD: BRANCH CHIEF:	Purple	(5)	1	ASSIGNED AD: BRANCH CHIEF:	
The state of the s	Purple	(5) er		BRANCH CHIEF: PROJECT MANAGER	:
BRANCH CHIEF:	Purple	er (5)		BRANCH CHIEF:	
BRANCH CHIEF: PROJECT MANAGER:	Purple Byrg She,	eparde (5)		BRANCH CHIEF: PROJECT MANAGER	
BRANCH CHIEF: PROJECT MANAGER:	Purple	er (5)	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.:	
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.:	Purple Burg She,	internal	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.:	
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.:	Purple Burg Shell SYSTEMS HEINEMAN	SAFETY	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS	SITE SAFETY &
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE	HEINEMA	SAFETY	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESGO	SITE SAFETY & ENVIRO ANALYSIS
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NRC PDR	THE RESERVE AND ADDRESS OF THE PARTY OF THE	SAFETY	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESCO BENAROYA	SITE SAFETY &
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NAC PDR I & E TL) OCLD	HEINEMAN SCHROEDN	SAFETY N ER	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESCO BENAROYA LAINAS	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NAC PDR I & E -1	HEINEMAN SCHROEDI ENCINESI	SAFETY N ER RING	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESCO BENAROYA LAINAS IPPOLITO	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH.
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NRC FDR I & E (-1) OCLD GOSSICK & STAFF MIFC	HEINEMAN SCHROEDI ENGINEEN MACCARR	SAFETY N ER RING	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESCO BENAROYA LAINAS	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH . ERNST
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NRC PDR I & E T) OCLD GOSSICK & STAFF MIPG CASE	HEINEMAN SCHROEDN ENCINESN MACCARR' KNIGHT	SAFETY N ER RING Y	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESGO BENAROYA LAINAS IPPOLITO KIRKWOOD	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH. ERNST BALLARD
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE MRC PDR I & E -1 OCLD GOSSICK & STAFF MIPC CASE FANAUER	HEINEMAN SCHROEDI ENGINEEN MACCARR	SAFETY N ER RING Y	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESCO BENAROYA LAINAS IPPOLITO KIRKWOOD CPERATING REACTORS	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH . ERNST
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NRC PDR I & E T) OCLD GOSSICK & STAFF MIPG CASE	HEINEMAN SCHROEDI ZNCTNEEN MACCARRY KNIGHT SINWEIL	SAFETY N ER RING Y	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESGO BENAROYA LAINAS IPPOLITO KIRKWOOD	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH. ERNST BALLARD SPANGLER
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NAC FDR I & E (-1) OCLD GOSSICK & STAFF MIPC CASE FANAUER HARLESS	ENGINEED ZNGINEED MACCARR' KNIGHT SIHWEIL PAWLICK	SAFETY N ER RING Y	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESGO BENAROYA LAINAS IPPOLITO KIRKWOOD OPERATING REACTORS STELLO	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH. ERNST BALLARD SPANGLER SITE TECH.
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NAC PDR I & E -10 OCLD GOSSICK & STAFF MIPC CASE FANAUER	HEINEMAN SCHROEDI ZNCTNEEN MACCARRY KNIGHT SINWEIL	SAFETY N ER RING Y	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESGO BENAROYA LAINAS IPPOLITO KIRKWOOD OPERATING REACTORS STELLO OPERATING TECH.	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH. ERNST BALLARD SPANGLER SITE TECH. GAMMILL
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NRC PDR I & E T) OCLD GOSSICK & STAFF MIPC CASE PANAUER HARLESS PROJECT MANAGEMENT BOYD	HEINEMAN SCHROEDI ENCTNEEN MACGARR' KNIGHT SINWELL PAWLICK	SAFETY N ER RING Y	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESCO BENAROYA LAINAS IPPOLITO KIRKWOOD OPERATING REACTORS STELLO OPERATING TECH. EISENHUT	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH. ERNST BALLARD SPANGLER SITE TECH. GAMMILL STEPP
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NRC PDR I & E TO OCLD GOSSICK & STAFF MIPG CASE FAMAUER HARLESS PROJECT MANAGEMENT	ENGINEED ENGINEED MACGARRY KNIGHT SIMMELL PAWLICK REACTOR ROSS	SAFETY N ER RING Y I SAFETY	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESCO BENAROYA LAINAS IPPOLITO KIRKWOOD CPERATING REACTORS STELLO OPERATING TECH. EISEINIUT SHAC	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH. ERNST BALLARD SPANGLER SITE TECH. GAMMILL
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE REC FDR I & E TA OCLD GOSSICK & STAFF MIFC CASE FANAUER HARLESS PROJECT MANAGEMENT BOYD P. COLLINS POUSTON	ENGINEED ENGINEED MACGARN KNIGHT SIEWEIL PAWLICK REACTOR ROSS NOVAK	SAFETY N ER RING Y I SAFETY	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESCO BENAROYA LAINAS IPPOLITO KIRKWOOD OPERATING REACTORS STELLO OPERATING TECH. EISENHUT SHAO BAEF	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH. ERNST BALLARD SPANGLER SITE TECH. GAMMILL STEPP HULMAN
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NRC FDR I & E TA OCLD GOSSICK & STAFF MIPC CASE FANAUER HARLESS PROJECT MANAGEMENT BOYD P. COLLINS FOUSTON PETERSON	HEINEMAN SCHROEDI ZNGINEEN MACCARR' KNIGHT SIHWEIL PAWLICK REACTOR ROSS NOVAK ROSZTOC	SAFETY N ER RING Y I SAFETY	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESGO BENAROYA LAINAS IPPOLITO KIRKWOOD OPERATING REACTORS STELLO OPERATING TECH. EISENHUT SHAC BAEF BUTLER	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH. ERNST BALLARD SPANGLER SITE TECH. GAMMILL STEPP HULMAN SITE ANALYSIS
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NRC PDR I & E TA OCLD GOSSICK & STAFF MIPG CASE FANAUER HARLESS PROJECT MANAGEMENT BOYD P. COLLINS POUSTON PETERSON ANATZ	HEINEMAN SCHROEDI ZNGINEEN MACCARR' KNIGHT SIHWEIL PAWLICK REACTOR ROSS NOVAK ROSZTOC	SAFETY N ER RING Y I SAFETY	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESCO BENAROYA LAINAS IPPOLITO KIRKWOOD OPERATING REACTORS STELLO OPERATING TECH. EISENHUT SHAO BAEF	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH. ERNST BALLARD SPANGLER SITE TECH. GAMMILL STEPP HULMAN SITE ANALYSIS VOLLMER
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NRC PDR I & E T) OCLD GOSSICK & STAFF MIPG CASE PANAUER HARLESS PROJECT MANAGEMENT BOYD P. COLLINS POUSTON PETERSON ANDTZ HELTERSS	HEINEMAN SCHROEDI ZNGTNEEN MACGARRY KNIGHT SIMMEIL PAWLICK REACTOR ROSS NOVAK ROSZTOC: CHECK	SAFETY N ER RING Y SAFETY ZY	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESGO BENAROYA LAINAS IPPOLITO KIRKWOOD OPERATING REACTORS STELLO OPERATING TECH. EISENHUT SHAC BAEF BUTLER	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH. ERNST BALLARD SPANGLER SITE TECH. GAMMILL STEPP HULMAN SITE ANALYSIS VOLLMER EUNCH
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NRC PDR I & E TA OCLD GOSSICK & STAFF MIPG CASE FANAUER HARLESS PROJECT MANAGEMENT BOYD P. COLLINS POUSTON PETERSON ANATZ	HEINEMAN SCHROEDI ENCINEEN MACCARR' KNIGHT SIHWEIL PAWLICK REACTOR ROSS NOVAK ROSZTOC: CHECK AT & I SALTZMAN	SAFETY N ER RING Y I SAFETY ZY	DISTRI	BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESGO BENAROYA LAINAS IPPOLITO KIRKWOOD OPERATING REACTORS STELLO OPERATING TECH. EISENHUT SHAC BAEF BUTLER	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH. ERNST BALLARD SPANGLER SITE TECH. GAMMILL STEPP HULMAN SITE ANALYSIS VOLLMER BUNCH J. COLLINS
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NRC PDR I & E TA OCLD COSSICK & STAFF MIPC CASE FAMAUER HARLESS PROJECT MANAGEMENT BOYD P. COLLINS POUSTON PETERSON MALTZ HELTEMES	HEINEMAN SCHROEDI ZNGINEEN MACCARR' KNIGHT SIHWEIL PAWLICK REACTOR ROSS NOVAK ROSZTOC: CHECK AT & I SALTZMAN RUTBERG	SAFETY N ER RING Y I SAFETY ZY		BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESGO BENAROYA LAINAS IPPOLITO KIRKWOOD OPERATING REACTORS STELLO OPERATING TECH. EISENHUT SHAC BAEF BUTLER	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH. ERNST BALLARD SPANGLER SITE TECH. GAMMILL STEPP HULMAN SITE ANALYSIS VOLLMER EUNCH J. COLLINS KREGER
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NAC TDR I & E TA OCLD GOSSICK & STAFF MIPC CASE FANAUER HARLESS PROJECT MANAGEMENT BOYD P. COLLINS POUSTON PETERSON MALTZ HELTEMES SKOVHOLT	HEINEMAN SCHROEDS SCHROEDS MACCARR' MACCARR' KNIGHT SIMMEIL PAWLICK REACTOR ROSS NOVAK ROSZTOC: CHECK AT & T SALTZMAN RUTBERG EXTERNAL	SAFETY N ER RING Y I SAFETY ZY N L DISTRIBUTION		BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESCO BENAROYA LAINAS IPPOLITO KIRKWOOD OPERATING REACTORS STELLO OPERATING TECH. EISENHUT SHAO BAEV BUTLER G'.IMES	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH. ERNST BALLARD SPANGLER SITE TECH. GAMMILL STEPP HULMAN SITE ANALYSIS VOLLMER BUNCH J. COLLINS KREGER CONTROL NUMBER
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NAC PDR I & E TO OCLD GOSSICK & STAFF MIPC CASE PANAUER HARLESS PROJECT MANAGEMENT BOYD P. COLLINS POUSTON PETERSON MALTZ MELTEMES SKOVHOLT	HEINEMAN SCHROEDI ZNGINESI MACGARR' KNIGHT SIMMEIL PAWLICK REACTOR ROSS NOVAK ROSZTOC: CHECK AT & I SALTZMAN RUTBERG EXTERNAN	SAFETY N ER RING Y I SAFETY ZY N L DISTRIBUTION:		BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESGO BENAROYA LAINAS IPPOLITO KIRKWOOD OPERATING REACTORS STELLO OPERATING TECH. EISENHUT SHAO BAEV BUTLER G'.IMES	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH. ERNST BALLARD SPANGLER SITE TECH. GAMMILL STEPP HULMAN SITE ANALYSIS VOLLMER BUNCH J. COLLINS KREGER CONTROL NUMBER
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NRC PDR I & E TA OCLD GOSSICK & STAFF MIPC CASE FAMAUER HARLESS PROJECT MANAGEMENT BOYD P. COLLINS POUSTON PETERSON MALTZ HELTENES SKOVHOLT	REINEMAN SCHROEDS ENGINEES MACCARRY KNIGHT SIEWEIL PAWLICK REACTOR ROSS NOVAK ROSZTOC: CHECK AT & I SALTZMAN RUTBERG EXTERNAL MAT LAB REG. VI	SAFETY N ER RING Y I SAFETY ZY N L DISTRIBUTION:		BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESCO BENAROYA LAINAS IPPOLITO KIRKWOOD OPERATING REACTORS STELLO OPERATING TECH. EISENHUT SHAO BAEV BUTLER G'.IMES	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH. ERNST BALLARD SPANGLER SITE TECH. GAMMILL STEPP HULMAN SITE ANALYSIS VOLLMER BUNCH J. COLLINS KREGER CONTROL NUMBER
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NRC PDR I & E TA OCLD GOSSICK & STAFF MIPC CASE FAMAUER HARLESS PROJECT MANAGEMENT BOYD P. COLLINS FOUSTON PETERSON MALTZ HELTEMES SKOVHOLT LVDR: TO FEE H. MASS TIC: USIC:	REINEMAN SCHROEDS ENGINESS MACCARRY KNIGHT SIEWEIL PAWLICK REACTOR ROSS NOVAK ROSZTOC: CHECK AT & T SALTZMAN RUTBERG EXTERNAN NAT LAB REG. VII	SAFETY N ER RING Y I SAFETY N L DISTRIBUTION E		BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESGO BENAROYA LAINAS IPPOLITO KIRKWOOD OPERATING REACTORS STELLO OPERATING TECH. EISENHUT SHAO BAEV BUTLER G'.IMES	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH. ERNST BALLARD SPANGLER SITE TECH. GAMMILL STEPP HULMAN SITE ANALYSIS VOLLMER BUNCH J. COLLINS KREGER CONTROL NUMBER
BRANCH CHIEF: PROJECT MANAGER: LIC. ASST.: REG FILE NRC PDR I & E TA OCLD GOSSICK & STAFF MIPC CASE FAMAUER HARLESS PROJECT MANAGEMENT BOYD P. COLLINS POUSTON PETERSON MELTZ HELTENES SKOVHOLT	REINEMAN SCHROEDI ZNGINEEN MACCARR' KNIGHT SIHWEIL PAWLICK REACTOR ROSS NOVAK ROSZTOC: CHECK AT & I SALTZMAN RUTBERG EXTERNAN REG. VIN LA PDR CONSULT	SAFETY N ER RING Y I SAFETY N L DISTRIBUTION E		BRANCH CHIEF: PROJECT MANAGER LIC. ASST.: BUTION PLANT SYSTEMS TEDESGO BENAROYA LAINAS IPPOLITO KIRKWOOD OPERATING REACTORS STELLO OPERATING TECH. EISENHUT SHAO BAEV BUTLER G'.IMES	SITE SAFETY & ENVIRO ANALYSIS DENTON & MULLER ENVIRO TECH. ERNST BALLARD SPANGLER SITE TECH. GAMMILL STEPP HULMAN SITE ANALYSIS VOLLMER BUNCH J. COLLINS KREGER CONTROL NUMBER