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JUNE 2, 1997 MN-97-72

JRH-97-150

UNITED STATES NUCLEAR REGULATORY COMMISSION Attention: Document Control Desk Washington, D. C. 20555

Reference: (a) License No. DPR-36 (Docket No. 50-309)

Subject: Maine Yankee Licensee Event Report 97-009, Design Basis Issue for High Line Break in the Turbine Building

Gentlemen:

Please find enclosed Maine Yankee Licensee Event Report 97-009. This report is submitted in accordance with 10 CFR 50.73(a)(2)(ii).

Please contact us should you have any questions regarding this matter.

Very truly yours,

tamo J. Albert

James R. Hebert, Manager Licensing & Engineering Support Department

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mwf

Enclosure

090004

c: Mr. Hubert Miller Mr. J. T. Yerokun Mr. D. H. Dorman Mr. Patrick J. Dostie Mr. Uldis Vanags 9706090141 970602 PDR ADOCK 05000309 S PDR



NRC FORM 366 (4-95) LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)							APPROVED BY OMB NO. 3150-0104 EXPIRES 04/30/98 ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (1-6 F33). U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104) /FFICE JF									
FACILITY NAME (1)							DOC	KET	NUMBER (2)	1	(E) 3E (3)				
Maine Yankee Atomic Power Company							50-309				1 of 4					
TITLE (4)	Desig	r Basis I	ssue for H	igh Energy	/ Line E	Break in	the Tu	urbine	Buil	ding	g					
EVI	INT DA	YE (5)	LER NUMBER (6) REPORT DATE (7) OTH		OTHER FACILIT	IES INVOLVE	D (B)	Anna anna fhann anna anna								
MONTH	DAY	YEAR	YEAR	EQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FAC	aLITY	NAME		E.	OCKET N	JMBER	
05	01	97	97	009	00	06	02	97	FACILITY NAME		C	DOCKET NUMBER				
OPER/ MOD	TING E (9)	01	THIS REPORT IS SUBMITTED P			20.220	SUANT TO THE REQUI			REMENTS OF 10 CFR §: (Check on		k one or i	e or more) (11) 50.73(a)(2)(viii)		(i)	
POV	VER	0	20.220	3(a)(1)		20.2203(a)(3)(i)				X	50.73(a)(2)(ii)			50.73(a)(2)(x) 73.71		
LEVEL	. (10)	_	20.220	3(a)(2)(i) 3(a)(2)(ii)		20.2203(a)(3)(ii)			-	50.730	J(a)(2)(m)					
			20.2203(a)(2)(iii)			50.36(c)(1)					50.73(a)(2)(v)			Specify in Abstract ball		alow
			20.220	3(a)(2)(iv)		50.36(c)(2)				50.73(a)(2)(vii)					
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YES	5		OFFECMENT	AL NET ONL	LATEON	0 (14))		1	SUB	VISSION	11	28	0	7
^ (If y	/es,	complete	EXPECTE	D SUBMIS	SION	DATE).				1	DA	TE (15)	1	2.0		
During more discor- siding Maine initiat On M Yanke in the Feedy releas Initial Feedy Addit	g the limit verec , ret e Yar ed. ay 1 des vater asse vater asse	review of ng than I scenario ain the e kee volu NRC Sta , 1997, a ncluded gn basis lines as es but th ssment of System	of Maine Y the design or aised th nergy relea ntarily sub ff was info after furthe that doubl since the well as cr ne pressure of the prelis s that wer	ankee's Ir basis Higi e question ased from omitted LEI ormed of the r evaluating e ended bio post ruptu itical crack e transient minary HE e not qualitated ruptu	ndividua h Energi the Energi the bre R 96-04 he resu ng the province s of sr was no LB province tres on	al Plant yy Line E maller b ak in th 4 on this lts of ev potentia f 10 inc ronmen naller lir ot large files ide r the ha	Evalua Break (rreaks) e Turb s issue valuation il affect t was nes. T enoug ntified rsh en eray lin	tion fr HELB could ine Bu e. Ani ons as ts of 14 in more he rup th to comp vironn	or E:) in 1 occ allysis s part the ch d seven caus	xter the ur t ng, es c rt of sma liam es r es r e T i nts i pre	nal Eve Turbin hat wo and res of a bro f the co aller pip heter M than fr esulted urbine in the edicted rbine B	ent (IPEEE) e Building v suld not rup sult in a har bader spectro prective ac be double en ain Steam I om the larg I in significa Building sid Component by the ana	a scena vas iden ture the rsh envir rum of line tions of inded bre lines sho e Main ant mass ling failu t Coolin dyses.	rio tha itified. Turbin ronmel the bre the Ll eaks, Nould be Steam s and e ire. g Wate	t could The ne Build nt. waks wei ER. Maine e include and anergy er and	be ling re ed
modif	icati	place, mons to th	e Turbine	Building th	-qualifi at will	ed comp mitigate	ponent the c	s for a	a HE	LB,	and c of a d	ontinue eva esign basis	HELB.	for po	ossible	

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LICENSEE EVI TEXT CC	ENT REPORT (L	ER)	
FACILITY NAME (1)	DOCKET	LER NUMBER (6)	PAGE (3)
		YEA SEQUENTIAL REVI	SI
Maine Yankee Atomic Power Company	50-309	97 009 00	2 OF 4
TEXT (If more space is required, use additional copies of NRC Form 3	66A) (17)		
INITIAL PLANT CONDITIONS: On May 1, 1997, Maine Yankee was in the Refueling S EVENT DESCRIPTION: Maine Yankee's original design basis for Turbine Buildin	hutdown Condition a (NM) High Energ	n. av Line Break (HELB) cond	cluded that a
guillotine break of the 30 inch Main Steam (SB) piping r ventilation equipment produced the most limiting enviro Turbine Building siding failure and allowed rapid venting	near the Control Ro nment. Evaluation of the Turbine Bu	oom and Protected Switc ns showed that this break illding.	hgear Room k would cause
The resulting environment was determined to be non-na the Turbine Building that was required for safe plant shi qualified for a harsh environment.	arsh. As a result, utdown following	it was concluded that eq a design basis HELB was	uipment located ir not required to be
Maine Yankee reviewed beyond design basis events for During this examination a Turbine Building HELB scenar design basis HELB. The scenario centered around the p rupture the Turbine Building siding and the energy relea in a potentially harsh environment.	the Individual Pla io was identified t possibility that oth sed would be reta	nt Evaluation-External Eve hat could have been more er breaks could occur tha ined within the Turbine B	ent (IPEEE). e limiting than the it would not wilding and result
Maine Yankee voluntarily submitted LER 96-04 on this spectrum of line breaks were initiated. Maine Yankee of and would inform the NRC Staff of the outcome of eva in the LER. This was done through: 1) Letter to the NRC, MN-96-114, dated August 14, 19 2) Letter to the NRC, MN-96-154, dated November 18, These letters concluded that a mild environment could ended breaks of Main Steam (30 inch) or Main Feed or smaller pipes were not considered part of the design ba effects of smaller doubled ended breaks continued.	issue. Additional committed to deter luations performed 996 1996 be maintained in the critical cracks for asis at the time of	evaluations and analyses rmining all bounding desig d as part of the corrective he Turbine Building based smaller lines. Double en the letters, however, eva	on a broader gn basis scenarios actions described d upon double ided breaks of luation of the
On May 1, 1997, after further evaluating the potential Yankee concluded that double ended breaks of 10 inch the design basis since the post rupture environment wa Feedwater lines as well as the critical cracks. These ru the Turbine Building but the pressure transient is not la released is retained within the building resulting in high taking into account increased Turbine Building ventilation	affects of the sma and 14 inch diam as more severe tha ptures result in sig rge enough to cau er temperatures fo on measures as de	iller pipe double ended br eter Main Steam lines sh in from the large Main St gnificant mass and energ se building siding failure. In longer durations of time escribed in MN-96-154 an	eaks, Maine ould be included ir eam and y release rates to The energy e, even when ad 114.
The engineering analysis (still preliminary at this time) f as high as 280 degrees in the vicinity of the Primary Co Cooling Water (KB) pumps. Previous analyses predicte these pumps when considering only the largest Maine S	for the 14 inch Ma omponent Cooling d temperatures of Steam and Feed lir	in Steam line break predi Water (CC) and Seconda less than 200 degrees in nes, and critical cracks fo	cts temperatures ry Component the vicinity of r smaller lines.
Initial assessment of the preliminary HELB profiles ident that are not environmentally qualified for the harsh env pump motors, SCCW Logic Panel subcomponents, pres errangements are not qualified for the HELB environment	tified components ironment predicted ssure switches, so	in the Component Coolin d by the current analysis. lenoids, cabling, connecti	g Water Systems PCC and SCC ions, and conduit

NRC FORM 366A		U.S. NUCLEAR REGULAT	ORY COMMISSION	
(4-95)	VENT REPORT (LER)			
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FACILITY NAME (1)	DOCKET	LER NUMBER (6)	PAGE (3)	
Maine Yankee Atomic Power Company	50-309	97 009 00	3 OF 4	
TEVT (If more space is sequired, use additional cosice of NPC Form 2	66AL (177)		1	
TEXT In more space is required, use additional copies of IVAC Form 3	DOA/ (17)			
EVENT DESCRIPTION: (continued)				
Additionally, specific manufacturer's terminal block and These products affact the Feedwater System as well as	splice products as the Component (re not qualified for the HELE Cooling Water Systems.	3 environment.	
The Component Cooling Water Systems service the Res Generators (EK), and plant auxiliaries associated with the	sidual Heat Remov ne primary plant ar	al (BP) systems, the Emerge and the secondary plant.	ency Diesel	
Additional analyses of postulated ruptures of high energy been performed for postulated breaks in a spectrum of from 4 to 30 inches in diameter. Maine Yankee is current pressure and temporature profiles resulting from these p of affected components will be performed when the Tu	gy lines continues. high energy main ently finalizing calc postulated high en rbine Building HEL	Mass and energy release c steam and feedwater lines r culations to determine the tr ergy line breaks. Qualificat B environments are identifie	alculations hav anging in size Irbine building ion evaluations ad.	
SAFETY SIGNIFICANCE:				
Had one of these unanalyzed events occurred, equipme function. Evaluation of this event is ongoing and identi the Turbine Building that identifies a harsh environment	nt important to sa fied safety concer will be reported in	fety may have been unable ins for this event, and for ar in the supplement to this LEF	to perform it's ny other HELB i R.	
CAUSAL FACTORS:				
The change in the licensing/design basis for the Turbine Insufficient detail in the documentation justifying the or developed during the IPEEE review. Maine Yankee is co information.	e Building HELB wa iginal design basis ontinuing an ongoi	as a result of two causal fac (circa 1973/1974) and new ing effort to reconstitute de	ctors: w information sign basis	
CORRECTIVE ACTIONS:				
 Continue evaluations of all high energy line breaks the Turbine Building than the original design basis break 	hat could potentia	Ily cause more limiting envir	ronments in the	
 Replace, modify or remove, as applicable, identified evaluated for a HELB in the Turbine Building. 	components that	are not qualified for any har	rsh environmen	
 Continue evaluations for possible modifications to the design basis HELB in the Turbine Building. 	ne Turbine Building	g that will mitigate the cons	equenses of a	
Sector and the sector of the s				

NRC FORM 366	5A		U.S. NUCLEAR REGULAT	ORY COMMISSION					
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	FACILITY NAME (1)	DOCKET	LER NUMBER (6)	PAGE (3)					
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Maine Yan	ikee Atomic Power Company	50.309	97 009 00	4 OF 4					
TEXT (If more s	space is required, use additional copies of NRC Form	366A) (17)							
PREVIOUS S	SIMILAR EVENTS:								
96-024	4 High Energy Line Break Potential in Unprotected Cable Tray Room								
96-004	Turbine Building High Energy Line Break (Informational LER)								
95-009	Inappropriate Technical Specification Ventilation Filter Test								
93-023R1	PCC/SCC Outside Design Basis due to Continuous Venting through NNS Piping								
90-008	Failure of Environmentally Qualified Limit Switch								
90-001	Failure of Environmentally Qualified Limit Switch								
89-002	Environmental Qualification Discrepancies Identified in Containment Cable Connector								
87-005	Reactor Coolant System Loop RTD Environmental Qualification Discrepancies								
80-001	Steam Line Break Analysis Error								

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