Consumers
Power
Company

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June 8, 1977

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Director of Nuclear Reactor Regulation
Attn: Mr Roger Boyd, Director
Division of Project Management
US Nuclear Regulatory Commission
Washington, DC 20555

MIDLAND PROJECT
DOCKET NOS 50-329, 50-330
REACTOR COOLANT SYSTEM
HIGH ENERGY BREAK ANALYSIS CRITERIA
FILE: B3.6 SERIAL: 3773

On May 10 via CPCO Serial 3605 we transmitted a revised Criteria for Postulating Primary System Pipe Breaks for Midland Plant, Units 1 and 2. Along with that submittal we sent a table (Attachment 2) showing the postulated pipe breaks that would occur following the revised criteria.

Since that submittal we have refined the above table so that a separate table is presented for each Midland unit (NSS 12 and NSS 13). These new tables, Attachment 1 and 2 of this letter supersede and replace Attachment 2 of our previous letter (CPCO Serial 3605). The revised criteria as previously submitted, has not changed.

Stephen H Howell

SHH/JJZ/jbg

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ATTACHMENT 1
REACTOR COOLANT SYSTEM PRIMARY PIPING BREAK LOCATIONS FOR A 177 FA PLANT
CONSUMERS POWER COMPANY - NSS-12 (Unit 2)

BREAKS ARE POSTULATED AT PIPING TERMINAL POINTS AND AT INTERMEDIATE POINTS WHERE THE STRESS EXCEEDS 2.4 S_m OR THE CUMULATIVE USAGE FACTOR EXCEEDS 0.1. AT LEAST TWO INTERMEDIATE BREAK LOCATIONS ARE POSTULATED BASED ON STRESS OR CUF ALLOWABLES BEING EXCEEDED OR ON ACTUAL HIGHEST STRESS OR CUF VALUES.

PIPING RUN	MATH MODEL JOINT	STRESS (psi) 2.4 S_m(1)	Eq 12	Eq 13(4)	CUF	BREAK TYPE LONGITUDINAL	GUILLOTINE	NOTES
	200	46,560	-	-	.010		✓	HL TERMINAL END
HOT	(2)	41,760	-	-	.630		✓	HL TERMINAL END
LEG	179	44,160	4,150	27,230	.004		✓	HL INTERMEDIATE BREAK
LOOP	30	44,160	4,000	26,130	.007		✓	HL INTERMEDIATE BREAK
A	15	46,560	-	-	.009		✓	HL TERMINAL END
HOT	128	41,760	-	-	.491		✓	HL TERMINAL END
LEG	30	44,160	4,000	26,130	.007		✓	HL INTERMEDIATE BREAK
LOOP	200	46,560	-	-	.010		✓	HL TERMINAL END
B	15	46,560	-	-	.009		✓	HL TERMINAL END
	196-149	44,880	-	-	.018		✓	UCL TERMINAL END
UPPER	191-111	44,880	6,470	29,770	.005		✓	UCL INTERMEDIATE BREAK
COLD	168-37	44,880	26,739	51,774	.042	✓(3)		UCL ELBOW BREAK
LEG	172-47	40,800	-	-	.001		✓	UCL TERMINAL END
LOWER	136-46	40,800	-	-	.002		✓	LCL TERMINAL END
COLD	20-19	44,880	13,410	33,120	.012		✓	LCL INTERMEDIATE BREAK
LEG	118-45	44,880	12,975	50,127	.098	✓(3)		LCL ELBOW BREAK
	3-21	47,280	-	-	.015		✓	LCL TERMINAL END

NOTES: (1) S_m at 650°F for Hot Leg and 600°F for Cold Leg.
(2) Location of RCS Decay Heat Nozzle.

(3) Split angle in the primary pipe defined by out-of-plane bending criteria. (See para. 2.2.2.)
(4) Highest stress value using either X+Y or Y+Z earthquake moments.

ATTACHMENT 2

REACTOR COOLANT SYSTEM PRIMARY PIPING BREAK LOCATIONS FOR A 177 FA PLANT

CONSUMERS POWER COMPANY - NSS-13(Unit 1)

BREAKS ARE POSTULATED AT PIPING TERMINAL POINTS AND AT INTERMEDIATE POINTS WHERE THE STRESS EXCEEDS 2.4 S_m OR THE CUMULATIVE USAGE FACTOR EXCEEDS 0.1. AT LEAST TWO INTERMEDIATE BREAK LOCATIONS ARE POSTULATED BASED ON STRESS OR CUF ALLOWABLES BEING EXCEEDED OR ON ACTUAL HIGHEST STRESS OR CUF VALUES.

PIPING RUN	MATH MODEL JOINT	STRESS (psi) 2.4 S_m(1)	Eq 12	Eq 13(4)	CUF	BREAK TYPE LONGITUDINAL	GUILLOTINE	NOTES
	200	46,560	-	-	.010		✓	HL TERMINAL END
HOT	(2)	41,760	-	-	.630		✓	HL TERMINAL END
LEG	128	41,760	-	-	.491		✓	HL TERMINAL END
LOOP	30	44,160	4,000	26,130	.007		✓	HL INTERMEDIATE BREAK
A	15	46,560	-	-	.009		✓	HL TERMINAL END
HOT	200	46,560	-	-	.010		✓	HL TERMINAL END
LEG	179	44,160	4,150	27,230	.004		✓	HL INTERMEDIATE BREAK
LOOP	30	44,160	4,000	26,130	.007		✓	HL INTERMEDIATE BREAK
B	15	46,560	-	-	.009		✓	HL TERMINAL END
	196-149	44,880	-	-	.018		✓	UCL TERMINAL END
UPPER	191-111	44,880	6,470	29,770	.005		✓	UCL INTERMEDIATE BREAK
COLD	168-37	44,880	26,739	51,774	.042	✓(3)		UCL ELBOW BREAK
LEG	172-47	40,800	-	-	.001		✓	UCL TERMINAL END
LOWER	136-46	40,800	-	-	.002		✓	LCL TERMINAL END
COLD	20-19	44,880	13,410	33,120	.012		✓	LCL INTERMEDIATE BREAK
LEG	118-45	44,880	12,975	50,127	.098	✓(3)		LCL ELBOW BREAK
	3-21	47,280	-	-	.015		✓	LCL TERMINAL END

NOTES: (1) S_m at 650°F for Hot Leg and 600°F for Cold Leg.
(2) Location of RCS Decay Heat Nozzle.

(3) Split angle in the primary pipe defined by out-of-plane bending criteria. (See para. 2.2.2.)
(4) Highest stress value using either X+Y or Y+Z earthquake moments.

(2-70)

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PLANT NAME: MIDLAND # 1 & 2
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ACKNOWLEDGED

ENCLOSURE

REACTOR COOLANT SYSTEM PRIMARY PIPING BREAK LOCATION FOR A 177 FA PLANT SURERSEDING AND REPLACING ATTACHMENT 2 OF LTR (CPCO SERIAL 3605).....

(2P)

1

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