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DUANE ARNOLD ENERGY CENTER
PLANT UNIQUE ANALYSIS REPORT
VOLUME 2
SUPPRESSION CHAMBER ANALYSIS

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EFFECTIVE PAGE(S)	REV	PREPARED	ACCURACY CHECK	CRITERIA CHECK
2-2.91	0	VA	VKRL	
2-2.92		↓	↓	
2-2.93		PNL	SRC	LSC
2-2.94			GSM	
2-2.95				
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2-2.114		PNL	SRC	
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2-2.120		SRC	PNL	LSC
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2-2.122				
2-2.123		PNL	LSC	
2-2.124			LSC	
2-2.125			LSC	
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2-2.127			GSM	VK
2-2.128				
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2-2.131	0			

EFFECTIVE PAGE(S)	REV	PREPARED	ACCURACY CHECK	CRITERIA CHECK
2-2.132	0	VA	CWF	VK
2-2.133		↓	↓	
2-2.134		PNL	GSM	
2-2.135				
2-2.136				
2-2.137				
2-2.138			SRC	GSM
2-2.139		SRC	PNL	VK
2-2.140		GSM		LSC
2-2.141				LSC
2-2.142				LSC
2-2.143		PNL	GSM	
2-2.144				
2-2.145				
2-2.146				
2-2.147				
2-3.1	0	PNL		LSC
2-2.89	1	WJS	VK	VK

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The allowable stresses for each component of the suppression chamber and the vertical support system are determined at the maximum IBA temperature of 178°F. Table 2-2.3-1 shows the resulting allowable stresses for the load combinations with Service Level B and C limits.

The 1-1/4" diameter bolts provided to transfer uplift loads from the suppression chamber columns and saddle supports are embedded a maximum of 33" into the basemat concrete. The allowable uplift load per bolt is 85 kips, in accordance with the requirements of the ACI Code (Reference 7).

The bearing stresses in the grout and reactor building basemat in the vicinity of the column and saddle base plates are evaluated in accordance with the requirements of the ACI Code.

The allowable load capacities for the suppression chamber vertical support system are determined using an analytical model of the column and saddle base plate assemblies. Downward reaction load capacity is determined by adding support reactions for hydrostatic loads applied on a unit load basis. The support reactions thus obtained are used to ratio the stresses

from the analysis to obtain Code allowable capacities. Upward load capacity (uplift) is determined by the allowable tension in the anchor bolts. Table 2-2.3-2 summarizes the resulting allowable load capacities for the suppression chamber vertical supports.

The allowable stresses in each component of the suppression chamber seismic restraints are taken from the FSAR, and are shown in Table 2-2.5-8. This is permitted by NUREG-0661 in cases where the analysis technique used in the evaluation is the same as that contained in the plant's FSAR. The suppression chamber shell, in the vicinity of the seismic restraints, is evaluated in accordance with the requirements for Class MC components previously discussed.

The acceptance criteria described in the preceding paragraphs result in conservative estimates of the existing margins of safety and ensure that the original suppression chamber design margins are restored.