Group 48 Containment Penetrations for Process Piping (CONTPEN)					
Identification	Material/Environment combination / Full power temperature/pressure	Degradation mechanisms considered	Susceptibility	Confidence	Knowledge
			1=low, 2=med, 3=high		
48.1	Liner, Sleeves, Penetration pipes, Flued head/piping, Leak chase channel plugs, Flange, Necked flange, Fastner bolts/nuts Ambient air and pressure, possible concentration of impurities such as Cl(outside) TP 304, LAS, CS(Base metal, HAZ and Weld Metal except 304. See below)	SCC FAT GC CREV PIT MIC			
48.2	Liner material, TP304/sleeves(SA-316, Gr. 60 & SA-335, Gr.6) dissimilar weld Ambient air and pressure, possible concentration of impurities such as Cl Possible use of buttering by Ni-base alloy	SCC FAT GC CREV PIT MIC			
48.3.1	Penetration pipes(Main Steam Line Penetration and Feedwater Line Penetration) SA155 GR. NCGS and SA106, GR.B Inside:Main steam/Feed water, Temperature 557F and pressure 1092-1185psi	SCC FAT GC CREV PIT MIC			
48.3.2	Penetration pipes(Main Steam Line Penetration and Feedwater Line Penetration) SA155 GR. NCGS and SA106, GR.B Outside:Cooled air, Temperature below 150 F(?) and ambient pressure	SCC FAT GC CREV PIT MIC			

48.4.1	Penetration pipes(RHR Line, Safety Injection Lines, CVCS Lines) TP304, TP316L Inside:Primary water, Temp. 350F - 165F, Pressure 450 - 75/100 psi	SCC FAT GC CREV PIT MIC			
48.4.2	Penetration pipes(RHR Line, Safety Injection Lines, CVCS Lines) TP304, TP316L Outside:Cooled air, Temperature below 150 F(?) and ambient pressure	SCC FAT GC CREV PIT MIC			
48.5.1	Penetration pipes(Service Water Line, & Component Cooling Water Line) SA106, GR.B Temp. 130 F, Pressure 75/100 - 150 psi Internal	SCC FAT GC CREV PIT MIC			
48.5.2	Penetration pipes(Service Water Line, & Component Cooling Water Line) SA106, GR.B Temp. 130 F, Pressure 75/100 - 150 psi External	SCC FAT GC CREV PIT MIC			
48.6	Penetration pipes/sleeves dissimilar weld, HAZ(Service Water Line, & Component Cooling Water Line) TP 304 & 316L/LAS & CS Ambient temperature and ambient Pressure	SCC FAT GC CREV PIT MIC			

48.7	Penetration sleevs & Flued Head(LAS & CS) SA-316, Gr. 60, SA-335, Gr.6, SA-350 GR LF-1, SA-240, GR.304 & SA516 GR. 60 Ambient temperature and ambient Pressure	SCC FAT GC CREV PIT MIC			
48.8	Penetration sleevs/Flued Head HAZ(LAS & CS) SA-316, Gr. 60, SA-335, Gr.6, SA-350 GR LF-1, SA-240, GR.304 & SA516 GR. 60 Ambient temperature and ambient Pressure	SCC FAT GC CREV PIT MIC			
48.9	Penetration sleevs/Flued Head weld(LAS & CS) SA-316, Gr. 60, SA-335, Gr.6, SA-350 GR LF-1, SA-240, GR.304 & SA516 GR. 60 Ambient temperature and ambient Pressure	SCC FAT GC CREV PIT MIC			
48.10	Leak chase channel plug Ambient temperature and ambient Pressure	SCC FAT GC CREV PIT MIC			
48.11	Flange and necked flange Ambient temperature and ambient Pressure SA 105 or SA 305 GR. LF2	SCC FAT GC CREV PIT MIC			

48.12	Flange and necked flange/sleeves weld HAZ Ambient temperature and ambient Pressure SA 105 or SA 305 GR. LF2	SCC FAT GC CREV PIT MIC			
48.13	Flange and necked flange/sleeves weld metal Ambient temperature and ambient Pressure SA 105 or SA 305 GR. LF2	SCC FAT GC CREV PIT MIC			
48.14	Bellows Carbon steel Outside or aux bldg. air environment	FAT			

Rationale for scoring	**Critical factors controlling occurrence in plant**

Components in this sub-group