```
$LIST POOL=201,    0,     0,
                  2E7,     0 $END
$LIST POOL=301,
        0.00, 5.98327E+07, 1195.73,
        0.10, 5.75122E+07, 1196.41,
        0.20, 5.57370E+07, 1197.03,
        0.30, 5.43010E+07, 1197.60,
        0.40, 5.30896E+07, 1198.12,
        0.50, 5.20330E+07, 1198.61,
        0.60, 5.10912E+07, 1199.06,
        0.70, 5.02333E+07, 1199.48,
        0.80, 4.94377E+07, 1199.87,
        0.90, 4.86918E+07, 1200.24,
        1.00, 4.79844E+07, 1200.58,
        1.99, 4.22996E+07, 1202.77,
        2.99, 3.84905E+07, 1203.67,
        3.99, 3.57314E+07, 1204.14,
        4.99, 3.36987E+07, 1204.38,
        5.99, 3.21819E+07, 1204.47,
        6.99, 3.06681E+07, 1204.37,
        7.99, 2.90095E+07, 1204.12,
        8.99, 2.70729E+07, 1203.99,
        9.99, 2.29676E+07, 1204.09,
       10.99, 2.16059E+07, 1203.74,
       11.99, 2.04900E+07, 1203.36,
       12.99, 1.95249E+07, 1202.97,
       13.99, 1.87289E+07, 1202.59,
       14.99, 1.80316E+07, 1202.22,
       15.99, 1.73815E+07, 1201.83,
       16.99, 1.67603E+07, 1201.43,
       17.99, 1.61774E+07, 1201.01,
       18.99, 1.56523E+07, 1200.60,
       19.99, 1.51968E+07, 1200.22,
       20.99, 1.48069E+07, 1199.87,
       21.99, 1.44651E+07, 1199.55,
       22.99, 1.41495E+07, 1199.24,
       23.99, 1.38443E+07, 1198.93,
       24.99, 1.35450E+07, 1198.61,
       25.99, 1.32542E+07, 1198.29,
       26.99, 1.29749E+07, 1197.97,
       27.99, 1.27237E+07, 1197.68,
       28.99, 1.24763E+07, 1197.39,
       29.99, 1.22311E+07, 1197.08,
       30.99, 1.19873E+07, 1196.77,
       31.99, 1.17414E+07, 1196.44,
       32.99, 1.14929E+07, 1196.10,
       33.99, 1.12458E+07, 1195.75,
       34.99, 1.10060E+07, 1195.39,
       35.99, 1.07786E+07, 1195.04,
       36.99, 1.05648E+07, 1194.70,
       37.99, 1.03630E+07, 1194.37,
       38.99, 1.01693E+07, 1194.05,
       39.99, 9.98021E+06, 1193.72,
       40.99, 9.79430E+06, 1193.39,
       41.99, 9.61243E+06, 1193.05,
       42.99, 9.43618E+06, 1192.72,
       43.99, 9.26734E+06, 1192.39,
       44.99, 9.10652E+06, 1192.07,
       45.99, 8.95306E+06, 1191.75,
       46.99, 8.80538E+06, 1191.44,
       47.99, 8.66192E+06, 1191.13,
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48.99, 8.52192E+06, 1190.83,
49.99, 8.38548E+06, 1190.52,
50.99, 8.25329E+06, 1190.21,
51.99, 8.12606E+06, 1189.91,
52.99, 3.07284E+05, 1182.22,
53.99, 3.02616E+05, 1182.15,
54.99, 3.00139E+05, 1182.08,
55.99, 5.14544E+05, 1201.24,
56.99, 2.89176E+05, 1221.55,
57.99, 1.64058E+05, 1233.36,
58.99, 1.04379E+05, 1240.07,
59.99, 8.05626E+04, 1244.35,
60.99, 7.10334E+04, 1247.71,
61.99, 6.25986E+04, 1250.58,
62.99, 5.04353E+04, 1252.82,
63.99, 3.65296E+04, 1254.11,
64.99, 2.54870E+04, 1254.48,
65.99, 2.08439E+04, 1254.28,
66.99, 2.29110E+04, 1254.01,
67.99, 2.88660E+04, 1254.07,
68.99, 3.44710E+04, 1254.61,
69.99, 3.63668E+04, 1255.46,
70.99, 3.37101E+04, 1256.31,
71.99, 2.83194E+04, 1256.86,
72.99, 2.31342E+04, 1257.00,
73.99, 2.06463E+04, 1256.85,
74.99, 2.15527E+04, 1256.65,
75.99, 2.46976E+04, 1256.63,
76.99, 2.79326E+04, 1256.89,
77.99, 2.93707E+04, 1257.35,
78.99, 2.83503E+04, 1257.85,
79.99, 2.56214E+04, 1258.21,
80.99, 2.27397E+04, 1258.36,
81.99, 2.11168E+04, 1258.32,
82.99, 2.13001E+04, 1258.25,
83.99, 2.28169E+04, 1258.25,
84.99, 2.45679E+04, 1258.41,
85.99, 2.54895E+04, 1258.70,
86.99, 2.51105E+04, 1259.02,
87.99, 2.37197E+04, 1259.28,
88.99, 2.21028E+04, 1259.43,
89.99, 2.10531E+04, 1259.47,
90.99, 2.09517E+04, 1259.48,
91.99, 2.16289E+04, 1259.52,
92.99, 2.25324E+04, 1259.64,
93.99, 2.30715E+04, 1259.84,
94.99, 2.29338E+04, 1260.07,
95.99, 2.22108E+04, 1260.27,
96.99, 2.12922E+04, 1260.41,
97.99, 2.06157E+04, 1260.50,
98.99, 2.04293E+04, 1260.55,
99.99, 2.06889E+04, 1260.62,
104.95, 2.04373E+04, 1261.35,
109.95, 9.66391E+03, 1262.41,
114.95, 7.91564E+03, 1263.06,
119.95, 7.90682E+03, 1263.56,
124.95, 7.47364E+03, 1264.03,
129.95, 7.20695E+03, 1264.51,
134.95, 7.00866E+03, 1264.97,
139.95, 6.71947E+03, 1265.43,
144.95, 6.53353E+03, 1265.88,
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        149.95, 6.31908E+03, 1266.33,
        154.95, 6.12371E+03, 1266.77,
        159.95, 5.95894E+03, 1267.20,
        164.95, 5.80817E+03, 1267.63,
        169.95, 5.66867E+03, 1268.05,
        174.95, 5.52964E+03, 1268.47,
        179.95, 5.39597E+03, 1268.89,
        184.95, 5.26957E+03, 1269.30,
        189.95, 5.14678E+03, 1269.70,
        194.95, 5.02981E+03, 1270.11,
        199.95, 4.91735E+03, 1270.51,
        200.00, 4.91627E+03, 1270.51,
        200.00,           0,       0,
           2E7,           0,       0 $END
$LIST POOL=401,    0,         0,       0,
                  2E7,         0,       0 $END
$LIST POOL=501,    0,         29E3,     34.6E6,
                1800,         29E3,     34.6E6,
                1800,            0,          0,
                 2E7,            0,          0 $END
$LIST POOL=601,    0,     7.2E4,     6.336E6,
                0.05,     7.2E4,     6.336E6,
                0.05,       0.0,         0.0,
                 2E7,         0,          0 $END
$LIST POOL=701,    0,     0,     0,     0,
                  2E7,     0,     0,     0 $END
$LIST POOL=801,
      0,        0,   0,   0,   100,   100,
     23,        0,   0,   0,   100,   100,
     25, 0.4973E5,   0,   0,   100,   100,
     30, 1.2184E5,   0,   0,   100,   100,
     35, 2.6357E5,   0,   0,   100,   100,
     40, 3.0584E5,   0,   0,   100,   100,
     45, 3.3567E5,   0,   0,   100,   100,
     50, 7.9567E5,   0,   0,   100,   100,
    1E4, 7.9567E5,   0,   0,   100,   100,
    1E4,      0.0,   0,   0,   100,   100,
    1E7,      0.0,   0,   0,   100,   100 $END
$LIST POOL=901,     0,     0,     0,
                   2E7,     0,     0 $END
$LIST POOL=1001,    0,   100,   2.0,
                   24,   100,   2.0 $END
$LIST POOL=1101,  105,       0,
                  120,  1.67E6,
                  130,  3.02E6,
                  140,  4.57E6,
                  150,  6.32E6,
                  160,  8.27E6,
                  170, 10.40E6,
                  180, 12.73E6,
                  190, 15.23E6,
                  200, 17.88E6,
                  210, 20.68E6,
                  220, 23.61E6,
                  230, 26.64E6,
                  240, 29.74E6,
                  250, 32.91E6,
                  260, 36.11E6,
                  270, 39.31E6,
                  280, 42.52E6,
                  287, 44.74E6,
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                    290, 45.69E6,
                    300, 48.82E6 $END
$LIST POOL=1201,   0,  0.729,
                  0.1,  0.737,
                  0.2,  0.747,
                  0.3,  0.757,
                  0.4,  0.771,
                  0.5,  0.788,
                  0.6,  0.809,
                  0.7,  0.832,
                  0.8,  0.863,
                  0.9,  0.912,
                  1.0,  0.961,
                  1.1,  0.983,
                  1.2,  0.995,
                  1.3,  1.000 $END
$LIST POOL=9001,   1,  0.05,    0.1,  10,
                   5,  0.05,    0.2,  20,
                  20,  0.05,    1.0,   5,
                 100,  0.10,    1.0,  10,
                 160,  0.50,    2.0,  10,
                 200,   1.0,    5.0,   4,
                 300,   1.0,   10.0,   5,
                 600,   1.0,   25.0,   4,
                 1E3,   5.0,   50.0,   4,
                 2E3,  10.0,  250.0,   2,
                 5E3,  10.0,  250.0,   4,
                 1E4,  25.0,  500.0,   5,
                 1E5,  50.0,    5E3,   2 $END
$LIST POOL=9999 $END
* HS #1 - REACTOR BUILDING DOME
$LIST POOL=101001, 57, 14, 0, 0, 0, 0, 33017 $END
$LIST POOL=101101,  4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                    5, 0.02201, 4, 0.03001, 4, 0.04601, 4. 0.07801,
                    4, 0.14201, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                    4, 2.06201, 4, 4.06368 $END
$LIST POOL=101201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
$LIST POOL=101300, 0, 0 $END
$LIST POOL=101400, 9, 2, 1, 1 $END
* HS #2 - REACTOR BUILDING CYLINDER ABOVE 30 FT
$LIST POOL=102001,  58, 14, 0, 0, 0, 0, 34067 $END
$LIST POOL=102101, 4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                   5, 0.02201, 4, 0.03001, 4, 0.04601, 4, 0.07801,
                   4, 0.14210, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                   4, 2.06201, 5, 4.35534 $END
$LIST POOL=102201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
$LIST POOL=102300, 0, 0 $END
$LIST POOL=102400, 9, 2, 1, 1 $END
* HS #3 - REACTOR BUIDING CYLINDER WALL BELOW 30 FT
$LIST POOL=103001,  58, 14, 0, 0, 0, 0, 5535 $END
$LIST POOL=103101, 4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                   5, 0.02201, 4, 0.03001, 4, 0.04601, 4, 0.07801,
                   4, 0.14210, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                   4, 2.06201, 5, 4.35534 $END
$LIST POOL=103201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
$LIST POOL=103300, 0, 0 $END
$LIST POOL=103400, 9, 2, 0, 1 $END
* HS #4 - REACTOR BUILDING BASEMAT (Excluding Rx Cavity Basemat)
$LIST POOL=104001, 42, 10, 0, 0, 0, 0, 12773 $END
$LIST POOL=104101, 4, 0.00417, 4, 0.02417, 4, 0.06417, 4, 0.14417,
                   4, 0.30417, 4, 0.62417, 4, 1.26417, 4, 2.54417,
```

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                    4, 5.10417, 5, 11.00417 $END
 $LIST POOL=104201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=104300, 0, 0 $END
 $LIST POOL=104400, 3, 3, 0, 1 $END
* HS #5 - REACTOR CAVITY BASEMAT & STEAM GENERATOR PEDESTALS
 $LIST POOL=105001, 40, 10, 0, 0, 0, 0, 1644 $END
 $LIST POOL=105101, 4, 0.00294, 4, 0.02294, 4, 0.06294, 4, 0.14294,
                    4, 0.30294, 4, 0.62294, 4, 1.26294, 4, 2.54294,
                    4, 5.10294, 3, 8.39548 $END
 $LIST POOL=105201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=105300, 0, 0 $END
 $LIST POOL=105400, 3, 3, 0, 1 $END
* HS #6 - REACTOR CAVITY BELOW ELEV. 17' - 6"
 $LIST POOL=106001, 42, 10, 0, 0, 0, 0, 1546 $END
 $LIST POOL=106101, 4, 0.00250, 4, 0.02250, 4, 0.06250, 4, 0.14250,
                    4, 0.30250, 4, 0.62250, 4, 1.26250, 4, 2.54250,
                    4, 5.10250, 5, 10.75250 $END
 $LIST POOL=106201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=106300, 0, 0 $END
 $LIST POOL=106400, 3, 3, 0, 1 $END
* HS #7 - REACTOR CAVITY WALLS ABOVE ELEV. 17'- 6"
 $LIST POOL=107001, 61, 14, 0, 0, 0, 0, 1311 $END
 $LIST POOL=107101, 4, 0.00024, 4, 0.00060, 8, 0.00250, 4, 0.00650,
                    4, 0.01450, 4, 0.03050, 4, 0.06250, 4, 0.12650,
                    4, 0.26850, 4, 0.52450, 4, 1.03650, 4, 2.06050,
                    4, 4.10850, 4, 8.35833 $END
 $LIST POOL=107201, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=107300, 0, 0 $END
 $LIST POOL=107400, 9, 2, 0, 2 $END
* HS #8 - LINED REFUELING CANAL WALLS AND FLOOR
 $LIST POOL=108001, 50, 13, 0, 0, 0, 0, 9192 $END
 $LIST POOL=108101, 4, 0.01563, 4, 0.01566, 4, 0.01571, 4, 0.01583,
                    3, 0.01598, 4, 0.02598, 4, 0.04598, 4, 0.08598,
                    4, 0.16598, 4, 0.32698, 4, 0.64598, 4, 1.28598,
                    2, 2.01598 $END
 $LIST POOL=108201, 3, 5, 5, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, $END
 $LIST POOL=108300, 0, 0 $END
 $LIST POOL=108400, 9, 2, 0, 2 $END
* HS #9 - UNLINED EXTERIOR FACES OF REFUELING CANAL WALLS
 $LIST POOL=109001, 45, 12, 0, 0, 0, 0, 11050 $END
 $LIST POOL=109101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 2, 0.00250,
                    4, 0.01250, 4, 0.03250, 4, 0.07250, 4, 0.15250,
                    4, 0.31250, 4, 0.63250, 4, 1.27250, 2, 2.00250 $END
 $LIST POOL=109201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2, 2, $END
 $LIST POOL=109300, 0, 0 $END
 $LIST POOL=109400, 9, 2, 0, 2 $END
* HS #10 - STEAM GENERATOR COMPARTMENT WALLS MISSLE SHIELDS
 $LIST POOL=110001, 46, 11, 0, 0, 0, 0, 43085 $END
 $LIST POOL=110101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 2, 0.00250,
                    4, 0.01250, 4, 0.03250, 4, 0.07250, 4, 0.15250,
                    4, 0.31250, 4, 0.63250, 7, 1.71909 $END
 $LIST POOL=110201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=110300, 0, 0 $END
 $LIST POOL=110400, 9, 2, 0, 2 $END
* HS #11 - STEAM GENERATOR COMPARTMENT WALLS WITH EMBEDS
 $LIST POOL=111001, 53, 12, 0, 0, 0, 0, 6914 $END
 $LIST POOL=111101, 4, 0.00024, 5, 0.00083, 4, 0.08250, 4, 0.08490,
                    4, 0.08970, 4, 0.09930, 4, 0.11850, 4, 0.15690,
                    4, 0.23370, 4, 0.38730, 4, 0.69450, 7, 1.77167 $END
 $LIST POOL=111201, 4, 4, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=111300, 0, 0 $END
```

Note: See Originator's Note for HS#7 right boundary co-ordinate on sheet 127.

```
 $LIST POOL=111400, 9, 2, 0, 2 $END
* HS #12 - TOP HALF-THICKNESS OF ELEVATED FLOOR SLABS
 $LIST POOL=112001, 44, 10, 0, 0, 0, 0, 17474 $END
 $LIST POOL=112101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 5, 0.00417,
                    4, 0.01417, 4, 0.03417, 4, 0.07417, 4, 0.15417,
                    4, 0.31417, 6, 0.75417 $END
 $LIST POOL=112201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=112300, 0, 0 $END
 $LIST POOL=112400, 9, 2, 0, 2 $END
* HS #13 - LOWER HALF-THICKNESS OF ELEVATED FLOOR SLABS
 $LIST POOL=113001, 48, 12, 0, 0, 0, 0, 23240 $END
 $LIST POOL=113101, 2, 0.00521, 4, 0.00553, 4, 0.00617, 4, 0.00745,
                    4, 0.01001, 4, 0.01513, 4, 0.02537, 4, 0.04585,
                    4, 0.08681, 4, 0.16873, 4, 0.33257, 5, 0.75556 $END
 $LIST POOL=113201, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=113300, 0, 0 $END
 $LIST POOL=113400, 9, 2, 0, 2 $END
* HS #14 - LIFTING DEVICES (CARBON STEEL)
 $LIST POOL=114001, 17, 3, 0, 0, 0, 0, 59265 $END
 $LIST POOL=114101, 4, 0.00024, 8, 0.00125, 4, 0.04133 $END
 $LIST POOL=114201, 4, 4, 1 $END
 $LIST POOL=114300, 0, 0 $END
 $LIST POOL=114400, 9, 2, 0, 2 $END
* HS #15 - MISCELLANEOUS CARBON STEEL - THICKNESS > 2.50 INCHES
 $LIST POOL=115001, 18, 4, 0, 0, 0, 0, 2248 $END
 $LIST POOL=115101, 4, 0.00024, 5, 0.00083, 4, 0.08083, 4, 0.22136 $END
 $LIST POOL=115201, 4, 4, 1, 1 $END
 $LIST POOL=115300, 0, 0 $END
 $LIST POOL=115400, 9, 2, 0, 2 $END
* HS #16 - MISCELLANEOUS CARBON STEEL: 1.00"<THICKNESS</=2.50"
 $LIST POOL=116001, 16, 3, 0, 0, 0, 0, 9230 $END
 $LIST POOL=116101, 4, 0.00024, 5, 0.00083, 6, 0.13113 $END
 $LIST POOL=116201, 4, 4, 1 $END
 $LIST POOL=116300, 0, 0 $END
 $LIST POOL=116400, 9, 2, 0, 2 $END
* HS #17 - MISCELLANEOUS CARBON STEEL: 0.50"<THICKNESS</=1.00"
 $LIST POOL=117001, 14, 3, 0, 0, 0, 0, 8718 $END
 $LIST POOL=117101, 4, 0.00024, 5, 0.00083, 4, 0.06371 $END
 $LIST POOL=117201, 4, 4, 1 $END
 $LIST POOL=117300, 0, 0 $END
 $LIST POOL=117400, 9, 2, 0, 2 $END
* HS #18 - MISCELLANEOUS CARBON STEEL: THICKNESS</=0.5"
 $LIST POOL=118001, 14, 3, 0, 0, 0, 0, 158755 $END
 $LIST POOL=118101, 4, 0.00024, 5, 0.00083, 4, 0.02275 $END
 $LIST POOL=118201, 4, 4, 1 $END
 $LIST POOL=118300, 0, 0 $END
 $LIST POOL=118400, 9, 2, 0, 2 $END
* HS #19 - ELECTRICAL EQUIPMENT & OTHER GALVANIZED STEEL
 $LIST POOL=119001, 4, 1, 0, 0, 0, 0, 131698 $END
 $LIST POOL=119101, 3, 0.00879 $END
 $LIST POOL=119201, 1 $END
 $LIST POOL=119300, 0, 0 $END
 $LIST POOL=119400, 9, 2, 0, 2 $END
* HS #20 - MISCELLANEOUS STAINLESS STEEL
 $LIST POOL=120001, 5, 1, 0, 0, 0, 0, 26893 $END
 $LIST POOL=120101, 4, 0.01459 $END
 $LIST POOL=120201, 3 $END
 $LIST POOL=120300, 0, 0 $END
 $LIST POOL=120400, 9, 2, 0, 2 $END
* HS #21 - REACTOR BUILDING STIFFENED SECTIONS ABOVE ELEV. 30 FT
 $LIST POOL=121001, 44, 10, 0, 0, 0, 0, 3764 $END
```

Note: See Originator's Note for HS#13 first and final concrete region right boundary coordinates on sheet 128.

Note: See Originator's Note for HS#18 area and right boundary coordinate on sheet 129.

```
$LIST POOL=121101, 4, 0.00024, 5, 0.00083, 4, 0.08083, 4, 0.24083,
                   4, 0.52166, 4, 0.52201, 4, 0.54201, 4, 0.94201,
                   4, 1.74201, 6, 4.17659 $END
$LIST POOL=121201, 4, 4, 1, 1, 1, 5, 2, 2, 2, 2 $END
$LIST POOL=121300, 0, 0 $END
$LIST POOL=121400, 9, 2, 1, 1 $END
$LIST POOL=410001,
          25,     54,
         0.8,     30,
          10,     54,
        0.15,     20,
      0.0174, 0.0103 $END
$LIST POOL=500000 $END
```

Case 13 - MSLB @ 0% Power w/MSIV Failure

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*CASE 13 - 3.45 FT2 SLOT MSLB @ ZERO POWER W/MSIV FAILURE: N-4080-027R1
 $LIST POOL=0,0,1,0,1 $END
 $LIST POOL=1,5E3,16.8,2.305E6,120,0.05,21,0.0,1,1,0.00,14.7,0.5 $END
 $LIST POOL=2,0,0,0,0,0,2.0,2E7 $END
 $LIST POOL=3,0,0,0,0,0,2E7,0,0,0,0 $END
 $LIST POOL=4,0,0,0,0,0,0,0,0,0,0,0,0 $END
 $LIST POOL=5,4,50,2E7,0,0 $END
 $LIST POOL=6,0,0,0 $END
 $LEAK NOPEN=0 $END
 $LIST POOL=101,    0,     0,
                  2E7,     0 $END
 $LIST POOL=201,    0,     0,
                  2E7,     0 $END
 $LIST POOL=301,
          0.00, 2.64912E+07, 1192.20,
          0.10, 2.63068E+07, 1192.45,
          0.20, 2.61355E+07, 1192.69,
          0.30, 2.59609E+07, 1192.92,
          0.40, 2.57942E+07, 1193.15,
          0.50, 2.56227E+07, 1193.36,
          0.60, 2.54645E+07, 1193.57,
          0.70, 2.52908E+07, 1193.77,
          0.80, 2.51365E+07, 1193.97,
          0.90, 2.49976E+07, 1194.16,
          1.00, 2.48428E+07, 1194.34,
          1.99, 2.35615E+07, 1194.91,
          2.99, 2.25144E+07, 1197.13,
          3.99, 2.16661E+07, 1198.09,
          4.99, 2.09605E+07, 1198.85,
          5.99, 2.03757E+07, 1199.46,
          6.99, 1.98386E+07, 1199.98,
          7.99, 1.93509E+07, 1200.45,
          8.99, 1.88875E+07, 1200.87,
          9.99, 1.84180E+07, 1201.35,
         10.99, 1.78090E+07, 1201.99,
         11.99, 1.70267E+07, 1202.60,
         12.99, 1.63133E+07, 1203.11,
         13.99, 1.56760E+07, 1203.51,
         14.99, 1.50985E+07, 1203.82,
         15.99, 1.45651E+07, 1204.07,
         16.99, 1.40764E+07, 1204.26,
         17.99, 1.36237E+07, 1204.40,
         18.99, 1.31803E+07, 1204.50,
         19.99, 1.27851E+07, 1204.56,
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E&TS DEPARTMENT

CALCULATION SHEET

ICCN NO./ PRELIM. CCN NO.	PAGE___ OF___
	CCN CONVERSION: CCN NO. CCN --

Project or DCP/FCN SONGS 2 & 3 **Calc. No.** N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events **Sheet No.** 157 of 312

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

```
20.99, 1.24135E+07, 1204.59,
21.99, 1.20765E+07, 1204.59,
22.99, 1.17601E+07, 1204.58,
23.99, 1.14701E+07, 1204.55,
24.99, 1.12019E+07, 1204.50,
25.99, 1.09520E+07, 1204.44,
26.99, 1.07089E+07, 1204.37,
27.99, 1.04906E+07, 1204.29,
28.99, 1.02785E+07, 1204.21,
29.99, 1.00896E+07, 1204.12,
30.99, 9.89762E+06, 1204.03,
31.99, 9.73418E+06, 1203.93,
32.99, 9.56520E+06, 1203.83,
33.99, 9.43060E+06, 1203.73,
34.99, 9.26892E+06, 1203.62,
35.99, 9.12424E+06, 1203.51,
36.99, 8.98675E+06, 1203.40,
37.99, 8.85582E+06, 1203.29,
38.99, 8.74598E+06, 1203.18,
39.99, 8.62567E+06, 1203.07,
40.99, 8.51098E+06, 1202.96,
41.99, 8.40121E+06, 1202.85,
42.99, 8.29822E+06, 1202.74,
43.99, 8.22838E+06, 1202.66,
44.99, 8.17301E+06, 1202.58,
45.99, 8.07930E+06, 1202.49,
46.99, 8.00618E+06, 1202.40,
47.99, 7.92511E+06, 1202.31,
48.99, 7.86384E+06, 1202.21,
49.99, 7.78486E+06, 1202.11,
50.99, 7.71322E+06, 1202.01,
51.99, 7.64888E+06, 1201.91,
52.99, 7.56137E+06, 1201.81,
53.99, 7.49200E+06, 1201.71,
54.99, 7.42964E+06, 1201.60,
55.99, 7.36193E+06, 1201.50,
56.99, 7.29724E+06, 1201.39,
57.99, 7.23568E+06, 1201.29,
58.99, 7.15457E+06, 1201.18,
59.99, 7.10633E+06, 1201.07,
60.99, 7.02263E+06, 1200.96,
61.99, 6.96002E+06, 1200.85,
62.99, 6.91081E+06, 1200.74,
63.99, 6.83834E+06, 1200.63,
64.99, 6.79057E+06, 1200.51,
65.99, 6.71551E+06, 1200.40,
66.99, 6.67386E+06, 1200.29,
67.99, 6.61385E+06, 1200.17,
68.99, 6.54347E+06, 1200.06,
69.99, 6.47852E+06, 1199.93,
70.99, 6.44623E+06, 1199.81,
71.99, 6.38737E+06, 1199.68,
72.99, 6.29561E+06, 1199.55,
73.99, 6.25579E+06, 1199.42,
74.99, 6.17753E+06, 1199.28,
75.99, 6.14923E+06, 1199.15,
76.99, 6.08800E+06, 1199.01,
77.99, 6.00332E+06, 1198.87,
78.99, 5.95184E+06, 1198.73,
79.99, 5.90886E+06, 1198.59,
80.99, 5.83286E+06, 1198.45,
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          81.99, 5.77591E+06, 1198.30,
          82.99, 5.74470E+06, 1198.16,
          83.99, 5.69207E+06, 1198.02,
          84.99, 5.61146E+06, 1197.87,
          85.99, 5.56848E+06, 1197.73,
          86.99, 5.52578E+06, 1197.58,
          87.99, 5.45026E+06, 1197.44,
          88.99, 5.40421E+06, 1197.29,
          89.99, 5.34694E+06, 1197.15,
          90.99, 5.31961E+06, 1197.00,
          91.99, 5.24617E+06, 1196.85,
          92.99, 5.20956E+06, 1196.71,
          93.99, 5.16895E+06, 1196.56,
          94.99, 5.12359E+06, 1196.41,
          95.99, 5.05782E+06, 1196.26,
          96.99, 5.01163E+06, 1196.12,
          97.99, 4.97542E+06, 1195.97,
          98.99, 4.91879E+06, 1195.82,
          99.99, 4.87638E+06, 1195.68,
         104.95, 4.61030E+06, 1194.70,
         109.95, 4.38970E+06, 1193.87,
         114.95, 4.20977E+06, 1193.07,
         119.95, 4.03142E+06, 1192.29,
         124.95, 4.43196E+06, 1190.90,
         129.95, 3.53199E+06, 1188.83,
         134.95, 2.54314E+06, 1186.29,
         139.95, 1.75374E+06, 1184.27,
         144.95, 1.15190E+06, 1182.93,
         149.95, 8.77306E+05, 1182.22,
         154.95, 6.43313E+05, 1181.91,
         159.95, 4.99946E+05, 1181.67,
         164.95, 3.52833E+05, 1181.48,
         169.95, 2.49737E+05, 1181.33,
         174.95, 3.69810E+05, 1181.24,
         179.95, 2.15153E+05, 1181.14,
         184.95, 2.51717E+04, 1220.96,
         189.95, 8.44438E+03, 1222.54,
         194.95, 7.59215E+03, 1222.85,
         199.95, 7.03447E+03, 1223.02,
         204.95, 6.89051E+03, 1223.17,
         209.95, 6.78676E+03, 1223.31,
         214.95, 6.59567E+03, 1223.43,
         219.95, 6.40246E+03, 1223.55,
         224.95, 6.53965E+03, 1223.66,
         229.95, 6.10139E+03, 1223.78,
         234.95, 5.96923E+03, 1223.89,
         239.95, 6.12342E+03, 1223.99,
         244.95, 6.01981E+03, 1224.10,
         249.95, 5.89111E+03, 1224.20,
         250.00, 5.59202E+03, 1224.21,
         250.00,          0,       0,
            2E7,          0,       0 $END
$LIST POOL=401,    0,        0,       0,
                  2E7,       0,       0 $END
$LIST POOL=501,    0,      141E3,   168.2E6,
                  60,      141E3,   168.2E6,
                  60,       29E3,    34.6E6,
                1800,       29E3,    34.6E6,
                1800,          0,        0,
                 2E7,          0,        0 $END
$LIST POOL=601,    0,     7.2E4,    6.336E6,
```

```
                0.05,     7.2E4,     6.336E6,
                0.05,       0.0,         0.0,
                 2E7,         0,           0 $END
$LIST POOL=701,    0,     0,     0,     0,
                  2E7,     0,     0,     0 $END
$LIST POOL=801,
     0,         0,   0,   0,   100,   100,
    23,         0,   0,   0,   100,   100,
    25,  0.9946E5,   0,   0,   100,   100,
    30,  2.4368E5,   0,   0,   100,   100,
    35,  5.2714E5,   0,   0,   100,   100,
    40,  6.1168E5,   0,   0,   100,   100,
    45,  6.7134E5,   0,   0,   100,   100,
    50, 15.9134E5,   0,   0,   100,   100,
   5E3, 15.9134E5,   0,   0,   100,   100,
   5E3,       0.0,   0,   0,   100,   100,
   1E7,       0.0,   0,   0,   100,   100 $END
$LIST POOL=901,     0,     0,     0,
                   2E7,     0,     0 $END
$LIST POOL=1001,    0,   100,   2.0,
                   24,   100,   2.0 $END
$LIST POOL=1101,  105,       0,
                  120,  1.67E6,
                  130,  3.02E6,
                  140,  4.57E6,
                  150,  6.32E6,
                  160,  8.27E6,
                  170, 10.40E6,
                  180, 12.73E6,
                  190, 15.23E6,
                  200, 17.88E6,
                  210, 20.68E6,
                  220, 23.61E6,
                  230, 26.64E6,
                  240, 29.74E6,
                  250, 32.91E6,
                  260, 36.11E6,
                  270, 39.31E6,
                  280, 42.52E6,
                  287, 44.74E6,
                  290, 45.69E6,
                  300, 48.82E6 $END
$LIST POOL=1201,   0,  0.729,
                 0.1,  0.737,
                 0.2,  0.747,
                 0.3,  0.757,
                 0.4,  0.771,
                 0.5,  0.788,
                 0.6,  0.809,
                 0.7,  0.832,
                 0.8,  0.863,
                 0.9,  0.912,
                 1.0,  0.961,
                 1.1,  0.983,
                 1.2,  0.995,
                 1.3,  1.000 $END
$LIST POOL=9001,   1,  0.05,    0.1,  10,
                   5,  0.05,    0.2,  20,
                  20,  0.05,    1.0,   5,
                 100,  0.10,    1.0,  10,
                 160,  0.50,    2.0,  10,
```

```
                    200,   1.0,    5.0,   4,
                    300,   1.0,   10.0,   5,
                    600,   1.0,   25.0,   4,
                    1E3,   5.0,   50.0,   4,
                    2E3,  10.0,  250.0,   2,
                    5E3,  10.0,  250.0,   4,
                    1E4,  25.0,  500.0,   5,
                    1E5,  50.0,    5E3,   2 $END
 $LIST POOL=9999 $END
* HS #1 - REACTOR BUILDING DOME
 $LIST POOL=101001, 57, 14, 0, 0, 0, 0, 33017 $END
 $LIST POOL=101101,  4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                     5, 0.02201, 4, 0.03001, 4, 0.04601, 4. 0.07801,
                     4, 0.14201, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                     4, 2.06201, 4, 4.06368 $END
 $LIST POOL=101201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=101300, 0, 0 $END
 $LIST POOL=101400, 9, 2, 1, 1 $END
* HS #2 - REACTOR BUILDING CYLINDER ABOVE 30 FT
 $LIST POOL=102001,  58, 14, 0, 0, 0, 0, 34067 $END
 $LIST POOL=102101, 4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                    5, 0.02201, 4, 0.03001, 4, 0.04601, 4, 0.07801,
                    4, 0.14210, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                    4, 2.06201, 5, 4.35534 $END
 $LIST POOL=102201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=102300, 0, 0 $END
 $LIST POOL=102400, 9, 2, 1, 1 $END
* HS #3 - REACTOR BUIDING CYLINDER WALL BELOW 30 FT
 $LIST POOL=103001,  58, 14, 0, 0, 0, 0, 5535 $END
 $LIST POOL=103101, 4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                    5, 0.02201, 4, 0.03001, 4, 0.04601, 4, 0.07801,
                    4, 0.14210, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                    4, 2.06201, 5, 4.35534 $END
 $LIST POOL=103201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=103300, 0, 0 $END
 $LIST POOL=103400, 9, 2, 0, 1 $END
* HS #4 - REACTOR BUILDING BASEMAT (Excluding Rx Cavity Basemat)
 $LIST POOL=104001, 42, 10, 0, 0, 0, 0, 12773 $END
 $LIST POOL=104101, 4, 0.00417, 4, 0.02417, 4, 0.06417, 4, 0.14417,
                    4, 0.30417, 4, 0.62417, 4, 1.26417, 4, 2.54417,
                    4, 5.10417, 5, 11.00417 $END
 $LIST POOL=104201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=104300, 0, 0 $END
 $LIST POOL=104400, 3, 3, 0, 1 $END
* HS #5 - REACTOR CAVITY BASEMAT & STEAM GENERATOR PEDESTALS
 $LIST POOL=105001, 40, 10, 0, 0, 0, 0, 1644 $END
 $LIST POOL=105101, 4, 0.00294, 4, 0.02294, 4, 0.06294, 4, 0.14294,
                    4, 0.30294, 4, 0.62294, 4, 1.26294, 4, 2.54294,
                    4, 5.10294, 3, 8.39548 $END
 $LIST POOL=105201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=105300, 0, 0 $END
 $LIST POOL=105400, 3, 3, 0, 1 $END
* HS #6 - REACTOR CAVITY BELOW ELEV. 17' - 6"
 $LIST POOL=106001, 42, 10, 0, 0, 0, 0, 1546 $END
 $LIST POOL=106101, 4, 0.00250, 4, 0.02250, 4, 0.06250, 4, 0.14250,
                    4, 0.30250, 4, 0.62250, 4, 1.26250, 4, 2.54250,
                    4, 5.10250, 5, 10.75250 $END
 $LIST POOL=106201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=106300, 0, 0 $END
 $LIST POOL=106400, 3, 3, 0, 1 $END
* HS #7 - REACTOR CAVITY WALLS ABOVE ELEV. 17'- 6"
```

Note: See Originator's Note for

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						
	P.Barbour	05/16/00	J. M. Gilmer	6/27/00						

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$LIST POOL=107001, 61, 14, 0, 0, 0, 0, 1311 $END
$LIST POOL=107101, 4, 0.00024, 4, 0.00060, 8, 0.00250, 4, 0.00650,
                   4, 0.01450, 4, 0.03050, 4, 0.06250, 4, 0.12650,
                   4, 0.26850, 4, 0.52450, 4, 1.03650, 4, 2.06050,
                   4, 4.10850, 4, 8.35833 $END
$LIST POOL=107201, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
$LIST POOL=107300, 0, 0 $END
$LIST POOL=107400, 9, 2, 0, 2 $END
* HS #8 - LINED REFUELING CANAL WALLS AND FLOOR
$LIST POOL=108001, 50, 13, 0, 0, 0, 0, 9192 $END
$LIST POOL=108101, 4, 0.01563, 4, 0.01566, 4, 0.01571, 4, 0.01583,
                   3, 0.01598, 4, 0.02598, 4, 0.04598, 4, 0.08598,
                   4, 0.16598, 4, 0.32698, 4, 0.64598, 4, 1.28598,
                   2, 2.01598 $END
$LIST POOL=108201, 3, 5, 5, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, $END
$LIST POOL=108300, 0, 0 $END
$LIST POOL=108400, 9, 2, 0, 2 $END
* HS #9 - UNLINED EXTERIOR FACES OF REFUELING CANAL WALLS
$LIST POOL=109001, 45, 12, 0, 0, 0, 0, 11050 $END
$LIST POOL=109101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 2, 0.00250,
                   4, 0.01250, 4, 0.03250, 4, 0.07250, 4, 0.15250,
                   4, 0.31250, 4, 0.63250, 4, 1.27250, 2, 2.00250 $END
$LIST POOL=109201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2, 2, $END
$LIST POOL=109300, 0, 0 $END
$LIST POOL=109400, 9, 2, 0, 2 $END
* HS #10 - STEAM GENERATOR COMPARTMENT WALLS MISSLE SHIELDS
$LIST POOL=110001, 46, 11, 0, 0, 0, 0, 43085 $END
$LIST POOL=110101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 2, 0.00250,
                   4, 0.01250, 4, 0.03250, 4, 0.07250, 4, 0.15250,
                   4, 0.31250, 4, 0.63250, 7, 1.71909 $END
$LIST POOL=110201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2 $END
$LIST POOL=110300, 0, 0 $END
$LIST POOL=110400, 9, 2, 0, 2 $END
* HS #11 - STEAM GENERATOR COMPARTMENT WALLS WITH EMBEDS
$LIST POOL=111001, 53, 12, 0, 0, 0, 0, 6914 $END
$LIST POOL=111101, 4, 0.00024, 5, 0.00083, 4, 0.08250, 4, 0.08490,
                   4, 0.08970, 4, 0.09930, 4, 0.11850, 4, 0.15690,
                   4, 0.23370, 4, 0.38730, 4, 0.69450, 7, 1.77167 $END
$LIST POOL=111201, 4, 4, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
$LIST POOL=111300, 0, 0 $END
$LIST POOL=111400, 9, 2, 0, 2 $END
* HS #12 - TOP HALF-THICKNESS OF ELEVATED FLOOR SLABS
$LIST POOL=112001, 44, 10, 0, 0, 0, 0, 17474 $END
$LIST POOL=112101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 5, 0.00417,
                   4, 0.01417, 4, 0.03417, 4, 0.07417, 4, 0.15417,
                   4, 0.31417, 6, 0.75417 $END
$LIST POOL=112201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2 $END
$LIST POOL=112300, 0, 0 $END
$LIST POOL=112400, 9, 2, 0, 2 $END
* HS #13 - LOWER HALF-THICKNESS OF ELEVATED FLOOR SLABS
$LIST POOL=113001, 48, 12, 0, 0, 0, 0, 23240 $END
$LIST POOL=113101, 2, 0.00521, 4, 0.00553, 4, 0.00617, 4, 0.00745,
                   4, 0.01001, 4, 0.01513, 4, 0.02537, 4, 0.04585,
                   4, 0.08681, 4, 0.16873, 4, 0.33257, 5, 0.75556 $END
$LIST POOL=113201, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
$LIST POOL=113300, 0, 0 $END
$LIST POOL=113400, 9, 2, 0, 2 $END
* HS #14 - LIFTING DEVICES (CARBON STEEL)
$LIST POOL=114001, 17, 3, 0, 0, 0, 0, 59265 $END
$LIST POOL=114101, 4, 0.00024, 8, 0.00125, 4, 0.04133 $END
$LIST POOL=114201, 4, 4, 1 $END
```

HS#7 right boundary coordinate on sheet 127.

Note: See Originator's Note for HS#13 first and final concrete region right boundary coordinates on sheet 128.

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 $LIST POOL=114300, 0, 0 $END
 $LIST POOL=114400, 9, 2, 0, 2 $END
* HS #15 - MISCELLANEOUS CARBON STEEL - THICKNESS > 2.50 INCHES
 $LIST POOL=115001, 18, 4, 0, 0, 0, 0, 2248 $END
 $LIST POOL=115101, 4, 0.00024, 5, 0.00083, 4, 0.08083, 4, 0.22136 $END
 $LIST POOL=115201, 4, 4, 1, 1 $END
 $LIST POOL=115300, 0, 0 $END
 $LIST POOL=115400, 9, 2, 0, 2 $END
* HS #16 - MISCELLANEOUS CARBON STEEL: 1.00"<THICKNESS</=2.50"
 $LIST POOL=116001, 16, 3, 0, 0, 0, 0, 9230 $END
 $LIST POOL=116101, 4, 0.00024, 5, 0.00083, 6, 0.13113 $END
 $LIST POOL=116201, 4, 4, 1 $END
 $LIST POOL=116300, 0, 0 $END
 $LIST POOL=116400, 9, 2, 0, 2 $END
* HS #17 - MISCELLANEOUS CARBON STEEL: 0.50"<THICKNESS</=1.00"
 $LIST POOL=117001, 14, 3, 0, 0, 0, 0, 8718 $END
 $LIST POOL=117101, 4, 0.00024, 5, 0.00083, 4, 0.06371 $END
 $LIST POOL=117201, 4, 4, 1 $END
 $LIST POOL=117300, 0, 0 $END
 $LIST POOL=117400, 9, 2, 0, 2 $END
* HS #18 - MISCELLANEOUS CARBON STEEL: THICKNESS</=0.5"
 $LIST POOL=118001, 14, 3, 0, 0, 0, 0, 158755 $END
 $LIST POOL=118101, 4, 0.00024, 5, 0.00083, 4, 0.02275 $END
 $LIST POOL=118201, 4, 4, 1 $END
 $LIST POOL=118300, 0, 0 $END
 $LIST POOL=118400, 9, 2, 0, 2 $END
* HS #19 - ELECTRICAL EQUIPMENT & OTHER GALVANIZED STEEL
 $LIST POOL=119001, 4, 1, 0, 0, 0, 0, 131698 $END
 $LIST POOL=119101, 3, 0.00879 $END
 $LIST POOL=119201, 1 $END
 $LIST POOL=119300, 0, 0 $END
 $LIST POOL=119400, 9, 2, 0, 2 $END
* HS #20 - MISCELLANEOUS STAINLESS STEEL
 $LIST POOL=120001, 5, 1, 0, 0, 0, 0, 26893 $END
 $LIST POOL=120101, 4, 0.01459 $END
 $LIST POOL=120201, 3 $END
 $LIST POOL=120300, 0, 0 $END
 $LIST POOL=120400, 9, 2, 0, 2 $END
* HS #21 - REACTOR BUILDING STIFFENED SECTIONS ABOVE ELEV. 30 FT
 $LIST POOL=121001, 44, 10, 0, 0, 0, 0, 3764 $END
 $LIST POOL=121101, 4, 0.00024, 5, 0.00083, 4, 0.08083, 4, 0.24083,
                    4, 0.52166, 4, 0.52201, 4, 0.54201, 4, 0.94201,
                    4, 1.74201, 6, 4.17659 $END
 $LIST POOL=121201, 4, 4, 1, 1, 1, 5, 2, 2, 2, 2 $END
 $LIST POOL=121300, 0, 0 $END
 $LIST POOL=121400, 9, 2, 1, 1 $END
 $LIST POOL=410001,
            25,     54,
           0.8,     30,
            10,     54,
          0.15,     20,
        0.0174, 0.0103 $END
 $LIST POOL=500000 $END
```

See Originator's Note for HS#18 area and right boundary coordinate on sheet 129.

Case 14 - MSLB @ 20% Power w/MSIV Failure

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*CASE 14 - 5.30 FT2 SLOT MSLB @ 20% POWER W/MSIV FAILURE: N-4080-027R1
 $LIST POOL=0,0,1,0,1 $END
 $LIST POOL=1,5E3,16.8,2.305E6,120,0.05,21,0.0,1,1,0.00,14.7,0.5 $END
 $LIST POOL=2,0,0,0,0,0,2.0,2E7 $END
```

```
$LIST POOL=3,0,0,0,0,0,2E7,0,0,0,0 $END
$LIST POOL=4,0,0,0,0,0,0,0,0,0,0,0,0 $END
$LIST POOL=5,4,50,2E7,0,0 $END
$LIST POOL=6,0,0,0 $END
$LEAK NOPEN=0 $END
$LIST POOL=101,    0,     0,
                  2E7,    0 $END
$LIST POOL=201,    0,     0,
                  2E7,    0 $END
$LIST POOL=301,
         0.00, 3.88660E+07, 1193.65,
         0.10, 3.83245E+07, 1194.10,
         0.20, 3.78144E+07, 1194.53,
         0.30, 3.73291E+07, 1194.93,
         0.40, 3.68539E+07, 1195.31,
         0.50, 3.64057E+07, 1195.67,
         0.60, 3.59845E+07, 1196.01,
         0.70, 3.55802E+07, 1196.34,
         0.80, 3.51815E+07, 1196.65,
         0.90, 3.48040E+07, 1196.95,
         1.00, 3.44309E+07, 1197.24,
         1.99, 3.12098E+07, 1199.52,
         2.99, 2.87336E+07, 1201.00,
         3.99, 2.68275E+07, 1202.07,
         4.99, 2.52129E+07, 1202.84,
         5.99, 2.38544E+07, 1203.40,
         6.99, 2.27099E+07, 1203.81,
         7.99, 2.17183E+07, 1204.09,
         8.99, 2.08122E+07, 1204.33,
         9.99, 1.97569E+07, 1204.53,
        10.99, 1.84747E+07, 1204.59,
        11.99, 1.72015E+07, 1204.51,
        12.99, 1.61353E+07, 1204.32,
        13.99, 1.52083E+07, 1204.05,
        14.99, 1.43999E+07, 1203.73,
        15.99, 1.36905E+07, 1203.37,
        16.99, 1.30519E+07, 1202.98,
        17.99, 1.24821E+07, 1202.58,
        18.99, 1.19687E+07, 1202.17,
        19.99, 1.15137E+07, 1201.75,
        20.99, 1.11041E+07, 1201.34,
        21.99, 1.07349E+07, 1200.94,
        22.99, 1.03951E+07, 1200.55,
        23.99, 1.00926E+07, 1200.17,
        24.99, 9.81997E+06, 1199.80,
        25.99, 9.56336E+06, 1199.44,
        26.99, 9.33300E+06, 1199.09,
        27.99, 9.12564E+06, 1198.75,
        28.99, 8.91047E+06, 1198.42,
        29.99, 8.72028E+06, 1198.11,
        30.99, 8.54712E+06, 1197.81,
        31.99, 8.38886E+06, 1197.53,
        32.99, 8.23471E+06, 1197.25,
        33.99, 8.09057E+06, 1196.99,
        34.99, 7.96349E+06, 1196.73,
        35.99, 7.83428E+06, 1196.48,
        36.99, 7.72034E+06, 1196.24,
        37.99, 7.60550E+06, 1196.01,
        38.99, 7.50701E+06, 1195.79,
        39.99, 7.40549E+06, 1195.57,
        40.99, 7.31347E+06, 1195.36,
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E&TS DEPARTMENT

CALCULATION SHEET

ICCN NO./ PRELIM. CCN NO.	PAGE___ OF___
	CCN CONVERSION: CCN NO. CCN --

Project or DCP/FCN SONGS 2 & 3 **Calc. No.** N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events **Sheet No.** 164 of 312

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

```
41.99, 7.22956E+06, 1195.16,
42.99, 7.14060E+06, 1194.96,
43.99, 7.05791E+06, 1194.77,
44.99, 6.99055E+06, 1194.58,
45.99, 6.90667E+06, 1194.39,
46.99, 6.84490E+06, 1194.21,
47.99, 6.76800E+06, 1194.04,
48.99, 6.70698E+06, 1193.87,
49.99, 6.64042E+06, 1193.70,
50.99, 6.57274E+06, 1193.53,
51.99, 6.52680E+06, 1193.36,
52.99, 6.46376E+06, 1193.20,
53.99, 6.38507E+06, 1193.04,
54.99, 6.33272E+06, 1192.86,
55.99, 6.26609E+06, 1192.68,
56.99, 6.19823E+06, 1192.49,
57.99, 6.13285E+06, 1192.30,
58.99, 6.06517E+06, 1192.10,
59.99, 5.99954E+06, 1191.89,
60.99, 5.92999E+06, 1191.68,
61.99, 5.86793E+06, 1191.47,
62.99, 5.80122E+06, 1191.26,
63.99, 5.73541E+06, 1191.04,
64.99, 5.67065E+06, 1190.83,
65.99, 5.62151E+06, 1190.61,
66.99, 5.54209E+06, 1190.39,
67.99, 5.47945E+06, 1190.18,
68.99, 5.41649E+06, 1189.96,
69.99, 5.36015E+06, 1189.74,
70.99, 6.37045E+06, 1189.41,
71.99, 6.07108E+06, 1188.89,
72.99, 5.82145E+06, 1188.45,
73.99, 5.61316E+06, 1188.08,
74.99, 5.43312E+06, 1187.75,
75.99, 5.29200E+06, 1187.48,
76.99, 5.16499E+06, 1187.24,
77.99, 5.05224E+06, 1187.02,
78.99, 4.95144E+06, 1186.82,
79.99, 4.86140E+06, 1186.64,
80.99, 4.77558E+06, 1186.46,
81.99, 4.71805E+06, 1186.30,
82.99, 4.61812E+06, 1186.14,
83.99, 4.56214E+06, 1186.00,
84.99, 4.47984E+06, 1185.86,
85.99, 4.40784E+06, 1185.74,
86.99, 4.31888E+06, 1185.63,
87.99, 4.28677E+06, 1185.51,
88.99, 4.20358E+06, 1185.41,
89.99, 4.15141E+06, 1185.31,
90.99, 4.07495E+06, 1185.21,
91.99, 4.02952E+06, 1185.11,
92.99, 3.96144E+06, 1185.03,
93.99, 3.90816E+06, 1184.94,
94.99, 3.86741E+06, 1184.86,
95.99, 3.82190E+06, 1184.78,
96.99, 3.78144E+06, 1184.70,
97.99, 3.74677E+06, 1184.63,
98.99, 3.66556E+06, 1184.55,
99.99, 3.62513E+06, 1184.48,
104.95, 3.36330E+06, 1184.00,
109.95, 2.28521E+06, 1182.00,
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114.95, 1.48936E+06, 1180.70,
119.95, 1.39448E+06, 1180.56,
124.95, 1.29973E+06, 1180.39,
129.95, 1.16502E+06, 1180.22,
134.95, 1.00842E+06, 1180.05,
139.95, 9.08014E+05, 1179.88,
144.95, 8.16401E+05, 1179.74,
149.95, 7.32787E+05, 1179.61,
154.95, 6.51380E+05, 1179.50,
159.95, 5.85763E+05, 1179.40,
164.95, 5.14534E+05, 1179.29,
169.95, 4.99630E+05, 1179.20,
174.95, 4.31064E+05, 1179.11,
179.95, 4.08928E+05, 1179.02,
184.95, 3.15313E+05, 1178.93,
189.95, 3.27646E+05, 1178.85,
194.95, 4.81216E+05, 1178.80,
199.95, 4.36921E+05, 1178.72,
204.95, 4.11347E+05, 1178.64,
209.95, 3.72352E+05, 1178.56,
214.95, 4.19882E+05, 1178.48,
219.95, 3.44751E+05, 1178.40,
224.95, 3.28062E+05, 1178.32,
229.95, 3.12198E+05, 1178.25,
234.95, 2.98795E+05, 1178.17,
239.95, 2.34234E+05, 1178.09,
244.95, 2.27598E+05, 1178.01,
249.95, 2.15730E+05, 1177.94,
254.95, 2.39205E+05, 1177.86,
259.95, 3.12279E+05, 1177.80,
264.95, 1.88045E+05, 1177.71,
269.95, 1.83509E+05, 1177.64,
274.95, 1.87524E+05, 1177.56,
279.95, 1.85453E+05, 1177.49,
284.95, 2.26424E+05, 1177.41,
289.95, 2.44470E+05, 1177.34,
294.95, 2.38031E+05, 1177.27,
299.95, 2.11985E+05, 1177.20,
304.95, 2.19795E+05, 1177.13,
309.95, 2.09271E+05, 1177.06,
314.95, 1.98798E+05, 1176.98,
319.95, 2.07655E+05, 1176.91,
324.95, 1.80132E+05, 1176.84,
329.95, 8.13661E+04, 1176.77,
334.95, 8.20429E+04, 1196.70,
339.95, 7.82698E+04, 1206.86,
344.95, 4.00190E+04, 1218.98,
349.95, 2.90006E+04, 1222.93,
354.95, 2.54396E+04, 1224.55,
359.95, 2.38839E+04, 1225.51,
364.95, 2.29112E+04, 1226.27,
369.95, 2.21032E+04, 1226.95,
374.95, 2.13791E+04, 1227.59,
379.95, 2.07019E+04, 1228.20,
384.95, 2.00596E+04, 1228.78,
389.95, 1.94547E+04, 1229.34,
394.95, 1.88778E+04, 1229.87,
399.95, 1.83307E+04, 1230.38,
400.00, 1.83253E+04, 1230.39,
400.00,          0,       0,
   2E7,          0,       0 $END
```

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$LIST POOL=401,    0,        0,       0,
                  2E7,       0,       0 $END
$LIST POOL=501,    0,       29E3,    34.6E6,
                 1800,      29E3,    34.6E6,
                 1800,         0,       0,
                  2E7,         0,       0 $END
$LIST POOL=601,    0,     7.2E4,    6.336E6,
                 0.05,    7.2E4,    6.336E6,
                 0.05,     0.0,       0.0,
                  2E7,       0,         0 $END
$LIST POOL=701,    0,     0,     0,     0,
                  2E7,    0,     0,     0 $END
$LIST POOL=801,
      0,         0,   0,   0,   100,   100,
     23,         0,   0,   0,   100,   100,
     25,  0.9946E5,   0,   0,   100,   100,
     30,  2.4368E5,   0,   0,   100,   100,
     35,  5.2714E5,   0,   0,   100,   100,
     40,  6.1168E5,   0,   0,   100,   100,
     45,  6.7134E5,   0,   0,   100,   100,
     50, 15.9134E5,   0,   0,   100,   100,
    5E3, 15.9134E5,   0,   0,   100,   100,
    5E3,       0.0,   0,   0,   100,   100,
    1E7,       0.0,   0,   0,   100,   100 $END
$LIST POOL=901,     0,     0,     0,
                   2E7,    0,     0 $END
$LIST POOL=1001,    0,   100,   2.0,
                   24,   100,   2.0 $END
$LIST POOL=1101,  105,      0,
                  120,  1.67E6,
                  130,  3.02E6,
                  140,  4.57E6,
                  150,  6.32E6,
                  160,  8.27E6,
                  170, 10.40E6,
                  180, 12.73E6,
                  190, 15.23E6,
                  200, 17.88E6,
                  210, 20.68E6,
                  220, 23.61E6,
                  230, 26.64E6,
                  240, 29.74E6,
                  250, 32.91E6,
                  260, 36.11E6,
                  270, 39.31E6,
                  280, 42.52E6,
                  287, 44.74E6,
                  290, 45.69E6,
                  300, 48.82E6 $END
$LIST POOL=1201,   0,  0.729,
                 0.1,  0.737,
                 0.2,  0.747,
                 0.3,  0.757,
                 0.4,  0.771,
                 0.5,  0.788,
                 0.6,  0.809,
                 0.7,  0.832,
                 0.8,  0.863,
                 0.9,  0.912,
                 1.0,  0.961,
                 1.1,  0.983,
```

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                    1.2,  0.995,
                    1.3,  1.000 $END
 $LIST POOL=9001,    1,  0.05,    0.1,  10,
                     5,  0.05,    0.2,  20,
                    20,  0.05,    1.0,   5,
                   100,  0.10,    1.0,  10,
                   160,  0.50,    2.0,  10,
                   200,   1.0,    5.0,   4,
                   300,   1.0,   10.0,   5,
                   600,   1.0,   25.0,   4,
                   1E3,   5.0,   50.0,   4,
                   2E3,  10.0,  250.0,   2,
                   5E3,  10.0,  250.0,   4,
                   1E4,  25.0,  500.0,   5,
                   1E5,  50.0,    5E3,   2 $END
 $LIST POOL=9999 $END
* HS #1 - REACTOR BUILDING DOME
 $LIST POOL=101001, 57, 14, 0, 0, 0, 0, 33017 $END
 $LIST POOL=101101,  4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                     5, 0.02201, 4, 0.03001, 4, 0.04601, 4. 0.07801,
                     4, 0.14201, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                     4, 2.06201, 4, 4.06368 $END
 $LIST POOL=101201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=101300, 0, 0 $END
 $LIST POOL=101400, 9, 2, 1, 1 $END
* HS #2 - REACTOR BUILDING CYLINDER ABOVE 30 FT
 $LIST POOL=102001,  58, 14, 0, 0, 0, 0, 34067 $END
 $LIST POOL=102101, 4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                    5, 0.02201, 4, 0.03001, 4, 0.04601, 4, 0.07801,
                    4, 0.14210, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                    4, 2.06201, 5, 4.35534 $END
 $LIST POOL=102201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=102300, 0, 0 $END
 $LIST POOL=102400, 9, 2, 1, 1 $END
* HS #3 - REACTOR BUIDING CYLINDER WALL BELOW 30 FT
 $LIST POOL=103001,  58, 14, 0, 0, 0, 0, 5535 $END
 $LIST POOL=103101, 4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                    5, 0.02201, 4, 0.03001, 4, 0.04601, 4, 0.07801,
                    4, 0.14210, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                    4, 2.06201, 5, 4.35534 $END
 $LIST POOL=103201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=103300, 0, 0 $END
 $LIST POOL=103400, 9, 2, 0, 1 $END
* HS #4 - REACTOR BUILDING BASEMAT (Excluding Rx Cavity Basemat)
 $LIST POOL=104001, 42, 10, 0, 0, 0, 0, 12773 $END
 $LIST POOL=104101, 4, 0.00417, 4, 0.02417, 4, 0.06417, 4, 0.14417,
                    4, 0.30417, 4, 0.62417, 4, 1.26417, 4, 2.54417,
                    4, 5.10417, 5, 11.00417 $END
 $LIST POOL=104201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=104300, 0, 0 $END
 $LIST POOL=104400, 3, 3, 0, 1 $END
* HS #5 - REACTOR CAVITY BASEMAT & STEAM GENERATOR PEDESTALS
 $LIST POOL=105001, 40, 10, 0, 0, 0, 0, 1644 $END
 $LIST POOL=105101, 4, 0.00294, 4, 0.02294, 4, 0.06294, 4, 0.14294,
                    4, 0.30294, 4, 0.62294, 4, 1.26294, 4, 2.54294,
                    4, 5.10294, 3, 8.39548 $END
 $LIST POOL=105201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=105300, 0, 0 $END
 $LIST POOL=105400, 3, 3, 0, 1 $END
* HS #6 - REACTOR CAVITY BELOW ELEV. 17' - 6"
 $LIST POOL=106001, 42, 10, 0, 0, 0, 0, 1546 $END
```

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$LIST POOL=106101, 4, 0.00250, 4, 0.02250, 4, 0.06250, 4, 0.14250,
                   4, 0.30250, 4, 0.62250, 4, 1.26250, 4, 2.54250,
                   4, 5.10250, 5, 10.75250 $END
$LIST POOL=106201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
$LIST POOL=106300, 0, 0 $END
$LIST POOL=106400, 3, 3, 0, 1 $END
* HS #7 - REACTOR CAVITY WALLS ABOVE ELEV. 17'- 6"
$LIST POOL=107001, 61, 14, 0, 0, 0, 0, 1311 $END
$LIST POOL=107101, 4, 0.00024, 4, 0.00060, 8, 0.00250, 4, 0.00650,
                   4, 0.01450, 4, 0.03050, 4, 0.06250, 4, 0.12650,
                   4, 0.26850, 4, 0.52450, 4, 1.03650, 4, 2.06050,
                   4, 4.10850, 4, 8.35833 $END
$LIST POOL=107201, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
$LIST POOL=107300, 0, 0 $END
$LIST POOL=107400, 9, 2, 0, 2 $END
* HS #8 - LINED REFUELING CANAL WALLS AND FLOOR
$LIST POOL=108001, 50, 13, 0, 0, 0, 0, 9192 $END
$LIST POOL=108101, 4, 0.01563, 4, 0.01566, 4, 0.01571, 4, 0.01583,
                   3, 0.01598, 4, 0.02598, 4, 0.04598, 4, 0.08598,
                   4, 0.16598, 4, 0.32698, 4, 0.64598, 4, 1.28598,
                   2, 2.01598 $END
$LIST POOL=108201, 3, 5, 5, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, $END
$LIST POOL=108300, 0, 0 $END
$LIST POOL=108400, 9, 2, 0, 2 $END
* HS #9 - UNLINED EXTERIOR FACES OF REFUELING CANAL WALLS
$LIST POOL=109001, 45, 12, 0, 0, 0, 0, 11050 $END
$LIST POOL=109101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 2, 0.00250,
                   4, 0.01250, 4, 0.03250, 4, 0.07250, 4, 0.15250,
                   4, 0.31250, 4, 0.63250, 4, 1.27250, 2, 2.00250 $END
$LIST POOL=109201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2, 2, $END
$LIST POOL=109300, 0, 0 $END
$LIST POOL=109400, 9, 2, 0, 2 $END
* HS #10 - STEAM GENERATOR COMPARTMENT WALLS MISSLE SHIELDS
$LIST POOL=110001, 46, 11, 0, 0, 0, 0, 43085 $END
$LIST POOL=110101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 2, 0.00250,
                   4, 0.01250, 4, 0.03250, 4, 0.07250, 4, 0.15250,
                   4, 0.31250, 4, 0.63250, 7, 1.71909 $END
$LIST POOL=110201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2 $END
$LIST POOL=110300, 0, 0 $END
$LIST POOL=110400, 9, 2, 0, 2 $END
* HS #11 - STEAM GENERATOR COMPARTMENT WALLS WITH EMBEDS
$LIST POOL=111001, 53, 12, 0, 0, 0, 0, 6914 $END
$LIST POOL=111101, 4, 0.00024, 5, 0.00083, 4, 0.08250, 4, 0.08490,
                   4, 0.08970, 4, 0.09930, 4, 0.11850, 4, 0.15690,
                   4, 0.23370, 4, 0.38730, 4, 0.69450, 7, 1.77167 $END
$LIST POOL=111201, 4, 4, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
$LIST POOL=111300, 0, 0 $END
$LIST POOL=111400, 9, 2, 0, 2 $END
* HS #12 - TOP HALF-THICKNESS OF ELEVATED FLOOR SLABS
$LIST POOL=112001, 44, 10, 0, 0, 0, 0, 17474 $END
$LIST POOL=112101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 5, 0.00417,
                   4, 0.01417, 4, 0.03417, 4, 0.07417, 4, 0.15417,
                   4, 0.31417, 6, 0.75417 $END
$LIST POOL=112201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2 $END
$LIST POOL=112300, 0, 0 $END
$LIST POOL=112400, 9, 2, 0, 2 $END
* HS #13 - LOWER HALF-THICKNESS OF ELEVATED FLOOR SLABS
$LIST POOL=113001, 48, 12, 0, 0, 0, 0, 23240 $END
$LIST POOL=113101, 2, 0.00521, 4, 0.00553, 4, 0.00617, 4, 0.00745,
                   4, 0.01001, 4, 0.01513, 4, 0.02537, 4, 0.04585,
                   4, 0.08681, 4, 0.16873, 4, 0.33257, 5, 0.75556 $END
```

Note: See Originator's Note for HS#7 right boundary co-ordinate on sheet 127.

Note: See Originator's Note for HS#13 first and final concrete region right boundary coordinates on sheet 128.

```
$LIST POOL=113201, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
$LIST POOL=113300, 0, 0 $END
$LIST POOL=113400, 9, 2, 0, 2 $END
* HS #14 - LIFTING DEVICES (CARBON STEEL)
$LIST POOL=114001, 17, 3, 0, 0, 0, 0, 59265 $END
$LIST POOL=114101, 4, 0.00024, 8, 0.00125, 4, 0.04133 $END
$LIST POOL=114201, 4, 4, 1 $END
$LIST POOL=114300, 0, 0 $END
$LIST POOL=114400, 9, 2, 0, 2 $END
* HS #15 - MISCELLANEOUS CARBON STEEL - THICKNESS > 2.50 INCHES
$LIST POOL=115001, 18, 4, 0, 0, 0, 0, 2248 $END
$LIST POOL=115101, 4, 0.00024, 5, 0.00083, 4, 0.08083, 4, 0.22136 $END
$LIST POOL=115201, 4, 4, 1, 1 $END
$LIST POOL=115300, 0, 0 $END
$LIST POOL=115400, 9, 2, 0, 2 $END
* HS #16 - MISCELLANEOUS CARBON STEEL: 1.00"<THICKNESS</=2.50"
$LIST POOL=116001, 16, 3, 0, 0, 0, 0, 9230 $END
$LIST POOL=116101, 4, 0.00024, 5, 0.00083, 6, 0.13113 $END
$LIST POOL=116201, 4, 4, 1 $END
$LIST POOL=116300, 0, 0 $END
$LIST POOL=116400, 9, 2, 0, 2 $END
* HS #17 - MISCELLANEOUS CARBON STEEL: 0.50"<THICKNESS</=1.00"
$LIST POOL=117001, 14, 3, 0, 0, 0, 0, 8718 $END
$LIST POOL=117101, 4, 0.00024, 5, 0.00083, 4, 0.06371 $END
$LIST POOL=117201, 4, 4, 1 $END
$LIST POOL=117300, 0, 0 $END
$LIST POOL=117400, 9, 2, 0, 2 $END
* HS #18 - MISCELLANEOUS CARBON STEEL: THICKNESS</=0.5"
$LIST POOL=118001, 14, 3, 0, 0, 0, 0, 158755 $END
$LIST POOL=118101, 4, 0.00024, 5, 0.00083, 4, 0.02275 $END
$LIST POOL=118201, 4, 4, 1 $END
$LIST POOL=118300, 0, 0 $END
$LIST POOL=118400, 9, 2, 0, 2 $END
* HS #19 - ELECTRICAL EQUIPMENT & OTHER GALVANIZED STEEL
$LIST POOL=119001, 4, 1, 0, 0, 0, 0, 131698 $END
$LIST POOL=119101, 3, 0.00879 $END
$LIST POOL=119201, 1 $END
$LIST POOL=119300, 0, 0 $END
$LIST POOL=119400, 9, 2, 0, 2 $END
* HS #20 - MISCELLANEOUS STAINLESS STEEL
$LIST POOL=120001, 5, 1, 0, 0, 0, 0, 26893 $END
$LIST POOL=120101, 4, 0.01459 $END
$LIST POOL=120201, 3 $END
$LIST POOL=120300, 0, 0 $END
$LIST POOL=120400, 9, 2, 0, 2 $END
* HS #21 - REACTOR BUILDING STIFFENED SECTIONS ABOVE ELEV. 30 FT
$LIST POOL=121001, 44, 10, 0, 0, 0, 0, 3764 $END
$LIST POOL=121101, 4, 0.00024, 5, 0.00083, 4, 0.08083, 4, 0.24083,
                   4, 0.52166, 4, 0.52201, 4, 0.54201, 4, 0.94201,
                   4, 1.74201, 6, 4.17659 $END
$LIST POOL=121201, 4, 4, 1, 1, 1, 5, 2, 2, 2, 2 $END
$LIST POOL=121300, 0, 0 $END
$LIST POOL=121400, 9, 2, 1, 1 $END
$LIST POOL=410001,
          25,     54,
         0.8,     30,
          10,     54,
        0.15,     20,
      0.0174, 0.0103 $END
$LIST POOL=500000 $END
```

Note: See Originator's Note for HS#18 area and right boundary coordinate on sheet 129.

Case 15 - MSLB @ 50% Power w/MSIV Failure

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*CASE 15 - 7.05 FT2 SLOT MSLB @ 50% POWER W/MSIV FAILURE: N-4080-027R1
 $LIST POOL=0,0,1,0,1 $END
 $LIST POOL=1,5E3,16.8,2.305E6,120,0.05,21,0.0,1,1,0.00,14.7,0.5 $END
 $LIST POOL=2,0,0,0,0,0,2.0,2E7 $END
 $LIST POOL=3,0,0,0,0,0,2E7,0,0,0,0 $END
 $LIST POOL=4,0,0,0,0,0,0,0,0,0,0,0,0 $END
 $LIST POOL=5,4,50,2E7,0,0 $END
 $LIST POOL=6,0,0,0 $END
 $LEAK NOPEN=0 $END
 $LIST POOL=101,    0,     0,
                  2E7,     0 $END
 $LIST POOL=201,    0,     0,
                  2E7,     0 $END
 $LIST POOL=301,
          0.00, 4.98355E+07, 1194.65,
          0.10, 4.88336E+07, 1195.23,
          0.20, 4.79520E+07, 1195.78,
          0.30, 4.71312E+07, 1196.30,
          0.40, 4.63381E+07, 1196.78,
          0.50, 4.55857E+07, 1197.23,
          0.60, 4.48607E+07, 1197.65,
          0.70, 4.41641E+07, 1198.04,
          0.80, 4.34941E+07, 1198.41,
          0.90, 4.28497E+07, 1198.76,
          1.00, 4.22266E+07, 1199.09,
          1.99, 3.71761E+07, 1201.46,
          2.99, 3.38955E+07, 1202.71,
          3.99, 3.13708E+07, 1203.49,
          4.99, 2.93736E+07, 1203.97,
          5.99, 2.77907E+07, 1204.26,
          6.99, 2.64815E+07, 1204.43,
          7.99, 2.53949E+07, 1204.52,
          8.99, 2.42941E+07, 1204.58,
          9.99, 2.29264E+07, 1204.53,
         10.99, 2.12987E+07, 1204.31,
         11.99, 1.98075E+07, 1203.97,
         12.99, 1.86026E+07, 1203.57,
         13.99, 1.75923E+07, 1203.15,
         14.99, 1.67243E+07, 1202.72,
         15.99, 1.59732E+07, 1202.27,
         16.99, 1.53021E+07, 1201.83,
         17.99, 1.47079E+07, 1201.38,
         18.99, 1.41641E+07, 1200.94,
         19.99, 1.36846E+07, 1200.51,
         20.99, 1.32585E+07, 1200.10,
         21.99, 1.28885E+07, 1199.72,
         22.99, 1.25424E+07, 1199.35,
         23.99, 1.22519E+07, 1199.00,
         24.99, 1.19556E+07, 1198.66,
         25.99, 1.16845E+07, 1198.32,
         26.99, 1.14335E+07, 1198.00,
         27.99, 1.11855E+07, 1197.69,
         28.99, 1.09624E+07, 1197.39,
         29.99, 1.07656E+07, 1197.11,
         30.99, 1.05908E+07, 1196.86,
         31.99, 1.04266E+07, 1196.62,
         32.99, 1.02687E+07, 1196.37,
         33.99, 1.01174E+07, 1196.13,
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34.99, 9.97268E+06, 1195.90,
35.99, 9.82724E+06, 1195.66,
36.99, 9.69426E+06, 1195.43,
37.99, 9.56772E+06, 1195.21,
38.99, 9.44532E+06, 1195.00,
39.99, 9.31964E+06, 1194.77,
40.99, 9.19598E+06, 1194.53,
41.99, 9.06286E+06, 1194.28,
42.99, 8.91688E+06, 1194.02,
43.99, 8.78371E+06, 1193.75,
44.99, 8.64349E+06, 1193.48,
45.99, 8.51522E+06, 1193.20,
46.99, 8.37900E+06, 1192.92,
47.99, 8.25412E+06, 1192.65,
48.99, 8.12952E+06, 1192.37,
49.99, 8.01803E+06, 1192.09,
50.99, 7.89671E+06, 1191.81,
51.99, 9.09475E+06, 1191.31,
52.99, 8.60933E+06, 1190.71,
53.99, 8.22053E+06, 1190.20,
54.99, 7.88213E+06, 1189.81,
55.99, 7.61843E+06, 1189.49,
56.99, 7.39778E+06, 1189.22,
57.99, 7.21044E+06, 1189.00,
58.99, 7.04704E+06, 1188.79,
59.99, 6.88882E+06, 1188.60,
60.99, 6.74010E+06, 1188.41,
61.99, 6.60017E+06, 1188.22,
62.99, 6.48101E+06, 1188.05,
63.99, 6.34280E+06, 1187.89,
64.99, 6.22325E+06, 1187.73,
65.99, 6.12230E+06, 1187.59,
66.99, 6.02878E+06, 1187.44,
67.99, 5.91844E+06, 1187.30,
68.99, 5.82415E+06, 1187.16,
69.99, 5.71100E+06, 1187.03,
70.99, 5.62885E+06, 1186.89,
71.99, 5.53975E+06, 1186.76,
72.99, 5.45101E+06, 1186.64,
73.99, 5.36346E+06, 1186.52,
74.99, 5.27591E+06, 1186.41,
75.99, 5.19451E+06, 1186.28,
76.99, 4.78080E+06, 1185.65,
77.99, 2.42911E+06, 1182.60,
78.99, 1.00003E+06, 1181.28,
79.99, 7.09625E+05, 1181.05,
80.99, 6.74885E+05, 1180.95,
81.99, 6.43266E+05, 1180.84,
82.99, 6.09440E+05, 1180.74,
83.99, 5.87761E+05, 1180.64,
84.99, 5.79143E+05, 1180.54,
85.99, 5.60408E+05, 1180.46,
86.99, 5.07442E+05, 1180.43,
87.99, 5.27544E+05, 1180.40,
88.99, 5.13223E+05, 1180.37,
89.99, 4.93967E+05, 1180.34,
90.99, 4.75369E+05, 1180.31,
91.99, 4.17892E+05, 1180.27,
92.99, 4.42472E+05, 1180.24,
93.99, 4.35553E+05, 1180.22,
94.99, 4.24742E+05, 1180.19,
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          95.99, 4.24066E+05, 1180.16,
          96.99, 4.14947E+05, 1180.13,
          97.99, 3.99924E+05, 1180.10,
          98.99, 3.85117E+05, 1180.07,
          99.99, 3.72010E+05, 1180.04,
         104.95, 4.67266E+05, 1179.91,
         109.95, 2.65444E+05, 1179.77,
         114.95, 3.02634E+05, 1179.65,
         119.95, 3.97318E+05, 1179.53,
         124.95, 3.20147E+05, 1179.40,
         129.95, 6.52136E+04, 1234.80,
         134.95, 1.74158E+04, 1243.44,
         139.95, 1.15998E+04, 1244.84,
         144.95, 1.07532E+04, 1245.30,
         149.95, 1.01251E+04, 1245.66,
         154.95, 9.88646E+03, 1246.00,
         159.95, 9.52420E+03, 1246.31,
         164.95, 9.23598E+03, 1246.62,
         169.95, 9.01307E+03, 1246.91,
         174.95, 8.75988E+03, 1247.20,
         179.95, 8.55796E+03, 1247.48,
         184.95, 8.34372E+03, 1247.76,
         189.95, 8.14421E+03, 1248.04,
         194.95, 7.95715E+03, 1248.31,
         199.95, 7.77107E+03, 1248.57,
         200.00, 7.76930E+03, 1248.57,
         200.00,           0,       0,
            2E7,           0,       0 $END
$LIST POOL=401,    0,        0,       0,
                  2E7,       0,       0 $END
$LIST POOL=501,    0,        29E3,    34.6E6,
                1800,        29E3,    34.6E6,
                1800,           0,         0,
                 2E7,           0,         0 $END
$LIST POOL=601,    0,     7.2E4,     6.336E6,
                0.05,     7.2E4,     6.336E6,
                0.05,       0.0,        0.0,
                 2E7,         0,          0 $END
$LIST POOL=701,    0,     0,     0,     0,
                  2E7,     0,     0,     0 $END
$LIST POOL=801,
      0,         0,   0,   0,   100,   100,
     23,         0,   0,   0,   100,   100,
     25,  0.9946E5,   0,   0,   100,   100,
     30,  2.4368E5,   0,   0,   100,   100,
     35,  5.2714E5,   0,   0,   100,   100,
     40,  6.1168E5,   0,   0,   100,   100,
     45,  6.7134E5,   0,   0,   100,   100,
     50, 15.9134E5,   0,   0,   100,   100,
    5E3, 15.9134E5,   0,   0,   100,   100,
    5E3,       0.0,   0,   0,   100,   100,
    1E7,       0.0,   0,   0,   100,   100 $END
$LIST POOL=901,     0,     0,     0,
                   2E7,     0,     0 $END
$LIST POOL=1001,    0,   100,   2.0,
                   24,   100,   2.0 $END
$LIST POOL=1101,  105,       0,
                  120,  1.67E6,
                  130,  3.02E6,
                  140,  4.57E6,
                  150,  6.32E6,
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                    160,  8.27E6,
                    170, 10.40E6,
                    180, 12.73E6,
                    190, 15.23E6,
                    200, 17.88E6,
                    210, 20.68E6,
                    220, 23.61E6,
                    230, 26.64E6,
                    240, 29.74E6,
                    250, 32.91E6,
                    260, 36.11E6,
                    270, 39.31E6,
                    280, 42.52E6,
                    287, 44.74E6,
                    290, 45.69E6,
                    300, 48.82E6 $END
$LIST POOL=1201,   0,  0.729,
                  0.1,  0.737,
                  0.2,  0.747,
                  0.3,  0.757,
                  0.4,  0.771,
                  0.5,  0.788,
                  0.6,  0.809,
                  0.7,  0.832,
                  0.8,  0.863,
                  0.9,  0.912,
                  1.0,  0.961,
                  1.1,  0.983,
                  1.2,  0.995,
                  1.3,  1.000 $END
$LIST POOL=9001,   1,  0.05,    0.1,  10,
                   5,  0.05,    0.2,  20,
                  20,  0.05,    1.0,   5,
                 100,  0.10,    1.0,  10,
                 160,  0.50,    2.0,  10,
                 200,   1.0,    5.0,   4,
                 300,   1.0,   10.0,   5,
                 600,   1.0,   25.0,   4,
                 1E3,   5.0,   50.0,   4,
                 2E3,  10.0,  250.0,   2,
                 5E3,  10.0,  250.0,   4,
                 1E4,  25.0,  500.0,   5,
                 1E5,  50.0,    5E3,   2 $END
$LIST POOL=9999 $END
* HS #1 - REACTOR BUILDING DOME
$LIST POOL=101001, 57, 14, 0, 0, 0, 0, 33017 $END
$LIST POOL=101101,  4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                    5, 0.02201, 4, 0.03001, 4, 0.04601, 4. 0.07801,
                    4, 0.14201, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                    4, 2.06201, 4, 4.06368 $END
$LIST POOL=101201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
$LIST POOL=101300, 0, 0 $END
$LIST POOL=101400, 9, 2, 1, 1 $END
* HS #2 - REACTOR BUILDING CYLINDER ABOVE 30 FT
$LIST POOL=102001,  58, 14, 0, 0, 0, 0, 34067 $END
$LIST POOL=102101, 4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                   5, 0.02201, 4, 0.03001, 4, 0.04601, 4, 0.07801,
                   4, 0.14210, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                   4, 2.06201, 5, 4.35534 $END
$LIST POOL=102201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
$LIST POOL=102300, 0, 0 $END
```

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 $LIST POOL=102400, 9, 2, 1, 1 $END
* HS #3 - REACTOR BUIDING CYLINDER WALL BELOW 30 FT
 $LIST POOL=103001,  58, 14, 0, 0, 0, 0, 5535 $END
 $LIST POOL=103101, 4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                    5, 0.02201, 4, 0.03001, 4, 0.04601, 4, 0.07801,
                    4, 0.14210, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                    4, 2.06201, 5, 4.35534 $END
 $LIST POOL=103201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=103300, 0, 0 $END
 $LIST POOL=103400, 9, 2, 0, 1 $END
* HS #4 - REACTOR BUILDING BASEMAT (Excluding Rx Cavity Basemat)
 $LIST POOL=104001, 42, 10, 0, 0, 0, 0, 12773 $END
 $LIST POOL=104101, 4, 0.00417, 4, 0.02417, 4, 0.06417, 4, 0.14417,
                    4, 0.30417, 4, 0.62417, 4, 1.26417, 4, 2.54417,
                    4, 5.10417, 5, 11.00417 $END
 $LIST POOL=104201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=104300, 0, 0 $END
 $LIST POOL=104400, 3, 3, 0, 1 $END
* HS #5 - REACTOR CAVITY BASEMAT & STEAM GENERATOR PEDESTALS
 $LIST POOL=105001, 40, 10, 0, 0, 0, 0, 1644 $END
 $LIST POOL=105101, 4, 0.00294, 4, 0.02294, 4, 0.06294, 4, 0.14294,
                    4, 0.30294, 4, 0.62294, 4, 1.26294, 4, 2.54294,
                    4, 5.10294, 3, 8.39548 $END
 $LIST POOL=105201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=105300, 0, 0 $END
 $LIST POOL=105400, 3, 3, 0, 1 $END
* HS #6 - REACTOR CAVITY BELOW ELEV. 17' - 6"
 $LIST POOL=106001, 42, 10, 0, 0, 0, 0, 1546 $END
 $LIST POOL=106101, 4, 0.00250, 4, 0.02250, 4, 0.06250, 4, 0.14250,
                    4, 0.30250, 4, 0.62250, 4, 1.26250, 4, 2.54250,
                    4, 5.10250, 5, 10.75250 $END
 $LIST POOL=106201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=106300, 0, 0 $END
 $LIST POOL=106400, 3, 3, 0, 1 $END
* HS #7 - REACTOR CAVITY WALLS ABOVE ELEV. 17'- 6"
 $LIST POOL=107001, 61, 14, 0, 0, 0, 0, 1311 $END
 $LIST POOL=107101, 4, 0.00024, 4, 0.00060, 8, 0.00250, 4, 0.00650,
                    4, 0.01450, 4, 0.03050, 4, 0.06250, 4, 0.12650,
                    4, 0.26850, 4, 0.52450, 4, 1.03650, 4, 2.06050,
                    4, 4.10850, 4, 8.35833 $END
 $LIST POOL=107201, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=107300, 0, 0 $END
 $LIST POOL=107400, 9, 2, 0, 2 $END
* HS #8 - LINED REFUELING CANAL WALLS AND FLOOR
 $LIST POOL=108001, 50, 13, 0, 0, 0, 0, 9192 $END
 $LIST POOL=108101, 4, 0.01563, 4, 0.01566, 4, 0.01571, 4, 0.01583,
                    3, 0.01598, 4, 0.02598, 4, 0.04598, 4, 0.08598,
                    4, 0.16598, 4, 0.32698, 4, 0.64598, 4, 1.28598,
                    2, 2.01598 $END
 $LIST POOL=108201, 3, 5, 5, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, $END
 $LIST POOL=108300, 0, 0 $END
 $LIST POOL=108400, 9, 2, 0, 2 $END
* HS #9 - UNLINED EXTERIOR FACES OF REFUELING CANAL WALLS
 $LIST POOL=109001, 45, 12, 0, 0, 0, 0, 11050 $END
 $LIST POOL=109101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 2, 0.00250,
                    4, 0.01250, 4, 0.03250, 4, 0.07250, 4, 0.15250,
                    4, 0.31250, 4, 0.63250, 4, 1.27250, 2, 2.00250 $END
 $LIST POOL=109201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2, 2, $END
 $LIST POOL=109300, 0, 0 $END
 $LIST POOL=109400, 9, 2, 0, 2 $END
* HS #10 - STEAM GENERATOR COMPARTMENT WALLS MISSLE SHIELDS
```

Note: See Originator's Note for HS#7 right boundary co-ordinate on sheet 127.

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					
	P.Barbour	05/16/00	J. M. Gilmer	6/27/00					

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 $LIST POOL=110001, 46, 11, 0, 0, 0, 0, 43085 $END
 $LIST POOL=110101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 2, 0.00250,
                    4, 0.01250, 4, 0.03250, 4, 0.07250, 4, 0.15250,
                    4, 0.31250, 4, 0.63250, 7, 1.71909 $END
 $LIST POOL=110201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=110300, 0, 0 $END
 $LIST POOL=110400, 9, 2, 0, 2 $END
* HS #11 - STEAM GENERATOR COMPARTMENT WALLS WITH EMBEDS
 $LIST POOL=111001, 53, 12, 0, 0, 0, 0, 6914 $END
 $LIST POOL=111101, 4, 0.00024, 5, 0.00083, 4, 0.08250, 4, 0.08490,
                    4, 0.08970, 4, 0.09930, 4, 0.11850, 4, 0.15690,
                    4, 0.23370, 4, 0.38730, 4, 0.69450, 7, 1.77167 $END
 $LIST POOL=111201, 4, 4, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=111300, 0, 0 $END
 $LIST POOL=111400, 9, 2, 0, 2 $END
* HS #12 - TOP HALF-THICKNESS OF ELEVATED FLOOR SLABS
 $LIST POOL=112001, 44, 10, 0, 0, 0, 0, 17474 $END
 $LIST POOL=112101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 5, 0.00417,
                    4, 0.01417, 4, 0.03417, 4, 0.07417, 4, 0.15417,
                    4, 0.31417, 6, 0.75417 $END
 $LIST POOL=112201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=112300, 0, 0 $END
 $LIST POOL=112400, 9, 2, 0, 2 $END
* HS #13 - LOWER HALF-THICKNESS OF ELEVATED FLOOR SLABS
 $LIST POOL=113001, 48, 12, 0, 0, 0, 0, 23240 $END
 $LIST POOL=113101, 2, 0.00521, 4, 0.00553, 4, 0.00617, 4, 0.00745,
                    4, 0.01001, 4, 0.01513, 4, 0.02537, 4, 0.04585,
                    4, 0.08681, 4, 0.16873, 4, 0.33257, 5, 0.75556 $END
 $LIST POOL=113201, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=113300, 0, 0 $END
 $LIST POOL=113400, 9, 2, 0, 2 $END
* HS #14 - LIFTING DEVICES (CARBON STEEL)
 $LIST POOL=114001, 17, 3, 0, 0, 0, 0, 59265 $END
 $LIST POOL=114101, 4, 0.00024, 8, 0.00125, 4, 0.04133 $END
 $LIST POOL=114201, 4, 4, 1 $END
 $LIST POOL=114300, 0, 0 $END
 $LIST POOL=114400, 9, 2, 0, 2 $END
* HS #15 - MISCELLANEOUS CARBON STEEL - THICKNESS > 2.50 INCHES
 $LIST POOL=115001, 18, 4, 0, 0, 0, 0, 2248 $END
 $LIST POOL=115101, 4, 0.00024, 5, 0.00083, 4, 0.08083, 4, 0.22136 $END
 $LIST POOL=115201, 4, 4, 1, 1 $END
 $LIST POOL=115300, 0, 0 $END
 $LIST POOL=115400, 9, 2, 0, 2 $END
* HS #16 - MISCELLANEOUS CARBON STEEL: 1.00"<THICKNESS</=2.50"
 $LIST POOL=116001, 16, 3, 0, 0, 0, 0, 9230 $END
 $LIST POOL=116101, 4, 0.00024, 5, 0.00083, 6, 0.13113 $END
 $LIST POOL=116201, 4, 4, 1 $END
 $LIST POOL=116300, 0, 0 $END
 $LIST POOL=116400, 9, 2, 0, 2 $END
* HS #17 - MISCELLANEOUS CARBON STEEL: 0.50"<THICKNESS</=1.00"
 $LIST POOL=117001, 14, 3, 0, 0, 0, 0, 8718 $END
 $LIST POOL=117101, 4, 0.00024, 5, 0.00083, 4, 0.06371 $END
 $LIST POOL=117201, 4, 4, 1 $END
 $LIST POOL=117300, 0, 0 $END
 $LIST POOL=117400, 9, 2, 0, 2 $END
* HS #18 - MISCELLANEOUS CARBON STEEL: THICKNESS</=0.5"
 $LIST POOL=118001, 14, 3, 0, 0, 0, 0, 158755 $END
 $LIST POOL=118101, 4, 0.00024, 5, 0.00083, 4, 0.02275 $END
 $LIST POOL=118201, 4, 4, 1 $END
 $LIST POOL=118300, 0, 0 $END
 $LIST POOL=118400, 9, 2, 0, 2 $END
```

Note: See Originator's Note for HS#13 first and final concrete region right boundary coordinates on sheet 128.

Note: See Originator's Note for HS#18 area and right boundary coordinate on sheet 129.

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* HS #19 - ELECTRICAL EQUIPMENT & OTHER GALVANIZED STEEL
 $LIST POOL=119001, 4, 1, 0, 0, 0, 0, 131698 $END
 $LIST POOL=119101, 3, 0.00879 $END
 $LIST POOL=119201, 1 $END
 $LIST POOL=119300, 0, 0 $END
 $LIST POOL=119400, 9, 2, 0, 2 $END
* HS #20 - MISCELLANEOUS STAINLESS STEEL
 $LIST POOL=120001, 5, 1, 0, 0, 0, 0, 26893 $END
 $LIST POOL=120101, 4, 0.01459 $END
 $LIST POOL=120201, 3 $END
 $LIST POOL=120300, 0, 0 $END
 $LIST POOL=120400, 9, 2, 0, 2 $END
* HS #21 - REACTOR BUILDING STIFFENED SECTIONS ABOVE ELEV. 30 FT
 $LIST POOL=121001, 44, 10, 0, 0, 0, 0, 3764 $END
 $LIST POOL=121101, 4, 0.00024, 5, 0.00083, 4, 0.08083, 4, 0.24083,
                    4, 0.52166, 4, 0.52201, 4, 0.54201, 4, 0.94201,
                    4, 1.74201, 6, 4.17659 $END
 $LIST POOL=121201, 4, 4, 1, 1, 1, 5, 2, 2, 2, 2 $END
 $LIST POOL=121300, 0, 0 $END
 $LIST POOL=121400, 9, 2, 1, 1 $END
 $LIST POOL=410001,
            25,     54,
           0.8,     30,
            10,     54,
          0.15,     20,
        0.0174, 0.0103 $END
 $LIST POOL=500000 $END
```

Case 16 - MSLB @ 80% Power w/MSIV Failure

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*CASE 16 - 8.10 FT2 SLOT MSLB @ 80% POWER W/MSIV FAILURE: N-4080-027R1
 $LIST POOL=0,0,1,0,1 $END
 $LIST POOL=1,5E3,16.8,2.305E6,120,0.05,21,0.0,1,1,0.00,14.7,0.5 $END
 $LIST POOL=2,0,0,0,0,0,2.0,2E7 $END
 $LIST POOL=3,0,0,0,0,0,2E7,0,0,0,0 $END
 $LIST POOL=4,0,0,0,0,0,0,0,0,0,0,0,0,0 $END
 $LIST POOL=5,4,50,2E7,0,0 $END
 $LIST POOL=6,0,0,0 $END
 $LEAK NOPEN=0 $END
 $LIST POOL=101,    0,      0,
                  2E7,      0 $END
 $LIST POOL=201,    0,      0,
                  2E7,      0 $END
 $LIST POOL=301,
          0.00, 5.56351E+07, 1195.39,
          0.10, 5.43438E+07, 1196.02,
          0.20, 5.31950E+07, 1196.63,
          0.30, 5.21208E+07, 1197.20,
          0.40, 5.11009E+07, 1197.73,
          0.50, 5.01361E+07, 1198.21,
          0.60, 4.92098E+07, 1198.66,
          0.70, 4.83278E+07, 1199.07,
          0.80, 4.74872E+07, 1199.46,
          0.90, 4.66787E+07, 1199.82,
          1.00, 4.59036E+07, 1200.15,
          1.99, 4.00396E+07, 1202.37,
          2.99, 3.64633E+07, 1203.38,
          3.99, 3.37869E+07, 1203.96,
          4.99, 3.17606E+07, 1204.28,
          5.99, 3.01806E+07, 1204.44,
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 6.99, 2.89407E+07, 1204.52,
 7.99, 2.78720E+07, 1204.56,
 8.99, 2.66760E+07, 1204.56,
 9.99, 2.51132E+07, 1204.41,
10.99, 2.32979E+07, 1204.11,
11.99, 2.16796E+07, 1203.70,
12.99, 2.03429E+07, 1203.24,
13.99, 1.92484E+07, 1202.78,
14.99, 1.83280E+07, 1202.31,
15.99, 1.75189E+07, 1201.84,
16.99, 1.67946E+07, 1201.37,
17.99, 1.61436E+07, 1200.91,
18.99, 1.55697E+07, 1200.46,
19.99, 1.50678E+07, 1200.03,
20.99, 1.46219E+07, 1199.62,
21.99, 1.42191E+07, 1199.23,
22.99, 1.38526E+07, 1198.86,
23.99, 1.35114E+07, 1198.49,
24.99, 1.31816E+07, 1198.14,
25.99, 1.28777E+07, 1197.79,
26.99, 1.25876E+07, 1197.47,
27.99, 1.23320E+07, 1197.15,
28.99, 1.20972E+07, 1196.86,
29.99, 1.18879E+07, 1196.57,
30.99, 1.16702E+07, 1196.29,
31.99, 1.14825E+07, 1196.02,
32.99, 1.12945E+07, 1195.75,
33.99, 1.10913E+07, 1195.46,
34.99, 1.08911E+07, 1195.16,
35.99, 1.06913E+07, 1194.85,
36.99, 1.04966E+07, 1194.53,
37.99, 1.03022E+07, 1194.21,
38.99, 1.01114E+07, 1193.89,
39.99, 9.92408E+06, 1193.56,
40.99, 9.74833E+06, 1193.22,
41.99, 9.56992E+06, 1192.89,
42.99, 9.38372E+06, 1192.56,
43.99, 9.72526E+06, 1192.10,
44.99, 9.11628E+06, 1191.84,
45.99, 8.88354E+06, 1191.52,
46.99, 8.72618E+06, 1191.19,
47.99, 8.57772E+06, 1190.86,
48.99, 8.43941E+06, 1190.53,
49.99, 8.29854E+06, 1190.21,
50.99, 8.14820E+06, 1189.90,
51.99, 8.04049E+06, 1189.59,
52.99, 7.91215E+06, 1189.28,
53.99, 7.76700E+06, 1188.97,
54.99, 7.53343E+06, 1188.74,
55.99, 7.36006E+06, 1188.54,
56.99, 7.17102E+06, 1188.36,
57.99, 7.03274E+06, 1188.19,
58.99, 6.89990E+06, 1188.03,
59.99, 6.73873E+06, 1187.88,
60.99, 6.63188E+06, 1187.74,
61.99, 6.50023E+06, 1187.60,
62.99, 2.71007E+06, 1183.63,
63.99, 4.41202E+05, 1182.11,
64.99, 2.14531E+05, 1181.97,
65.99, 2.77861E+05, 1181.87,
66.99, 4.63694E+05, 1196.70,
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          67.99, 3.24327E+05, 1210.16,
          68.99, 1.82254E+05, 1221.77,
          69.99, 1.28134E+05, 1228.39,
          70.99, 1.04730E+05, 1233.18,
          71.99, 8.96011E+04, 1236.91,
          72.99, 7.54772E+04, 1239.77,
          73.99, 6.10106E+04, 1241.72,
          74.99, 4.84790E+04, 1242.75,
          75.99, 4.08042E+04, 1243.07,
          76.99, 3.91090E+04, 1243.08,
          77.99, 4.19746E+04, 1243.16,
          78.99, 4.62485E+04, 1243.55,
          79.99, 4.87307E+04, 1244.23,
          80.99, 4.77835E+04, 1245.00,
          81.99, 4.39531E+04, 1245.62,
          82.99, 3.93304E+04, 1245.93,
          83.99, 2.61482E+04, 1246.04,
          84.99, 1.91581E+04, 1246.76,
          85.99, 1.73690E+04, 1247.17,
          86.99, 1.80031E+04, 1247.57,
          87.99, 1.86574E+04, 1248.04,
          88.99, 1.79562E+04, 1248.53,
          89.99, 1.58372E+04, 1248.92,
          90.99, 1.32302E+04, 1249.13,
          91.99, 1.13216E+04, 1249.16,
          92.99, 1.08351E+04, 1249.11,
          93.99, 1.16870E+04, 1249.09,
          94.99, 1.31257E+04, 1249.17,
          95.99, 1.42066E+04, 1249.36,
          96.99, 1.43128E+04, 1249.61,
          97.99, 1.34366E+04, 1249.84,
          98.99, 1.20995E+04, 1249.99,
          99.99, 1.09990E+04, 1250.05,
         104.95, 1.24410E+04, 1250.42,
         109.95, 1.04682E+04, 1250.88,
         114.95, 1.05964E+04, 1251.40,
         119.95, 1.02259E+04, 1251.77,
         124.95, 9.57496E+03, 1252.23,
         129.95, 9.50270E+03, 1252.64,
         134.95, 9.03982E+03, 1253.04,
         139.95, 8.78148E+03, 1253.45,
         144.95, 8.53553E+03, 1253.84,
         149.95, 8.23612E+03, 1254.23,
         154.95, 8.03322E+03, 1254.61,
         159.95, 7.81207E+03, 1254.99,
         164.95, 7.62376E+03, 1255.36,
         169.95, 7.44793E+03, 1255.72,
         174.95, 7.26818E+03, 1256.08,
         179.95, 7.10446E+03, 1256.44,
         184.95, 6.94343E+03, 1256.80,
         189.95, 6.78906E+03, 1257.15,
         194.95, 6.64218E+03, 1257.50,
         199.95, 6.49951E+03, 1257.84,
         200.00, 6.49814E+03, 1257.84,
         200.00,           0,       0,
            2E7,           0,       0 $END
$LIST POOL=401,    0,        0,       0,
                 2E7,        0,       0 $END
$LIST POOL=501,    0,      29E3,    34.6E6,
                1800,      29E3,    34.6E6,
                1800,         0,         0,
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                    2E7,          0,          0 $END
$LIST POOL=601,     0,     7.2E4,     6.336E6,
                 0.05,     7.2E4,     6.336E6,
                 0.05,       0.0,         0.0,
                  2E7,         0,           0 $END
$LIST POOL=701,     0,     0,     0,     0,
                   2E7,     0,     0,     0 $END
$LIST POOL=801,
       0,          0,   0,   0,   100,   100,
      23,          0,   0,   0,   100,   100,
      25,  0.9946E5,   0,   0,   100,   100,
      30,  2.4368E5,   0,   0,   100,   100,
      35,  5.2714E5,   0,   0,   100,   100,
      40,  6.1168E5,   0,   0,   100,   100,
      45,  6.7134E5,   0,   0,   100,   100,
      50, 15.9134E5,   0,   0,   100,   100,
     5E3, 15.9134E5,   0,   0,   100,   100,
     5E3,       0.0,   0,   0,   100,   100,
     1E7,       0.0,   0,   0,   100,   100 $END
$LIST POOL=901,     0,     0,     0,
                   2E7,     0,     0 $END
$LIST POOL=1001,    0,   100,   2.0,
                   24,   100,   2.0 $END
$LIST POOL=1101,  105,       0,
                  120,  1.67E6,
                  130,  3.02E6,
                  140,  4.57E6,
                  150,  6.32E6,
                  160,  8.27E6,
                  170, 10.40E6,
                  180, 12.73E6,
                  190, 15.23E6,
                  200, 17.88E6,
                  210, 20.68E6,
                  220, 23.61E6,
                  230, 26.64E6,
                  240, 29.74E6,
                  250, 32.91E6,
                  260, 36.11E6,
                  270, 39.31E6,
                  280, 42.52E6,
                  287, 44.74E6,
                  290, 45.69E6,
                  300, 48.82E6 $END
$LIST POOL=1201,    0,  0.729,
                  0.1,  0.737,
                  0.2,  0.747,
                  0.3,  0.757,
                  0.4,  0.771,
                  0.5,  0.788,
                  0.6,  0.809,
                  0.7,  0.832,
                  0.8,  0.863,
                  0.9,  0.912,
                  1.0,  0.961,
                  1.1,  0.983,
                  1.2,  0.995,
                  1.3,  1.000 $END
$LIST POOL=9001,    1,  0.05,    0.1,  10,
                    5,  0.05,    0.2,  20,
                   20,  0.05,    1.0,   5,
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                    100,  0.10,    1.0,  10,
                    160,  0.50,    2.0,  10,
                    200,   1.0,    5.0,   4,
                    300,   1.0,   10.0,   5,
                    600,   1.0,   25.0,   4,
                    1E3,   5.0,   50.0,   4,
                    2E3,  10.0,  250.0,   2,
                    5E3,  10.0,  250.0,   4,
                    1E4,  25.0,  500.0,   5,
                    1E5,  50.0,    5E3,   2 $END
 $LIST POOL=9999 $END
* HS #1 - REACTOR BUILDING DOME
 $LIST POOL=101001, 57, 14, 0, 0, 0, 0, 33017 $END
 $LIST POOL=101101,  4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                     5, 0.02201, 4, 0.03001, 4, 0.04601, 4. 0.07801,
                     4, 0.14201, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                     4, 2.06201, 4, 4.06368 $END
 $LIST POOL=101201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=101300, 0, 0 $END
 $LIST POOL=101400, 9, 2, 1, 1 $END
* HS #2 - REACTOR BUILDING CYLINDER ABOVE 30 FT
 $LIST POOL=102001,  58, 14, 0, 0, 0, 0, 34067 $END
 $LIST POOL=102101, 4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                    5, 0.02201, 4, 0.03001, 4, 0.04601, 4, 0.07801,
                    4, 0.14210, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                    4, 2.06201, 5, 4.35534 $END
 $LIST POOL=102201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=102300, 0, 0 $END
 $LIST POOL=102400, 9, 2, 1, 1 $END
* HS #3 - REACTOR BUIDING CYLINDER WALL BELOW 30 FT
 $LIST POOL=103001,  58, 14, 0, 0, 0, 0, 5535 $END
 $LIST POOL=103101, 4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                    5, 0.02201, 4, 0.03001, 4, 0.04601, 4, 0.07801,
                    4, 0.14210, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                    4, 2.06201, 5, 4.35534 $END
 $LIST POOL=103201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=103300, 0, 0 $END
 $LIST POOL=103400, 9, 2, 0, 1 $END
* HS #4 - REACTOR BUILDING BASEMAT (Excluding Rx Cavity Basemat)
 $LIST POOL=104001, 42, 10, 0, 0, 0, 0, 12773 $END
 $LIST POOL=104101, 4, 0.00417, 4, 0.02417, 4, 0.06417, 4, 0.14417,
                    4, 0.30417, 4, 0.62417, 4, 1.26417, 4, 2.54417,
                    4, 5.10417, 5, 11.00417 $END
 $LIST POOL=104201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=104300, 0, 0 $END
 $LIST POOL=104400, 3, 3, 0, 1 $END
* HS #5 - REACTOR CAVITY BASEMAT & STEAM GENERATOR PEDESTALS
 $LIST POOL=105001, 40, 10, 0, 0, 0, 0, 1644 $END
 $LIST POOL=105101, 4, 0.00294, 4, 0.02294, 4, 0.06294, 4, 0.14294,
                    4, 0.30294, 4, 0.62294, 4, 1.26294, 4, 2.54294,
                    4, 5.10294, 3, 8.39548 $END
 $LIST POOL=105201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=105300, 0, 0 $END
 $LIST POOL=105400, 3, 3, 0, 1 $END
* HS #6 - REACTOR CAVITY BELOW ELEV. 17' - 6"
 $LIST POOL=106001, 42, 10, 0, 0, 0, 0, 1546 $END
 $LIST POOL=106101, 4, 0.00250, 4, 0.02250, 4, 0.06250, 4, 0.14250,
                    4, 0.30250, 4, 0.62250, 4, 1.26250, 4, 2.54250,
                    4, 5.10250, 5, 10.75250 $END
 $LIST POOL=106201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=106300, 0, 0 $END
```

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 $LIST POOL=106400, 3, 3, 0, 1 $END
* HS #7 - REACTOR CAVITY WALLS ABOVE ELEV. 17'- 6"
 $LIST POOL=107001, 61, 14, 0, 0, 0, 0, 1311 $END
 $LIST POOL=107101, 4, 0.00024, 4, 0.00060, 8, 0.00250, 4, 0.00650,
                    4, 0.01450, 4, 0.03050, 4, 0.06250, 4, 0.12650,
                    4, 0.26850, 4, 0.52450, 4, 1.03650, 4, 2.06050,
                    4, 4.10850, 4, 8.35833 $END
 $LIST POOL=107201, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2  2, 2 $END
 $LIST POOL=107300, 0, 0 $END
 $LIST POOL=107400, 9, 2, 0, 2 $END
* HS #8 - LINED REFUELING CANAL WALLS AND FLOOR
 $LIST POOL=108001, 50, 13, 0, 0, 0, 0, 9192 $END
 $LIST POOL=108101, 4, 0.01563, 4, 0.01566, 4, 0.01571, 4, 0.01583,
                    3, 0.01598, 4, 0.02598, 4, 0.04598, 4, 0.08598,
                    4, 0.16598, 4, 0.32698, 4, 0.64598, 4, 1.28598,
                    2, 2.01598 $END
 $LIST POOL=108201, 3, 5, 5, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, $END
 $LIST POOL=108300, 0, 0 $END
 $LIST POOL=108400, 9, 2, 0, 2 $END
* HS #9 - UNLINED EXTERIOR FACES OF REFUELING CANAL WALLS
 $LIST POOL=109001, 45, 12, 0, 0, 0, 0, 11050 $END
 $LIST POOL=109101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 2, 0.00250,
                    4, 0.01250, 4, 0.03250, 4, 0.07250, 4, 0.15250,
                    4, 0.31250, 4, 0.63250, 4, 1.27250, 2, 2.00250 $END
 $LIST POOL=109201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2, 2, $END
 $LIST POOL=109300, 0, 0 $END
 $LIST POOL=109400, 9, 2, 0, 2 $END
* HS #10 - STEAM GENERATOR COMPARTMENT WALLS MISSLE SHIELDS
 $LIST POOL=110001, 46, 11, 0, 0, 0, 0, 43085 $END
 $LIST POOL=110101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 2, 0.00250,
                    4, 0.01250, 4, 0.03250, 4, 0.07250, 4, 0.15250,
                    4, 0.31250, 4, 0.63250, 7, 1.71909 $END
 $LIST POOL=110201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=110300, 0, 0 $END
 $LIST POOL=110400, 9, 2, 0, 2 $END
* HS #11 - STEAM GENERATOR COMPARTMENT WALLS WITH EMBEDS
 $LIST POOL=111001, 53, 12, 0, 0, 0, 0, 6914 $END
 $LIST POOL=111101, 4, 0.00024, 5, 0.00083, 4, 0.08250, 4, 0.08490,
                    4, 0.08970, 4, 0.09930, 4, 0.11850, 4, 0.15690,
                    4, 0.23370, 4, 0.38730, 4, 0.69450, 7, 1.77167 $END
 $LIST POOL=111201, 4, 4, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=111300, 0, 0 $END
 $LIST POOL=111400, 9, 2, 0, 2 $END
* HS #12 - TOP HALF-THICKNESS OF ELEVATED FLOOR SLABS
 $LIST POOL=112001, 44, 10, 0, 0, 0, 0, 17474 $END
 $LIST POOL=112101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 5, 0.00417,
                    4, 0.01417, 4, 0.03417, 4, 0.07417, 4, 0.15417,
                    4, 0.31417, 6, 0.75417 $END
 $LIST POOL=112201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=112300, 0, 0 $END
 $LIST POOL=112400, 9, 2, 0, 2 $END
* HS #13 - LOWER HALF-THICKNESS OF ELEVATED FLOOR SLABS
 $LIST POOL=113001, 48, 12, 0, 0, 0, 0, 23240 $END
 $LIST POOL=113101, 2, 0.00521, 4, 0.00553, 4, 0.00617, 4, 0.00745,
                    4, 0.01001, 4, 0.01513, 4, 0.02537, 4, 0.04585,
                    4, 0.08681, 4, 0.16873, 4, 0.33257, 5, 0.75556 $END
 $LIST POOL=113201, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=113300, 0, 0 $END
 $LIST POOL=113400, 9, 2, 0, 2 $END
* HS #14 - LIFTING DEVICES (CARBON STEEL)
 $LIST POOL=114001, 17, 3, 0, 0, 0, 0, 59265 $END
```

Note: See Originator's Note for HS#7 right boundary co-ordinate on sheet 127.

Note: See Originator's Note for HS#13 first and final concrete region right boundary coordinates on sheet 128.

```
$LIST POOL=114101, 4, 0.00024, 8, 0.00125, 4, 0.04133 $END
$LIST POOL=114201, 4, 4, 1 $END
$LIST POOL=114300, 0, 0 $END
$LIST POOL=114400, 9, 2, 0, 2 $END
* HS #15 - MISCELLANEOUS CARBON STEEL - THICKNESS > 2.50 INCHES
$LIST POOL=115001, 18, 4, 0, 0, 0, 0, 2248 $END
$LIST POOL=115101, 4, 0.00024, 5, 0.00083, 4, 0.08083, 4, 0.22136 $END
$LIST POOL=115201, 4, 4, 1, 1 $END
$LIST POOL=115300, 0, 0 $END
$LIST POOL=115400, 9, 2, 0, 2 $END
* HS #16 - MISCELLANEOUS CARBON STEEL: 1.00"<THICKNESS</=2.50"
$LIST POOL=116001, 16, 3, 0, 0, 0, 0, 9230 $END
$LIST POOL=116101, 4, 0.00024, 5, 0.00083, 6, 0.13113 $END
$LIST POOL=116201, 4, 4, 1 $END
$LIST POOL=116300, 0, 0 $END
$LIST POOL=116400, 9, 2, 0, 2 $END
* HS #17 - MISCELLANEOUS CARBON STEEL: 0.50"<THICKNESS</=1.00"
$LIST POOL=117001, 14, 3, 0, 0, 0, 0, 8718 $END
$LIST POOL=117101, 4, 0.00024, 5, 0.00083, 4, 0.06371 $END
$LIST POOL=117201, 4, 4, 1 $END
$LIST POOL=117300, 0, 0 $END
$LIST POOL=117400, 9, 2, 0, 2 $END
* HS #18 - MISCELLANEOUS CARBON STEEL: THICKNESS</=0.5"
$LIST POOL=118001, 14, 3, 0, 0, 0, 0, 158755 $END
$LIST POOL=118101, 4, 0.00024, 5, 0.00083, 4, 0.02275 $END
$LIST POOL=118201, 4, 4, 1 $END
$LIST POOL=118300, 0, 0 $END
$LIST POOL=118400, 9, 2, 0, 2 $END
* HS #19 - ELECTRICAL EQUIPMENT & OTHER GALVANIZED STEEL
$LIST POOL=119001, 4, 1, 0, 0, 0, 0, 131698 $END
$LIST POOL=119101, 3, 0.00879 $END
$LIST POOL=119201, 1 $END
$LIST POOL=119300, 0, 0 $END
$LIST POOL=119400, 9, 2, 0, 2 $END
* HS #20 - MISCELLANEOUS STAINLESS STEEL
$LIST POOL=120001, 5, 1, 0, 0, 0, 0, 26893 $END
$LIST POOL=120101, 4, 0.01459 $END
$LIST POOL=120201, 3 $END
$LIST POOL=120300, 0, 0 $END
$LIST POOL=120400, 9, 2, 0, 2 $END
* HS #21 - REACTOR BUILDING STIFFENED SECTIONS ABOVE ELEV. 30 FT
$LIST POOL=121001, 44, 10, 0, 0, 0, 0, 3764 $END
$LIST POOL=121101, 4, 0.00024, 5, 0.00083, 4, 0.08083, 4, 0.24083,
                   4, 0.52166, 4, 0.52201, 4, 0.54201, 4, 0.94201,
                   4, 1.74201, 6, 4.17659 $END
$LIST POOL=121201, 4, 4, 1, 1, 1, 5, 2, 2, 2, 2 $END
$LIST POOL=121300, 0, 0 $END
$LIST POOL=121400, 9, 2, 1, 1 $END
$LIST POOL=410001,
          25,     54,
         0.8,     30,
          10,     54,
        0.15,     20,
      0.0174, 0.0103 $END
$LIST POOL=500000 $END
```

Note: See Originator's Note for HS#18 area and right boundary coordinate on sheet 129.

Case 7 - MSLB @ 102% Power w/MSIV Failure

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*CASE 7 - 8.85 FT2 SLOT MSLB @ 102% POWER W/MSIV FAILURE: N-4080-027R1
 $LIST POOL=0,0,1,0,1 $END
 $LIST POOL=1,5E3,16.8,2.305E6,120,0.05,21,0.0,1,1,0.00,14.7,0.5 $END
 $LIST POOL=2,0,0,0,0,0,2.0,2E7 $END
 $LIST POOL=3,0,0,0,0,0,2E7,0,0,0,0 $END
 $LIST POOL=4,0,0,0,0,0,0,0,0,0,0,0,0,0 $END
 $LIST POOL=5,4,50,2E7,0,0 $END
 $LIST POOL=6,0,0,0 $END
 $LEAK NOPEN=0 $END
 $LIST POOL=101,    0,     0,
                  2E7,     0 $END
 $LIST POOL=201,    0,     0,
                  2E7,     0 $END
 $LIST POOL=301,
                    0,   5.98327E+07,     1195.73,
                 0.10,   5.75122E+07,     1196.41,
                 0.20,   5.57370E+07,     1197.03,
                 0.30,   5.43010E+07,     1197.60,
                 0.40,   5.30896E+07,     1198.12,
                 0.50,   5.20330E+07,     1198.61,
                 0.60,   5.10912E+07,     1199.06,
                 0.70,   5.02333E+07,     1199.48,
                 0.80,   4.94377E+07,     1199.87,
                 0.90,   4.86918E+07,     1200.24,
                 1.00,   4.79844E+07,     1200.58,
                 1.99,   4.22996E+07,     1202.77,
                 2.99,   3.84905E+07,     1203.67,
                 3.99,   3.57314E+07,     1204.14,
                 4.99,   3.36987E+07,     1204.38,
                 5.99,   3.22780E+07,     1204.49,
                 6.99,   3.12150E+07,     1204.54,
                 7.99,   3.02679E+07,     1204.56,
                 8.99,   2.90136E+07,     1204.56,
                 9.99,   2.72875E+07,     1204.41,
                10.99,   2.52859E+07,     1204.10,
                11.99,   2.31050E+07,     1203.71,
                12.99,   2.14734E+07,     1203.29,
                13.99,   2.02301E+07,     1202.88,
                14.99,   1.92300E+07,     1202.46,
                15.99,   1.83844E+07,     1202.05,
                16.99,   1.76321E+07,     1201.62,
                17.99,   1.69480E+07,     1201.18,
                18.99,   1.63347E+07,     1200.76,
                19.99,   1.57910E+07,     1200.37,
                20.99,   1.53147E+07,     1200.00,
                21.99,   1.48990E+07,     1199.67,
                22.99,   1.45314E+07,     1199.34,
                23.99,   1.41958E+07,     1199.02,
                24.99,   1.38684E+07,     1198.69,
                25.99,   1.35715E+07,     1198.37,
                26.99,   1.32724E+07,     1198.05,
                27.99,   1.29986E+07,     1197.76,
                28.99,   1.27477E+07,     1197.47,
                29.99,   1.24979E+07,     1197.16,
                30.99,   1.22491E+07,     1196.85,
                31.99,   1.20009E+07,     1196.52,
                32.99,   1.17508E+07,     1196.18,
                33.99,   1.15086E+07,     1195.83,
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34.99,    1.12624E+07,    1195.47,
35.99,    1.10236E+07,    1195.12,
36.99,    1.07968E+07,    1194.78,
37.99,    1.05819E+07,    1194.45,
38.99,    1.03779E+07,    1194.12,
39.99,    1.09174E+07,    1193.56,
40.99,    1.00225E+07,    1193.42,
41.99,    9.70326E+06,    1193.14,
42.99,    9.52574E+06,    1192.81,
43.99,    9.35935E+06,    1192.48,
44.99,    9.18911E+06,    1192.16,
45.99,    9.01588E+06,    1191.85,
46.99,    8.89207E+06,    1191.53,
47.99,    8.73400E+06,    1191.22,
48.98,    8.58726E+06,    1190.91,
49.99,    8.45867E+06,    1190.60,
50.99,    8.32622E+06,    1190.30,
51.99,    8.19641E+06,    1190.00,
52.99,    3.65717E+06,    1184.74,
53.99,    6.83237E+05,    1182.70,
54.99,    3.68528E+05,    1182.53,
55.99,    6.18599E+05,    1191.10,
56.99,    3.37910E+05,    1208.76,
57.99,    2.69605E+05,    1221.42,
58.99,    1.36503E+05,    1236.78,
59.99,    1.02371E+05,    1241.74,
60.99,    8.92084E+04,    1245.39,
61.99,    8.08884E+04,    1248.49,
62.99,    6.97244E+04,    1251.03,
63.99,    5.55962E+04,    1252.71,
64.99,    4.26834E+04,    1253.43,
65.99,    3.53102E+04,    1253.42,
66.99,    3.50379E+04,    1253.14,
67.99,    4.00255E+04,    1253.08,
68.99,    4.61833E+04,    1253.07,
69.99,    4.95709E+04,    1254.27,
70.99,    4.83487E+04,    1255.18,
71.99,    4.34754E+04,    1255.89,
72.99,    3.77662E+04,    1256.19,
73.99,    3.40761E+04,    1256.14,
74.99,    3.37815E+04,    1255.94,
75.99,    3.62981E+04,    1255.86,
76.99,    3.96734E+04,    1256.04,
77.99,    4.17902E+04,    1256.47,
78.99,    4.15062E+04,    1257.01,
79.99,    3.91316E+04,    1257.46,
80.99,    3.60540E+04,    1257.69,
81.99,    3.38323E+04,    1257.73,
82.99,    2.15769E+04,    1257.79,
83.99,    1.68380E+04,    1258.41,
84.99,    1.58215E+04,    1258.82,
85.99,    1.57703E+04,    1259.21,
86.99,    1.52111E+04,    1259.59,
87.99,    1.38181E+04,    1259.91,
88.99,    1.20753E+04,    1260.10,
89.99,    1.07364E+04,    1260.16,
90.99,    1.03087E+04,    1260.15,
91.99,    1.07857E+04,    1260.16,
92.99,    1.17064E+04,    1260.24,
93.99,    1.24519E+04,    1260.40,
94.99,    1.25882E+04,    1260.62,
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                95.99,    1.20720E+04,     1260.82,
                96.99,    1.12037E+04,     1260.97,
                97.99,    1.04381E+04,     1261.05,
                98.99,    1.01073E+04,     1261.10,
                99.99,    1.02701E+04,     1261.14,
               104.95,    1.05164E+04,     1261.79,
               109.95,    1.01719E+04,     1262.22,
               114.95,    9.42246E+03,     1262.79,
               119.95,    9.40644E+03,     1263.28,
               124.95,    8.89672E+03,     1263.76,
               129.95,    8.63748E+03,     1264.26,
               134.95,    8.38825E+03,     1264.73,
               139.95,    8.07574E+03,     1265.20,
               144.95,    7.86686E+03,     1265.66,
               149.95,    7.62509E+03,     1266.11,
               154.99,    7.41622E+03,     1266.56,
               159.95,    7.24896E+03,     1267.00,
               164.95,    7.06982E+03,     1267.44,
               169.95,    6.90764E+03,     1267.87,
               174.95,    6.74752E+03,     1268.30,
               179.95,    6.59416E+03,     1268.72,
               184.95,    6.44746E+03,     1269.14,
               189.95,    6.30508E+03,     1269.56,
               194.95,    6.16925E+03,     1269.97,
               199.95,    6.03828E+03,     1270.38,
               200.00,    6.03702E+03,     1270.38,
               200.00,              0,          0,
                 2E7,               0,          0 $END
$LIST POOL=401,   0,     0,     0,
                 2E7,     0,     0 $END
$LIST POOL=501,   0,         29E3,  34.5941E6,
               1800,         29E3,  34.5941E6,
               1800,            0,          0,
                2E7,            0,          0 $END
$LIST POOL=601,     0,      7.2E4,     6.336E6,
                 0.05,      7.2E4,     6.366E6,
                 0.05,        0.0,         0.0,
                  2E7,          0,           0 $END
$LIST POOL=701,   0,     0,     0,     0,
                 2E7,     0,     0,     0 $END
$LIST POOL=801,
      0,          0,   0,   0,   100,   100,
     23,          0,   0,   0,   100,   100,
     25,  0.9946E5,   0,   0,   100,   100,
     30,  2.4368E5,   0,   0,   100,   100,
     35,  5.2714E5,   0,   0,   100,   100,
     40,  6.1168E5,   0,   0,   100,   100,
     45,  6.7134E5,   0,   0,   100,   100,
     50, 15.9134E5,   0,   0,   100,   100,
    5E3, 15.9134E5,   0,   0,   100,   100,
    5E3,       0.0,   0,   0,   100,   100,
    1E7,       0.0,   0,   0,   100,   100 $END
$LIST POOL=901,     0,     0,     0,
                 2E7,     0,     0 $END
$LIST POOL=1001,    0,   100,   2.0,
                   24,   100,   2.0 $END
$LIST POOL=1101,  105,        0,
                  120,   1.67E6,
                  130,   3.02E6,
                  140,   4.57E6,
                  150,   6.32E6,
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                    160,   8.27E6,
                    170,  10.40E6,
                    180,  12.73E6,
                    190,  15.23E6,
                    200,  17.88E6,
                    210,  20.68E6,
                    220,  23.61E6,
                    230,  26.64E6,
                    240,  29.74E6,
                    250,  32.91E6,
                    260,  36.11E6,
                    270,  39.31E6,
                    280,  42.52E6,
                    287,  44.74E6,
                    290,  45.69E6,
                    300,  48.82E6 $END
 $LIST POOL=1201,    0,  0.729,
                   0.1,  0.737,
                   0.2,  0.747,
                   0.3,  0.757,
                   0.4,  0.771,
                   0.5,  0.788,
                   0.6,  0.809,
                   0.7,  0.832,
                   0.8,  0.863,
                   0.9,  0.912,
                   1.0,  0.961,
                   1.1,  0.983,
                   1.2,  0.995,
                   1.3,  1.000 $END
 $LIST POOL=9001,   1,  0.05,    0.1,  10,
                    5,  0.05,    0.2,  20,
                   20,  0.05,    1.0,   5,
                  100,  0.10,    1.0,  10,
                  160,  0.50,    2.0,  10,
                  200,   1.0,    5.0,   4,
                  300,   1.0,   10.0,   5,
                  600,   1.0,   25.0,   4,
                  1E3,   5.0,   50.0,   4,
                  2E3,  10.0,  250.0,   2,
                  5E3,  10.0,  250.0,   4,
                  1E4,  25.0,  500.0,   5,
                  1E5,  50.0,    5E3,   2 $END
 $LIST POOL=9999 $END
* HS #1 - REACTOR BUILDING DOME
 $LIST POOL=101001, 57, 14, 0, 0, 0, 0, 33017 $END
 $LIST POOL=101101,  4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                     5, 0.02201, 4, 0.03001, 4, 0.04601, 4. 0.07801,
                     4, 0.14201, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                     4, 2.06201, 4, 4.06368 $END
 $LIST POOL=101201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=101300, 0, 0 $END
 $LIST POOL=101400, 9, 2, 1, 1 $END
* HS #2 - REACTOR BUILDING CYLINDER ABOVE 30 FT
 $LIST POOL=102001,  58, 14, 0, 0, 0, 0, 34067 $END
 $LIST POOL=102101, 4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                    5, 0.02201, 4, 0.03001, 4, 0.04601, 4, 0.07801,
                    4, 0.14210, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                    4, 2.06201, 5, 4.35534 $END
 $LIST POOL=102201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=102300, 0, 0 $END
```

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 $LIST POOL=102400, 9, 2, 1, 1 $END
* HS #3 - REACTOR BUIDING CYLINDER WALL BELOW 30 FT
 $LIST POOL=103001,  58, 14, 0, 0, 0, 0, 5535 $END
 $LIST POOL=103101, 4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                    5, 0.02201, 4, 0.03001, 4, 0.04601, 4, 0.07801,
                    4, 0.14210, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                    4, 2.06201, 5, 4.35534 $END
 $LIST POOL=103201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=103300, 0, 0 $END
 $LIST POOL=103400, 9, 2, 0, 1 $END
* HS #4 - REACTOR BUILDING BASEMAT (Excluding Rx Cavity Basemat)
 $LIST POOL=104001, 42, 10, 0, 0, 0, 0, 12773 $END
 $LIST POOL=104101, 4, 0.00417, 4, 0.02417, 4, 0.06417, 4, 0.14417,
                    4, 0.30417, 4, 0.62417, 4, 1.26417, 4, 2.54417,
                    4, 5.10417, 5, 11.00417 $END
 $LIST POOL=104201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=104300, 0, 0 $END
 $LIST POOL=104400, 3, 3, 0, 1 $END
* HS #5 - REACTOR CAVITY BASEMAT & STEAM GENERATOR PEDESTALS
 $LIST POOL=105001, 40, 10, 0, 0, 0, 0, 1644 $END
 $LIST POOL=105101, 4, 0.00294, 4, 0.02294, 4, 0.06294, 4, 0.14294,
                    4, 0.30294, 4, 0.62294, 4, 1.26294, 4, 2.54294,
                    4, 5.10294, 3, 8.39548 $END
 $LIST POOL=105201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=105300, 0, 0 $END
 $LIST POOL=105400, 3, 3, 0, 1 $END
* HS #6 - REACTOR CAVITY BELOW ELEV. 17' - 6"
 $LIST POOL=106001, 42, 10, 0, 0, 0, 0, 1546 $END
 $LIST POOL=106101, 4, 0.00250, 4, 0.02250, 4, 0.06250, 4, 0.14250,
                    4, 0.30250, 4, 0.62250, 4, 1.26250, 4, 2.54250,
                    4, 5.10250, 5, 10.75250 $END
 $LIST POOL=106201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=106300, 0, 0 $END
 $LIST POOL=106400, 3, 3, 0, 1 $END
* HS #7 - REACTOR CAVITY WALLS ABOVE ELEV. 17'- 6"
 $LIST POOL=107001, 61, 14, 0, 0, 0, 0, 1311 $END
 $LIST POOL=107101, 4, 0.00024, 4, 0.00060, 8, 0.00250, 4, 0.00650,
                    4, 0.01450, 4, 0.03050, 4, 0.06250, 4, 0.12650,
                    4, 0.26850, 4, 0.52450, 4, 1.03650, 4, 2.06050,
                    4, 4.10850, 4, 8.35833 $END
 $LIST POOL=107201, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=107300, 0, 0 $END
 $LIST POOL=107400, 9, 2, 0, 2 $END
* HS #8 - LINED REFUELING CANAL WALLS AND FLOOR
 $LIST POOL=108001, 50, 13, 0, 0, 0, 0, 9192 $END
 $LIST POOL=108101, 4, 0.01563, 4, 0.01566, 4, 0.01571, 4, 0.01583,
                    3, 0.01598, 4, 0.02598, 4, 0.04598, 4, 0.08598,
                    4, 0.16598, 4, 0.32698, 4, 0.64598, 4, 1.28598,
                    2, 2.01598 $END
 $LIST POOL=108201, 3, 5, 5, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, $END
 $LIST POOL=108300, 0, 0 $END
 $LIST POOL=108400, 9, 2, 0, 2 $END
* HS #9 - UNLINED EXTERIOR FACES OF REFUELING CANAL WALLS
 $LIST POOL=109001, 45, 12, 0, 0, 0, 0, 11050 $END
 $LIST POOL=109101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 2, 0.00250,
                    4, 0.01250, 4, 0.03250, 4, 0.07250, 4, 0.15250,
                    4, 0.31250, 4, 0.63250, 4, 1.27250, 2, 2.00250 $END
 $LIST POOL=109201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2, 2, $END
 $LIST POOL=109300, 0, 0 $END
 $LIST POOL=109400, 9, 2, 0, 2 $END
* HS #10 - STEAM GENERATOR COMPARTMENT WALLS MISSLE SHIELDS
```

Note: See Originator's Note for HS#7 right boundary co-ordinate on sheet 127.

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						
	P.Barbour	05/16/00	J. M. Gilmer	6/27/00						

```
 $LIST POOL=110001, 46, 11, 0, 0, 0, 0, 43085 $END
 $LIST POOL=110101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 2, 0.00250,
                    4, 0.01250, 4, 0.03250, 4, 0.07250, 4, 0.15250,
                    4, 0.31250, 4, 0.63250, 7, 1.71909 $END
 $LIST POOL=110201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=110300, 0, 0 $END
 $LIST POOL=110400, 9, 2, 0, 2 $END
* HS #11 - STEAM GENERATOR COMPARTMENT WALLS WITH EMBEDS
 $LIST POOL=111001, 53, 12, 0, 0, 0, 0, 6914 $END
 $LIST POOL=111101, 4, 0.00024, 5, 0.00083, 4, 0.08250, 4, 0.08490,
                    4, 0.08970, 4, 0.09930, 4, 0.11850, 4, 0.15690,
                    4, 0.23370, 4, 0.38730, 4, 0.69450, 7, 1.77167 $END
 $LIST POOL=111201, 4, 4, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=111300, 0, 0 $END
 $LIST POOL=111400, 9, 2, 0, 2 $END
* HS #12 - TOP HALF-THICKNESS OF ELEVATED FLOOR SLABS
 $LIST POOL=112001, 44, 10, 0, 0, 0, 0, 17474 $END
 $LIST POOL=112101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 5, 0.00417,
                    4, 0.01417, 4, 0.03417, 4, 0.07417, 4, 0.15417,
                    4, 0.31417, 6, 0.75417 $END
 $LIST POOL=112201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=112300, 0, 0 $END
 $LIST POOL=112400, 9, 2, 0, 2 $END
* HS #13 - LOWER HALF-THICKNESS OF ELEVATED FLOOR SLABS
 $LIST POOL=113001, 48, 12, 0, 0, 0, 0, 23240 $END
 $LIST POOL=113101, 2, 0.00521, 4, 0.00553, 4, 0.00617, 4, 0.00745,
                    4, 0.01001, 4, 0.01513, 4, 0.02537, 4, 0.04585,
                    4, 0.08681, 4, 0.16873, 4, 0.33257, 5, 0.75556 $END
 $LIST POOL=113201, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=113300, 0, 0 $END
 $LIST POOL=113400, 9, 2, 0, 2 $END
* HS #14 - LIFTING DEVICES (CARBON STEEL)
 $LIST POOL=114001, 17, 3, 0, 0, 0, 0, 59265 $END
 $LIST POOL=114101, 4, 0.00024, 8, 0.00125, 4, 0.04133 $END
 $LIST POOL=114201, 4, 4, 1 $END
 $LIST POOL=114300, 0, 0 $END
 $LIST POOL=114400, 9, 2, 0, 2 $END
* HS #15 - MISCELLANEOUS CARBON STEEL - THICKNESS > 2.50 INCHES
 $LIST POOL=115001, 18, 4, 0, 0, 0, 0, 2248 $END
 $LIST POOL=115101, 4, 0.00024, 5, 0.00083, 4, 0.08083, 4, 0.22136 $END
 $LIST POOL=115201, 4, 4, 1, 1 $END
 $LIST POOL=115300, 0, 0 $END
 $LIST POOL=115400, 9, 2, 0, 2 $END
* HS #16 - MISCELLANEOUS CARBON STEEL: 1.00"<THICKNESS</=2.50"
 $LIST POOL=116001, 16, 3, 0, 0, 0, 0, 9230 $END
 $LIST POOL=116101, 4, 0.00024, 5, 0.00083, 6, 0.13113 $END
 $LIST POOL=116201, 4, 4, 1 $END
 $LIST POOL=116300, 0, 0 $END
 $LIST POOL=116400, 9, 2, 0, 2 $END
* HS #17 - MISCELLANEOUS CARBON STEEL: 0.50"<THICKNESS</=1.00"
 $LIST POOL=117001, 14, 3, 0, 0, 0, 0, 8718 $END
 $LIST POOL=117101, 4, 0.00024, 5, 0.00083, 4, 0.06371 $END
 $LIST POOL=117201, 4, 4, 1 $END
 $LIST POOL=117300, 0, 0 $END
 $LIST POOL=117400, 9, 2, 0, 2 $END
* HS #18 - MISCELLANEOUS CARBON STEEL: THICKNESS</=0.5"
 $LIST POOL=118001, 14, 3, 0, 0, 0, 0, 158755 $END
 $LIST POOL=118101, 4, 0.00024, 5, 0.00083, 4, 0.02275 $END
 $LIST POOL=118201, 4, 4, 1 $END
 $LIST POOL=118300, 0, 0 $END
 $LIST POOL=118400, 9, 2, 0, 2 $END
```

Note: See Originator's Note for HS#13 first and final concrete region right boundary coordinates on sheet 128.

Note: See Originator's Note for HS#18 area and right boundary coordinate on sheet 129.

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* HS #19 - ELECTRICAL EQUIPMENT & OTHER GALVANIZED STEEL
 $LIST POOL=119001, 4, 1, 0, 0, 0, 0, 131698 $END
 $LIST POOL=119101, 3, 0.00879 $END
 $LIST POOL=119201, 1 $END
 $LIST POOL=119300, 0, 0 $END
 $LIST POOL=119400, 9, 2, 0, 2 $END
* HS #20 - MISCELLANEOUS STAINLESS STEEL
 $LIST POOL=120001, 5, 1, 0, 0, 0, 0, 26893 $END
 $LIST POOL=120101, 4, 0.01459 $END
 $LIST POOL=120201, 3 $END
 $LIST POOL=120300, 0, 0 $END
 $LIST POOL=120400, 9, 2, 0, 2 $END
* HS #21 - REACTOR BUILDING STIFFENED SECTIONS ABOVE ELEV. 30 FT
 $LIST POOL=121001, 44, 10, 0, 0, 0, 0, 3764 $END
 $LIST POOL=121101, 4, 0.00024, 5, 0.00083, 4, 0.08083, 4, 0.24083,
                    4, 0.52166, 4, 0.52201, 4, 0.54201, 4, 0.94201,
                    4, 1.74201, 6, 4.17659 $END
 $LIST POOL=121201, 4, 4, 1, 1, 1, 5, 2, 2, 2, 2 $END
 $LIST POOL=121300, 0, 0 $END
 $LIST POOL=121400, 9, 2, 1, 1 $END
 $LIST POOL=410001,
            25,    54,
           0.8,    30,
            10,    54,
          0.15,    20,
        0.0174, 0.0103 $END
 $LIST POOL=500000 $END
```

8.3.2 Cases for UFSAR Sectiion 3.11 (Containment Equipment Qualification)

Case 5eq - MSLB @ 102% Power w/Cooling Train Failure

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*CASE 5EQ - 8.85 FT2 SLOT MSLB @ 102% POWER W/CT FAILURE: N-4080-027R1
 $LIST POOL=0,0,1,0,1 $END
 $LIST POOL=1,1E4,13.8,2.305E6,120,0.05,21,0.0,1,1,0.08,14.7,0.5 $END
 $LIST POOL=2,0,0,0,0,0,2.0,2E7 $END
 $LIST POOL=3,0,0,0,0,0,2E7,0,0,0,0 $END
 $LIST POOL=4,0,0,0,0,0,0,0,0,0,0,0,0 $END
 $LIST POOL=5,2,50,2E7,0,0 $END
 $LIST POOL=6,0,0,0 $END
 $LEAK NOPEN=0 $END
 $LIST POOL=101,    0,     0,
                  2E7,     0 $END
 $LIST POOL=201,    0,     0,
                  2E7,     0 $END
 $LIST POOL=301,
          0.00, 5.98327E+07, 1195.73,
          0.10, 5.75122E+07, 1196.41,
          0.20, 5.57370E+07, 1197.03,
          0.30, 5.43010E+07, 1197.60,
          0.40, 5.30896E+07, 1198.12,
          0.50, 5.20330E+07, 1198.61,
          0.60, 5.10912E+07, 1199.06,
          0.70, 5.02333E+07, 1199.48,
          0.80, 4.94377E+07, 1199.87,
          0.90, 4.86918E+07, 1200.24,
          1.00, 4.79844E+07, 1200.58,
          1.99, 4.22996E+07, 1202.77,
          2.99, 3.84905E+07, 1203.67,
          3.99, 3.57314E+07, 1204.14,
          4.99, 3.36987E+07, 1204.38,
          5.99, 3.21819E+07, 1204.47,
          6.99, 3.06681E+07, 1204.37,
          7.99, 2.90095E+07, 1204.12,
          8.99, 2.70729E+07, 1203.99,
          9.99, 2.29676E+07, 1204.09,
         10.99, 2.16059E+07, 1203.74,
         11.99, 2.04900E+07, 1203.36,
         12.99, 1.95249E+07, 1202.97,
         13.99, 1.87289E+07, 1202.59,
         14.99, 1.80316E+07, 1202.22,
         15.99, 1.73815E+07, 1201.83,
         16.99, 1.67603E+07, 1201.43,
         17.99, 1.61774E+07, 1201.01,
         18.99, 1.56523E+07, 1200.60,
         19.99, 1.51968E+07, 1200.22,
         20.99, 1.48069E+07, 1199.87,
         21.99, 1.44651E+07, 1199.55,
         22.99, 1.41495E+07, 1199.24,
         23.99, 1.38443E+07, 1198.93,
         24.99, 1.35450E+07, 1198.61,
         25.99, 1.32542E+07, 1198.29,
         26.99, 1.29749E+07, 1197.97,
         27.99, 1.27237E+07, 1197.68,
         28.99, 1.24763E+07, 1197.39,
         29.99, 1.22311E+07, 1197.08,
         30.99, 1.19873E+07, 1196.77,
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31.99, 1.17414E+07, 1196.44,
32.99, 1.14929E+07, 1196.10,
33.99, 1.12458E+07, 1195.75,
34.99, 1.10060E+07, 1195.39,
35.99, 1.07786E+07, 1195.04,
36.99, 1.05648E+07, 1194.70,
37.99, 1.03630E+07, 1194.37,
38.99, 1.01693E+07, 1194.05,
39.99, 9.98021E+06, 1193.72,
40.99, 9.79430E+06, 1193.39,
41.99, 9.61243E+06, 1193.05,
42.99, 9.43618E+06, 1192.72,
43.99, 9.26734E+06, 1192.39,
44.99, 9.10652E+06, 1192.07,
45.99, 8.95306E+06, 1191.75,
46.99, 8.80538E+06, 1191.44,
47.99, 8.66192E+06, 1191.13,
48.99, 8.52192E+06, 1190.83,
49.99, 8.38548E+06, 1190.52,
50.99, 8.25329E+06, 1190.21,
51.99, 8.12606E+06, 1189.91,
52.99, 3.07284E+05, 1182.22,
53.99, 3.02616E+05, 1182.15,
54.99, 3.00139E+05, 1182.08,
55.99, 5.14544E+05, 1201.24,
56.99, 2.89176E+05, 1221.55,
57.99, 1.64058E+05, 1233.36,
58.99, 1.04379E+05, 1240.07,
59.99, 8.05626E+04, 1244.35,
60.99, 7.10334E+04, 1247.71,
61.99, 6.25986E+04, 1250.58,
62.99, 5.04353E+04, 1252.82,
63.99, 3.65296E+04, 1254.11,
64.99, 2.54870E+04, 1254.48,
65.99, 2.08439E+04, 1254.28,
66.99, 2.29110E+04, 1254.01,
67.99, 2.88660E+04, 1254.07,
68.99, 3.44710E+04, 1254.61,
69.99, 3.63668E+04, 1255.46,
70.99, 3.37101E+04, 1256.31,
71.99, 2.83194E+04, 1256.86,
72.99, 2.31342E+04, 1257.00,
73.99, 2.06463E+04, 1256.85,
74.99, 2.15527E+04, 1256.65,
75.99, 2.46976E+04, 1256.63,
76.99, 2.79326E+04, 1256.89,
77.99, 2.93707E+04, 1257.35,
78.99, 2.83503E+04, 1257.85,
79.99, 2.56214E+04, 1258.21,
80.99, 2.27397E+04, 1258.36,
81.99, 2.11168E+04, 1258.32,
82.99, 2.13001E+04, 1258.25,
83.99, 2.28169E+04, 1258.25,
84.99, 2.45679E+04, 1258.41,
85.99, 2.54895E+04, 1258.70,
86.99, 2.51105E+04, 1259.02,
87.99, 2.37197E+04, 1259.28,
88.99, 2.21028E+04, 1259.43,
89.99, 2.10531E+04, 1259.47,
90.99, 2.09517E+04, 1259.48,
91.99, 2.16289E+04, 1259.52,
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        92.99, 2.25324E+04, 1259.64,
        93.99, 2.30715E+04, 1259.84,
        94.99, 2.29338E+04, 1260.07,
        95.99, 2.22108E+04, 1260.27,
        96.99, 2.12922E+04, 1260.41,
        97.99, 2.06157E+04, 1260.50,
        98.99, 2.04293E+04, 1260.55,
        99.99, 2.06889E+04, 1260.62,
       104.95, 2.04373E+04, 1261.35,
       109.95, 9.66391E+03, 1262.41,
       114.95, 7.91564E+03, 1263.06,
       119.95, 7.90682E+03, 1263.56,
       124.95, 7.47364E+03, 1264.03,
       129.95, 7.20695E+03, 1264.51,
       134.95, 7.00866E+03, 1264.97,
       139.95, 6.71947E+03, 1265.43,
       144.95, 6.53353E+03, 1265.88,
       149.95, 6.31908E+03, 1266.33,
       154.95, 6.12371E+03, 1266.77,
       159.95, 5.95894E+03, 1267.20,
       164.95, 5.80817E+03, 1267.63,
       169.95, 5.66867E+03, 1268.05,
       174.95, 5.52964E+03, 1268.47,
       179.95, 5.39597E+03, 1268.89,
       184.95, 5.26957E+03, 1269.30,
       189.95, 5.14678E+03, 1269.70,
       194.95, 5.02981E+03, 1270.11,
       199.95, 4.91735E+03, 1270.51,
       200.00, 4.91627E+03, 1270.51,
       200.00,           0,       0,
          2E7,           0,       0 $END
$LIST POOL=401,    0,         0,       0,
                  2E7,         0,       0 $END
$LIST POOL=501,    0,         29E3,     34.6E6,
                1800,         29E3,     34.6E6,
                1800,            0,          0,
                 2E7,            0,          0 $END
$LIST POOL=601,    0,     7.2E4,     6.336E6,
                0.05,     7.2E4,     6.336E6,
                0.05,       0.0,         0.0,
                 2E7,         0,           0 $END
$LIST POOL=701,    0,     0,     0,     0,
                  2E7,     0,     0,     0 $END
$LIST POOL=801,
       0,        0,   0,   0,   100,   100,
      23,        0,   0,   0,   100,   100,
      25, 0.4973E5,   0,   0,   100,   100,
      30, 1.2184E5,   0,   0,   100,   100,
      35, 2.6357E5,   0,   0,   100,   100,
      40, 3.0584E5,   0,   0,   100,   100,
      45, 3.3567E5,   0,   0,   100,   100,
      50, 7.9567E5,   0,   0,   100,   100,
     1E4, 7.9567E5,   0,   0,   100,   100,
     1E4,      0.0,   0,   0,   100,   100,
     1E7,      0.0,   0,   0,   100,   100 $END
$LIST POOL=901,     0,     0,     0,
                   2E7,     0,     0 $END
$LIST POOL=1001,    0,   100,   2.0,
                   24,   100,   2.0 $END
$LIST POOL=1101,  105,       0,
                  120,  1.67E6,
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                    130,  3.02E6,
                    140,  4.57E6,
                    150,  6.32E6,
                    160,  8.27E6,
                    170, 10.40E6,
                    180, 12.73E6,
                    190, 15.23E6,
                    200, 17.88E6,
                    210, 20.68E6,
                    220, 23.61E6,
                    230, 26.64E6,
                    240, 29.74E6,
                    250, 32.91E6,
                    260, 36.11E6,
                    270, 39.31E6,
                    280, 42.52E6,
                    287, 44.74E6,
                    290, 45.69E6,
                    300, 48.82E6 $END
$LIST POOL=1201,   0,  0.729,
                  0.1,  0.737,
                  0.2,  0.747,
                  0.3,  0.757,
                  0.4,  0.771,
                  0.5,  0.788,
                  0.6,  0.809,
                  0.7,  0.832,
                  0.8,  0.863,
                  0.9,  0.912,
                  1.0,  0.961,
                  1.1,  0.983,
                  1.2,  0.995,
                  1.3,  1.000 $END
$LIST POOL=9001,   1,  0.05,    0.1,  10,
                   5,  0.05,    0.2,  20,
                  20,  0.05,    1.0,   5,
                 100,  0.10,    1.0,  10,
                 160,  0.50,    2.0,  10,
                 200,   1.0,    5.0,   4,
                 300,   1.0,   10.0,   5,
                 600,   1.0,   25.0,   4,
                 1E3,   5.0,   50.0,   4,
                 2E3,  10.0,  250.0,   2,
                 5E3,  10.0,  250.0,   4,
                 1E4,  25.0,  500.0,   5,
                 1E5,  50.0,    5E3,   2 $END
$LIST POOL=9999 $END
* HS #1 - REACTOR BUILDING DOME
$LIST POOL=101001, 57, 14, 0, 0, 0, 0, 33017 $END
$LIST POOL=101101,  4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                    5, 0.02201, 4, 0.03001, 4, 0.04601, 4. 0.07801,
                    4, 0.14201, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                    4, 2.06201, 4, 4.06368 $END
$LIST POOL=101201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
$LIST POOL=101300, 0, 0 $END
$LIST POOL=101400, 9, 2, 1, 1 $END
* HS #2 - REACTOR BUILDING CYLINDER ABOVE 30 FT
$LIST POOL=102001,  58, 14, 0, 0, 0, 0, 34067 $END
$LIST POOL=102101, 4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                   5, 0.02201, 4, 0.03001, 4, 0.04601, 4, 0.07801,
                   4, 0.14210, 4, 0.27001, 4, 0.52601, 4, 1.03801,
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                    4, 2.06201, 5, 4.35534 $END
 $LIST POOL=102201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=102300, 0, 0 $END
 $LIST POOL=102400, 9, 2, 1, 1 $END
* HS #3 - REACTOR BUIDING CYLINDER WALL BELOW 30 FT
 $LIST POOL=103001,  58, 14, 0, 0, 0, 0, 5535 $END
 $LIST POOL=103101, 4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                    5, 0.02201, 4, 0.03001, 4, 0.04601, 4, 0.07801,
                    4, 0.14210, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                    4, 2.06201, 5, 4.35534 $END
 $LIST POOL=103201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=103300, 0, 0 $END
 $LIST POOL=103400, 9, 2, 0, 1 $END
* HS #4 - REACTOR BUILDING BASEMAT (Excluding Rx Cavity Basemat)
 $LIST POOL=104001, 42, 10, 0, 0, 0, 0, 12773 $END
 $LIST POOL=104101, 4, 0.00417, 4, 0.02417, 4, 0.06417, 4, 0.14417,
                    4, 0.30417, 4, 0.62417, 4, 1.26417, 4, 2.54417,
                    4, 5.10417, 5, 11.00417 $END
 $LIST POOL=104201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=104300, 0, 0 $END
 $LIST POOL=104400, 3, 3, 0, 1 $END
* HS #5 - REACTOR CAVITY BASEMAT & STEAM GENERATOR PEDESTALS
 $LIST POOL=105001, 40, 10, 0, 0, 0, 0, 1644 $END
 $LIST POOL=105101, 4, 0.00294, 4, 0.02294, 4, 0.06294, 4, 0.14294,
                    4, 0.30294, 4, 0.62294, 4, 1.26294, 4, 2.54294,
                    4, 5.10294, 3, 8.39548 $END
 $LIST POOL=105201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=105300, 0, 0 $END
 $LIST POOL=105400, 3, 3, 0, 1 $END
* HS #6 - REACTOR CAVITY BELOW ELEV. 17' - 6"
 $LIST POOL=106001, 42, 10, 0, 0, 0, 0, 1546 $END
 $LIST POOL=106101, 4, 0.00250, 4, 0.02250, 4, 0.06250, 4, 0.14250,
                    4, 0.30250, 4, 0.62250, 4, 1.26250, 4, 2.54250,
                    4, 5.10250, 5, 10.75250 $END
 $LIST POOL=106201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=106300, 0, 0 $END
 $LIST POOL=106400, 3, 3, 0, 1 $END
* HS #7 - REACTOR CAVITY WALLS ABOVE ELEV. 17'- 6"
 $LIST POOL=107001, 61, 14, 0, 0, 0, 0, 1311 $END
 $LIST POOL=107101, 4, 0.00024, 4, 0.00060, 8, 0.00250, 4, 0.00650,
                    4, 0.01450, 4, 0.03050, 4, 0.06250, 4, 0.12650,
                    4, 0.26850, 4, 0.52450, 4, 1.03650, 4, 2.06050,
                    4, 4.10850, 4, 8.35833 $END
 $LIST POOL=107201, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=107300, 0, 0 $END
 $LIST POOL=107400, 9, 2, 0, 2 $END
* HS #8 - LINED REFUELING CANAL WALLS AND FLOOR
 $LIST POOL=108001, 50, 13, 0, 0, 0, 0, 9192 $END
 $LIST POOL=108101, 4, 0.01563, 4, 0.01566, 4, 0.01571, 4, 0.01583,
                    3, 0.01598, 4, 0.02598, 4, 0.04598, 4, 0.08598,
                    4, 0.16598, 4, 0.32698, 4, 0.64598, 4, 1.28598,
                    2, 2.01598 $END
 $LIST POOL=108201, 3, 5, 5, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, $END
 $LIST POOL=108300, 0, 0 $END
 $LIST POOL=108400, 9, 2, 0, 2 $END
* HS #9 - UNLINED EXTERIOR FACES OF REFUELING CANAL WALLS
 $LIST POOL=109001, 45, 12, 0, 0, 0, 0, 11050 $END
 $LIST POOL=109101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 2, 0.00250,
                    4, 0.01250, 4, 0.03250, 4, 0.07250, 4, 0.15250,
                    4, 0.31250, 4, 0.63250, 4, 1.27250, 2, 2.00250 $END
 $LIST POOL=109201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2, 2, $END
```

Note: See Originator's Note for HS#7 right boundary co-ordinate on sheet 127.

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					
	P.Barbour	05/16/00	J. M. Gilmer	6/27/00					

```
 $LIST POOL=109300, 0, 0 $END
 $LIST POOL=109400, 9, 2, 0, 2 $END
* HS #10 - STEAM GENERATOR COMPARTMENT WALLS MISSLE SHIELDS
 $LIST POOL=110001, 46, 11, 0, 0, 0, 0, 43085 $END
 $LIST POOL=110101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 2, 0.00250,
                    4, 0.01250, 4, 0.03250, 4, 0.07250, 4, 0.15250,
                    4, 0.31250, 4, 0.63250, 7, 1.71909 $END
 $LIST POOL=110201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=110300, 0, 0 $END
 $LIST POOL=110400, 9, 2, 0, 2 $END
* HS #11 - STEAM GENERATOR COMPARTMENT WALLS WITH EMBEDS
 $LIST POOL=111001, 53, 12, 0, 0, 0, 0, 6914 $END
 $LIST POOL=111101, 4, 0.00024, 5, 0.00083, 4, 0.08250, 4, 0.08490,
                    4, 0.08970, 4, 0.09930, 4, 0.11850, 4, 0.15690,
                    4, 0.23370, 4, 0.38730, 4, 0.69450, 7, 1.77167 $END
 $LIST POOL=111201, 4, 4, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=111300, 0, 0 $END
 $LIST POOL=111400, 9, 2, 0, 2 $END
* HS #12 - TOP HALF-THICKNESS OF ELEVATED FLOOR SLABS
 $LIST POOL=112001, 44, 10, 0, 0, 0, 0, 17474 $END
 $LIST POOL=112101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 5, 0.00417,
                    4, 0.01417, 4, 0.03417, 4, 0.07417, 4, 0.15417,
                    4, 0.31417, 6, 0.75417 $END
 $LIST POOL=112201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=112300, 0, 0 $END
 $LIST POOL=112400, 9, 2, 0, 2 $END
* HS #13 - LOWER HALF-THICKNESS OF ELEVATED FLOOR SLABS
 $LIST POOL=113001, 48, 12, 0, 0, 0, 0, 23240 $END
 $LIST POOL=113101, 2, 0.00521, 4, 0.00553, 4, 0.00617, 4, 0.00745,
                    4, 0.01001, 4, 0.01513, 4, 0.02537, 4, 0.04585,
                    4, 0.08681, 4, 0.16873, 4, 0.33257, 5, 0.75556 $END
 $LIST POOL=113201, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=113300, 0, 0 $END
 $LIST POOL=113400, 9, 2, 0, 2 $END
* HS #14 - LIFTING DEVICES (CARBON STEEL)
 $LIST POOL=114001, 17, 3, 0, 0, 0, 0, 59265 $END
 $LIST POOL=114101, 4, 0.00024, 8, 0.00125, 4, 0.04133 $END
 $LIST POOL=114201, 4, 4, 1 $END
 $LIST POOL=114300, 0, 0 $END
 $LIST POOL=114400, 9, 2, 0, 2 $END
* HS #15 - MISCELLANEOUS CARBON STEEL - THICKNESS > 2.50 INCHES
 $LIST POOL=115001, 18, 4, 0, 0, 0, 0, 2248 $END2
 $LIST POOL=115101, 4, 0.00024, 5, 0.00083, 4, 0.08083, 4, 0.22136 $END
 $LIST POOL=115201, 4, 4, 1, 1 $END
 $LIST POOL=115300, 0, 0 $END
 $LIST POOL=115400, 9, 2, 0, 2 $END
* HS #16 - MISCELLANEOUS CARBON STEEL: 1.00"<THICKNESS</=2.50"
 $LIST POOL=116001, 16, 3, 0, 0, 0, 0, 9230 $END
 $LIST POOL=116101, 4, 0.00024, 5, 0.00083, 6, 0.13113 $END
 $LIST POOL=116201, 4, 4, 1 $END
 $LIST POOL=116300, 0, 0 $END
 $LIST POOL=116400, 9, 2, 0, 2 $END
* HS #17 - MISCELLANEOUS CARBON STEEL: 0.50"<THICKNESS</=1.00"
 $LIST POOL=117001, 14, 3, 0, 0, 0, 0, 8718 $END
 $LIST POOL=117101, 4, 0.00024, 5, 0.00083, 4, 0.06371 $END
 $LIST POOL=117201, 4, 4, 1 $END
 $LIST POOL=117300, 0, 0 $END
 $LIST POOL=117400, 9, 2, 0, 2 $END
* HS #18 - MISCELLANEOUS CARBON STEEL: THICKNESS</=0.5"
 $LIST POOL=118001, 14, 3, 0, 0, 0, 0, 158755 $END
 $LIST POOL=118101, 4, 0.00024, 5, 0.00083, 4, 0.02275 $END
```

Note: See Originator's Note for HS#13 first and final concrete region right boundary coordinates on sheet 128.

Note: See Originator's Note for HS#18 area and right boundary coordinate on sheet 129.

```
 $LIST POOL=118201, 4, 4, 1 $END
 $LIST POOL=118300, 0, 0 $END
 $LIST POOL=118400, 9, 2, 0, 2 $END
* HS #19 - ELECTRICAL EQUIPMENT & OTHER GALVANIZED STEEL
 $LIST POOL=119001, 4, 1, 0, 0, 0, 0, 131698 $END
 $LIST POOL=119101, 3, 0.00879 $END
 $LIST POOL=119201, 1 $END
 $LIST POOL=119300, 0, 0 $END
 $LIST POOL=119400, 9, 2, 0, 2 $END
* HS #20 - MISCELLANEOUS STAINLESS STEEL
 $LIST POOL=120001, 5, 1, 0, 0, 0, 0, 26893 $END
 $LIST POOL=120101, 4, 0.01459 $END
 $LIST POOL=120201, 3 $END
 $LIST POOL=120300, 0, 0 $END
 $LIST POOL=120400, 9, 2, 0, 2 $END
* HS #21 - REACTOR BUILDING STIFFENED SECTIONS ABOVE ELEV. 30 FT
 $LIST POOL=121001, 44, 10, 0, 0, 0, 0, 3764 $END
 $LIST POOL=121101, 4, 0.00024, 5, 0.00083, 4, 0.08083, 4, 0.24083,
                    4, 0.52166, 4, 0.52201, 4, 0.54201, 4, 0.94201,
                    4, 1.74201, 6, 4.17659 $END
 $LIST POOL=121201, 4, 4, 1, 1, 1, 5, 2, 2, 2, 2 $END
 $LIST POOL=121300, 0, 0 $END
 $LIST POOL=121400, 9, 2, 1, 1 $END
 $LIST POOL=410001,
           25,     54,
          0.8,     30,
           10,     54,
         0.15,     20,
       0.0174, 0.0103 $END
 $LIST POOL=500000 $END
```

Case 7eq - MSLB @ 102% Power w/MSIV Failure

```
*CASE 7EQ - 8.85 FT2 SLOT MSLB @ 102% POWER W/MSIV FAILURE: N-4080-027R1
 $LIST POOL=0,0,1,0,1 $END
 $LIST POOL=1,5E3,13.8,2.305E6,120,0.05,21,0.0,1,1,0.08,14.7,0.5 $END
 $LIST POOL=2,0,0,0,0,0,2.0,2E7 $END
 $LIST POOL=3,0,0,0,0,0,2E7,0,0,0,0 $END
 $LIST POOL=4,0,0,0,0,0,0,0,0,0,0,0,0 $END
 $LIST POOL=5,4,50,2E7,0,0 $END
 $LIST POOL=6,0,0,0 $END
 $LEAK NOPEN=0 $END
 $LIST POOL=101,    0,     0,
                  2E7,     0 $END
 $LIST POOL=201,    0,     0,
                  2E7,     0 $END
 $LIST POOL=301,
                    0,    5.98327E+07,     1195.73,
                 0.10,    5.75122E+07,     1196.41,
                 0.20,    5.57370E+07,     1197.03,
                 0.30,    5.43010E+07,     1197.60,
                 0.40,    5.30896E+07,     1198.12,
                 0.50,    5.20330E+07,     1198.61,
                 0.60,    5.10912E+07,     1199.06,
                 0.70,    5.02333E+07,     1199.48,
                 0.80,    4.94377E+07,     1199.87,
                 0.90,    4.86918E+07,     1200.24,
                 1.00,    4.79844E+07,     1200.58,
                 1.99,    4.22996E+07,     1202.77,
```

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 2.99,   3.84905E+07,   1203.67,
 3.99,   3.57314E+07,   1204.14,
 4.99,   3.36987E+07,   1204.38,
 5.99,   3.22780E+07,   1204.49,
 6.99,   3.12150E+07,   1204.54,
 7.99,   3.02679E+07,   1204.56,
 8.99,   2.90136E+07,   1204.56,
 9.99,   2.72875E+07,   1204.41,
10.99,   2.52859E+07,   1204.10,
11.99,   2.31050E+07,   1203.71,
12.99,   2.14734E+07,   1203.29,
13.99,   2.02301E+07,   1202.88,
14.99,   1.92300E+07,   1202.46,
15.99,   1.83844E+07,   1202.05,
16.99,   1.76321E+07,   1201.62,
17.99,   1.69480E+07,   1201.18,
18.99,   1.63347E+07,   1200.76,
19.99,   1.57910E+07,   1200.37,
20.99,   1.53147E+07,   1200.00,
21.99,   1.48990E+07,   1199.67,
22.99,   1.45314E+07,   1199.34,
23.99,   1.41958E+07,   1199.02,
24.99,   1.38684E+07,   1198.69,
25.99,   1.35715E+07,   1198.37,
26.99,   1.32724E+07,   1198.05,
27.99,   1.29986E+07,   1197.76,
28.99,   1.27477E+07,   1197.47,
29.99,   1.24979E+07,   1197.16,
30.99,   1.22491E+07,   1196.85,
31.99,   1.20009E+07,   1196.52,
32.99,   1.17508E+07,   1196.18,
33.99,   1.15086E+07,   1195.83,
34.99,   1.12624E+07,   1195.47,
35.99,   1.10236E+07,   1195.12,
36.99,   1.07968E+07,   1194.78,
37.99,   1.05819E+07,   1194.45,
38.99,   1.03779E+07,   1194.12,
39.99,   1.09174E+07,   1193.56,
40.99,   1.00225E+07,   1193.42,
41.99,   9.70326E+06,   1193.14,
42.99,   9.52574E+06,   1192.81,
43.99,   9.35935E+06,   1192.48,
44.99,   9.18911E+06,   1192.16,
45.99,   9.01588E+06,   1191.85,
46.99,   8.89207E+06,   1191.53,
47.99,   8.73400E+06,   1191.22,
48.98,   8.58726E+06,   1190.91,
49.99,   8.45867E+06,   1190.60,
50.99,   8.32622E+06,   1190.30,
51.99,   8.19641E+06,   1190.00,
52.99,   3.65717E+06,   1184.74,
53.99,   6.83237E+05,   1182.70,
54.99,   3.68528E+05,   1182.53,
55.99,   6.18599E+05,   1191.10,
56.99,   3.37910E+05,   1208.76,
57.99,   2.69605E+05,   1221.42,
58.99,   1.36503E+05,   1236.78,
59.99,   1.02371E+05,   1241.74,
60.99,   8.92084E+04,   1245.39,
61.99,   8.08884E+04,   1248.49,
62.99,   6.97244E+04,   1251.03,
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                63.99,   5.55962E+04,    1252.71,
                64.99,   4.26834E+04,    1253.43,
                65.99,   3.53102E+04,    1253.42,
                66.99,   3.50379E+04,    1253.14,
                67.99,   4.00255E+04,    1253.08,
                68.99,   4.61833E+04,    1253.07,
                69.99,   4.95709E+04,    1254.27,
                70.99,   4.83487E+04,    1255.18,
                71.99,   4.34754E+04,    1255.89,
                72.99,   3.77662E+04,    1256.19,
                73.99,   3.40761E+04,    1256.14,
                74.99,   3.37815E+04,    1255.94,
                75.99,   3.62981E+04,    1255.86,
                76.99,   3.96734E+04,    1256.04,
                77.99,   4.17902E+04,    1256.47,
                78.99,   4.15062E+04,    1257.01,
                79.99,   3.91316E+04,    1257.46,
                80.99,   3.60540E+04,    1257.69,
                81.99,   3.38323E+04,    1257.73,
                82.99,   2.15769E+04,    1257.79,
                83.99,   1.68380E+04,    1258.41,
                84.99,   1.58215E+04,    1258.82,
                85.99,   1.57703E+04,    1259.21,
                86.99,   1.52111E+04,    1259.59,
                87.99,   1.38181E+04,    1259.91,
                88.99,   1.20753E+04,    1260.10,
                89.99,   1.07364E+04,    1260.16,
                90.99,   1.03087E+04,    1260.15,
                91.99,   1.07857E+04,    1260.16,
                92.99,   1.17064E+04,    1260.24,
                93.99,   1.24519E+04,    1260.40,
                94.99,   1.25882E+04,    1260.62,
                95.99,   1.20720E+04,    1260.82,
                96.99,   1.12037E+04,    1260.97,
                97.99,   1.04381E+04,    1261.05,
                98.99,   1.01073E+04,    1261.10,
                99.99,   1.02701E+04,    1261.14,
               104.95,   1.05164E+04,    1261.79,
               109.95,   1.01719E+04,    1262.22,
               114.95,   9.42246E+03,    1262.79,
               119.95,   9.40644E+03,    1263.28,
               124.95,   8.89672E+03,    1263.76,
               129.95,   8.63748E+03,    1264.26,
               134.95,   8.38825E+03,    1264.73,
               139.95,   8.07574E+03,    1265.20,
               144.95,   7.86686E+03,    1265.66,
               149.95,   7.62509E+03,    1266.11,
               154.99,   7.41622E+03,    1266.56,
               159.95,   7.24896E+03,    1267.00,
               164.95,   7.06982E+03,    1267.44,
               169.95,   6.90764E+03,    1267.87,
               174.95,   6.74752E+03,    1268.30,
               179.95,   6.59416E+03,    1268.72,
               184.95,   6.44746E+03,    1269.14,
               189.95,   6.30508E+03,    1269.56,
               194.95,   6.16925E+03,    1269.97,
               199.95,   6.03828E+03,    1270.38,
               200.00,   6.03702E+03,    1270.38,
               200.00,             0,          0,
                  2E7,             0,          0 $END
$LIST POOL=401,   0,     0,     0,
```

```
                2E7,     0,     0 $END
$LIST POOL=501,  0,        29E3,     34.6E6,
               1800,       29E3,     34.6E6,
               1800,          0,          0,
                2E7,          0,          0 $END
$LIST POOL=601,    0,     7.2E4,     6.336E6,
                0.05,     7.2E4,     6.366E6,
                0.05,       0.0,         0.0,
                 2E7,         0,           0 $END
$LIST POOL=701,  0,     0,     0,     0,
                2E7,     0,     0,     0 $END
$LIST POOL=801,
      0,         0,   0,   0,   100,   100,
     23,         0,   0,   0,   100,   100,
     25,  0.9946E5,   0,   0,   100,   100,
     30,  2.4368E5,   0,   0,   100,   100,
     35,  5.2714E5,   0,   0,   100,   100,
     40,  6.1168E5,   0,   0,   100,   100,
     45,  6.7134E5,   0,   0,   100,   100,
     50, 15.9134E5,   0,   0,   100,   100,
    5E3, 15.9134E5,   0,   0,   100,   100,
    5E3,       0.0,   0,   0,   100,   100,
    1E7,       0.0,   0,   0,   100,   100 $END
$LIST POOL=901,    0,     0,     0,
                2E7,     0,     0 $END
$LIST POOL=1001,   0,   100,   2.0,
                  24,   100,   2.0 $END
$LIST POOL=1101, 105,        0,
                 120,   1.67E6,
                 130,   3.02E6,
                 140,   4.57E6,
                 150,   6.32E6,
                 160,   8.27E6,
                 170,  10.40E6,
                 180,  12.73E6,
                 190,  15.23E6,
                 200,  17.88E6,
                 210,  20.68E6,
                 220,  23.61E6,
                 230,  26.64E6,
                 240,  29.74E6,
                 250,  32.91E6,
                 260,  36.11E6,
                 270,  39.31E6,
                 280,  42.52E6,
                 287,  44.74E6,
                 290,  45.69E6,
                 300,  48.82E6 $END
$LIST POOL=1201,   0,  0.729,
                 0.1,  0.737,
                 0.2,  0.747,
                 0.3,  0.757,
                 0.4,  0.771,
                 0.5,  0.788,
                 0.6,  0.809,
                 0.7,  0.832,
                 0.8,  0.863,
                 0.9,  0.912,
                 1.0,  0.961,
                 1.1,  0.983,
                 1.2,  0.995,
```

```
                    1.3,  1.000 $END
 $LIST POOL=9001,    1,  0.05,    0.1,  10,
                     5,  0.05,    0.2,  20,
                    20,  0.05,    1.0,   5,
                   100,  0.10,    1.0,  10,
                   160,  0.50,    2.0,  10,
                   200,   1.0,    5.0,   4,
                   300,   1.0,   10.0,   5,
                   600,   1.0,   25.0,   4,
                   1E3,   5.0,   50.0,   4,
                   2E3,  10.0,  250.0,   2,
                   5E3,  10.0,  250.0,   4,
                   1E4,  25.0,  500.0,   5,
                   1E5,  50.0,    5E3,   2 $END
 $LIST POOL=9999 $END
* HS #1 - REACTOR BUILDING DOME
 $LIST POOL=101001, 57, 14, 0, 0, 0, 0, 33017 $END
 $LIST POOL=101101,  4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                     5, 0.02201, 4, 0.03001, 4, 0.04601, 4. 0.07801,
                     4, 0.14201, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                     4, 2.06201, 4, 4.06368 $END
 $LIST POOL=101201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=101300, 0, 0 $END
 $LIST POOL=101400, 9, 2, 1, 1 $END
* HS #2 - REACTOR BUILDING CYLINDER ABOVE 30 FT
 $LIST POOL=102001,  58, 14, 0, 0, 0, 0, 34067 $END
 $LIST POOL=102101, 4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                    5, 0.02201, 4, 0.03001, 4, 0.04601, 4, 0.07801,
                    4, 0.14210, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                    4, 2.06201, 5, 4.35534 $END
 $LIST POOL=102201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=102300, 0, 0 $END
 $LIST POOL=102400, 9, 2, 1, 1 $END
* HS #3 - REACTOR BUIDING CYLINDER WALL BELOW 30 FT
 $LIST POOL=103001,  58, 14, 0, 0, 0, 0, 5535 $END
 $LIST POOL=103101, 4, 0.00024, 5, 0.00083, 2, 0.02166, 4, 0.02170,
                    5, 0.02201, 4, 0.03001, 4, 0.04601, 4, 0.07801,
                    4, 0.14210, 4, 0.27001, 4, 0.52601, 4, 1.03801,
                    4, 2.06201, 5, 4.35534 $END
 $LIST POOL=103201, 4, 4, 1, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=103300, 0, 0 $END
 $LIST POOL=103400, 9, 2, 0, 1 $END
* HS #4 - REACTOR BUILDING BASEMAT (Excluding Rx Cavity Basemat)
 $LIST POOL=104001, 42, 10, 0, 0, 0, 0, 12773 $END
 $LIST POOL=104101, 4, 0.00417, 4, 0.02417, 4, 0.06417, 4, 0.14417,
                    4, 0.30417, 4, 0.62417, 4, 1.26417, 4, 2.54417,
                    4, 5.10417, 5, 11.00417 $END
 $LIST POOL=104201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=104300, 0, 0 $END
 $LIST POOL=104400, 3, 3, 0, 1 $END
* HS #5 - REACTOR CAVITY BASEMAT & STEAM GENERATOR PEDESTALS
 $LIST POOL=105001, 40, 10, 0, 0, 0, 0, 1644 $END
 $LIST POOL=105101, 4, 0.00294, 4, 0.02294, 4, 0.06294, 4, 0.14294,
                    4, 0.30294, 4, 0.62294, 4, 1.26294, 4, 2.54294,
                    4, 5.10294, 3, 8.39548 $END
 $LIST POOL=105201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=105300, 0, 0 $END
 $LIST POOL=105400, 3, 3, 0, 1 $END
* HS #6 - REACTOR CAVITY BELOW ELEV. 17' - 6"
 $LIST POOL=106001, 42, 10, 0, 0, 0, 0, 1546 $END
 $LIST POOL=106101, 4, 0.00250, 4, 0.02250, 4, 0.06250, 4, 0.14250,
```

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                    4, 0.30250, 4, 0.62250, 4, 1.26250, 4, 2.54250,
                    4, 5.10250, 5, 10.75250 $END
 $LIST POOL=106201, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=106300, 0, 0 $END
 $LIST POOL=106400, 3, 3, 0, 1 $END
* HS #7 - REACTOR CAVITY WALLS ABOVE ELEV. 17'- 6"
 $LIST POOL=107001, 61, 14, 0, 0, 0, 0, 1311 $END
 $LIST POOL=107101, 4, 0.00024, 4, 0.00060, 8, 0.00250, 4, 0.00650,
                    4, 0.01450, 4, 0.03050, 4, 0.06250, 4, 0.12650,
                    4, 0.26850, 4, 0.52450, 4, 1.03650, 4, 2.06050,
                    4, 4.10850, 4, 8.35833 $END
 $LIST POOL=107201, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=107300, 0, 0 $END
 $LIST POOL=107400, 9, 2, 0, 2 $END
* HS #8 - LINED REFUELING CANAL WALLS AND FLOOR
 $LIST POOL=108001, 50, 13, 0, 0, 0, 0, 9192 $END
 $LIST POOL=108101, 4, 0.01563, 4, 0.01566, 4, 0.01571, 4, 0.01583,
                    3, 0.01598, 4, 0.02598, 4, 0.04598, 4, 0.08598,
                    4, 0.16598, 4, 0.32698, 4, 0.64598, 4, 1.28598,
                    2, 2.01598 $END
 $LIST POOL=108201, 3, 5, 5, 5, 5, 2, 2, 2, 2, 2, 2, 2, 2, $END
 $LIST POOL=108300, 0, 0 $END
 $LIST POOL=108400, 9, 2, 0, 2 $END
* HS #9 - UNLINED EXTERIOR FACES OF REFUELING CANAL WALLS
 $LIST POOL=109001, 45, 12, 0, 0, 0, 0, 11050 $END
 $LIST POOL=109101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 2, 0.00250,
                    4, 0.01250, 4, 0.03250, 4, 0.07250, 4, 0.15250,
                    4, 0.31250, 4, 0.63250, 4, 1.27250, 2, 2.00250 $END
 $LIST POOL=109201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2, 2, $END
 $LIST POOL=109300, 0, 0 $END
 $LIST POOL=109400, 9, 2, 0, 2 $END
* HS #10 - STEAM GENERATOR COMPARTMENT WALLS MISSLE SHIELDS
 $LIST POOL=110001, 46, 11, 0, 0, 0, 0, 43085 $END
 $LIST POOL=110101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 2, 0.00250,
                    4, 0.01250, 4, 0.03250, 4, 0.07250, 4, 0.15250,
                    4, 0.31250, 4, 0.63250, 7, 1.71909 $END
 $LIST POOL=110201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=110300, 0, 0 $END
 $LIST POOL=110400, 9, 2, 0, 2 $END
* HS #11 - STEAM GENERATOR COMPARTMENT WALLS WITH EMBEDS
 $LIST POOL=111001, 53, 12, 0, 0, 0, 0, 6914 $END
 $LIST POOL=111101, 4, 0.00024, 5, 0.00083, 4, 0.08250, 4, 0.08490,
                    4, 0.08970, 4, 0.09930, 4, 0.11850, 4, 0.15690,
                    4, 0.23370, 4, 0.38730, 4, 0.69450, 7, 1.77167 $END
 $LIST POOL=111201, 4, 4, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=111300, 0, 0 $END
 $LIST POOL=111400, 9, 2, 0, 2 $END
* HS #12 - TOP HALF-THICKNESS OF ELEVATED FLOOR SLABS
 $LIST POOL=112001, 44, 10, 0, 0, 0, 0, 17474 $END
 $LIST POOL=112101, 4, 0.00024, 4, 0.00072, 4, 0.00168, 5, 0.00417,
                    4, 0.01417, 4, 0.03417, 4, 0.07417, 4, 0.15417,
                    4, 0.31417, 6, 0.75417 $END
 $LIST POOL=112201, 4, 4, 4, 4, 2, 2, 2, 2, 2, 2 $END
 $LIST POOL=112300, 0, 0 $END
 $LIST POOL=112400, 9, 2, 0, 2 $END
* HS #13 - LOWER HALF-THICKNESS OF ELEVATED FLOOR SLABS
 $LIST POOL=113001, 48, 12, 0, 0, 0, 0, 23240 $END
 $LIST POOL=113101, 2, 0.00521, 4, 0.00553, 4, 0.00617, 4, 0.00745,
                    4, 0.01001, 4, 0.01513, 4, 0.02537, 4, 0.04585,
                    4, 0.08681, 4, 0.16873, 4, 0.33257, 5, 0.75556 $END
 $LIST POOL=113201, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 $END
```

Note: See Originator's Note for HS#7 right boundary co-ordinate on sheet 127.

Note: See Originator's Note for HS#13 first and final concrete region right boundary coordinates on sheet 128.

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 $LIST POOL=113300, 0, 0 $END
 $LIST POOL=113400, 9, 2, 0, 2 $END
* HS #14 - LIFTING DEVICES (CARBON STEEL)
 $LIST POOL=114001, 17, 3, 0, 0, 0, 0, 59265 $END
 $LIST POOL=114101, 4, 0.00024, 8, 0.00125, 4, 0.04133 $END
 $LIST POOL=114201, 4, 4, 1 $END
 $LIST POOL=114300, 0, 0 $END
 $LIST POOL=114400, 9, 2, 0, 2 $END
* HS #15-- MISCELLANEOUS CARBON STEEL - THICKNESS > 2.50 INCHES
 $LIST POOL=115001, 18, 4, 0, 0, 0, 0, 2248 $END
 $LIST POOL=115101, 4, 0.00024, 5, 0.00083, 4, 0.08083, 4, 0.22136 $END
 $LIST POOL=115201, 4, 4, 1, 1 $END
 $LIST POOL=115300, 0, 0 $END
 $LIST POOL=115400, 9, 2, 0, 2 $END
* HS #16 - MISCELLANEOUS CARBON STEEL: 1.00"<THICKNESS</=2.50"
 $LIST POOL=116001, 16, 3, 0, 0, 0, 0, 9230 $END
 $LIST POOL=116101, 4, 0.00024, 5, 0.00083, 6, 0.13113 $END
 $LIST POOL=116201, 4, 4, 1 $END
 $LIST POOL=116300, 0, 0 $END
 $LIST POOL=116400, 9, 2, 0, 2 $END
* HS #17 - MISCELLANEOUS CARBON STEEL: 0.50"<THICKNESS</=1.00"
 $LIST POOL=117001, 14, 3, 0, 0, 0, 0, 8718 $END
 $LIST POOL=117101, 4, 0.00024, 5, 0.00083, 4, 0.06371 $END
 $LIST POOL=117201, 4, 4, 1 $END
 $LIST POOL=117300, 0, 0 $END
 $LIST POOL=117400, 9, 2, 0, 2 $END
* HS #18 - MISCELLANEOUS CARBON STEEL: THICKNESS</=0.5"
 $LIST POOL=118001, 14, 3, 0, 0, 0, 0, 158755 $END
 $LIST POOL=118101, 4, 0.00024, 5, 0.00083, 4, 0.02275 $END
 $LIST POOL=118201, 4, 4, 1 $END
 $LIST POOL=118300, 0, 0 $END
 $LIST POOL=118400, 9, 2, 0, 2 $END
* HS #19 - ELECTRICAL EQUIPMENT & OTHER GALVANIZED STEEL
 $LIST POOL=119001, 4, 1, 0, 0, 0, 0, 131698 $END
 $LIST POOL=119101, 3, 0.00879 $END
 $LIST POOL=119201, 1 $END
 $LIST POOL=119300, 0, 0 $END
 $LIST POOL=119400, 9, 2, 0, 2 $END
* HS #20 - MISCELLANEOUS STAINLESS STEEL
 $LIST POOL=120001, 5, 1, 0, 0, 0, 0, 26893 $END
 $LIST POOL=120101, 4, 0.01459 $END
 $LIST POOL=120201, 3 $END
 $LIST POOL=120300, 0, 0 $END
 $LIST POOL=120400, 9, 2, 0, 2 $END
* HS #21 - REACTOR BUILDING STIFFENED SECTIONS ABOVE ELEV. 30 FT
 $LIST POOL=121001, 44, 10, 0, 0, 0, 0, 3764 $END
 $LIST POOL=121101, 4, 0.00024, 5, 0.00083, 4, 0.08083, 4, 0.24083,
                    4, 0.52166, 4, 0.52201, 4, 0.54201, 4, 0.94201,
                    4, 1.74201, 6, 4.17659 $END
 $LIST POOL=121201, 4, 4, 1, 1, 1, 5, 2, 2, 2, 2 $END
 $LIST POOL=121300, 0, 0 $END
 $LIST POOL=121400, 9, 2, 1, 1 $END
 $LIST POOL=410001,
           25,     54,
          0.8,     30,
           10,     54,
         0.15,     20,
       0.0174, 0.0103 $END
 $LIST POOL=500000 $END
```

Note: See Originator's Note for HS#18 area and right boundary coordinate on sheet 129.

9 COPATTA OUTPUT SUMMARY TABLES

This section contains two summary tables (from Quattro Pro spreadsheets) for each case analyzed. All values except the containment gauge pressure come directly from the COPATTA output files; the gauge pressure is calculated in the spreadsheet by subtracting SONGS ambient air pressure (14.7 psia) from the containment absolute pressure. The first table contains selected containment conditions and energy inventories as a function of time. The parameters tabulated include:

Containment Pressure, Absolute and Gauge
Containment Vapor Temperature
Containment Superheat
Containment Saturation Temperature
Containment Sump Water Temperature
Steam Energy in Containment
Air Energy in Containment
Sump Water Energy in Containment
Total Containment Vapor and Sump Energy
Integrated Energy Removed by Emergency Air Coolers
Integrated Energy Transferred from Vapor to Sump by Containment Sprays
Containment Heat Sinks Net Heat Transfer

The second table provides representative containment heat sink surface temperatures together with the applicable Uchida condensing heat transfer coefficient as a function of time. The heat sinks chosen as typical for the containment consist of:

HS 2 Liner Plate for the Containment Cylindrical Wall Above Grade
HS 10 Secondary Shield Wall
HS 18 Miscellaneous Carbon Steel with Thickness < / = 0.5 Inches
HS 19 Electrical Hardware and Other Galvanized Steel

9.1 Results Tables for UFSAR Section 6.2 Large MSLB Events

This Section contains summary results tables for the following cases:

Case 1:	3.45 sq ft Slot MSLB @ 0% Power w/cooling train failure
Case 2:	5.30 sq ft Slot MSLB @ 20% Power w/cooling train failure
Case 3:	7.05 sq ft Slot MSLB @ 50% Power w/cooling train failure
Case 4:	8.10 sq ft Slot MSLB @ 80% Power w/cooling train failure
Case 5:	8.85 sq ft Slot MSLB @ 102% Power w/cooling train failure
Case 13:	3.45 sq ft Slot MSLB @ 0% Power w/MSIV failure
Case 14:	5.30 sq ft Slot MSLB @ 20% Power w/MSIV failure
Case 15:	7.05 sq ft Slot MSLB @ 50% Power w/MSIV failure
Case 16:	8.10 sq ft Slot MSLB @ 80% Power w/MSIV failure
Case 7:	8.85 sq ft Slot MSLB @ 102% Power w/MSIV failure

TABLE 9.1-1: SUMMARY OF RESULTS FOR CASE 1 - 3.45 sq ft Slot MSLB @ 0% Power w/Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
0.0	16.80	2.10	120.0	88.0	32.0	120.0	5.962E+05	1.781E+07	8.800E+01	1.841E+07	0.000E+00	0.000E+00	0.000E+00
0.1	17.01	2.31	123.3	74.1	49.2	120.0	1.372E+06	1.791E+07	8.800E+01	1.928E+07	0.000E+00	0.000E+00	4.119E+01
0.2	17.22	2.52	126.6	61.5	65.1	120.0	2.145E+06	1.801E+07	8.799E+01	2.016E+07	0.000E+00	0.000E+00	1.833E+02
0.3	17.42	2.72	129.8	56.2	73.6	120.0	2.913E+06	1.811E+07	8.799E+01	2.102E+07	0.000E+00	0.000E+00	4.310E+02
0.4	17.62	2.92	133.0	51.6	81.3	120.0	3.679E+06	1.821E+07	8.798E+01	2.189E+07	0.000E+00	0.000E+00	7.819E+02
0.5	17.83	3.13	136.1	48.8	87.3	120.0	4.440E+06	1.830E+07	8.798E+01	2.274E+07	0.000E+00	0.000E+00	1.234E+03
0.6	18.03	3.33	139.1	46.7	92.4	120.0	5.198E+06	1.839E+07	8.798E+01	2.359E+07	0.000E+00	0.000E+00	1.785E+03
0.7	18.23	3.53	142.0	45.2	96.8	120.0	5.953E+06	1.849E+07	8.798E+01	2.444E+07	0.000E+00	0.000E+00	2.432E+03
0.8	18.42	3.72	144.9	43.7	101.3	120.0	6.704E+06	1.857E+07	8.797E+01	2.528E+07	0.000E+00	0.000E+00	3.175E+03
0.9	18.62	3.92	147.8	43.1	104.7	120.0	7.452E+06	1.866E+07	8.797E+01	2.611E+07	0.000E+00	0.000E+00	4.010E+03
1.0	18.81	4.11	150.6	42.6	108.0	120.0	8.196E+06	1.875E+07	8.797E+01	2.694E+07	0.000E+00	0.000E+00	4.937E+03
1.2	19.20	4.50	156.0	41.7	114.3	120.0	9.677E+06	1.891E+07	8.797E+01	2.859E+07	0.000E+00	0.000E+00	7.057E+03
1.4	19.58	4.88	161.2	41.8	119.5	120.0	1.115E+07	1.908E+07	9.157E+01	3.022E+07	0.000E+00	0.000E+00	9.522E+03
1.6	19.96	5.26	166.3	42.2	124.1	122.1	1.260E+07	1.923E+07	3.451E+02	3.183E+07	0.000E+00	0.000E+00	1.266E+04
1.8	20.33	5.63	171.3	43.0	128.2	124.5	1.404E+07	1.938E+07	7.708E+02	3.343E+07	0.000E+00	0.000E+00	1.716E+04
2.0	20.70	6.00	176.0	43.7	132.4	127.1	1.547E+07	1.953E+07	1.375E+03	3.500E+07	0.000E+00	0.000E+00	2.331E+04
2.2	21.07	6.37	180.6	44.8	135.8	129.6	1.689E+07	1.967E+07	2.182E+03	3.656E+07	0.000E+00	0.000E+00	3.128E+04
2.4	21.43	6.73	185.1	46.0	139.1	132.0	1.829E+07	1.981E+07	3.197E+03	3.810E+07	0.000E+00	0.000E+00	4.103E+04
2.6	21.78	7.08	189.4	47.2	142.2	134.3	1.969E+07	1.994E+07	4.439E+03	3.963E+07	0.000E+00	0.000E+00	5.263E+04
2.8	22.14	7.44	193.6	48.8	144.9	136.4	2.107E+07	2.007E+07	5.900E+03	4.114E+07	0.000E+00	0.000E+00	6.597E+04
3	22.49	7.79	197.7	50.2	147.5	138.5	2.244E+07	2.020E+07	7.582E+03	4.264E+07	0.000E+00	0.000E+00	8.099E+04
4	24.18	9.48	216.5	57.2	159.3	147.5	2.914E+07	2.077E+07	1.953E+04	4.993E+07	0.000E+00	0.000E+00	1.809E+05
5	25.80	11.10	233.0	64.2	168.7	155.1	3.562E+07	2.128E+07	3.792E+04	5.693E+07	0.000E+00	0.000E+00	3.229E+05
6	27.36	12.66	247.5	71.2	176.3	161.4	4.189E+07	2.172E+07	6.274E+04	6.368E+07	0.000E+00	0.000E+00	5.033E+05
7	28.86	14.16	260.4	77.1	183.4	167.0	4.799E+07	2.212E+07	9.427E+04	7.021E+07	0.000E+00	0.000E+00	7.210E+05
8	30.31	15.61	272.1	83.0	189.1	172.1	5.392E+07	2.248E+07	1.326E+05	7.653E+07	0.000E+00	0.000E+00	9.746E+05
9	31.70	17.00	282.5	88.0	194.5	176.6	5.968E+07	2.280E+07	1.780E+05	8.266E+07	0.000E+00	0.000E+00	1.265E+06
10	33.04	18.34	292.0	92.8	199.2	180.7	6.524E+07	2.309E+07	2.299E+05	8.858E+07	0.000E+00	0.000E+00	1.586E+06
11	34.31	19.61	300.4	97.0	203.4	184.5	7.053E+07	2.335E+07	2.886E+05	9.417E+07	0.000E+00	0.000E+00	1.940E+06
12	35.50	20.80	308.0	101.0	207.0	187.9	7.552E+07	2.358E+07	3.548E+05	9.946E+07	0.000E+00	0.000E+00	2.329E+06
13	36.63	21.93	314.8	104.3	210.4	191.1	8.024E+07	2.379E+07	4.276E+05	1.045E+08	0.000E+00	0.000E+00	2.750E+06
14	37.69	22.99	320.9	107.3	213.6	194.0	8.472E+07	2.398E+07	5.068E+05	1.092E+08	0.000E+00	0.000E+00	3.198E+06
15	38.70	24.00	326.5	110.4	216.1	196.7	8.899E+07	2.415E+07	5.914E+05	1.137E+08	0.000E+00	0.000E+00	3.670E+06
16	39.66	24.96	331.6	113.0	218.5	199.2	9.306E+07	2.431E+07	6.818E+05	1.180E+08	0.000E+00	0.000E+00	4.167E+06
17	40.58	25.88	336.2	115.3	220.9	201.4	9.694E+07	2.445E+07	7.776E+05	1.222E+08	0.000E+00	0.000E+00	4.687E+06
18	41.45	26.75	340.5	117.4	223.1	203.6	1.007E+08	2.458E+07	8.785E+05	1.261E+08	0.000E+00	0.000E+00	5.229E+06
19	42.28	27.58	344.4	119.2	225.2	205.5	1.042E+08	2.470E+07	9.842E+05	1.299E+08	0.000E+00	0.000E+00	5.788E+06
20	43.07	28.37	348.0	120.7	227.3	207.4	1.076E+08	2.481E+07	1.094E+06	1.335E+08	0.000E+00	0.000E+00	6.365E+06
21	43.83	29.13	351.4	122.4	229.0	209.2	1.109E+08	2.492E+07	1.208E+06	1.370E+08	0.000E+00	0.000E+00	6.956E+06
22	44.56	29.86	354.5	123.9	230.6	210.8	1.140E+08	2.501E+07	1.326E+06	1.404E+08	0.000E+00	0.000E+00	7.559E+06
23	45.26	30.56	357.4	125.3	232.1	212.4	1.171E+08	2.510E+07	1.447E+06	1.436E+08	0.000E+00	0.000E+00	8.179E+06
24	45.94	31.24	360.1	126.6	233.5	213.8	1.200E+08	2.518E+07	1.573E+06	1.468E+08	0.000E+00	7.202E+02	8.814E+06
25	46.58	31.88	362.5	127.5	234.9	215.2	1.228E+08	2.526E+07	1.702E+06	1.498E+08	0.000E+00	2.906E+03	9.463E+06

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

TABLE 9.1-1 (cont.): SUMMARY OF RESULTS FOR CASE 1 - 3.45 sq ft Slot MSLB @ 0% Power w/Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
26	47.20	32.50	364.6	128.3	236.3	216.6	1.256E+08	2.532E+07	1.834E+06	1.527E+08	0.000E+00	6.284E+03	1.012E+07
27	47.79	33.09	366.6	129.0	237.6	217.8	1.283E+08	2.538E+07	1.970E+06	1.556E+08	0.000E+00	1.057E+04	1.080E+07
28	48.36	33.66	368.3	129.5	238.8	219.0	1.308E+08	2.544E+07	2.108E+06	1.584E+08	0.000E+00	1.577E+04	1.148E+07
29	48.91	34.21	369.9	129.8	240.0	220.2	1.334E+08	2.548E+07	2.249E+06	1.611E+08	0.000E+00	2.190E+04	1.216E+07
30	49.44	34.74	371.3	130.3	241.1	221.3	1.358E+08	2.553E+07	2.392E+06	1.637E+08	0.000E+00	2.898E+04	1.286E+07
31	49.96	35.26	372.6	130.5	242.0	222.3	1.382E+08	2.557E+07	2.537E+06	1.663E+08	0.000E+00	3.745E+04	1.356E+07
32	50.45	35.75	373.6	130.7	243.0	223.3	1.405E+08	2.560E+07	2.683E+06	1.688E+08	0.000E+00	4.776E+04	1.426E+07
33	50.92	36.22	374.5	130.6	243.9	224.3	1.428E+08	2.563E+07	2.831E+06	1.713E+08	0.000E+00	5.993E+04	1.497E+07
34	51.38	36.68	375.2	130.4	244.8	225.2	1.451E+08	2.565E+07	2.980E+06	1.737E+08	0.000E+00	7.399E+04	1.568E+07
35	51.82	37.12	375.8	130.1	245.7	226.0	1.473E+08	2.566E+07	3.130E+06	1.760E+08	0.000E+00	8.995E+04	1.639E+07
36	52.25	37.55	376.2	129.7	246.5	226.9	1.494E+08	2.568E+07	3.281E+06	1.784E+08	0.000E+00	1.072E+05	1.711E+07
37	52.66	37.96	376.6	129.2	247.3	227.7	1.515E+08	2.569E+07	3.434E+06	1.806E+08	0.000E+00	1.250E+05	1.782E+07
38	53.06	38.36	376.9	128.7	248.2	228.4	1.536E+08	2.570E+07	3.586E+06	1.829E+08	0.000E+00	1.435E+05	1.854E+07
39	53.46	38.76	377.1	128.1	249.0	229.2	1.556E+08	2.570E+07	3.740E+06	1.850E+08	0.000E+00	1.627E+05	1.925E+07
40	53.84	39.14	377.2	127.5	249.7	229.9	1.576E+08	2.571E+07	3.894E+06	1.872E+08	0.000E+00	1.825E+05	1.997E+07
41	54.21	39.51	377.3	126.9	250.5	230.6	1.596E+08	2.571E+07	4.050E+06	1.893E+08	0.000E+00	2.028E+05	2.069E+07
42	54.57	39.87	377.4	126.3	251.1	231.3	1.615E+08	2.571E+07	4.207E+06	1.914E+08	0.000E+00	2.236E+05	2.141E+07
43	54.92	40.22	377.4	125.6	251.7	232.0	1.634E+08	2.571E+07	4.365E+06	1.934E+08	0.000E+00	2.449E+05	2.213E+07
44	55.27	40.57	377.3	125.0	252.4	232.6	1.652E+08	2.571E+07	4.524E+06	1.954E+08	0.000E+00	2.666E+05	2.286E+07
45	55.60	40.90	377.2	124.3	253.0	233.2	1.670E+08	2.571E+07	4.683E+06	1.974E+08	0.000E+00	2.889E+05	2.358E+07
50	57.01	42.31	372.7	117.0	255.7	236.1	1.760E+08	2.556E+07	5.489E+06	2.071E+08	1.929E+03	4.801E+05	2.720E+07
55	58.04	43.34	364.4	106.4	258.0	238.6	1.845E+08	2.529E+07	6.320E+06	2.161E+08	9.945E+04	7.485E+05	3.078E+07
60	59.03	44.33	356.4	96.3	260.1	240.7	1.924E+08	2.506E+07	7.147E+06	2.246E+08	1.989E+05	1.015E+06	3.428E+07
65	59.87	45.17	348.6	86.9	261.8	242.6	1.998E+08	2.482E+07	7.961E+06	2.326E+08	3.001E+05	1.279E+06	3.768E+07
70	60.64	45.94	341.2	77.8	263.3	244.3	2.068E+08	2.459E+07	8.758E+06	2.401E+08	4.026E+05	1.539E+06	4.095E+07
75	61.33	46.63	333.9	69.2	264.8	245.8	2.134E+08	2.437E+07	9.537E+06	2.473E+08	5.065E+05	1.793E+06	4.411E+07
80	61.95	47.25	326.9	60.8	266.1	247.1	2.197E+08	2.416E+07	1.030E+07	2.541E+08	6.116E+05	2.042E+06	4.715E+07
85	62.51	47.81	320.0	52.7	267.3	248.3	2.256E+08	2.394E+07	1.104E+07	2.606E+08	7.179E+05	2.285E+06	5.007E+07
90	62.99	48.29	313.2	45.0	268.2	249.4	2.312E+08	2.374E+07	1.175E+07	2.667E+08	8.251E+05	2.521E+06	5.288E+07
95	63.41	48.71	306.6	37.5	269.1	250.4	2.365E+08	2.353E+07	1.245E+07	2.725E+08	9.330E+05	2.751E+06	5.557E+07
100	63.79	49.09	300.1	30.3	269.8	251.2	2.415E+08	2.333E+07	1.312E+07	2.780E+08	1.042E+06	2.974E+06	5.816E+07
110	64.43	49.73	287.7	16.5	271.2	252.8	2.510E+08	2.292E+07	1.441E+07	2.883E+08	1.261E+06	3.402E+06	6.304E+07
120	64.88	50.18	275.7	3.4	272.3	254.2	2.595E+08	2.250E+07	1.564E+07	2.976E+08	1.482E+06	3.803E+06	6.759E+07
130	65.98	51.28	274.3	0.4	273.9	255.7	2.669E+08	2.237E+07	1.716E+07	3.064E+08	1.706E+06	4.186E+06	7.187E+07
140	66.23	51.53	274.5	0.3	274.2	257.2	2.690E+08	2.253E+07	1.888E+07	3.104E+08	1.932E+06	4.571E+06	7.587E+07
150	65.99	51.29	274.2	0.3	273.9	258.5	2.677E+08	2.253E+07	2.053E+07	3.107E+08	2.158E+06	4.956E+06	7.948E+07
160	65.77	51.07	273.9	0.3	273.6	259.5	2.652E+08	2.249E+07	2.210E+07	3.098E+08	2.383E+06	5.341E+06	8.275E+07
170	65.24	50.54	273.2	0.3	272.9	260.2	2.623E+08	2.242E+07	2.358E+07	3.083E+08	2.607E+06	5.724E+06	8.570E+07
180	64.60	49.90	272.4	0.4	272.0	260.9	2.593E+08	2.234E+07	2.498E+07	3.068E+08	2.830E+06	6.105E+06	8.837E+07
190	63.99	49.29	271.5	0.3	271.2	261.4	2.557E+08	2.246E+07	2.637E+07	3.045E+08	3.051E+06	6.484E+06	9.081E+07
200	63.35	48.65	270.6	0.2	270.4	261.8	2.522E+08	2.244E+07	2.767E+07	3.023E+08	3.271E+06	6.862E+06	9.303E+07
210	62.75	48.05	269.8	0.2	269.6	262.1	2.490E+08	2.241E+07	2.890E+07	3.003E+08	3.490E+06	7.237E+06	9.507E+07
220	62.19	47.49	269.0	0.1	268.8	262.3	2.460E+08	2.239E+07	3.009E+07	2.985E+08	3.707E+06	7.610E+06	9.695E+07

TABLE 9.1-1 (cont.): SUMMARY OF RESULTS FOR CASE 1 - 3.45 sq ft Slot MSLB @ 0% Power w/Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht.Trans (Btu)	Heat Sink Net HT (Btu)
230	61.67	46.97	268.2	0.1	268.2	262.5	2.432E+08	2.236E+07	3.123E+07	2.968E+08	3.922E+06	7.981E+06	9.869E+07
240	61.17	46.47	267.5	0.0	267.5	262.6	2.406E+08	2.234E+07	3.234E+07	2.952E+08	4.137E+06	8.351E+06	1.003E+08
250	60.70	46.00	266.8	0.0	266.8	262.7	2.380E+08	2.232E+07	3.342E+07	2.938E+08	4.350E+06	8.718E+06	1.018E+08
260	60.25	45.55	266.2	0.1	266.1	262.8	2.356E+08	2.230E+07	3.446E+07	2.924E+08	4.563E+06	9.084E+06	1.033E+08
270	59.82	45.12	265.6	0.1	265.5	262.9	2.333E+08	2.228E+07	3.548E+07	2.911E+08	4.774E+06	9.448E+06	1.046E+08
280	59.42	44.72	265.0	0.1	264.9	262.9	2.311E+08	2.226E+07	3.647E+07	2.899E+08	4.983E+06	9.810E+06	1.058E+08
290	59.05	44.35	264.4	0.1	264.3	262.9	2.292E+08	2.213E+07	3.741E+07	2.887E+08	5.192E+06	1.017E+07	1.070E+08
300	58.65	43.95	263.8	0.1	263.7	262.9	2.270E+08	2.223E+07	3.839E+07	2.876E+08	5.400E+06	1.053E+07	1.082E+08
350	57.02	42.32	261.3	0.1	261.2	262.6	2.176E+08	2.215E+07	4.295E+07	2.827E+08	6.425E+06	1.230E+07	1.132E+08
400	55.49	40.79	258.9	0.0	258.8	262.1	2.094E+08	2.207E+07	4.721E+07	2.787E+08	7.428E+06	1.403E+07	1.175E+08
450	54.17	39.47	256.7	0.1	256.6	261.4	2.023E+08	2.190E+07	5.120E+07	2.754E+08	8.411E+06	1.572E+07	1.211E+08
500	53.02	38.32	254.8	0.1	254.6	260.7	1.956E+08	2.195E+07	5.505E+07	2.726E+08	9.374E+06	1.738E+07	1.242E+08
550	51.90	37.20	252.8	0.1	252.7	259.9	1.895E+08	2.189E+07	5.872E+07	2.701E+08	1.032E+07	1.900E+07	1.269E+08
600	50.85	36.15	251.0	0.0	250.9	258.9	1.839E+08	2.183E+07	6.224E+07	2.680E+08	1.125E+07	2.057E+07	1.294E+08
700	48.96	34.26	247.5	0.2	247.3	256.9	1.737E+08	2.173E+07	6.894E+07	2.643E+08	1.307E+07	2.360E+07	1.336E+08
800	47.38	32.68	244.4	0.2	244.2	254.8	1.646E+08	2.163E+07	7.525E+07	2.615E+08	1.482E+07	2.649E+07	1.372E+08
900	45.87	31.17	241.4	0.1	241.3	252.7	1.564E+08	2.154E+07	8.122E+07	2.592E+08	1.652E+07	2.925E+07	1.403E+08
1000	44.51	29.81	238.5	0.1	238.4	250.6	1.491E+08	2.145E+07	8.692E+07	2.574E+08	1.817E+07	3.190E+07	1.428E+08
1250	41.65	26.95	232.2	0.3	231.9	245.6	1.332E+08	2.126E+07	1.002E+08	2.547E+08	2.209E+07	3.817E+07	1.478E+08
1500	39.21	24.51	226.2	0.2	226.0	241.0	1.199E+08	2.107E+07	1.126E+08	2.536E+08	2.576E+07	4.402E+07	1.514E+08
1750	37.18	22.48	220.9	0.5	220.4	236.8	1.089E+08	2.091E+07	1.241E+08	2.539E+08	2.917E+07	4.953E+07	1.538E+08
2000	35.17	20.47	215.1	0.2	214.9	232.9	9.765E+07	2.073E+07	1.350E+08	2.534E+08	3.236E+07	5.471E+07	1.554E+08
2500	31.76	17.06	204.0	0.2	203.8	225.7	7.907E+07	2.039E+07	1.549E+08	2.543E+08	3.806E+07	6.414E+07	1.563E+08
3000	29.27	14.57	194.5	0.1	194.4	219.3	6.557E+07	2.010E+07	1.728E+08	2.584E+08	4.296E+07	7.254E+07	1.548E+08
3500	27.41	12.71	186.3	0.2	186.2	213.6	5.552E+07	1.985E+07	1.893E+08	2.646E+08	4.722E+07	8.011E+07	1.519E+08
4000	25.88	11.18	178.7	0.3	178.4	208.5	4.740E+07	1.962E+07	2.047E+08	2.717E+08	5.092E+07	8.698E+07	1.486E+08
4500	24.61	9.91	171.7	0.1	171.5	203.8	4.068E+07	1.940E+07	2.193E+08	2.793E+08	5.413E+07	9.320E+07	1.453E+08
5000	23.56	8.86	165.2	0.1	165.0	199.4	3.522E+07	1.919E+07	2.330E+08	2.874E+08	5.692E+07	9.884E+07	1.419E+08
6000	22.01	7.31	153.9	0.1	153.9	191.6	2.727E+07	1.885E+07	2.586E+08	3.048E+08	6.146E+07	1.086E+08	1.350E+08
7000	21.00	6.30	145.4	0.3	145.0	184.9	2.220E+07	1.857E+07	2.822E+08	3.230E+08	6.491E+07	1.167E+08	1.284E+08
8000	20.31	5.61	138.7	0.2	138.5	179.0	1.888E+07	1.836E+07	3.043E+08	3.416E+08	6.762E+07	1.235E+08	1.221E+08
9000	19.85	5.15	133.9	0.5	133.4	173.9	1.655E+07	1.822E+07	3.254E+08	3.601E+08	6.981E+07	1.294E+08	1.164E+08
10000	19.49	4.79	130.4	1.8	128.6	169.5	1.470E+07	1.812E+07	3.457E+08	3.785E+08	7.158E+07	1.346E+08	1.113E+08

slbrslt1.wb2

TABLE 9.1-2: SUMMARY OF HEAT SINK RESULTS FOR CASE 1

Time (sec)	Heat Sink Surface Temperatures (F)				Uchida Cond. HTC (B/hr-ft2-F)
	HS #2 Liner Plate	HS #10 - Sec Shield Wall	HS #18 - CS Th <= 0.5"	HS #19 - Elec & Galv CS	
0.0	118.4	120.0	120.0	119.9	2.00
1	118.7	120.4	120.3	120.0	7.35
5	124.5	132.0	125.9	121.3	20.03
10	132.6	150.5	133.9	126.4	28.76
15	141.1	167.0	142.4	134.9	37.75
20	149.0	180.0	150.2	145.5	44.57
30	163.4	199.1	164.8	169.9	56.22
40	175.5	211.6	177.4	193.7	63.43
50	187.3	221.9	190.1	214.4	73.05
60	197.4	229.3	201.1	231.2	80.37
70	206.0	234.9	210.7	243.8	85.85
80	213.4	239.4	219.3	252.9	90.17
90	219.8	243.0	226.8	259.3	93.64
100	225.2	245.9	233.3	263.8	96.50
120	234.5	250.7	244.4	269.2	104.01
140	241.6	254.5	253.0	272.5	107.69
160	245.5	255.3	258.2	273.5	106.25
180	247.6	254.9	261.5	273.5	103.87
200	248.7	254.1	263.3	273.4	101.02
250	249.4	252.2	265.0	273.2	96.31
300	249.0	250.4	264.6	272.7	93.55
400	246.9	247.4	264.4	271.4	88.55
500	244.3	244.3	264.0	269.8	83.95
600	241.7	241.5	263.4	267.9	79.59
800	236.4	236.0	262.0	263.7	71.01
1000	231.4	230.8	260.1	259.0	62.74
1500	220.8	220.0	254.3	246.9	52.14
2000	211.0	210.1	247.3	235.1	42.73
3000	194.5	192.2	231.0	212.5	29.75
4000	179.8	178.9	214.2	193.4	23.87
5000	170.8	168.5	198.3	177.6	20.15
7500	156.0	154.0	165.1	148.7	14.69
10000	146.6	145.1	143.9	133.7	11.13

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

TABLE 9.1-3: SUMMARY OF RESULTS FOR CASE 2 - 5.30 sq ft Slot MSLB @ 20% Power with Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
0.0	16.80	2.10	120.0	88.0	32.0	120.0	5.962E+05	1.781E+07	8.800E+01	1.841E+07	0.000E+00	0.000E+00	0.000E+00
0.1	17.10	2.40	124.9	68.1	56.8	120.0	1.726E+06	1.796E+07	8.800E+01	1.969E+07	0.000E+00	0.000E+00	5.717E+01
0.2	17.40	2.70	129.7	56.8	72.8	120.0	2.844E+06	1.811E+07	8.799E+01	2.095E+07	0.000E+00	0.000E+00	2.619E+02
0.3	17.70	3.00	134.2	50.8	83.5	120.0	3.950E+06	1.825E+07	8.799E+01	2.220E+07	0.000E+00	0.000E+00	6.191E+02
0.4	17.99	3.29	138.7	47.2	91.5	120.0	5.045E+06	1.838E+07	8.798E+01	2.343E+07	0.000E+00	0.000E+00	1.124E+03
0.5	18.28	3.58	143.0	45.1	97.9	120.0	6.129E+06	1.852E+07	8.798E+01	2.464E+07	0.000E+00	0.000E+00	1.770E+03
0.6	18.56	3.86	147.2	43.6	103.6	120.0	7.203E+06	1.864E+07	8.798E+01	2.585E+07	0.000E+00	0.000E+00	2.555E+03
0.7	18.85	4.15	151.3	43.0	108.3	120.0	8.267E+06	1.877E+07	8.798E+01	2.704E+07	0.000E+00	0.000E+00	3.474E+03
0.8	19.12	4.42	155.2	42.2	113.0	120.0	9.322E+06	1.889E+07	8.797E+01	2.821E+07	0.000E+00	0.000E+00	4.523E+03
0.9	19.40	4.70	159.0	42.3	116.7	120.0	1.037E+07	1.901E+07	8.797E+01	2.938E+07	0.000E+00	0.000E+00	5.698E+03
1.0	19.67	4.97	162.8	42.4	120.4	120.0	1.140E+07	1.912E+07	9.556E+01	3.053E+07	0.000E+00	0.000E+00	6.998E+03
1.2	20.20	5.50	170.0	43.4	126.6	123.5	1.345E+07	1.934E+07	4.398E+02	3.279E+07	0.000E+00	0.000E+00	1.064E+04
1.4	20.73	6.03	176.9	44.5	132.4	127.2	1.546E+07	1.956E+07	1.016E+03	3.502E+07	0.000E+00	0.000E+00	1.644E+04
1.6	21.24	6.54	183.4	46.3	137.1	130.7	1.743E+07	1.976E+07	1.876E+03	3.719E+07	0.000E+00	0.000E+00	2.479E+04
1.8	21.74	7.04	189.6	48.0	141.7	133.9	1.938E+07	1.995E+07	3.042E+03	3.933E+07	0.000E+00	0.000E+00	3.568E+04
2.0	22.23	7.53	195.5	50.2	145.4	136.9	2.128E+07	2.013E+07	4.517E+03	4.141E+07	0.000E+00	0.000E+00	4.906E+04
2.2	22.71	8.01	201.2	52.2	149.0	139.7	2.315E+07	2.030E+07	6.302E+03	4.346E+07	0.000E+00	0.000E+00	6.478E+04
2.4	23.18	8.48	206.6	53.9	152.6	142.3	2.500E+07	2.047E+07	8.417E+03	4.548E+07	0.000E+00	0.000E+00	8.286E+04
2.6	23.65	8.95	211.7	56.1	155.6	144.8	2.682E+07	2.063E+07	1.085E+04	4.745E+07	0.000E+00	0.000E+00	1.032E+05
2.8	24.10	9.40	216.7	58.2	158.5	147.0	2.860E+07	2.078E+07	1.361E+04	4.940E+07	0.000E+00	0.000E+00	1.256E+05
3	24.55	9.85	221.4	60.0	161.4	149.3	3.037E+07	2.092E+07	1.673E+04	5.131E+07	0.000E+00	0.000E+00	1.504E+05
4	26.67	11.97	242.5	69.8	172.8	158.8	3.881E+07	2.157E+07	3.765E+04	6.042E+07	0.000E+00	0.000E+00	3.078E+05
5	28.64	13.94	260.2	78.1	182.1	166.4	4.673E+07	2.211E+07	6.716E+04	6.891E+07	0.000E+00	0.000E+00	5.147E+05
6	30.47	15.77	275.1	85.6	189.5	172.9	5.418E+07	2.257E+07	1.054E+05	7.686E+07	0.000E+00	0.000E+00	7.686E+05
7	32.19	17.49	288.0	92.1	196.0	178.5	6.123E+07	2.297E+07	1.525E+05	8.435E+07	0.000E+00	0.000E+00	1.068E+06
8	33.80	19.10	299.2	97.6	201.6	183.4	6.790E+07	2.331E+07	2.077E+05	9.142E+07	0.000E+00	0.000E+00	1.405E+06
9	35.30	20.60	308.9	102.8	206.2	187.7	7.414E+07	2.361E+07	2.720E+05	9.802E+07	0.000E+00	0.000E+00	1.787E+06
10	36.68	21.98	317.3	106.9	210.3	191.7	7.989E+07	2.387E+07	3.449E+05	1.041E+08	0.000E+00	0.000E+00	2.209E+06
11	37.92	23.22	324.4	110.5	214.0	195.2	8.515E+07	2.409E+07	4.255E+05	1.097E+08	0.000E+00	0.000E+00	2.666E+06
12	39.06	24.36	330.6	113.8	216.8	198.3	8.994E+07	2.428E+07	5.126E+05	1.147E+08	0.000E+00	0.000E+00	3.150E+06
13	40.09	25.39	336.0	116.5	219.5	201.0	9.434E+07	2.444E+07	6.062E+05	1.194E+08	0.000E+00	0.000E+00	3.663E+06
14	41.05	26.35	340.7	118.8	221.9	203.5	9.842E+07	2.459E+07	7.057E+05	1.237E+08	0.000E+00	0.000E+00	4.201E+06
15	41.94	27.24	344.9	120.7	224.2	205.8	1.022E+08	2.472E+07	8.105E+05	1.278E+08	0.000E+00	0.000E+00	4.760E+06
16	42.76	28.06	348.6	122.2	226.3	207.9	1.058E+08	2.483E+07	9.200E+05	1.315E+08	0.000E+00	0.000E+00	5.338E+06
17	43.54	28.84	351.9	123.6	228.3	209.8	1.091E+08	2.493E+07	1.034E+06	1.351E+08	0.000E+00	0.000E+00	5.932E+06
18	44.26	29.56	354.9	125.1	229.8	211.6	1.123E+08	2.503E+07	1.151E+06	1.385E+08	0.000E+00	0.000E+00	6.538E+06
19	44.95	30.25	357.7	126.4	231.3	213.2	1.153E+08	2.511E+07	1.272E+06	1.417E+08	0.000E+00	0.000E+00	7.157E+06
20	45.59	30.89	360.2	127.5	232.7	214.8	1.181E+08	2.519E+07	1.397E+06	1.447E+08	0.000E+00	0.000E+00	7.792E+06
21	46.20	31.50	362.4	128.4	234.0	216.2	1.208E+08	2.526E+07	1.525E+06	1.476E+08	0.000E+00	0.000E+00	8.440E+06
22	46.79	32.09	364.5	129.3	235.3	217.5	1.234E+08	2.532E+07	1.656E+06	1.504E+08	0.000E+00	0.000E+00	9.099E+06
23	47.34	32.64	366.5	130.0	236.5	218.8	1.259E+08	2.538E+07	1.791E+06	1.530E+08	0.000E+00	0.000E+00	9.769E+06
24	47.87	33.17	368.2	130.6	237.6	219.9	1.282E+08	2.543E+07	1.927E+06	1.556E+08	0.000E+00	7.520E+02	1.045E+07
25	48.37	33.67	369.7	131.0	238.7	221.1	1.305E+08	2.548E+07	2.066E+06	1.580E+08	0.000E+00	3.026E+03	1.113E+07

TABLE 9.1-3 (cont.): SUMMARY OF RESULTS FOR CASE 2 - 5.30 sq ft Slot MSLB @ 20% Power with Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
26	48.85	34.15	371.0	131.2	239.8	222.1	1.327E+08	2.552E+07	2.207E+06	1.604E+08	0.000E+00	6.526E+03	1.182E+07
27	49.31	34.61	372.1	131.4	240.7	223.1	1.348E+08	2.555E+07	2.350E+06	1.627E+08	0.000E+00	1.094E+04	1.252E+07
28	49.74	35.04	373.2	131.6	241.6	224.1	1.369E+08	2.558E+07	2.494E+06	1.650E+08	0.000E+00	1.629E+04	1.321E+07
29	50.16	35.46	374.0	131.7	242.4	225.0	1.389E+08	2.561E+07	2.639E+06	1.671E+08	0.000E+00	2.258E+04	1.391E+07
30	50.57	35.87	374.8	131.6	243.2	225.8	1.408E+08	2.563E+07	2.785E+06	1.693E+08	0.000E+00	2.981E+04	1.462E+07
31	50.95	36.25	375.4	131.5	243.9	226.6	1.427E+08	2.565E+07	2.931E+06	1.713E+08	0.000E+00	3.843E+04	1.532E+07
32	51.32	36.62	375.8	131.2	244.6	227.4	1.446E+08	2.567E+07	3.079E+06	1.733E+08	0.000E+00	4.890E+04	1.602E+07
33	51.68	36.98	376.1	130.8	245.4	228.1	1.464E+08	2.567E+07	3.227E+06	1.753E+08	0.000E+00	6.124E+04	1.672E+07
34	52.02	37.32	376.3	130.2	246.1	228.8	1.482E+08	2.568E+07	3.375E+06	1.772E+08	0.000E+00	7.544E+04	1.743E+07
35	52.35	37.65	376.3	129.5	246.7	229.5	1.499E+08	2.568E+07	3.524E+06	1.791E+08	0.000E+00	9.153E+04	1.813E+07
36	52.66	37.96	376.2	128.8	247.4	230.2	1.516E+08	2.568E+07	3.673E+06	1.810E+08	0.000E+00	1.088E+05	1.883E+07
37	52.96	38.26	376.0	128.0	248.0	230.8	1.533E+08	2.567E+07	3.822E+06	1.828E+08	0.000E+00	1.268E+05	1.952E+07
38	53.26	38.56	375.8	127.2	248.6	231.4	1.549E+08	2.566E+07	3.971E+06	1.846E+08	0.000E+00	1.453E+05	2.022E+07
39	53.55	38.85	375.5	126.3	249.2	232.0	1.566E+08	2.566E+07	4.121E+06	1.863E+08	0.000E+00	1.644E+05	2.092E+07
40	53.83	39.13	375.2	125.4	249.8	232.5	1.582E+08	2.565E+07	4.271E+06	1.881E+08	0.000E+00	1.840E+05	2.161E+07
41	54.10	39.40	374.9	124.5	250.4	233.1	1.597E+08	2.564E+07	4.421E+06	1.898E+08	0.000E+00	2.042E+05	2.230E+07
42	54.36	39.66	374.5	123.6	250.9	233.6	1.613E+08	2.562E+07	4.573E+06	1.914E+08	0.000E+00	2.248E+05	2.300E+07
43	54.62	39.92	374.1	122.7	251.4	234.1	1.628E+08	2.561E+07	4.724E+06	1.931E+08	0.000E+00	2.459E+05	2.369E+07
44	54.87	40.17	373.6	121.8	251.8	234.6	1.642E+08	2.560E+07	4.876E+06	1.947E+08	0.000E+00	2.673E+05	2.439E+07
45	55.12	40.42	373.2	120.9	252.3	235.1	1.657E+08	2.558E+07	5.028E+06	1.963E+08	0.000E+00	2.892E+05	2.508E+07
50	56.07	41.37	366.8	112.4	254.3	237.3	1.729E+08	2.538E+07	5.789E+06	2.040E+08	1.905E+03	4.758E+05	2.851E+07
55	56.70	42.00	356.6	100.6	256.0	239.3	1.796E+08	2.507E+07	6.564E+06	2.113E+08	9.791E+04	7.348E+05	3.187E+07
60	57.25	42.55	346.9	89.4	257.5	241.0	1.859E+08	2.477E+07	7.328E+06	2.180E+08	1.953E+05	9.888E+05	3.513E+07
65	57.72	43.02	337.5	78.7	258.8	242.4	1.918E+08	2.448E+07	8.076E+06	2.244E+08	2.940E+05	1.237E+06	3.827E+07
70	58.26	43.56	328.9	68.8	260.1	243.7	1.980E+08	2.422E+07	8.807E+06	2.310E+08	3.937E+05	1.481E+06	4.131E+07
75	58.68	43.98	320.3	59.1	261.2	244.9	2.036E+08	2.395E+07	9.521E+06	2.371E+08	4.946E+05	1.719E+06	4.423E+07
80	58.92	44.22	311.6	49.6	262.0	245.9	2.084E+08	2.369E+07	1.021E+07	2.423E+08	5.963E+05	1.950E+06	4.704E+07
85	59.07	44.37	303.0	40.4	262.6	246.9	2.126E+08	2.342E+07	1.088E+07	2.469E+08	6.987E+05	2.173E+06	4.972E+07
90	59.14	44.44	294.5	31.4	263.1	247.7	2.166E+08	2.316E+07	1.153E+07	2.513E+08	8.015E+05	2.387E+06	5.228E+07
95	59.16	44.46	286.2	22.7	263.5	248.4	2.202E+08	2.291E+07	1.215E+07	2.553E+08	9.047E+05	2.594E+06	5.472E+07
100	59.15	44.45	278.1	14.2	263.8	249.1	2.236E+08	2.266E+07	1.274E+07	2.590E+08	1.008E+06	2.792E+06	5.705E+07
110	58.87	44.17	264.2	0.1	264.1	250.3	2.285E+08	2.222E+07	1.396E+07	2.647E+08	1.216E+06	3.165E+06	6.141E+07
120	58.86	44.16	264.1	0.1	264.0	251.5	2.284E+08	2.220E+07	1.556E+07	2.662E+08	1.424E+06	3.524E+06	6.534E+07
130	58.76	44.06	264.0	0.1	263.9	252.5	2.279E+08	2.218E+07	1.709E+07	2.671E+08	1.632E+06	3.883E+06	6.891E+07
140	58.58	43.88	263.7	0.1	263.6	253.2	2.268E+08	2.217E+07	1.854E+07	2.676E+08	1.839E+06	4.241E+06	7.215E+07
150	58.32	43.62	263.3	0.1	263.2	253.8	2.255E+08	2.214E+07	1.993E+07	2.675E+08	2.046E+06	4.598E+06	7.512E+07
160	58.11	43.41	263.0	0.1	262.9	254.3	2.237E+08	2.220E+07	2.128E+07	2.672E+08	2.252E+06	4.954E+06	7.785E+07
170	57.81	43.11	262.5	0.1	262.4	254.7	2.221E+08	2.204E+07	2.252E+07	2.667E+08	2.457E+06	5.309E+06	8.037E+07
180	57.46	42.76	262.0	0.1	261.9	255.0	2.202E+08	2.203E+07	2.375E+07	2.660E+08	2.662E+06	5.662E+06	8.269E+07
190	57.11	42.41	261.4	0.1	261.4	255.2	2.183E+08	2.202E+07	2.493E+07	2.653E+08	2.865E+06	6.014E+06	8.484E+07
200	56.76	42.06	260.9	0.1	260.8	255.4	2.164E+08	2.200E+07	2.607E+07	2.645E+08	3.068E+06	6.364E+06	8.683E+07
210	56.41	41.71	260.3	0.1	260.3	255.5	2.145E+08	2.198E+07	2.718E+07	2.637E+08	3.269E+06	6.713E+06	8.869E+07
220	56.06	41.36	259.8	0.0	259.8	255.6	2.127E+08	2.197E+07	2.825E+07	2.629E+08	3.470E+06	7.059E+06	9.043E+07

TABLE 9.1-3 (cont.): SUMMARY OF RESULTS FOR CASE 2 - 5.30 sq ft Slot MSLB @ 20% Power with Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
230	55.72	41.02	259.3	0.0	259.2	255.7	2.109E+08	2.196E+07	2.928E+07	2.621E+08	3.670E+06	7.404E+06	9.205E+07
240	55.39	40.69	258.7	0.0	258.7	255.7	2.091E+08	2.194E+07	3.029E+07	2.613E+08	3.869E+06	7.747E+06	9.357E+07
250	55.07	40.37	258.2	0.1	258.1	255.7	2.074E+08	2.193E+07	3.127E+07	2.606E+08	4.066E+06	8.088E+06	9.500E+07
260	54.76	40.06	257.7	0.1	257.6	255.7	2.057E+08	2.192E+07	3.223E+07	2.598E+08	4.263E+06	8.427E+06	9.635E+07
270	54.46	39.76	257.2	0.1	257.1	255.6	2.040E+08	2.190E+07	3.317E+07	2.591E+08	4.459E+06	8.764E+06	9.761E+07
280	54.16	39.46	256.7	0.1	256.6	255.6	2.024E+08	2.190E+07	3.408E+07	2.584E+08	4.654E+06	9.100E+06	9.881E+07
290	53.87	39.17	256.2	0.1	256.1	255.5	2.009E+08	2.188E+07	3.498E+07	2.577E+08	4.848E+06	9.434E+06	9.995E+07
300	53.59	38.89	255.7	0.1	255.6	255.4	1.994E+08	2.187E+07	3.585E+07	2.571E+08	5.042E+06	9.767E+06	1.010E+08
350	52.31	37.61	253.5	0.1	253.4	254.8	1.919E+08	2.191E+07	4.009E+07	2.539E+08	5.996E+06	1.141E+07	1.058E+08
400	50.97	36.27	251.2	0.1	251.1	254.0	1.847E+08	2.184E+07	4.401E+07	2.505E+08	6.930E+06	1.299E+07	1.099E+08
450	49.73	35.03	248.9	0.1	248.8	253.1	1.780E+08	2.177E+07	4.769E+07	2.475E+08	7.845E+06	1.452E+07	1.132E+08
500	48.63	33.93	246.9	0.2	246.7	252.0	1.720E+08	2.171E+07	5.117E+07	2.449E+08	8.739E+06	1.601E+07	1.161E+08
550	47.72	33.02	245.1	0.2	244.9	250.9	1.666E+08	2.165E+07	5.450E+07	2.427E+08	9.616E+06	1.745E+07	1.186E+08
600	46.78	32.08	243.3	0.2	243.1	249.7	1.615E+08	2.160E+07	5.771E+07	2.408E+08	1.048E+07	1.885E+07	1.209E+08
700	45.09	30.39	239.8	0.0	239.8	247.3	1.524E+08	2.149E+07	6.380E+07	2.377E+08	1.216E+07	2.156E+07	1.248E+08
800	43.60	28.90	236.6	0.2	236.4	245.0	1.443E+08	2.139E+07	6.956E+07	2.353E+08	1.378E+07	2.416E+07	1.281E+08
900	42.34	27.64	233.8	0.3	233.5	242.8	1.371E+08	2.131E+07	7.506E+07	2.334E+08	1.534E+07	2.668E+07	1.309E+08
1000	41.12	26.42	231.0	0.2	230.7	240.6	1.304E+08	2.122E+07	8.034E+07	2.320E+08	1.686E+07	2.909E+07	1.332E+08
1250	38.50	23.80	224.4	0.3	224.1	235.7	1.163E+08	2.102E+07	9.273E+07	2.300E+08	2.046E+07	3.484E+07	1.378E+08
1500	36.45	21.75	218.8	0.4	218.4	231.2	1.047E+08	2.085E+07	1.042E+08	2.298E+08	2.379E+07	4.023E+07	1.409E+08
1750	34.64	19.94	213.5	0.1	213.5	227.1	9.494E+07	2.068E+07	1.150E+08	2.306E+08	2.690E+07	4.531E+07	1.430E+08
2000	32.80	18.10	207.6	0.3	207.4	223.4	8.499E+07	2.051E+07	1.252E+08	2.307E+08	2.980E+07	5.009E+07	1.443E+08
2500	29.84	15.14	196.8	0.1	196.7	216.6	6.876E+07	2.017E+07	1.439E+08	2.328E+08	3.493E+07	5.878E+07	1.446E+08
3000	27.72	13.02	187.9	0.2	187.6	210.5	5.731E+07	1.990E+07	1.607E+08	2.380E+08	3.932E+07	6.652E+07	1.426E+08
3500	26.08	11.38	179.9	0.3	179.7	205.1	4.863E+07	1.965E+07	1.764E+08	2.447E+08	4.312E+07	7.351E+07	1.396E+08
4000	24.76	10.06	172.7	0.2	172.4	200.3	4.158E+07	1.943E+07	1.911E+08	2.521E+08	4.640E+07	7.983E+07	1.364E+08
4500	23.66	8.96	165.9	0.1	165.8	195.8	3.584E+07	1.921E+07	2.050E+08	2.600E+08	4.924E+07	8.554E+07	1.331E+08
5000	22.76	8.06	159.7	0.2	159.6	191.7	3.121E+07	1.902E+07	2.182E+08	2.684E+08	5.170E+07	9.070E+07	1.298E+08
6000	21.44	6.74	149.5	0.3	149.2	184.4	2.457E+07	1.871E+07	2.428E+08	2.860E+08	5.568E+07	9.962E+07	1.232E+08
7000	20.59	5.89	141.7	0.1	141.6	178.1	2.033E+07	1.846E+07	2.656E+08	3.044E+08	5.873E+07	1.070E+08	1.168E+08
8000	20.02	5.32	135.8	0.2	135.5	172.6	1.754E+07	1.827E+07	2.871E+08	3.229E+08	6.114E+07	1.133E+08	1.109E+08
9000	19.61	4.91	131.6	0.9	130.7	167.9	1.550E+07	1.815E+07	3.077E+08	3.413E+08	6.310E+07	1.188E+08	1.056E+08
10000	19.30	4.60	128.4	2.0	126.3	163.8	1.388E+07	1.806E+07	3.277E+08	3.596E+08	6.466E+07	1.236E+08	1.008E+08

slbrslt1.wb2

TABLE 9.1-4: SUMMARY OF HEAT SINK RESULTS FOR CASE 2

Time (sec)	Heat Sink Surface Temperatures (F)				Uchida Cond. HTC (B/hr-ft2-F)
	HS #2 Liner Plate	HS #10 - Sec Shield Wall	HS #18 - CS Th <= 0.5"	HS #19 - Elec & Galv CS	
0.0	118.4	120.0	120.0	119.9	2.00
1	118.9	120.6	120.4	120.0	9.31
5	127.2	137.5	128.6	122.1	23.35
10	137.2	159.3	138.5	129.1	34.62
15	145.8	175.3	147.0	139.4	42.82
20	153.3	186.6	154.5	151.3	48.77
30	166.4	202.5	167.9	176.3	58.00
40	177.3	212.8	179.5	198.7	63.81
50	187.8	221.2	190.8	217.4	71.73
60	196.7	227.3	200.7	232.0	78.02
70	204.5	232.1	209.5	242.8	83.10
80	211.0	235.7	217.2	250.5	87.03
90	216.5	238.4	223.7	255.7	89.95
100	221.0	240.4	229.4	259.1	92.33
120	227.7	242.6	238.0	262.4	93.90
140	232.2	243.7	244.2	263.3	93.48
160	235.3	244.3	248.6	263.4	92.67
180	237.3	244.3	251.6	263.4	91.65
200	238.7	244.2	253.6	263.3	90.58
250	240.1	243.2	255.7	263.1	87.85
300	240.2	242.0	255.6	262.7	85.24
400	238.7	239.3	255.4	261.7	79.91
500	236.0	236.0	255.1	260.3	74.54
600	233.4	233.1	254.6	258.6	69.46
800	228.1	227.6	253.3	254.7	61.32
1000	223.5	222.9	251.5	250.3	56.50
1500	212.9	212.2	245.8	238.7	45.07
2000	203.7	202.7	239.1	227.3	37.50
3000	187.8	186.6	223.2	205.2	27.24
4000	174.4	172.6	207.0	186.8	22.20
5000	166.2	163.9	191.6	171.6	18.78
7500	152.4	150.6	160.2	144.7	13.92
10000	143.8	142.5	140.7	131.3	10.37

E&TS DEPARTMENT

CALCULATION SHEET

Project or DCP/FCN SONGS 2 & 3 Calc. No. N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events

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REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

TABLE 9.1-5: SUMMARY OF RESULTS FOR CASE 3 - 7.05 sq ft Slot MSLB @ 50% Power with Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
0.0	16.80	2.10	120.0	88.0	32.0	120.0	5.962E+05	1.781E+07	8.800E+01	1.841E+07	0.000E+00	0.000E+00	0.000E+00
0.1	17.19	2.49	126.3	62.8	63.5	120.0	2.041E+06	1.800E+07	8.800E+01	2.004E+07	0.000E+00	0.000E+00	7.153E+01
0.2	17.57	2.87	132.3	52.6	79.7	120.0	3.463E+06	1.819E+07	8.799E+01	2.165E+07	0.000E+00	0.000E+00	3.319E+02
0.3	17.95	3.25	138.1	47.6	90.5	120.0	4.865E+06	1.837E+07	8.799E+01	2.323E+07	0.000E+00	0.000E+00	7.854E+02
0.4	18.32	3.62	143.7	45.1	98.6	120.0	6.249E+06	1.854E+07	8.798E+01	2.478E+07	0.000E+00	0.000E+00	1.424E+03
0.5	18.68	3.98	149.0	43.6	105.4	120.0	7.613E+06	1.870E+07	8.798E+01	2.631E+07	0.000E+00	0.000E+00	2.239E+03
0.6	19.04	4.34	154.1	42.7	111.4	120.0	8.959E+06	1.886E+07	8.798E+01	2.782E+07	0.000E+00	0.000E+00	3.225E+03
0.7	19.39	4.69	159.1	42.6	116.5	120.0	1.029E+07	1.901E+07	8.798E+01	2.930E+07	0.000E+00	0.000E+00	4.375E+03
0.8	19.73	5.03	163.8	42.7	121.1	120.1	1.160E+07	1.916E+07	9.844E+01	3.076E+07	0.000E+00	0.000E+00	5.687E+03
0.9	20.07	5.37	168.5	43.4	125.0	122.6	1.290E+07	1.930E+07	2.636E+02	3.219E+07	0.000E+00	0.000E+00	7.400E+03
1.0	20.41	5.71	172.9	44.3	128.7	124.9	1.417E+07	1.943E+07	4.954E+02	3.361E+07	0.000E+00	0.000E+00	9.756E+03
1.2	21.06	6.36	181.4	46.1	135.4	129.5	1.669E+07	1.970E+07	1.217E+03	3.638E+07	0.000E+00	0.000E+00	1.678E+04
1.4	21.70	7.00	189.4	48.2	141.2	133.7	1.914E+07	1.994E+07	2.315E+03	3.909E+07	0.000E+00	0.000E+00	2.704E+04
1.6	22.32	7.62	196.9	51.0	145.9	137.5	2.155E+07	2.017E+07	3.807E+03	4.172E+07	0.000E+00	0.000E+00	4.047E+04
1.8	22.92	8.22	204.0	53.5	150.5	140.9	2.389E+07	2.039E+07	5.697E+03	4.429E+07	0.000E+00	0.000E+00	5.687E+04
2.0	23.51	8.81	210.6	56.0	154.6	144.1	2.618E+07	2.059E+07	8.002E+03	4.678E+07	0.000E+00	0.000E+00	7.622E+04
2.2	24.08	9.38	216.9	58.6	158.3	147.0	2.842E+07	2.078E+07	1.070E+04	4.922E+07	0.000E+00	0.000E+00	9.824E+04
2.4	24.64	9.94	222.8	61.0	161.9	149.7	3.063E+07	2.097E+07	1.386E+04	5.161E+07	0.000E+00	0.000E+00	1.232E+05
2.6	25.19	10.49	228.5	63.6	164.9	152.3	3.279E+07	2.114E+07	1.747E+04	5.395E+07	0.000E+00	0.000E+00	1.512E+05
2.8	25.72	11.02	233.9	66.0	167.9	154.8	3.492E+07	2.131E+07	2.153E+04	5.625E+07	0.000E+00	0.000E+00	1.819E+05
3	26.25	11.55	239.0	68.3	170.7	157.1	3.701E+07	2.147E+07	2.603E+04	5.850E+07	0.000E+00	0.000E+00	2.153E+05
4	28.73	14.03	261.5	79.1	182.5	166.8	4.700E+07	2.216E+07	5.498E+04	6.921E+07	0.000E+00	0.000E+00	4.190E+05
5	31.02	16.32	279.9	88.3	191.6	174.7	5.629E+07	2.272E+07	9.507E+04	7.910E+07	0.000E+00	0.000E+00	6.825E+05
6	33.14	18.44	295.3	96.1	199.2	181.3	6.501E+07	2.319E+07	1.462E+05	8.835E+07	0.000E+00	0.000E+00	1.001E+06
7	35.12	20.42	308.4	102.8	205.5	187.1	7.322E+07	2.360E+07	2.084E+05	9.703E+07	0.000E+00	0.000E+00	1.373E+06
8	36.95	22.25	319.5	108.3	211.1	192.1	8.091E+07	2.394E+07	2.824E+05	1.051E+08	0.000E+00	0.000E+00	1.801E+06
9	38.64	23.94	328.9	113.2	215.7	196.6	8.805E+07	2.423E+07	3.671E+05	1.126E+08	0.000E+00	0.000E+00	2.277E+06
10	40.18	25.48	336.9	117.3	219.6	200.5	9.458E+07	2.447E+07	4.616E+05	1.195E+08	0.000E+00	0.000E+00	2.796E+06
11	41.57	26.87	343.7	120.5	223.2	204.0	1.005E+08	2.468E+07	5.654E+05	1.258E+08	0.000E+00	0.000E+00	3.354E+06
12	42.84	28.14	349.5	123.1	226.5	207.1	1.059E+08	2.486E+07	6.775E+05	1.315E+08	0.000E+00	0.000E+00	3.947E+06
13	44.00	29.30	354.6	125.4	229.2	209.9	1.110E+08	2.502E+07	7.968E+05	1.368E+08	0.000E+00	0.000E+00	4.567E+06
14	45.08	30.38	359.0	127.5	231.5	212.4	1.157E+08	2.515E+07	9.223E+05	1.417E+08	0.000E+00	0.000E+00	5.211E+06
15	46.09	31.39	363.0	129.3	233.7	214.7	1.201E+08	2.527E+07	1.055E+06	1.464E+08	0.000E+00	0.000E+00	5.884E+06
16	47.05	32.35	366.5	130.8	235.8	216.9	1.242E+08	2.538E+07	1.194E+06	1.508E+08	0.000E+00	0.000E+00	6.582E+06
17	47.94	33.24	369.7	132.0	237.7	218.8	1.282E+08	2.548E+07	1.339E+06	1.550E+08	0.000E+00	0.000E+00	7.301E+06
18	48.79	34.09	372.6	133.0	239.6	220.6	1.320E+08	2.557E+07	1.489E+06	1.590E+08	0.000E+00	0.000E+00	8.039E+06
19	49.60	34.90	375.2	134.1	241.1	222.3	1.355E+08	2.565E+07	1.644E+06	1.628E+08	0.000E+00	0.000E+00	8.792E+06
20	50.37	35.67	377.6	135.0	242.6	223.9	1.390E+08	2.572E+07	1.802E+06	1.665E+08	0.000E+00	0.000E+00	9.557E+06
21	51.10	36.40	379.8	135.8	244.0	225.3	1.423E+08	2.579E+07	1.963E+06	1.700E+08	0.000E+00	0.000E+00	1.033E+07
22	51.80	37.10	381.8	136.5	245.3	226.7	1.454E+08	2.585E+07	2.127E+06	1.734E+08	0.000E+00	0.000E+00	1.111E+07
23	52.48	37.78	383.7	137.1	246.6	227.9	1.485E+08	2.591E+07	2.294E+06	1.767E+08	0.000E+00	0.000E+00	1.190E+07
24	53.13	38.43	385.4	137.6	247.8	229.2	1.514E+08	2.596E+07	2.463E+06	1.799E+08	0.000E+00	8.279E+02	1.270E+07
25	53.76	39.06	386.8	137.9	249.0	230.3	1.543E+08	2.601E+07	2.634E+06	1.830E+08	0.000E+00	3.335E+03	1.350E+07

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Glimer	11/01/99					

REVIEW

TABLE 9.1-5 (cont.): SUMMARY OF RESULTS FOR CASE 3 - 7.05 sq ft Slot MSLB @ 50% Power with Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
26	54.36	39.66	388.2	138.0	250.1	231.4	1.571E+08	2.605E+07	2.807E+06	1.860E+08	0.000E+00	7.199E+03	1.430E+07
27	54.93	40.23	389.3	138.2	251.1	232.4	1.598E+08	2.608E+07	2.982E+06	1.889E+08	0.000E+00	1.209E+04	1.511E+07
28	55.49	40.79	390.3	138.2	252.1	233.4	1.625E+08	2.611E+07	3.159E+06	1.917E+08	0.000E+00	1.801E+04	1.593E+07
29	56.03	41.33	391.2	138.2	253.0	234.3	1.650E+08	2.614E+07	3.339E+06	1.945E+08	0.000E+00	2.499E+04	1.675E+07
30	56.50	41.80	391.8	138.0	253.8	235.2	1.675E+08	2.616E+07	3.520E+06	1.972E+08	0.000E+00	3.304E+04	1.758E+07
31	57.00	42.30	392.4	137.7	254.7	236.1	1.700E+08	2.618E+07	3.703E+06	1.999E+08	0.000E+00	4.268E+04	1.841E+07
32	57.48	42.78	392.9	137.4	255.5	236.9	1.724E+08	2.619E+07	3.888E+06	2.024E+08	0.000E+00	5.443E+04	1.924E+07
33	57.95	43.25	393.2	136.9	256.3	237.7	1.747E+08	2.620E+07	4.074E+06	2.050E+08	0.000E+00	6.831E+04	2.008E+07
34	58.39	43.69	393.4	136.3	257.1	238.5	1.770E+08	2.621E+07	4.261E+06	2.075E+08	0.000E+00	8.434E+04	2.092E+07
35	58.82	44.12	393.5	135.6	257.9	239.2	1.793E+08	2.621E+07	4.448E+06	2.099E+08	0.000E+00	1.026E+05	2.175E+07
36	59.24	44.54	393.5	134.8	258.6	239.9	1.815E+08	2.621E+07	4.637E+06	2.123E+08	0.000E+00	1.222E+05	2.259E+07
37	59.64	44.94	393.4	134.0	259.4	240.6	1.837E+08	2.620E+07	4.826E+06	2.147E+08	0.000E+00	1.426E+05	2.343E+07
38	60.04	45.34	393.3	133.3	260.0	241.3	1.858E+08	2.620E+07	5.015E+06	2.170E+08	0.000E+00	1.636E+05	2.426E+07
39	60.42	45.72	393.1	132.5	260.6	241.9	1.879E+08	2.619E+07	5.204E+06	2.193E+08	0.000E+00	1.857E+05	2.509E+07
40	60.80	46.10	392.8	131.6	261.2	242.5	1.899E+08	2.619E+07	5.394E+06	2.215E+08	0.000E+00	2.083E+05	2.592E+07
41	61.16	46.46	392.6	130.8	261.8	243.1	1.920E+08	2.618E+07	5.583E+06	2.237E+08	0.000E+00	2.315E+05	2.675E+07
42	61.52	46.82	392.3	129.9	262.4	243.7	1.939E+08	2.617E+07	5.772E+06	2.259E+08	0.000E+00	2.554E+05	2.757E+07
43	61.86	47.16	391.9	129.0	263.0	244.2	1.959E+08	2.616E+07	5.961E+06	2.280E+08	0.000E+00	2.797E+05	2.838E+07
44	62.20	47.50	391.5	128.0	263.5	244.8	1.978E+08	2.615E+07	6.149E+06	2.301E+08	0.000E+00	3.046E+05	2.920E+07
45	62.52	47.82	391.1	127.1	264.0	245.3	1.996E+08	2.613E+07	6.337E+06	2.321E+08	0.000E+00	3.301E+05	3.001E+07
50	63.86	49.16	385.4	119.0	266.4	247.6	2.087E+08	2.595E+07	7.267E+06	2.419E+08	2.119E+03	5.473E+05	3.397E+07
55	64.97	50.27	376.6	108.2	268.4	249.7	2.178E+08	2.568E+07	8.205E+06	2.516E+08	1.091E+05	8.485E+05	3.780E+07
60	65.73	51.03	367.7	97.9	269.8	251.5	2.252E+08	2.541E+07	9.115E+06	2.597E+08	2.175E+05	1.143E+06	4.146E+07
65	66.29	51.59	358.8	87.9	270.9	253.0	2.316E+08	2.514E+07	9.992E+06	2.668E+08	3.270E+05	1.430E+06	4.495E+07
70	66.76	52.06	350.3	78.4	271.9	254.3	2.373E+08	2.487E+07	1.083E+07	2.730E+08	4.375E+05	1.708E+06	4.825E+07
75	67.00	52.30	341.6	69.0	272.6	255.5	2.424E+08	2.461E+07	1.164E+07	2.787E+08	5.487E+05	1.977E+06	5.139E+07
80	66.19	51.49	330.6	58.7	271.9	256.4	2.422E+08	2.427E+07	1.241E+07	2.789E+08	6.601E+05	2.237E+06	5.433E+07
85	64.93	50.23	318.5	47.8	270.7	257.2	2.402E+08	2.390E+07	1.310E+07	2.772E+08	7.705E+05	2.484E+06	5.701E+07
90	63.73	49.03	306.7	37.2	269.5	257.7	2.383E+08	2.353E+07	1.374E+07	2.756E+08	8.797E+05	2.717E+06	5.946E+07
95	62.56	47.86	295.0	26.6	268.3	258.1	2.365E+08	2.317E+07	1.433E+07	2.740E+08	9.880E+05	2.938E+06	6.171E+07
100	61.41	46.71	283.4	16.2	267.2	258.5	2.349E+08	2.282E+07	1.488E+07	2.726E+08	1.095E+06	3.145E+06	6.379E+07
110	59.48	44.78	265.1	0.1	265.0	258.9	2.317E+08	2.227E+07	1.600E+07	2.699E+08	1.307E+06	3.525E+06	6.754E+07
120	58.73	44.03	263.9	0.1	263.8	259.3	2.277E+08	2.223E+07	1.752E+07	2.674E+08	1.515E+06	3.885E+06	7.086E+07
130	58.09	43.39	263.1	0.2	262.8	259.5	2.238E+08	2.217E+07	1.894E+07	2.650E+08	1.722E+06	4.242E+06	7.385E+07
140	57.40	42.70	261.9	0.1	261.8	259.6	2.199E+08	2.217E+07	2.030E+07	2.624E+08	1.927E+06	4.596E+06	7.656E+07
150	56.72	42.02	260.8	0.1	260.8	259.6	2.163E+08	2.214E+07	2.158E+07	2.600E+08	2.129E+06	4.947E+06	7.902E+07
160	56.10	41.40	259.9	0.0	259.8	259.6	2.129E+08	2.211E+07	2.279E+07	2.578E+08	2.331E+06	5.294E+06	8.126E+07
170	55.52	40.82	258.9	0.0	258.9	259.4	2.098E+08	2.208E+07	2.395E+07	2.558E+08	2.530E+06	5.638E+06	8.332E+07
180	55.00	40.30	258.1	0.1	258.0	259.3	2.070E+08	2.197E+07	2.503E+07	2.540E+08	2.728E+06	5.979E+06	8.521E+07
190	54.51	39.81	257.3	0.1	257.2	259.1	2.044E+08	2.188E+07	2.608E+07	2.524E+08	2.925E+06	6.318E+06	8.695E+07
200	54.06	39.36	256.5	0.1	256.4	258.9	2.019E+08	2.178E+07	2.709E+07	2.508E+08	3.119E+06	6.653E+06	8.857E+07
210	53.56	38.86	255.7	0.1	255.5	258.7	1.993E+08	2.198E+07	2.813E+07	2.494E+08	3.313E+06	6.986E+06	9.007E+07
220	53.13	38.43	255.0	0.1	254.8	258.4	1.970E+08	2.196E+07	2.909E+07	2.480E+08	3.505E+06	7.317E+06	9.147E+07

TABLE 9.1-5 (cont.): SUMMARY OF RESULTS FOR CASE 3 - 7.05 sq ft Slot MSLB @ 50% Power with Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
230	52.83	38.13	254.5	0.1	254.3	258.2	1.948E+08	2.194E+07	3.003E+07	2.468E+08	3.696E+06	7.645E+06	9.278E+07
240	52.45	37.75	253.8	0.1	253.7	257.9	1.927E+08	2.192E+07	3.094E+07	2.456E+08	3.886E+06	7.971E+06	9.402E+07
250	52.08	37.38	253.2	0.1	253.0	257.7	1.908E+08	2.190E+07	3.182E+07	2.445E+08	4.075E+06	8.293E+06	9.518E+07
260	51.73	37.03	252.5	0.1	252.4	257.4	1.889E+08	2.188E+07	3.268E+07	2.434E+08	4.263E+06	8.612E+06	9.627E+07
270	51.40	36.70	252.0	0.1	251.9	257.1	1.871E+08	2.186E+07	3.353E+07	2.425E+08	4.449E+06	8.929E+06	9.731E+07
280	51.07	36.37	251.4	0.1	251.3	256.8	1.853E+08	2.185E+07	3.435E+07	2.415E+08	4.635E+06	9.243E+06	9.831E+07
290	50.76	36.06	250.8	0.0	250.8	256.5	1.836E+08	2.183E+07	3.517E+07	2.406E+08	4.820E+06	9.554E+06	9.927E+07
300	50.45	35.75	250.3	0.0	250.3	256.2	1.820E+08	2.181E+07	3.597E+07	2.398E+08	5.004E+06	9.863E+06	1.002E+08
350	49.06	34.36	247.7	0.2	247.5	254.6	1.745E+08	2.173E+07	3.978E+07	2.360E+08	5.908E+06	1.137E+07	1.043E+08
400	47.85	33.15	245.4	0.2	245.2	253.0	1.679E+08	2.166E+07	4.335E+07	2.329E+08	6.790E+06	1.283E+07	1.077E+08
450	46.86	32.16	243.4	0.2	243.2	251.4	1.620E+08	2.160E+07	4.672E+07	2.304E+08	7.654E+06	1.424E+07	1.106E+08
500	45.88	31.18	241.5	0.1	241.4	249.8	1.568E+08	2.154E+07	4.993E+07	2.282E+08	8.500E+06	1.561E+07	1.132E+08
550	44.98	30.28	239.6	0.1	239.5	248.3	1.519E+08	2.148E+07	5.301E+07	2.264E+08	9.331E+06	1.694E+07	1.154E+08
600	44.16	29.46	237.8	0.2	237.7	246.8	1.474E+08	2.139E+07	5.598E+07	2.248E+08	1.014E+07	1.825E+07	1.174E+08
700	42.63	27.93	234.5	0.3	234.2	243.9	1.392E+08	2.133E+07	6.169E+07	2.222E+08	1.173E+07	2.078E+07	1.209E+08
800	41.35	26.65	231.5	0.2	231.3	241.3	1.318E+08	2.124E+07	6.713E+07	2.201E+08	1.326E+07	2.322E+07	1.239E+08
900	40.12	25.42	228.6	0.1	228.5	238.9	1.251E+08	2.115E+07	7.234E+07	2.186E+08	1.474E+07	2.559E+07	1.264E+08
1000	39.01	24.31	225.8	0.2	225.6	236.5	1.191E+08	2.106E+07	7.734E+07	2.175E+08	1.617E+07	2.788E+07	1.285E+08
1250	36.73	22.03	219.7	0.5	219.2	231.3	1.064E+08	2.087E+07	8.910E+07	2.163E+08	1.954E+07	3.333E+07	1.325E+08
1500	34.79	20.09	214.0	0.1	213.9	226.7	9.583E+07	2.070E+07	1.001E+08	2.166E+08	2.268E+07	3.844E+07	1.352E+08
1750	33.16	18.46	208.9	0.3	208.6	222.6	8.703E+07	2.054E+07	1.104E+08	2.180E+08	2.561E+07	4.326E+07	1.371E+08
2000	31.50	16.80	203.2	0.1	203.1	218.9	7.789E+07	2.037E+07	1.202E+08	2.185E+08	2.833E+07	4.780E+07	1.381E+08
2500	28.77	14.07	192.5	0.0	192.5	212.1	6.313E+07	2.004E+07	1.382E+08	2.213E+08	3.313E+07	5.607E+07	1.380E+08
3000	26.85	12.15	183.8	0.1	183.7	206.1	5.276E+07	1.977E+07	1.545E+08	2.270E+08	3.722E+07	6.343E+07	1.357E+08
3500	25.37	10.67	176.2	0.4	175.8	200.8	4.486E+07	1.953E+07	1.696E+08	2.340E+08	4.074E+07	7.007E+07	1.327E+08
4000	24.14	9.44	169.0	0.0	169.0	196.0	3.843E+07	1.932E+07	1.839E+08	2.417E+08	4.379E+07	7.607E+07	1.295E+08
4500	23.14	8.44	162.5	-0.0	162.5	191.7	3.323E+07	1.912E+07	1.974E+08	2.498E+08	4.642E+07	8.148E+07	1.263E+08
5000	22.33	7.63	156.7	0.2	156.5	187.7	2.908E+07	1.894E+07	2.103E+08	2.583E+08	4.869E+07	8.636E+07	1.230E+08
6000	21.15	6.45	147.0	0.3	146.7	180.6	2.318E+07	1.861E+07	2.343E+08	2.761E+08	5.237E+07	9.461E+07	1.166E+08
7000	20.37	5.67	139.6	0.1	139.4	174.5	1.933E+07	1.841E+07	2.567E+08	2.944E+08	5.521E+07	1.019E+08	1.104E+08
8000	19.85	5.15	134.1	0.1	133.9	169.2	1.683E+07	1.822E+07	2.779E+08	3.129E+08	5.745E+07	1.078E+08	1.047E+08
9000	19.48	4.78	130.3	1.2	129.1	164.7	1.493E+07	1.811E+07	2.982E+08	3.313E+08	5.927E+07	1.131E+08	9.959E+07
10000	19.20	4.50	127.2	2.1	125.1	160.8	1.342E+07	1.802E+07	3.180E+08	3.494E+08	6.073E+07	1.177E+08	9.500E+07

slbrslt1.wb2

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

REVISION

TABLE 9.1-6: SUMMARY OF HEAT SINK RESULTS FOR CASE 3

Time (sec)	Heat Sink Surface Temperatures (F)				Uchida Cond. HTC (B/hr-ft2-F)
	HS #2 Liner Plate	HS #10 - Sec Shield Wall	HS #18 - CS Th <= 0.5"	HS #19 - Elec & Galv CS	
0.0	118.4	120.0	120.0	119.9	2.00
1	119.2	120.9	120.7	120.0	10.46
5	129.5	142.2	130.9	122.8	26.40
10	141.5	167.2	142.8	131.6	40.03
15	151.7	184.6	152.8	144.2	49.67
20	160.6	197.3	161.8	158.7	57.27
30	175.9	214.3	177.4	187.8	68.41
40	189.5	226.5	191.7	213.7	78.51
50	200.8	235.0	204.0	234.0	85.48
60	210.2	241.0	214.5	248.8	90.89
70	217.8	245.1	223.4	258.8	94.47
80	223.4	247.1	230.2	265.2	96.07
90	226.6	246.3	234.7	267.9	95.58
100	228.9	245.4	238.3	268.4	95.20
120	232.2	243.9	243.7	268.4	93.74
140	234.5	243.1	247.6	268.2	91.63
160	235.8	242.3	250.1	268.1	89.61
180	236.4	241.3	251.6	267.9	87.76
200	236.7	240.5	252.4	267.6	86.06
250	236.5	238.6	252.6	266.9	82.24
300	235.7	236.8	252.4	266.0	78.83
400	233.1	233.3	252.1	264.0	72.63
500	230.5	230.3	251.7	261.7	66.91
600	227.8	227.4	251.1	259.3	62.25
800	222.9	222.4	249.6	254.1	57.01
1000	218.4	217.7	247.7	248.8	51.76
1500	208.3	207.5	241.8	235.6	42.03
2000	199.3	198.3	234.9	223.5	34.98
3000	183.9	182.9	219.0	201.1	25.82
4000	171.2	169.3	202.9	182.9	21.08
5000	163.4	161.2	187.8	168.1	17.90
7500	150.4	148.6	157.5	142.5	13.45
10000	142.2	141.0	138.9	130.0	9.98

E&TS DEPARTMENT

CALCULATION SHEET

Project or DCP/FCN ___ SONGS 2 & 3 ___ Calc. No. N-4080-027 ___

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Subject Containment P/T Analysis for Design Basis MSLB Events ___

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REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

TABLE 9.1-7: SUMMARY OF RESULTS FOR CASE 4 - 8.10 sq ft Slot MSLB @ 80% Power with Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
0.0	16.80	2.10	120.0	88.0	32.0	120.0	5.962E+05	1.781E+07	8.800E+01	1.841E+07	0.000E+00	0.000E+00	0.000E+00
0.1	17.24	2.54	127.0	61.2	65.8	120.0	2.207E+06	1.802E+07	8.800E+01	2.023E+07	0.000E+00	0.000E+00	7.923E+01
0.2	17.66	2.96	133.8	51.5	82.2	120.0	3.788E+06	1.823E+07	8.799E+01	2.202E+07	0.000E+00	0.000E+00	3.694E+02
0.3	18.08	3.38	140.1	46.9	93.3	120.0	5.343E+06	1.843E+07	8.799E+01	2.377E+07	0.000E+00	0.000E+00	8.740E+02
0.4	18.49	3.79	146.3	44.1	102.2	120.0	6.872E+06	1.862E+07	8.798E+01	2.549E+07	0.000E+00	0.000E+00	1.583E+03
0.5	18.89	4.19	152.1	43.3	108.8	120.0	8.377E+06	1.879E+07	8.798E+01	2.717E+07	0.000E+00	0.000E+00	2.486E+03
0.6	19.28	4.58	157.7	42.7	115.0	120.0	9.859E+06	1.897E+07	8.798E+01	2.883E+07	0.000E+00	0.000E+00	3.576E+03
0.7	19.66	4.96	163.0	42.9	120.1	120.0	1.132E+07	1.913E+07	9.515E+01	3.045E+07	0.000E+00	0.000E+00	4.844E+03
0.8	20.04	5.34	168.2	43.6	124.6	122.3	1.275E+07	1.929E+07	2.512E+02	3.204E+07	0.000E+00	0.000E+00	6.469E+03
0.9	20.41	5.71	173.2	44.5	128.7	124.7	1.417E+07	1.944E+07	4.807E+02	3.361E+07	0.000E+00	0.000E+00	8.786E+03
1.0	20.78	6.08	178.0	45.3	132.7	127.3	1.556E+07	1.959E+07	8.030E+02	3.515E+07	0.000E+00	0.000E+00	1.193E+04
1.2	21.49	6.79	187.1	47.9	139.2	132.2	1.830E+07	1.987E+07	1.753E+03	3.817E+07	0.000E+00	0.000E+00	2.091E+04
1.4	22.18	7.48	195.5	50.7	144.8	136.5	2.097E+07	2.013E+07	3.137E+03	4.110E+07	0.000E+00	0.000E+00	3.344E+04
1.6	22.85	8.15	203.4	53.6	149.9	140.4	2.358E+07	2.037E+07	4.958E+03	4.395E+07	0.000E+00	0.000E+00	4.931E+04
1.8	23.51	8.81	210.8	56.3	154.5	143.9	2.612E+07	2.060E+07	7.239E+03	4.672E+07	0.000E+00	0.000E+00	6.845E+04
2.0	24.14	9.44	217.8	59.2	158.6	147.2	2.859E+07	2.081E+07	9.962E+03	4.941E+07	0.000E+00	0.000E+00	9.059E+04
2.2	24.75	10.05	224.3	61.8	162.5	150.2	3.101E+07	2.101E+07	1.319E+04	5.204E+07	0.000E+00	0.000E+00	1.160E+05
2.4	25.36	10.66	230.5	64.7	165.8	153.0	3.339E+07	2.120E+07	1.692E+04	5.461E+07	0.000E+00	0.000E+00	1.447E+05
2.6	25.94	11.24	236.4	67.3	169.1	155.7	3.573E+07	2.138E+07	2.114E+04	5.714E+07	0.000E+00	0.000E+00	1.764E+05
2.8	26.52	11.82	242.0	70.1	171.9	158.1	3.803E+07	2.156E+07	2.584E+04	5.961E+07	0.000E+00	0.000E+00	2.109E+05
3	27.09	12.39	247.3	72.7	174.5	160.4	4.028E+07	2.172E+07	3.099E+04	6.203E+07	0.000E+00	0.000E+00	2.481E+05
4	29.76	15.06	270.4	83.9	186.5	170.3	5.106E+07	2.243E+07	6.421E+04	7.355E+07	0.000E+00	0.000E+00	4.751E+05
5	32.21	17.51	289.1	93.2	195.9	178.4	6.111E+07	2.300E+07	1.100E+05	8.422E+07	0.000E+00	0.000E+00	7.678E+05
6	34.50	19.80	304.8	101.1	203.6	185.2	7.058E+07	2.348E+07	1.679E+05	9.423E+07	0.000E+00	0.000E+00	1.119E+06
7	36.64	21.94	318.0	107.8	210.1	191.1	7.951E+07	2.389E+07	2.394E+05	1.036E+08	0.000E+00	0.000E+00	1.536E+06
8	38.62	23.92	329.1	113.5	215.6	196.3	8.787E+07	2.423E+07	3.235E+05	1.124E+08	0.000E+00	0.000E+00	2.010E+06
9	40.45	25.75	338.6	118.3	220.3	200.8	9.564E+07	2.452E+07	4.196E+05	1.206E+08	0.000E+00	0.000E+00	2.536E+06
10	42.10	27.40	346.5	122.0	224.5	204.8	1.027E+08	2.477E+07	5.271E+05	1.280E+08	0.000E+00	0.000E+00	3.111E+06
11	43.60	28.90	353.2	124.9	228.3	208.4	1.091E+08	2.497E+07	6.446E+05	1.348E+08	0.000E+00	0.000E+00	3.726E+06
12	44.96	30.26	359.0	127.7	231.2	211.5	1.150E+08	2.515E+07	7.705E+05	1.410E+08	0.000E+00	0.000E+00	4.374E+06
13	46.23	31.53	364.0	130.0	234.0	214.4	1.205E+08	2.530E+07	9.056E+05	1.467E+08	0.000E+00	0.000E+00	5.059E+06
14	47.41	32.71	368.4	131.9	236.5	217.0	1.257E+08	2.544E+07	1.049E+06	1.522E+08	0.000E+00	0.000E+00	5.778E+06
15	48.51	33.81	372.3	133.4	238.9	219.3	1.305E+08	2.556E+07	1.201E+06	1.573E+08	0.000E+00	0.000E+00	6.526E+06
16	49.55	34.85	375.8	134.8	241.0	221.5	1.351E+08	2.567E+07	1.359E+06	1.622E+08	0.000E+00	0.000E+00	7.297E+06
17	50.54	35.84	378.9	136.1	242.9	223.5	1.395E+08	2.576E+07	1.522E+06	1.668E+08	0.000E+00	0.000E+00	8.087E+06
18	51.47	36.77	381.8	137.1	244.6	225.3	1.437E+08	2.585E+07	1.690E+06	1.712E+08	0.000E+00	0.000E+00	8.892E+06
19	52.36	37.66	384.3	138.0	246.3	227.0	1.477E+08	2.593E+07	1.862E+06	1.755E+08	0.000E+00	0.000E+00	9.711E+06
20	53.21	38.51	386.7	138.8	247.9	228.6	1.515E+08	2.600E+07	2.038E+06	1.795E+08	0.000E+00	0.000E+00	1.054E+07
21	54.02	39.32	388.8	139.4	249.4	230.1	1.551E+08	2.607E+07	2.218E+06	1.834E+08	0.000E+00	0.000E+00	1.138E+07
22	54.80	40.10	390.8	140.0	250.8	231.5	1.587E+08	2.613E+07	2.400E+06	1.872E+08	0.000E+00	0.000E+00	1.223E+07
23	55.51	40.81	392.5	140.5	252.0	232.8	1.621E+08	2.618E+07	2.587E+06	1.909E+08	0.000E+00	0.000E+00	1.309E+07
24	56.23	41.53	394.1	140.9	253.2	234.0	1.654E+08	2.623E+07	2.777E+06	1.944E+08	0.000E+00	8.746E+02	1.396E+07
25	56.92	42.22	395.5	141.2	254.4	235.2	1.686E+08	2.627E+07	2.971E+06	1.978E+08	0.000E+00	3.531E+03	1.484E+07

TABLE 9.1-7 (cont.): SUMMARY OF RESULTS FOR CASE 4 - 8.10 sq ft Slot MSLB @ 80% Power with Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
26	57.58	42.88	396.8	141.3	255.5	236.3	1.717E+08	2.631E+07	3.167E+06	2.012E+08	0.000E+00	7.636E+03	1.573E+07
27	58.21	43.51	397.9	141.3	256.6	237.4	1.747E+08	2.634E+07	3.366E+06	2.044E+08	0.000E+00	1.284E+04	1.662E+07
28	58.82	44.12	398.8	141.2	257.6	238.4	1.776E+08	2.637E+07	3.567E+06	2.076E+08	0.000E+00	1.917E+04	1.752E+07
29	59.41	44.71	399.6	141.0	258.6	239.4	1.804E+08	2.640E+07	3.770E+06	2.106E+08	0.000E+00	2.665E+04	1.843E+07
30	59.98	45.28	400.4	140.8	259.6	240.3	1.832E+08	2.642E+07	3.975E+06	2.136E+08	0.000E+00	3.528E+04	1.934E+07
31	60.53	45.83	400.9	140.5	260.4	241.2	1.859E+08	2.644E+07	4.181E+06	2.165E+08	0.000E+00	4.562E+04	2.024E+07
32	61.06	46.36	401.4	140.1	261.2	242.1	1.886E+08	2.645E+07	4.387E+06	2.194E+08	0.000E+00	5.822E+04	2.115E+07
33	61.57	46.87	401.7	139.6	262.0	242.9	1.912E+08	2.646E+07	4.594E+06	2.222E+08	0.000E+00	7.311E+04	2.206E+07
34	62.07	47.37	401.8	139.0	262.8	243.6	1.937E+08	2.646E+07	4.802E+06	2.250E+08	0.000E+00	9.032E+04	2.296E+07
35	62.54	47.84	401.9	138.3	263.6	244.4	1.962E+08	2.647E+07	5.010E+06	2.276E+08	0.000E+00	1.099E+05	2.386E+07
36	62.99	48.29	401.8	137.5	264.3	245.1	1.986E+08	2.646E+07	5.218E+06	2.303E+08	0.000E+00	1.310E+05	2.476E+07
37	63.43	48.73	401.7	136.7	265.0	245.8	2.009E+08	2.646E+07	5.426E+06	2.328E+08	0.000E+00	1.529E+05	2.566E+07
38	63.86	49.16	401.5	135.8	265.7	246.4	2.032E+08	2.645E+07	5.634E+06	2.353E+08	0.000E+00	1.756E+05	2.655E+07
39	64.27	49.57	401.3	134.9	266.4	247.1	2.055E+08	2.645E+07	5.841E+06	2.377E+08	0.000E+00	1.991E+05	2.744E+07
40	64.67	49.97	401.0	134.0	267.0	247.7	2.076E+08	2.644E+07	6.048E+06	2.401E+08	0.000E+00	2.233E+05	2.832E+07
41	65.05	50.35	400.6	133.1	267.6	248.3	2.098E+08	2.643E+07	6.255E+06	2.425E+08	0.000E+00	2.482E+05	2.920E+07
42	65.42	50.72	400.3	132.2	268.1	248.9	2.119E+08	2.642E+07	6.461E+06	2.447E+08	0.000E+00	2.736E+05	3.007E+07
43	65.78	51.08	399.9	131.3	268.6	249.4	2.139E+08	2.640E+07	6.665E+06	2.469E+08	0.000E+00	2.994E+05	3.093E+07
44	66.12	51.42	399.4	130.3	269.1	249.9	2.159E+08	2.639E+07	6.869E+06	2.491E+08	0.000E+00	3.258E+05	3.179E+07
45	66.46	51.76	398.9	129.4	269.6	250.4	2.178E+08	2.637E+07	7.072E+06	2.512E+08	0.000E+00	3.527E+05	3.264E+07
50	67.81	53.11	393.1	121.5	271.7	252.7	2.270E+08	2.619E+07	8.068E+06	2.613E+08	2.213E+03	5.805E+05	3.678E+07
55	68.74	54.04	384.0	110.7	273.3	254.7	2.353E+08	2.591E+07	9.058E+06	2.703E+08	1.136E+05	8.947E+05	4.072E+07
60	69.43	54.73	375.1	100.5	274.6	256.4	2.425E+08	2.564E+07	1.001E+07	2.781E+08	2.264E+05	1.201E+06	4.447E+07
65	68.62	53.92	363.3	89.3	274.0	257.8	2.427E+08	2.528E+07	1.091E+07	2.789E+08	3.397E+05	1.497E+06	4.798E+07
70	67.18	52.46	350.4	77.9	272.5	258.8	2.395E+08	2.488E+07	1.172E+07	2.761E+08	4.517E+05	1.779E+06	5.114E+07
75	65.61	50.91	337.2	66.4	270.9	259.5	2.364E+08	2.447E+07	1.246E+07	2.733E+08	5.624E+05	2.046E+06	5.399E+07
80	64.24	49.54	324.6	55.1	269.5	260.0	2.336E+08	2.409E+07	1.313E+07	2.708E+08	6.718E+05	2.299E+06	5.658E+07
85	62.89	48.19	312.0	43.9	268.1	260.4	2.311E+08	2.370E+07	1.374E+07	2.685E+08	7.799E+05	2.537E+06	5.895E+07
90	61.58	46.88	299.5	32.8	266.7	260.6	2.288E+08	2.331E+07	1.430E+07	2.664E+08	8.869E+05	2.762E+06	6.113E+07
95	60.33	45.63	287.2	21.9	265.3	260.8	2.267E+08	2.294E+07	1.482E+07	2.644E+08	9.925E+05	2.973E+06	6.315E+07
100	59.13	44.43	275.2	11.2	263.9	260.9	2.248E+08	2.257E+07	1.531E+07	2.626E+08	1.097E+06	3.171E+06	6.502E+07
110	57.53	42.83	262.1	0.1	262.0	260.9	2.207E+08	2.217E+07	1.650E+07	2.594E+08	1.303E+06	3.533E+06	6.839E+07
120	56.73	42.03	260.9	0.1	260.8	260.9	2.164E+08	2.214E+07	1.792E+07	2.564E+08	1.506E+06	3.884E+06	7.141E+07
130	56.00	41.30	259.7	0.0	259.7	260.7	2.124E+08	2.210E+07	1.925E+07	2.538E+08	1.707E+06	4.232E+06	7.412E+07
140	55.34	40.64	258.6	0.0	258.6	260.5	2.089E+08	2.198E+07	2.049E+07	2.514E+08	1.906E+06	4.575E+06	7.659E+07
150	54.75	40.05	257.7	0.1	257.6	260.2	2.057E+08	2.184E+07	2.166E+07	2.492E+08	2.103E+06	4.915E+06	7.883E+07
160	54.14	39.44	256.7	0.2	256.6	259.9	2.025E+08	2.195E+07	2.283E+07	2.472E+08	2.299E+06	5.252E+06	8.088E+07
170	53.60	38.90	255.8	0.1	255.6	259.6	1.995E+08	2.198E+07	2.393E+07	2.454E+08	2.492E+06	5.585E+06	8.277E+07
180	53.10	38.40	254.9	0.1	254.8	259.3	1.968E+08	2.195E+07	2.498E+07	2.438E+08	2.685E+06	5.916E+06	8.451E+07
190	52.73	38.03	254.3	0.1	254.1	258.9	1.943E+08	2.193E+07	2.599E+07	2.422E+08	2.876E+06	6.244E+06	8.613E+07
200	52.29	37.59	253.5	0.1	253.4	258.6	1.919E+08	2.191E+07	2.696E+07	2.408E+08	3.065E+06	6.568E+06	8.763E+07
210	51.87	37.17	252.8	0.1	252.7	258.2	1.897E+08	2.189E+07	2.790E+07	2.395E+08	3.253E+06	6.889E+06	8.903E+07
220	51.47	36.77	252.1	0.1	252.0	257.8	1.875E+08	2.187E+07	2.881E+07	2.382E+08	3.440E+06	7.206E+06	9.034E+07

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

TABLE 9.1-7 (cont.): SUMMARY OF RESULTS FOR CASE 4 - 8.10 sq ft Slot MSLB @ 80% Power with Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
230	51.09	36.39	251.4	0.1	251.4	257.5	1.855E+08	2.185E+07	2.970E+07	2.370E+08	3.626E+06	7.521E+06	9.157E+07
240	50.74	36.04	250.8	0.0	250.7	257.1	1.836E+08	2.183E+07	3.056E+07	2.359E+08	3.811E+06	7.832E+06	9.273E+07
250	50.39	35.69	250.2	0.0	250.1	256.7	1.817E+08	2.181E+07	3.140E+07	2.349E+08	3.995E+06	8.141E+06	9.382E+07
260	50.07	35.37	249.6	0.1	249.5	256.3	1.799E+08	2.179E+07	3.222E+07	2.340E+08	4.177E+06	8.446E+06	9.485E+07
270	49.75	35.05	249.0	0.1	248.9	255.9	1.782E+08	2.177E+07	3.303E+07	2.330E+08	4.359E+06	8.750E+06	9.583E+07
280	49.44	34.74	248.4	0.1	248.3	255.6	1.766E+08	2.175E+07	3.382E+07	2.322E+08	4.539E+06	9.050E+06	9.677E+07
290	49.15	34.45	247.9	0.2	247.7	255.2	1.750E+08	2.174E+07	3.460E+07	2.313E+08	4.719E+06	9.348E+06	9.768E+07
300	48.87	34.17	247.3	0.2	247.2	254.8	1.735E+08	2.170E+07	3.535E+07	2.305E+08	4.897E+06	9.644E+06	9.854E+07
350	47.64	32.94	245.0	0.2	244.8	252.9	1.663E+08	2.165E+07	3.902E+07	2.270E+08	5.775E+06	1.109E+07	1.024E+08
400	46.48	31.78	242.7	0.2	242.5	251.0	1.601E+08	2.158E+07	4.245E+07	2.241E+08	6.633E+06	1.249E+07	1.057E+08
450	45.45	30.75	240.6	0.0	240.5	249.2	1.545E+08	2.151E+07	4.569E+07	2.217E+08	7.473E+06	1.384E+07	1.085E+08
500	44.52	29.82	238.6	0.1	238.5	247.5	1.495E+08	2.145E+07	4.878E+07	2.197E+08	8.295E+06	1.516E+07	1.109E+08
550	43.70	29.00	236.9	0.2	236.6	245.9	1.450E+08	2.126E+07	5.173E+07	2.180E+08	9.100E+06	1.645E+07	1.130E+08
600	42.88	28.18	235.0	0.3	234.8	244.3	1.405E+08	2.134E+07	5.465E+07	2.165E+08	9.889E+06	1.772E+07	1.149E+08
700	41.50	26.80	231.9	0.3	231.6	241.4	1.326E+08	2.125E+07	6.020E+07	2.141E+08	1.143E+07	2.017E+07	1.183E+08
800	40.19	25.49	228.8	0.1	228.7	238.7	1.256E+08	2.115E+07	6.549E+07	2.122E+08	1.291E+07	2.254E+07	1.212E+08
900	39.03	24.33	225.8	0.2	225.6	236.2	1.192E+08	2.106E+07	7.055E+07	2.109E+08	1.434E+07	2.483E+07	1.235E+08
1000	37.98	23.28	223.1	0.4	222.7	233.8	1.136E+08	2.098E+07	7.541E+07	2.100E+08	1.573E+07	2.706E+07	1.255E+08
1250	35.80	21.10	217.0	0.4	216.7	228.5	1.014E+08	2.079E+07	8.689E+07	2.091E+08	1.899E+07	3.236E+07	1.293E+08
1500	33.95	19.25	211.4	0.1	211.3	223.9	9.134E+07	2.062E+07	9.761E+07	2.096E+08	2.203E+07	3.732E+07	1.319E+08
1750	32.45	17.75	206.5	0.3	206.2	219.8	8.302E+07	2.047E+07	1.077E+08	2.112E+08	2.486E+07	4.201E+07	1.336E+08
2000	30.82	16.12	200.7	0.1	200.6	216.1	7.427E+07	2.029E+07	1.173E+08	2.119E+08	2.748E+07	4.643E+07	1.346E+08
2500	28.23	13.53	190.2	0.2	190.0	209.4	6.024E+07	1.997E+07	1.349E+08	2.151E+08	3.210E+07	5.447E+07	1.342E+08
3000	26.39	11.69	181.6	0.1	181.4	203.5	5.036E+07	1.970E+07	1.509E+08	2.210E+08	3.603E+07	6.163E+07	1.320E+08
3500	24.98	10.28	174.0	0.3	173.7	198.3	4.287E+07	1.947E+07	1.658E+08	2.281E+08	3.941E+07	6.808E+07	1.289E+08
4000	23.81	9.11	167.0	0.1	166.9	193.6	3.678E+07	1.925E+07	1.799E+08	2.359E+08	4.233E+07	7.389E+07	1.258E+08
4500	22.87	8.17	160.6	0.1	160.5	189.3	3.188E+07	1.905E+07	1.932E+08	2.441E+08	4.485E+07	7.914E+07	1.226E+08
5000	22.10	7.40	155.0	0.1	154.8	185.3	2.798E+07	1.887E+07	2.058E+08	2.527E+08	4.702E+07	8.388E+07	1.193E+08
6000	20.99	6.29	145.7	0.3	145.3	178.4	2.243E+07	1.857E+07	2.298E+08	2.706E+08	5.054E+07	9.207E+07	1.129E+08
7000	20.26	5.56	138.6	0.2	138.3	172.4	1.884E+07	1.835E+07	2.517E+08	2.889E+08	5.326E+07	9.891E+07	1.069E+08
8000	19.77	5.07	133.2	0.1	133.1	167.3	1.645E+07	1.820E+07	2.727E+08	3.074E+08	5.542E+07	1.047E+08	1.013E+08
9000	19.41	4.71	129.5	1.2	128.3	162.9	1.463E+07	1.809E+07	2.929E+08	3.257E+08	5.716E+07	1.098E+08	9.631E+07
10000	19.14	4.44	126.6	2.1	124.4	159.1	1.318E+07	1.800E+07	3.126E+08	3.438E+08	5.856E+07	1.144E+08	9.183E+07

slbrslt1.wb2

TABLE 9.1-8: SUMMARY OF HEAT SINK RESULTS FOR CASE 4

Time (sec)	Heat Sink Surface Temperatures (F)				Uchida Cond. HTC (B/hr-ft2-F)
	HS #2 Liner Plate	HS #10 - Sec Shield Wall	HS #18 - CS Th <= 0.5"	HS #19 - Elec & Galv CS	
0.0	118.4	120.0	120.0	119.9	2.00
1	119.5	121.2	121.0	120.0	11.65
5	130.7	144.5	132.1	123.2	27.74
10	144.0	171.4	145.2	133.0	42.97
15	155.2	190.0	156.3	147.0	54.14
20	164.5	202.7	165.6	162.9	61.28
30	181.6	221.1	183.2	194.6	75.55
40	195.6	233.1	197.8	221.8	84.79
50	206.8	241.0	210.1	242.2	90.88
60	215.8	246.3	220.4	256.2	95.26
70	220.9	246.8	226.8	264.4	95.01
80	224.2	245.7	231.5	267.7	94.04
90	226.6	244.4	235.3	268.4	93.29
100	228.3	242.8	238.2	268.6	92.70
120	230.8	241.2	242.8	268.5	90.62
140	232.5	240.2	246.1	268.3	88.36
160	233.4	239.2	248.1	268.0	86.36
180	233.9	238.3	249.3	267.7	84.43
200	234.1	237.5	250.0	267.4	82.67
250	233.7	235.6	250.0	266.5	78.72
300	232.7	233.7	249.8	265.5	75.17
400	230.2	230.4	249.6	263.2	68.70
500	227.5	227.3	249.1	260.7	62.87
600	224.9	224.5	248.5	258.1	60.09
800	220.2	219.7	247.0	252.6	54.57
1000	215.5	214.7	245.1	247.0	49.09
1500	205.8	205.0	239.2	233.5	40.27
2000	197.0	195.9	232.3	221.2	33.62
3000	181.6	180.8	216.5	198.8	24.96
4000	169.5	167.5	200.6	180.8	20.61
5000	161.9	159.8	185.7	166.2	17.38
7500	149.2	147.5	155.9	141.3	13.19
10000	141.3	140.1	137.9	129.3	9.91

E&TS DEPARTMENT

CALCULATION SHEET

Project or DCP/FCN SONGS 2 & 3 Calc. No. N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events

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REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

TABLE 9.1-9: SUMMARY OF RESULTS FOR CASE 5 - 8.85 sq ft Slot MSLB @ 102% Power with Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
0.0	16.80	2.10	120.0	88.0	32.0	120.0	5.962E+05	1.781E+07	8.800E+01	1.841E+07	0.000E+00	0.000E+00	0.000E+00
0.1	17.27	2.57	127.5	60.5	67.0	120.0	2.314E+06	1.804E+07	8.800E+01	2.035E+07	0.000E+00	0.000E+00	8.432E+01
0.2	17.71	3.01	134.6	50.9	83.7	120.0	3.980E+06	1.826E+07	8.799E+01	2.224E+07	0.000E+00	0.000E+00	3.928E+02
0.3	18.15	3.45	141.3	46.4	94.8	120.0	5.605E+06	1.846E+07	8.799E+01	2.407E+07	0.000E+00	0.000E+00	9.267E+02
0.4	18.58	3.88	147.6	44.0	103.6	120.0	7.197E+06	1.866E+07	8.798E+01	2.585E+07	0.000E+00	0.000E+00	1.673E+03
0.5	18.99	4.29	153.6	43.1	110.5	120.0	8.761E+06	1.884E+07	8.798E+01	2.760E+07	0.000E+00	0.000E+00	2.622E+03
0.6	19.40	4.70	159.4	42.9	116.5	120.0	1.030E+07	1.902E+07	8.798E+01	2.932E+07	0.000E+00	0.000E+00	3.762E+03
0.7	19.80	5.10	165.0	43.1	121.9	120.8	1.182E+07	1.919E+07	1.513E+02	3.101E+07	0.000E+00	0.000E+00	5.102E+03
0.8	20.19	5.49	170.3	44.1	126.2	123.1	1.331E+07	1.935E+07	3.340E+02	3.267E+07	0.000E+00	0.000E+00	6.958E+03
0.9	20.58	5.88	175.5	45.0	130.5	125.8	1.479E+07	1.951E+07	6.008E+02	3.430E+07	0.000E+00	0.000E+00	9.599E+03
1.0	20.96	6.26	180.4	46.1	134.3	128.5	1.624E+07	1.966E+07	9.716E+02	3.591E+07	0.000E+00	0.000E+00	1.316E+04
1.2	21.71	7.01	189.8	48.7	141.1	133.5	1.911E+07	1.995E+07	2.042E+03	3.907E+07	0.000E+00	0.000E+00	2.312E+04
1.4	22.43	7.73	198.6	52.0	146.6	137.9	2.191E+07	2.022E+07	3.572E+03	4.214E+07	0.000E+00	0.000E+00	3.678E+04
1.6	23.14	8.44	206.8	54.8	152.0	141.8	2.466E+07	2.048E+07	5.577E+03	4.514E+07	0.000E+00	0.000E+00	5.394E+04
1.8	23.82	9.12	214.5	57.9	156.5	145.5	2.734E+07	2.071E+07	8.064E+03	4.806E+07	0.000E+00	0.000E+00	7.449E+04
2.0	24.49	9.79	221.7	60.9	160.8	148.8	2.995E+07	2.093E+07	1.105E+04	5.089E+07	0.000E+00	0.000E+00	9.833E+04
2.2	25.14	10.44	228.4	63.9	164.6	151.9	3.251E+07	2.114E+07	1.459E+04	5.367E+07	0.000E+00	0.000E+00	1.258E+05
2.4	25.78	11.08	234.8	66.8	168.1	154.8	3.503E+07	2.134E+07	1.865E+04	5.639E+07	0.000E+00	0.000E+00	1.565E+05
2.6	26.40	11.70	240.9	69.6	171.3	157.5	3.751E+07	2.152E+07	2.324E+04	5.905E+07	0.000E+00	0.000E+00	1.903E+05
2.8	27.01	12.31	246.7	72.5	174.1	160.0	3.994E+07	2.170E+07	2.831E+04	6.166E+07	0.000E+00	0.000E+00	2.270E+05
3	27.60	12.90	252.1	75.2	176.9	162.3	4.232E+07	2.187E+07	3.392E+04	6.422E+07	0.000E+00	0.000E+00	2.667E+05
4	30.42	15.72	275.8	86.7	189.1	172.5	5.373E+07	2.259E+07	6.998E+04	7.639E+07	0.000E+00	0.000E+00	5.089E+05
5	33.02	18.32	295.0	96.3	198.7	180.8	6.439E+07	2.318E+07	1.195E+05	8.770E+07	0.000E+00	0.000E+00	8.204E+05
6	35.45	20.75	310.9	104.4	206.5	187.7	7.449E+07	2.367E+07	1.828E+05	9.834E+07	0.000E+00	0.000E+00	1.198E+06
7	37.73	23.03	324.4	111.0	213.4	193.8	8.407E+07	2.409E+07	2.610E+05	1.084E+08	0.000E+00	0.000E+00	1.645E+06
8	39.86	25.16	335.8	117.0	218.8	199.1	9.310E+07	2.444E+07	3.526E+05	1.179E+08	0.000E+00	0.000E+00	2.152E+06
9	41.83	27.13	345.4	121.6	223.8	203.7	1.015E+08	2.473E+07	4.580E+05	1.267E+08	0.000E+00	0.000E+00	2.719E+06
10	43.56	28.86	353.2	125.0	228.2	207.8	1.089E+08	2.497E+07	5.757E+05	1.345E+08	0.000E+00	0.000E+00	3.336E+06
11	45.06	30.36	359.6	128.1	231.4	211.5	1.154E+08	2.517E+07	7.029E+05	1.413E+08	0.000E+00	0.000E+00	3.991E+06
12	46.45	31.75	365.1	130.7	234.4	214.6	1.214E+08	2.534E+07	8.406E+05	1.476E+08	0.000E+00	0.000E+00	4.688E+06
13	47.75	33.05	369.9	132.7	237.2	217.5	1.271E+08	2.549E+07	9.878E+05	1.536E+08	0.000E+00	0.000E+00	5.422E+06
14	48.96	34.26	374.2	134.4	239.9	220.1	1.324E+08	2.562E+07	1.144E+06	1.592E+08	0.000E+00	0.000E+00	6.188E+06
15	50.12	35.42	378.1	136.0	242.0	222.5	1.375E+08	2.574E+07	1.307E+06	1.645E+08	0.000E+00	0.000E+00	6.981E+06
16	51.21	36.51	381.5	137.5	244.1	224.6	1.423E+08	2.584E+07	1.476E+06	1.697E+08	0.000E+00	0.000E+00	7.794E+06
17	52.24	37.54	384.6	138.6	246.0	226.6	1.469E+08	2.594E+07	1.650E+06	1.745E+08	0.000E+00	0.000E+00	8.625E+06
18	53.22	38.52	387.5	139.6	247.9	228.4	1.513E+08	2.603E+07	1.829E+06	1.792E+08	0.000E+00	0.000E+00	9.470E+06
19	54.16	39.46	390.0	140.4	249.6	230.1	1.555E+08	2.610E+07	2.013E+06	1.836E+08	0.000E+00	0.000E+00	1.033E+07
20	55.01	40.31	392.2	141.0	251.1	231.7	1.596E+08	2.617E+07	2.201E+06	1.879E+08	0.000E+00	0.000E+00	1.120E+07
21	55.86	41.16	394.3	141.8	252.6	233.2	1.634E+08	2.624E+07	2.393E+06	1.920E+08	0.000E+00	0.000E+00	1.208E+07
22	56.68	41.98	396.3	142.3	253.9	234.6	1.671E+08	2.630E+07	2.591E+06	1.960E+08	0.000E+00	0.000E+00	1.299E+07
23	57.47	42.77	398.1	142.8	255.2	235.9	1.707E+08	2.635E+07	2.792E+06	1.999E+08	0.000E+00	0.000E+00	1.390E+07
24	58.23	43.53	399.7	143.2	256.5	237.1	1.742E+08	2.640E+07	2.998E+06	2.036E+08	0.000E+00	9.120E+02	1.483E+07
25	58.96	44.26	401.1	143.4	257.7	238.3	1.776E+08	2.644E+07	3.206E+06	2.073E+08	0.000E+00	3.682E+03	1.576E+07

TABLE 9.1-9 (cont.): SUMMARY OF RESULTS FOR CASE 5 - 8.85 sq ft Slot MSLB @ 102% Power with Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
26	59.66	44.96	402.3	143.4	258.9	239.5	1.809E+08	2.648E+07	3.417E+06	2.108E+08	0.000E+00	7.966E+03	1.670E+07
27	60.33	45.63	403.4	143.4	260.0	240.5	1.841E+08	2.652E+07	3.630E+06	2.142E+08	0.000E+00	1.340E+04	1.764E+07
28	60.98	46.28	404.4	143.4	261.0	241.6	1.872E+08	2.654E+07	3.845E+06	2.176E+08	0.000E+00	2.001E+04	1.859E+07
29	61.61	46.91	405.2	143.3	261.9	242.5	1.902E+08	2.657E+07	4.061E+06	2.208E+08	0.000E+00	2.781E+04	1.954E+07
30	62.21	47.51	405.9	143.1	262.9	243.4	1.931E+08	2.659E+07	4.279E+06	2.240E+08	0.000E+00	3.682E+04	2.049E+07
31	62.79	48.09	406.5	142.7	263.8	244.3	1.960E+08	2.661E+07	4.497E+06	2.271E+08	0.000E+00	4.762E+04	2.144E+07
32	63.35	48.65	406.9	142.3	264.6	245.2	1.988E+08	2.662E+07	4.716E+06	2.301E+08	0.000E+00	6.078E+04	2.238E+07
33	63.88	49.18	407.2	141.7	265.5	246.0	2.015E+08	2.663E+07	4.935E+06	2.330E+08	0.000E+00	7.634E+04	2.333E+07
34	64.40	49.70	407.4	141.1	266.3	246.8	2.041E+08	2.663E+07	5.154E+06	2.359E+08	0.000E+00	9.431E+04	2.427E+07
35	64.88	50.18	407.4	140.3	267.1	247.5	2.066E+08	2.663E+07	5.374E+06	2.386E+08	0.000E+00	1.147E+05	2.520E+07
36	65.35	50.65	407.3	139.6	267.7	248.2	2.091E+08	2.663E+07	5.593E+06	2.413E+08	0.000E+00	1.367E+05	2.614E+07
37	65.81	51.11	407.1	138.8	268.4	248.9	2.115E+08	2.663E+07	5.812E+06	2.440E+08	0.000E+00	1.594E+05	2.706E+07
38	66.24	51.54	406.9	138.0	269.0	249.6	2.139E+08	2.662E+07	6.030E+06	2.465E+08	0.000E+00	1.829E+05	2.798E+07
39	66.66	51.96	406.7	137.1	269.6	250.2	2.162E+08	2.661E+07	6.247E+06	2.490E+08	0.000E+00	2.072E+05	2.890E+07
40	67.07	52.37	406.4	136.3	270.1	250.8	2.184E+08	2.660E+07	6.463E+06	2.515E+08	0.000E+00	2.321E+05	2.981E+07
41	67.47	52.77	406.1	135.4	270.7	251.4	2.206E+08	2.659E+07	6.678E+06	2.539E+08	0.000E+00	2.577E+05	3.071E+07
42	67.85	53.15	405.7	134.4	271.2	251.9	2.227E+08	2.658E+07	6.892E+06	2.562E+08	0.000E+00	2.838E+05	3.160E+07
43	68.22	53.52	405.2	133.5	271.8	252.5	2.248E+08	2.657E+07	7.105E+06	2.585E+08	0.000E+00	3.105E+05	3.248E+07
44	68.57	53.87	404.8	132.5	272.3	253.0	2.269E+08	2.655E+07	7.317E+06	2.607E+08	0.000E+00	3.376E+05	3.336E+07
45	68.92	54.22	404.3	131.5	272.8	253.5	2.289E+08	2.654E+07	7.528E+06	2.629E+08	0.000E+00	3.653E+05	3.423E+07
50	70.32	55.62	398.6	123.7	274.9	255.7	2.383E+08	2.636E+07	8.562E+06	2.732E+08	2.271E+03	5.990E+05	3.847E+07
55	69.95	55.25	387.0	112.1	274.9	257.6	2.407E+08	2.600E+07	9.576E+06	2.763E+08	1.162E+05	9.204E+05	4.246E+07
60	68.30	53.60	373.2	100.1	273.1	259.0	2.371E+08	2.558E+07	1.049E+07	2.731E+08	2.290E+05	1.227E+06	4.605E+07
65	66.69	51.99	359.5	88.1	271.5	259.9	2.336E+08	2.516E+07	1.131E+07	2.700E+08	3.402E+05	1.518E+06	4.926E+07
70	65.23	50.53	346.3	76.3	270.0	260.5	2.304E+08	2.475E+07	1.205E+07	2.672E+08	4.501E+05	1.794E+06	5.216E+07
75	63.78	49.08	333.1	64.6	268.5	260.9	2.275E+08	2.435E+07	1.272E+07	2.646E+08	5.586E+05	2.055E+06	5.480E+07
80	62.42	47.72	320.2	53.0	267.1	261.2	2.250E+08	2.395E+07	1.333E+07	2.623E+08	6.659E+05	2.302E+06	5.720E+07
85	61.09	46.39	307.2	41.6	265.6	261.4	2.227E+08	2.355E+07	1.390E+07	2.601E+08	7.718E+05	2.535E+06	5.942E+07
90	59.82	45.12	294.6	30.4	264.2	261.5	2.205E+08	2.316E+07	1.442E+07	2.581E+08	8.765E+05	2.753E+06	6.146E+07
95	58.61	43.91	282.1	19.3	262.8	261.6	2.186E+08	2.278E+07	1.491E+07	2.563E+08	9.799E+05	2.958E+06	6.336E+07
100	57.43	42.73	269.9	8.4	261.5	261.6	2.168E+08	2.240E+07	1.536E+07	2.546E+08	1.082E+06	3.149E+06	6.512E+07
110	56.06	41.36	259.8	0.0	259.8	261.4	2.128E+08	2.210E+07	1.657E+07	2.515E+08	1.284E+06	3.501E+06	6.832E+07
120	55.33	40.63	258.6	0.0	258.6	261.1	2.089E+08	2.196E+07	1.791E+07	2.487E+08	1.483E+06	3.845E+06	7.117E+07
130	54.65	39.95	257.5	0.1	257.4	260.7	2.052E+08	2.181E+07	1.916E+07	2.462E+08	1.680E+06	4.184E+06	7.376E+07
140	53.98	39.28	256.4	0.1	256.3	260.3	2.016E+08	2.192E+07	2.040E+07	2.439E+08	1.875E+06	4.520E+06	7.610E+07
150	53.37	38.67	255.4	0.1	255.2	259.9	1.983E+08	2.197E+07	2.157E+07	2.419E+08	2.068E+06	4.853E+06	7.824E+07
160	52.94	38.24	254.7	0.1	254.5	259.5	1.955E+08	2.188E+07	2.265E+07	2.400E+08	2.260E+06	5.182E+06	8.020E+07
170	52.41	37.71	253.7	0.1	253.6	259.1	1.926E+08	2.191E+07	2.372E+07	2.383E+08	2.450E+06	5.508E+06	8.201E+07
180	51.93	37.23	252.9	0.1	252.8	258.6	1.900E+08	2.189E+07	2.473E+07	2.367E+08	2.638E+06	5.829E+06	8.369E+07
190	51.48	36.78	252.1	0.1	252.0	258.2	1.876E+08	2.187E+07	2.570E+07	2.352E+08	2.825E+06	6.147E+06	8.524E+07
200	51.06	36.36	251.4	0.1	251.3	257.7	1.853E+08	2.184E+07	2.664E+07	2.338E+08	3.011E+06	6.462E+06	8.668E+07
210	50.66	35.96	250.6	0.0	250.6	257.3	1.832E+08	2.182E+07	2.755E+07	2.325E+08	3.196E+06	6.773E+06	8.803E+07
220	50.27	35.57	249.9	0.0	249.9	256.9	1.811E+08	2.180E+07	2.843E+07	2.313E+08	3.379E+06	7.080E+06	8.929E+07

TABLE 9.1-9 (cont.): SUMMARY OF RESULTS FOR CASE 5 - 8.85 sq ft Slot MSLB @ 102% Power with Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
230	49.91	35.21	249.3	0.1	249.2	256.4	1.792E+08	2.178E+07	2.929E+07	2.302E+08	3.561E+06	7.385E+06	9.047E+07
240	49.57	34.87	248.7	0.1	248.5	256.0	1.773E+08	2.176E+07	3.012E+07	2.292E+08	3.742E+06	7.687E+06	9.158E+07
250	49.24	34.54	248.0	0.1	247.9	255.5	1.755E+08	2.174E+07	3.093E+07	2.282E+08	3.922E+06	7.986E+06	9.262E+07
260	48.93	34.23	247.5	0.2	247.3	255.1	1.738E+08	2.171E+07	3.173E+07	2.273E+08	4.101E+06	8.283E+06	9.361E+07
270	48.65	33.95	246.9	0.2	246.7	254.6	1.723E+08	2.161E+07	3.248E+07	2.264E+08	4.278E+06	8.577E+06	9.458E+07
280	48.33	33.63	246.3	0.2	246.1	254.2	1.706E+08	2.169E+07	3.327E+07	2.256E+08	4.455E+06	8.868E+06	9.547E+07
290	48.05	33.35	245.8	0.2	245.6	253.8	1.691E+08	2.167E+07	3.403E+07	2.248E+08	4.630E+06	9.157E+06	9.634E+07
300	47.77	33.07	245.2	0.2	245.0	253.3	1.676E+08	2.166E+07	3.477E+07	2.240E+08	4.805E+06	9.444E+06	9.718E+07
350	46.59	31.89	242.9	0.2	242.7	251.3	1.607E+08	2.159E+07	3.834E+07	2.206E+08	5.666E+06	1.085E+07	1.009E+08
400	45.47	30.77	240.6	0.1	240.6	249.3	1.546E+08	2.151E+07	4.167E+07	2.178E+08	6.507E+06	1.221E+07	1.041E+08
450	44.48	29.78	238.5	0.1	238.4	247.4	1.493E+08	2.145E+07	4.483E+07	2.155E+08	7.329E+06	1.352E+07	1.068E+08
500	43.61	28.91	236.7	0.2	236.4	245.6	1.446E+08	2.124E+07	4.782E+07	2.136E+08	8.133E+06	1.481E+07	1.091E+08
550	42.75	28.05	234.8	0.3	234.5	243.9	1.399E+08	2.133E+07	5.076E+07	2.120E+08	8.920E+06	1.607E+07	1.112E+08
600	42.06	27.36	233.2	0.3	232.9	242.3	1.357E+08	2.129E+07	5.360E+07	2.106E+08	9.692E+06	1.731E+07	1.131E+08
700	40.64	25.94	229.8	0.2	229.7	239.4	1.280E+08	2.118E+07	5.904E+07	2.083E+08	1.119E+07	1.971E+07	1.164E+08
800	39.38	24.68	226.7	0.2	226.6	236.6	1.212E+08	2.109E+07	6.423E+07	2.065E+08	1.265E+07	2.203E+07	1.191E+08
900	38.26	23.56	223.9	0.4	223.5	234.1	1.151E+08	2.100E+07	6.918E+07	2.053E+08	1.404E+07	2.427E+07	1.214E+08
1000	37.25	22.55	221.1	0.5	220.7	231.7	1.097E+08	2.092E+07	7.395E+07	2.045E+08	1.539E+07	2.645E+07	1.233E+08
1250	35.14	20.44	215.1	0.2	214.9	226.4	9.784E+07	2.073E+07	8.523E+07	2.038E+08	1.858E+07	3.164E+07	1.270E+08
1500	33.36	18.66	209.5	0.2	209.3	221.8	8.818E+07	2.056E+07	9.577E+07	2.045E+08	2.155E+07	3.650E+07	1.295E+08
1750	31.91	17.21	204.6	0.2	204.5	217.8	8.017E+07	2.041E+07	1.057E+08	2.063E+08	2.430E+07	4.109E+07	1.311E+08
2000	30.34	15.64	198.8	0.1	198.7	214.1	7.171E+07	2.023E+07	1.152E+08	2.071E+08	2.685E+07	4.543E+07	1.320E+08
2500	27.84	13.14	188.5	0.2	188.3	207.4	5.821E+07	1.992E+07	1.325E+08	2.106E+08	3.134E+07	5.330E+07	1.315E+08
3000	26.07	11.37	180.0	0.2	179.7	201.6	4.873E+07	1.965E+07	1.483E+08	2.167E+08	3.516E+07	6.031E+07	1.292E+08
3500	24.72	10.02	172.5	0.2	172.3	196.4	4.151E+07	1.943E+07	1.630E+08	2.239E+08	3.844E+07	6.663E+07	1.261E+08
4000	23.60	8.90	165.6	0.1	165.5	191.7	3.565E+07	1.921E+07	1.769E+08	2.318E+08	4.127E+07	7.232E+07	1.230E+08
4500	22.68	7.98	159.3	0.2	159.2	187.5	3.095E+07	1.902E+07	1.901E+08	2.400E+08	4.371E+07	7.745E+07	1.198E+08
5000	21.95	7.25	153.8	0.1	153.7	183.6	2.722E+07	1.885E+07	2.026E+08	2.486E+08	4.581E+07	8.208E+07	1.166E+08
6000	20.88	6.18	144.6	0.3	144.4	176.8	2.189E+07	1.857E+07	2.261E+08	2.666E+08	4.922E+07	9.010E+07	1.103E+08
7000	20.18	5.48	137.8	0.2	137.6	170.9	1.850E+07	1.833E+07	2.481E+08	2.849E+08	5.186E+07	9.680E+07	1.043E+08
8000	19.71	5.01	132.6	0.2	132.4	165.9	1.619E+07	1.818E+07	2.690E+08	3.034E+08	5.397E+07	1.025E+08	9.879E+07
9000	19.37	4.67	129.0	1.3	127.7	161.6	1.443E+07	1.808E+07	2.891E+08	3.216E+08	5.565E+07	1.075E+08	9.386E+07
10000	19.10	4.40	126.1	2.2	124.0	157.8	1.301E+07	1.799E+07	3.087E+08	3.397E+08	5.702E+07	1.120E+08	8.946E+07

slbrslt1.wb2

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

TABLE 9.1-10: SUMMARY OF HEAT SINK RESULTS FOR CASE 5

Time (sec)	Heat Sink Surface Temperatures (F)				Uchida Cond. HTC (B/hr-ft2-F)
	HS #2 Liner Plate	HS #10 - Sec Shield Wall	HS #18 - CS Th <= 0.5"	HS #19 - Elec & Galv CS	
0.0	118.4	120.0	120.0	119.9	2.00
1	119.6	121.4	121.1	120.0	12.16
5	131.4	145.9	132.8	123.4	28.54
10	145.7	174.5	146.9	134.0	44.92
15	157.5	193.4	158.6	149.0	56.74
20	167.0	206.2	168.1	165.7	64.09
30	185.0	225.1	186.6	199.0	79.45
40	199.0	236.7	201.3	226.7	88.10
50	210.2	244.4	213.7	246.9	93.77
60	216.6	245.9	221.3	259.5	93.95
70	220.5	244.9	226.7	265.2	92.75
80	223.5	243.7	231.1	267.1	91.82
90	225.5	242.2	234.5	267.5	91.11
100	227.0	240.6	237.2	267.7	90.56
120	229.3	239.1	241.5	267.5	88.32
140	230.7	238.0	244.5	267.3	86.09
160	231.5	237.1	246.4	267.0	83.91
180	231.9	236.2	247.5	266.7	81.97
200	232.1	235.4	248.1	266.4	80.17
250	231.6	233.4	248.0	265.4	76.10
300	230.5	231.5	247.9	264.4	72.46
400	228.0	228.2	247.6	262.0	65.74
500	225.3	225.2	247.2	259.4	61.33
600	222.9	222.6	246.6	256.7	58.44
800	218.2	217.6	245.1	251.1	52.70
1000	213.4	212.7	243.1	245.4	47.04
1500	203.9	203.0	237.3	231.7	38.92
2000	195.2	194.1	230.4	219.4	32.58
3000	180.0	179.5	214.7	197.1	24.33
4000	168.3	166.3	198.9	179.2	20.29
5000	160.8	158.7	184.1	164.8	17.02
7500	148.4	146.8	154.8	140.5	13.01
10000	140.6	139.5	137.2	128.8	9.87

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

TABLE 9.1-11: SUMMARY OF RESULTS FOR CASE 13 - 3.45 sq ft Slot MSLB @ 0% Power with MSIV Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
0.0	16.80	2.10	120.0	88.0	32.0	120.0	5.962E+05	1.781E+07	8.800E+01	1.841E+07	0.000E+00	0.000E+00	0.000E+00
0.1	17.01	2.31	123.3	74.1	49.2	120.0	1.372E+06	1.791E+07	8.800E+01	1.928E+07	0.000E+00	0.000E+00	4.119E+01
0.2	17.22	2.52	126.6	61.5	65.1	120.0	2.145E+06	1.801E+07	8.799E+01	2.016E+07	0.000E+00	0.000E+00	1.833E+02
0.3	17.42	2.72	129.8	56.2	73.6	120.0	2.913E+06	1.811E+07	8.799E+01	2.102E+07	0.000E+00	0.000E+00	4.310E+02
0.4	17.62	2.92	133.0	51.6	81.3	120.0	3.679E+06	1.821E+07	8.798E+01	2.189E+07	0.000E+00	0.000E+00	7.819E+02
0.5	17.83	3.13	136.1	48.8	87.3	120.0	4.440E+06	1.830E+07	8.798E+01	2.274E+07	0.000E+00	0.000E+00	1.234E+03
0.6	18.03	3.33	139.1	46.7	92.4	120.0	5.198E+06	1.839E+07	8.798E+01	2.359E+07	0.000E+00	0.000E+00	1.785E+03
0.7	18.23	3.53	142.0	45.2	96.8	120.0	5.953E+06	1.849E+07	8.798E+01	2.444E+07	0.000E+00	0.000E+00	2.432E+03
0.8	18.42	3.72	144.9	43.7	101.3	120.0	6.704E+06	1.857E+07	8.797E+01	2.528E+07	0.000E+00	0.000E+00	3.175E+03
0.9	18.62	3.92	147.8	43.1	104.7	120.0	7.452E+06	1.866E+07	8.797E+01	2.611E+07	0.000E+00	0.000E+00	4.010E+03
1.0	18.81	4.11	150.6	42.6	108.0	120.0	8.196E+06	1.875E+07	8.797E+01	2.694E+07	0.000E+00	0.000E+00	4.937E+03
1.2	19.20	4.50	156.0	41.7	114.3	120.0	9.677E+06	1.891E+07	8.797E+01	2.859E+07	0.000E+00	0.000E+00	7.057E+03
1.4	19.58	4.88	161.2	41.8	119.5	120.0	1.115E+07	1.908E+07	9.157E+01	3.022E+07	0.000E+00	0.000E+00	9.522E+03
1.6	19.96	5.26	166.3	42.2	124.1	122.1	1.260E+07	1.923E+07	3.451E+02	3.183E+07	0.000E+00	0.000E+00	1.266E+04
1.8	20.33	5.63	171.3	43.0	128.2	124.5	1.404E+07	1.938E+07	7.708E+02	3.343E+07	0.000E+00	0.000E+00	1.716E+04
2.0	20.70	6.00	176.0	43.7	132.4	127.1	1.547E+07	1.953E+07	1.375E+03	3.500E+07	0.000E+00	0.000E+00	2.331E+04
2.2	21.07	6.37	180.6	44.8	135.8	129.6	1.689E+07	1.967E+07	2.182E+03	3.656E+07	0.000E+00	0.000E+00	3.128E+04
2.4	21.43	6.73	185.1	46.0	139.1	132.0	1.829E+07	1.981E+07	3.197E+03	3.810E+07	0.000E+00	0.000E+00	4.103E+04
2.6	21.78	7.08	189.4	47.2	142.2	134.3	1.969E+07	1.994E+07	4.439E+03	3.963E+07	0.000E+00	0.000E+00	5.263E+04
2.8	22.14	7.44	193.6	48.8	144.9	136.4	2.107E+07	2.007E+07	5.900E+03	4.114E+07	0.000E+00	0.000E+00	6.597E+04
3	22.49	7.79	197.7	50.2	147.5	138.5	2.244E+07	2.020E+07	7.582E+03	4.264E+07	0.000E+00	0.000E+00	8.099E+04
4	24.18	9.48	216.5	57.2	159.3	147.5	2.914E+07	2.077E+07	1.953E+04	4.993E+07	0.000E+00	0.000E+00	1.809E+05
5	25.80	11.10	233.0	64.2	168.7	155.1	3.562E+07	2.128E+07	3.792E+04	5.693E+07	0.000E+00	0.000E+00	3.229E+05
6	27.36	12.66	247.5	71.2	176.3	161.4	4.189E+07	2.172E+07	6.274E+04	6.368E+07	0.000E+00	0.000E+00	5.033E+05
7	28.86	14.16	260.4	77.1	183.4	167.0	4.799E+07	2.212E+07	9.427E+04	7.021E+07	0.000E+00	0.000E+00	7.210E+05
8	30.31	15.61	272.1	83.0	189.1	172.1	5.392E+07	2.248E+07	1.326E+05	7.653E+07	0.000E+00	0.000E+00	9.746E+05
9	31.70	17.00	282.5	88.0	194.5	176.6	5.969E+07	2.280E+07	1.780E+05	8.267E+07	0.000E+00	0.000E+00	1.265E+06
10	33.05	18.35	292.1	92.8	199.2	180.7	6.529E+07	2.309E+07	2.299E+05	8.861E+07	0.000E+00	0.000E+00	1.586E+06
11	34.35	19.65	300.7	97.2	203.5	184.5	7.070E+07	2.336E+07	2.888E+05	9.435E+07	0.000E+00	0.000E+00	1.941E+06
12	35.58	20.88	308.4	101.2	207.3	188.0	7.586E+07	2.360E+07	3.554E+05	9.982E+07	0.000E+00	0.000E+00	2.332E+06
13	36.75	22.05	315.4	104.6	210.8	191.2	8.077E+07	2.381E+07	4.289E+05	1.050E+08	0.000E+00	0.000E+00	2.756E+06
14	37.86	23.16	321.7	107.8	214.0	194.2	8.543E+07	2.401E+07	5.090E+05	1.099E+08	0.000E+00	0.000E+00	3.208E+06
15	38.91	24.21	327.5	110.9	216.6	197.0	8.988E+07	2.418E+07	5.949E+05	1.147E+08	0.000E+00	0.000E+00	3.686E+06
16	39.91	25.21	332.7	113.6	219.2	199.5	9.413E+07	2.434E+07	6.868E+05	1.192E+08	0.000E+00	0.000E+00	4.190E+06
17	40.86	26.16	337.5	115.9	221.6	201.8	9.819E+07	2.449E+07	7.846E+05	1.235E+08	0.000E+00	0.000E+00	4.718E+06
18	41.77	27.07	341.9	118.0	224.0	204.0	1.021E+08	2.463E+07	8.877E+05	1.276E+08	0.000E+00	0.000E+00	5.269E+06
19	42.64	27.94	346.0	119.8	226.2	206.0	1.058E+08	2.475E+07	9.957E+05	1.316E+08	0.000E+00	0.000E+00	5.839E+06
20	43.47	28.77	349.7	121.4	228.3	208.0	1.094E+08	2.487E+07	1.108E+06	1.354E+08	0.000E+00	0.000E+00	6.426E+06
21	44.27	29.57	353.2	123.2	230.0	209.8	1.128E+08	2.497E+07	1.225E+06	1.390E+08	0.000E+00	0.000E+00	7.027E+06
22	45.04	30.34	356.4	124.8	231.6	211.5	1.161E+08	2.507E+07	1.346E+06	1.425E+08	0.000E+00	0.000E+00	7.645E+06
23	45.77	31.07	359.4	126.2	233.2	213.1	1.193E+08	2.516E+07	1.471E+06	1.459E+08	0.000E+00	0.000E+00	8.281E+06
24	46.47	31.77	362.1	127.4	234.7	214.6	1.224E+08	2.524E+07	1.601E+06	1.492E+08	0.000E+00	1.456E+03	8.933E+06
25	47.14	32.44	364.3	128.2	236.1	216.0	1.253E+08	2.531E+07	1.734E+06	1.524E+08	0.000E+00	5.875E+03	9.599E+06

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

TABLE 9.1-11 (cont.): SUMMARY OF RESULTS FOR CASE 13 - 3.45 sq ft Slot MSLB @ 0% Power with MSIV Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
26	47.77	33.07	366.3	128.8	237.5	217.4	1.282E+08	2.537E+07	1.871E+06	1.555E+08	0.000E+00	1.270E+04	1.028E+07
27	48.38	33.68	368.0	129.1	238.9	218.7	1.310E+08	2.543E+07	2.011E+06	1.585E+08	0.000E+00	2.135E+04	1.097E+07
28	48.96	34.26	369.5	129.3	240.2	220.0	1.337E+08	2.547E+07	2.154E+06	1.614E+08	0.000E+00	3.184E+04	1.166E+07
29	49.52	34.82	370.7	129.5	241.2	221.1	1.364E+08	2.551E+07	2.299E+06	1.642E+08	0.000E+00	4.421E+04	1.237E+07
30	50.05	35.35	371.8	129.5	242.3	222.3	1.389E+08	2.554E+07	2.447E+06	1.669E+08	0.000E+00	5.846E+04	1.308E+07
31	50.56	35.86	372.6	129.3	243.3	223.3	1.414E+08	2.556E+07	2.596E+06	1.696E+08	0.000E+00	7.549E+04	1.380E+07
32	51.04	36.34	373.1	128.8	244.2	224.3	1.439E+08	2.558E+07	2.746E+06	1.722E+08	0.000E+00	9.620E+04	1.452E+07
33	51.50	36.80	373.3	128.1	245.2	225.3	1.463E+08	2.559E+07	2.898E+06	1.748E+08	0.000E+00	1.206E+05	1.524E+07
34	51.94	37.24	373.3	127.2	246.1	226.2	1.486E+08	2.558E+07	3.052E+06	1.773E+08	0.000E+00	1.487E+05	1.596E+07
35	52.36	37.66	373.0	126.1	246.9	227.1	1.509E+08	2.557E+07	3.206E+06	1.797E+08	0.000E+00	1.806E+05	1.669E+07
36	52.75	38.05	372.5	124.8	247.8	227.9	1.532E+08	2.556E+07	3.362E+06	1.821E+08	0.000E+00	2.149E+05	1.742E+07
37	53.14	38.44	372.0	123.4	248.6	228.8	1.554E+08	2.554E+07	3.518E+06	1.845E+08	0.000E+00	2.504E+05	1.814E+07
38	53.50	38.80	371.4	122.0	249.4	229.5	1.576E+08	2.552E+07	3.675E+06	1.868E+08	0.000E+00	2.870E+05	1.887E+07
39	53.86	39.16	370.6	120.5	250.2	230.3	1.597E+08	2.550E+07	3.834E+06	1.891E+08	0.000E+00	3.247E+05	1.961E+07
40	54.20	39.50	369.9	119.0	250.8	231.0	1.618E+08	2.548E+07	3.995E+06	1.913E+08	0.000E+00	3.636E+05	2.034E+07
41	54.53	39.83	369.0	117.5	251.5	231.8	1.639E+08	2.545E+07	4.157E+06	1.935E+08	0.000E+00	4.035E+05	2.108E+07
42	54.85	40.15	368.1	116.0	252.1	232.4	1.659E+08	2.542E+07	4.319E+06	1.956E+08	0.000E+00	4.442E+05	2.182E+07
43	55.16	40.46	367.1	114.4	252.7	233.1	1.678E+08	2.539E+07	4.483E+06	1.977E+08	0.000E+00	4.858E+05	2.256E+07
44	55.46	40.76	366.1	112.8	253.3	233.7	1.698E+08	2.536E+07	4.647E+06	1.998E+08	0.000E+00	5.283E+05	2.331E+07
45	55.76	41.06	365.1	111.2	253.9	234.4	1.717E+08	2.533E+07	4.812E+06	2.019E+08	0.000E+00	5.715E+05	2.405E+07
50	56.74	42.04	352.4	96.1	256.3	237.2	1.812E+08	2.493E+07	5.643E+06	2.118E+08	3.879E+03	9.372E+05	2.774E+07
55	57.15	42.45	333.1	75.1	258.0	239.6	1.902E+08	2.434E+07	6.515E+06	2.211E+08	1.994E+05	1.432E+06	3.134E+07
60	57.49	42.79	315.2	55.7	259.5	241.7	1.987E+08	2.379E+07	7.376E+06	2.299E+08	3.978E+05	1.900E+06	3.483E+07
65	57.72	43.02	298.5	37.8	260.7	243.4	2.066E+08	2.327E+07	8.218E+06	2.381E+08	5.986E+05	2.341E+06	3.818E+07
70	57.90	43.20	282.7	21.1	261.6	244.9	2.142E+08	2.279E+07	9.037E+06	2.460E+08	8.012E+05	2.751E+06	4.138E+07
75	58.03	43.33	268.0	5.5	262.5	246.2	2.213E+08	2.232E+07	9.832E+06	2.535E+08	1.006E+06	3.131E+06	4.443E+07
80	58.74	44.04	264.0	0.1	263.9	247.7	2.275E+08	2.219E+07	1.091E+07	2.606E+08	1.212E+06	3.490E+06	4.735E+07
85	59.70	45.00	265.4	0.1	265.3	249.2	2.329E+08	2.228E+07	1.215E+07	2.674E+08	1.420E+06	3.851E+06	5.018E+07
90	60.67	45.97	266.8	0.0	266.8	250.6	2.381E+08	2.227E+07	1.337E+07	2.737E+08	1.632E+06	4.216E+06	5.293E+07
95	61.58	46.88	268.2	0.2	268.0	251.9	2.429E+08	2.230E+07	1.460E+07	2.798E+08	1.846E+06	4.584E+06	5.558E+07
100	62.43	47.73	269.6	0.5	269.2	253.1	2.473E+08	2.234E+07	1.583E+07	2.855E+08	2.062E+06	4.955E+06	5.815E+07
110	63.87	49.17	271.3	0.3	271.1	255.1	2.551E+08	2.245E+07	1.828E+07	2.958E+08	2.499E+06	5.706E+06	6.307E+07
120	65.16	50.46	273.1	0.3	272.8	256.9	2.620E+08	2.247E+07	2.069E+07	3.051E+08	2.942E+06	6.466E+06	6.770E+07
130	66.19	51.49	274.5	0.3	274.1	258.5	2.687E+08	2.254E+07	2.306E+07	3.143E+08	3.391E+06	7.233E+06	7.206E+07
140	66.57	51.87	275.0	0.3	274.6	259.9	2.707E+08	2.255E+07	2.546E+07	3.187E+08	3.844E+06	8.005E+06	7.610E+07
150	66.20	51.50	274.5	0.3	274.1	261.0	2.687E+08	2.254E+07	2.782E+07	3.191E+08	4.297E+06	8.776E+06	7.974E+07
160	65.82	51.12	274.0	0.3	273.6	261.9	2.653E+08	2.250E+07	3.010E+07	3.179E+08	4.748E+06	9.545E+06	8.298E+07
170	65.10	50.40	273.0	0.3	272.7	262.6	2.615E+08	2.242E+07	3.227E+07	3.161E+08	5.196E+06	1.031E+07	8.591E+07
180	64.33	49.63	272.1	0.4	271.7	263.1	2.578E+08	2.234E+07	3.438E+07	3.144E+08	5.641E+06	1.107E+07	8.854E+07
190	63.58	48.88	270.9	0.2	270.7	263.5	2.534E+08	2.245E+07	3.643E+07	3.122E+08	6.082E+06	1.183E+07	9.093E+07
200	62.82	48.12	269.9	0.2	269.7	263.8	2.493E+08	2.241E+07	3.839E+07	3.101E+08	6.519E+06	1.258E+07	9.309E+07
210	62.10	47.40	268.8	0.1	268.7	264.0	2.454E+08	2.238E+07	4.028E+07	3.081E+08	6.954E+06	1.333E+07	9.506E+07
220	61.42	46.72	267.9	0.1	267.8	264.2	2.418E+08	2.235E+07	4.212E+07	3.063E+08	7.384E+06	1.407E+07	9.688E+07

TABLE 9.1-11 (cont.): SUMMARY OF RESULTS FOR CASE 13 - 3.45 sq ft Slot MSLB @ 0% Power with MSIV Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
230	60.78	46.08	266.9	0.0	266.9	264.3	2.383E+08	2.232E+07	4.392E+07	3.046E+08	7.812E+06	1.480E+07	9.855E+07
240	60.17	45.47	266.1	0.1	266.0	264.3	2.351E+08	2.230E+07	4.566E+07	3.030E+08	8.236E+06	1.554E+07	1.001E+08
250	59.59	44.89	265.2	0.1	265.1	264.3	2.319E+08	2.227E+07	4.737E+07	3.016E+08	8.657E+06	1.626E+07	1.015E+08
260	59.03	44.33	264.4	0.1	264.3	264.2	2.289E+08	2.224E+07	4.904E+07	3.002E+08	9.075E+06	1.698E+07	1.029E+08
270	58.49	43.79	263.6	0.1	263.4	264.2	2.261E+08	2.222E+07	5.068E+07	2.990E+08	9.490E+06	1.770E+07	1.041E+08
280	58.09	43.39	262.9	0.1	262.8	264.1	2.233E+08	2.220E+07	5.230E+07	2.978E+08	9.903E+06	1.841E+07	1.053E+08
290	57.58	42.88	262.2	0.1	262.0	264.0	2.206E+08	2.218E+07	5.389E+07	2.966E+08	1.031E+07	1.912E+07	1.064E+08
300	57.09	42.39	261.4	0.1	261.3	263.8	2.179E+08	2.215E+07	5.546E+07	2.955E+08	1.072E+07	1.982E+07	1.075E+08
350	54.84	40.14	257.8	0.1	257.7	262.9	2.058E+08	2.204E+07	6.299E+07	2.908E+08	1.272E+07	2.327E+07	1.122E+08
400	52.95	38.25	254.6	0.1	254.5	261.8	1.951E+08	2.195E+07	7.009E+07	2.871E+08	1.465E+07	2.660E+07	1.160E+08
450	51.16	36.46	251.5	0.1	251.4	260.3	1.854E+08	2.185E+07	7.680E+07	2.841E+08	1.653E+07	2.980E+07	1.191E+08
500	49.55	34.85	248.5	0.1	248.4	258.7	1.767E+08	2.176E+07	8.318E+07	2.816E+08	1.836E+07	3.286E+07	1.217E+08
550	48.06	33.36	245.7	0.2	245.5	257.0	1.686E+08	2.167E+07	8.926E+07	2.796E+08	2.014E+07	3.580E+07	1.240E+08
600	46.77	32.07	243.2	0.2	243.0	255.3	1.611E+08	2.159E+07	9.511E+07	2.779E+08	2.187E+07	3.862E+07	1.259E+08
700	44.27	29.57	238.0	0.2	237.8	251.7	1.476E+08	2.144E+07	1.062E+08	2.752E+08	2.519E+07	4.397E+07	1.292E+08
800	42.15	27.45	233.3	0.3	233.0	248.2	1.357E+08	2.129E+07	1.166E+08	2.736E+08	2.834E+07	4.901E+07	1.317E+08
900	40.18	25.48	228.6	0.1	228.6	244.9	1.250E+08	2.115E+07	1.264E+08	2.726E+08	3.133E+07	5.378E+07	1.336E+08
1000	38.43	23.73	224.2	0.4	223.8	241.7	1.155E+08	2.101E+07	1.358E+08	2.723E+08	3.416E+07	5.832E+07	1.350E+08
1250	34.81	20.11	214.0	0.1	213.9	234.4	9.558E+07	2.066E+07	1.575E+08	2.738E+08	4.063E+07	6.882E+07	1.370E+08
1500	31.99	17.29	204.8	0.2	204.6	227.9	8.014E+07	2.038E+07	1.773E+08	2.778E+08	4.632E+07	7.823E+07	1.372E+08
1750	29.80	15.10	196.5	0.1	196.4	222.1	6.823E+07	2.016E+07	1.955E+08	2.839E+08	5.134E+07	8.678E+07	1.360E+08
2000	27.74	13.04	187.8	0.2	187.6	216.8	5.713E+07	1.989E+07	2.124E+08	2.895E+08	5.574E+07	9.453E+07	1.341E+08
2500	24.52	9.82	171.0	0.1	171.0	207.2	4.009E+07	1.936E+07	2.429E+08	3.023E+08	6.272E+07	1.077E+08	1.292E+08
3000	22.41	7.71	157.0	0.2	156.8	198.8	2.924E+07	1.895E+07	2.697E+08	3.179E+08	6.777E+07	1.182E+08	1.237E+08
3500	21.09	6.39	146.2	0.3	145.9	191.4	2.268E+07	1.861E+07	2.938E+08	3.351E+08	7.142E+07	1.266E+08	1.179E+08
4000	20.28	5.58	138.4	0.2	138.2	184.8	1.874E+07	1.835E+07	3.160E+08	3.531E+08	7.415E+07	1.335E+08	1.121E+08
4500	19.77	5.07	132.8	0.0	132.8	179.1	1.627E+07	1.819E+07	3.370E+08	3.715E+08	7.629E+07	1.392E+08	1.066E+08
5000	19.43	4.73	129.4	1.4	128.0	174.1	1.449E+07	1.809E+07	3.572E+08	3.898E+08	7.800E+07	1.443E+08	1.017E+08

slbrslt1.wb2

TABLE 9.1-12: SUMMARY OF HEAT SINK RESULTS FOR CASE 13

Time (sec)	Heat Sink Surface Temperatures (F)				Uchida Cond. HTC (B/hr-ft2-F)
	HS #2 Liner Plate	HS #10 - Sec Shield Wall	HS #18 - CS Th <= 0.5"	HS #19 - Elec & Galv CS	
0.0	118.4	120.0	120.0	119.9	2.00
1	118.7	120.4	120.3	120.0	7.35
5	124.5	132.0	125.9	121.3	20.03
10	132.6	150.5	134.0	126.4	28.77
15	141.4	167.4	142.6	134.9	38.14
20	149.4	180.7	150.6	145.8	45.10
30	164.3	200.4	165.7	170.8	57.37
40	176.9	213.1	178.9	195.1	66.01
50	188.7	223.0	191.4	216.1	75.91
60	198.3	229.4	202.0	232.4	83.68
70	206.3	233.9	211.0	244.0	89.49
80	213.2	237.7	219.0	251.8	93.70
90	219.5	241.7	226.5	257.6	96.34
100	225.2	245.2	233.2	262.2	98.90
120	234.9	251.1	244.8	268.6	105.04
140	242.0	254.9	253.4	272.6	108.35
160	245.7	255.3	258.4	273.7	106.30
180	247.5	254.6	261.4	273.6	103.24
200	248.3	253.4	263.0	273.6	99.76
250	248.3	250.7	263.9	273.2	94.82
300	247.1	248.2	263.5	272.7	91.07
400	243.3	243.2	263.1	271.0	83.80
500	238.9	238.4	262.6	268.9	76.61
600	234.6	233.7	261.7	266.3	69.26
800	226.2	225.0	259.6	260.4	58.47
1000	218.5	217.0	256.8	253.8	50.08
1500	203.6	200.0	247.8	235.8	35.72
2000	188.6	187.8	237.1	218.0	27.18
3000	170.7	166.2	212.3	183.8	17.96
4000	159.5	155.4	187.7	156.9	13.88
5000	151.8	148.3	167.4	139.9	10.95

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

TABLE 9.1-13: SUMMARY OF RESULTS FOR CASE 14 - 5.30 sq ft Slot MSLB @ 20% Power with MSIV Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
0.0	16.80	2.10	120.0	88.0	32.0	120.0	5.962E+05	1.781E+07	8.800E+01	1.841E+07	0.000E+00	0.000E+00	0.000E+00
0.1	17.10	2.40	124.9	68.1	56.8	120.0	1.726E+06	1.796E+07	8.800E+01	1.969E+07	0.000E+00	0.000E+00	5.717E+01
0.2	17.40	2.70	129.7	56.8	72.8	120.0	2.844E+06	1.811E+07	8.799E+01	2.095E+07	0.000E+00	0.000E+00	2.619E+02
0.3	17.70	3.00	134.2	50.8	83.5	120.0	3.950E+06	1.825E+07	8.799E+01	2.220E+07	0.000E+00	0.000E+00	6.191E+02
0.4	17.99	3.29	138.7	47.2	91.5	120.0	5.045E+06	1.838E+07	8.798E+01	2.343E+07	0.000E+00	0.000E+00	1.124E+03
0.5	18.28	3.58	143.0	45.1	97.9	120.0	6.129E+06	1.852E+07	8.798E+01	2.464E+07	0.000E+00	0.000E+00	1.770E+03
0.6	18.56	3.86	147.2	43.6	103.6	120.0	7.203E+06	1.864E+07	8.798E+01	2.585E+07	0.000E+00	0.000E+00	2.555E+03
0.7	18.85	4.15	151.3	43.0	108.3	120.0	8.267E+06	1.877E+07	8.798E+01	2.704E+07	0.000E+00	0.000E+00	3.474E+03
0.8	19.12	4.42	155.2	42.2	113.0	120.0	9.322E+06	1.889E+07	8.797E+01	2.821E+07	0.000E+00	0.000E+00	4.523E+03
0.9	19.40	4.70	159.0	42.3	116.7	120.0	1.037E+07	1.901E+07	8.797E+01	2.938E+07	0.000E+00	0.000E+00	5.698E+03
1.0	19.67	4.97	162.8	42.4	120.4	120.0	1.140E+07	1.912E+07	9.556E+01	3.053E+07	0.000E+00	0.000E+00	6.998E+03
1.2	20.20	5.50	170.0	43.4	126.6	123.5	1.345E+07	1.934E+07	4.398E+02	3.279E+07	0.000E+00	0.000E+00	1.064E+04
1.4	20.73	6.03	176.9	44.5	132.4	127.2	1.546E+07	1.956E+07	1.016E+03	3.502E+07	0.000E+00	0.000E+00	1.644E+04
1.6	21.24	6.54	183.4	46.3	137.1	130.7	1.743E+07	1.976E+07	1.876E+03	3.719E+07	0.000E+00	0.000E+00	2.479E+04
1.8	21.74	7.04	189.6	48.0	141.7	133.9	1.938E+07	1.995E+07	3.042E+03	3.933E+07	0.000E+00	0.000E+00	3.588E+04
2.0	22.23	7.53	195.5	50.2	145.4	136.9	2.128E+07	2.013E+07	4.517E+03	4.141E+07	0.000E+00	0.000E+00	4.906E+04
2.2	22.71	8.01	201.2	52.2	149.0	139.7	2.315E+07	2.030E+07	6.302E+03	4.346E+07	0.000E+00	0.000E+00	6.478E+04
2.4	23.18	8.48	206.6	53.9	152.6	142.3	2.500E+07	2.047E+07	8.417E+03	4.548E+07	0.000E+00	0.000E+00	8.286E+04
2.6	23.65	8.95	211.7	56.1	155.6	144.8	2.682E+07	2.063E+07	1.085E+04	4.745E+07	0.000E+00	0.000E+00	1.032E+05
2.8	24.10	9.40	216.7	58.2	158.5	147.0	2.860E+07	2.078E+07	1.361E+04	4.940E+07	0.000E+00	0.000E+00	1.256E+05
3	24.55	9.85	221.4	60.0	161.4	149.3	3.037E+07	2.092E+07	1.673E+04	5.131E+07	0.000E+00	0.000E+00	1.504E+05
4	26.67	11.97	242.5	69.8	172.8	158.8	3.881E+07	2.157E+07	3.765E+04	6.042E+07	0.000E+00	0.000E+00	3.078E+05
5	28.64	13.94	260.2	78.1	182.1	166.4	4.673E+07	2.211E+07	6.716E+04	6.891E+07	0.000E+00	0.000E+00	5.147E+05
6	30.47	15.77	275.1	85.6	189.5	172.9	5.418E+07	2.257E+07	1.054E+05	7.686E+07	0.000E+00	0.000E+00	7.686E+05
7	32.19	17.49	288.0	92.1	196.0	178.5	6.123E+07	2.297E+07	1.525E+05	8.435E+07	0.000E+00	0.000E+00	1.068E+06
8	33.81	19.11	299.3	97.7	201.6	183.4	6.793E+07	2.332E+07	2.077E+05	9.145E+07	0.000E+00	0.000E+00	1.405E+06
9	35.34	20.64	309.2	102.9	206.3	187.8	7.430E+07	2.362E+07	2.722E+05	9.819E+07	0.000E+00	0.000E+00	1.788E+06
10	36.78	22.08	317.9	107.3	210.7	191.7	8.032E+07	2.389E+07	3.455E+05	1.046E+08	0.000E+00	0.000E+00	2.212E+06
11	38.12	23.42	325.5	111.1	214.4	195.3	8.595E+07	2.412E+07	4.271E+05	1.105E+08	0.000E+00	0.000E+00	2.673E+06
12	39.34	24.64	332.2	114.6	217.5	198.5	9.114E+07	2.433E+07	5.158E+05	1.160E+08	0.000E+00	0.000E+00	3.164E+06
13	40.47	25.77	337.9	117.5	220.4	201.4	9.592E+07	2.450E+07	6.117E+05	1.210E+08	0.000E+00	0.000E+00	3.688E+06
14	41.51	26.81	343.0	119.9	223.1	204.1	1.004E+08	2.466E+07	7.142E+05	1.257E+08	0.000E+00	0.000E+00	4.239E+06
15	42.47	27.77	347.4	121.9	225.6	206.5	1.045E+08	2.480E+07	8.225E+05	1.301E+08	0.000E+00	0.000E+00	4.813E+06
16	43.37	28.67	351.4	123.5	227.9	208.7	1.084E+08	2.492E+07	9.361E+05	1.342E+08	0.000E+00	0.000E+00	5.407E+06
17	44.21	29.51	355.0	125.3	229.7	210.7	1.120E+08	2.503E+07	1.054E+06	1.381E+08	0.000E+00	0.000E+00	6.017E+06
18	45.00	30.30	358.2	126.8	231.4	212.6	1.154E+08	2.513E+07	1.176E+06	1.417E+08	0.000E+00	0.000E+00	6.643E+06
19	45.74	31.04	361.1	128.1	233.0	214.3	1.187E+08	2.522E+07	1.303E+06	1.452E+08	0.000E+00	0.000E+00	7.288E+06
20	46.43	31.73	363.7	129.2	234.5	215.9	1.217E+08	2.530E+07	1.434E+06	1.485E+08	0.000E+00	0.000E+00	7.950E+06
21	47.09	32.39	366.1	130.2	235.9	217.4	1.246E+08	2.537E+07	1.569E+06	1.516E+08	0.000E+00	0.000E+00	8.625E+06
22	47.72	33.02	368.3	131.0	237.3	218.8	1.274E+08	2.544E+07	1.707E+06	1.545E+08	0.000E+00	0.000E+00	9.312E+06
23	48.31	33.61	370.3	131.7	238.6	220.1	1.300E+08	2.550E+07	1.849E+06	1.574E+08	0.000E+00	0.000E+00	1.001E+07
24	48.87	34.17	372.0	132.2	239.8	221.4	1.325E+08	2.555E+07	1.992E+06	1.601E+08	0.000E+00	1.534E+03	1.071E+07
25	49.40	34.70	373.4	132.6	240.8	222.6	1.350E+08	2.559E+07	2.139E+06	1.627E+08	0.000E+00	6.174E+03	1.143E+07

REVISIONS ⇓

TABLE 9.1-13 (cont.): SUMMARY OF RESULTS FOR CASE 14 - 5.30 sq ft Slot MSLB @ 20% Power with MSIV Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
26	49.89	35.19	374.6	132.8	241.8	223.7	1.373E+08	2.563E+07	2.286E+06	1.652E+08	0.000E+00	1.331E+04	1.214E+07
27	50.37	35.67	375.5	132.8	242.7	224.7	1.396E+08	2.566E+07	2.436E+06	1.677E+08	0.000E+00	2.232E+04	1.286E+07
28	50.82	36.12	376.2	132.6	243.6	225.7	1.418E+08	2.568E+07	2.586E+06	1.700E+08	0.000E+00	3.321E+04	1.358E+07
29	51.24	36.54	376.7	132.3	244.4	226.6	1.439E+08	2.569E+07	2.738E+06	1.723E+08	0.000E+00	4.599E+04	1.431E+07
30	51.65	36.95	377.1	131.8	245.2	227.5	1.459E+08	2.570E+07	2.890E+06	1.745E+08	0.000E+00	6.070E+04	1.503E+07
31	52.03	37.33	377.2	131.2	246.0	228.3	1.479E+08	2.571E+07	3.043E+06	1.767E+08	0.000E+00	7.823E+04	1.576E+07
32	52.39	37.69	377.1	130.3	246.8	229.1	1.499E+08	2.570E+07	3.197E+06	1.788E+08	0.000E+00	9.950E+04	1.649E+07
33	52.73	38.03	376.7	129.2	247.5	229.9	1.518E+08	2.569E+07	3.352E+06	1.809E+08	0.000E+00	1.245E+05	1.721E+07
34	53.04	38.34	376.1	127.9	248.2	230.6	1.537E+08	2.567E+07	3.507E+06	1.829E+08	0.000E+00	1.532E+05	1.793E+07
35	53.34	38.64	375.2	126.4	248.8	231.3	1.555E+08	2.564E+07	3.662E+06	1.848E+08	0.000E+00	1.856E+05	1.866E+07
36	53.62	38.92	374.2	124.8	249.4	232.0	1.573E+08	2.561E+07	3.817E+06	1.868E+08	0.000E+00	2.205E+05	1.938E+07
37	53.88	39.18	373.1	123.1	250.1	232.6	1.591E+08	2.558E+07	3.973E+06	1.886E+08	0.000E+00	2.563E+05	2.010E+07
38	54.14	39.44	372.0	121.4	250.6	233.2	1.608E+08	2.554E+07	4.131E+06	1.905E+08	0.000E+00	2.933E+05	2.082E+07
39	54.38	39.68	370.8	119.7	251.1	233.8	1.625E+08	2.551E+07	4.288E+06	1.923E+08	0.000E+00	3.313E+05	2.154E+07
40	54.62	39.92	369.5	117.9	251.6	234.4	1.642E+08	2.547E+07	4.447E+06	1.941E+08	0.000E+00	3.704E+05	2.227E+07
41	54.84	40.14	368.2	116.1	252.1	234.9	1.658E+08	2.543E+07	4.605E+06	1.958E+08	0.000E+00	4.104E+05	2.299E+07
42	55.06	40.36	366.8	114.3	252.5	235.5	1.674E+08	2.538E+07	4.764E+06	1.975E+08	0.000E+00	4.512E+05	2.371E+07
43	55.27	40.57	365.4	112.4	253.0	236.0	1.690E+08	2.534E+07	4.923E+06	1.992E+08	0.000E+00	4.927E+05	2.443E+07
44	55.46	40.76	363.9	110.5	253.4	236.5	1.705E+08	2.530E+07	5.082E+06	2.009E+08	0.000E+00	5.350E+05	2.514E+07
45	55.66	40.96	362.5	108.6	253.8	236.9	1.720E+08	2.525E+07	5.241E+06	2.025E+08	0.000E+00	5.779E+05	2.586E+07
50	56.15	41.45	347.7	92.2	255.5	239.1	1.796E+08	2.479E+07	6.032E+06	2.104E+08	3.850E+03	9.377E+05	2.938E+07
55	56.11	41.41	326.3	69.8	256.5	241.0	1.868E+08	2.413E+07	6.853E+06	2.178E+08	1.973E+05	1.418E+06	3.278E+07
60	56.01	41.31	306.4	49.0	257.3	242.5	1.936E+08	2.352E+07	7.653E+06	2.248E+08	3.925E+05	1.865E+06	3.603E+07
65	55.85	41.15	287.6	29.6	258.0	243.8	1.999E+08	2.294E+07	8.430E+06	2.313E+08	5.890E+05	2.281E+06	3.914E+07
70	55.62	40.92	269.8	11.2	258.5	244.9	2.059E+08	2.239E+07	9.181E+06	2.375E+08	7.866E+05	2.683E+06	4.209E+07
75	55.97	41.27	260.1	0.4	259.6	246.0	2.122E+08	2.203E+07	1.007E+07	2.443E+08	9.854E+05	3.014E+06	4.491E+07
80	56.77	42.07	260.9	0.1	260.8	247.4	2.168E+08	2.212E+07	1.129E+07	2.500E+08	1.188E+06	3.361E+06	4.763E+07
85	57.49	42.79	262.1	0.2	261.9	248.6	2.205E+08	2.214E+07	1.249E+07	2.551E+08	1.390E+06	3.713E+06	5.026E+07
90	58.06	43.36	263.0	0.2	262.8	249.6	2.238E+08	2.216E+07	1.370E+07	2.596E+08	1.594E+06	4.067E+06	5.280E+07
95	58.59	43.89	263.7	0.1	263.6	250.6	2.267E+08	2.219E+07	1.489E+07	2.638E+08	1.801E+06	4.424E+06	5.523E+07
100	59.03	44.33	264.4	0.1	264.3	251.5	2.293E+08	2.221E+07	1.607E+07	2.676E+08	2.008E+06	4.782E+06	5.757E+07
110	59.70	45.00	265.4	0.1	265.3	253.0	2.328E+08	2.226E+07	1.841E+07	2.735E+08	2.427E+06	5.505E+06	6.200E+07
120	59.55	44.85	265.2	0.1	265.1	254.1	2.320E+08	2.219E+07	2.070E+07	2.749E+08	2.847E+06	6.230E+06	6.601E+07
130	59.26	44.56	264.7	0.1	264.6	255.0	2.304E+08	2.218E+07	2.291E+07	2.755E+08	3.265E+06	6.953E+06	6.960E+07
140	58.89	44.19	264.2	0.1	264.1	255.7	2.285E+08	2.215E+07	2.503E+07	2.756E+08	3.682E+06	7.672E+06	7.283E+07
150	58.47	43.77	263.5	0.1	263.4	256.2	2.262E+08	2.212E+07	2.707E+07	2.754E+08	4.097E+06	8.389E+06	7.576E+07
160	58.09	43.39	263.0	0.1	262.8	256.6	2.235E+08	2.220E+07	2.908E+07	2.748E+08	4.509E+06	9.101E+06	7.845E+07
170	57.64	42.94	262.3	0.1	262.2	256.8	2.211E+08	2.201E+07	3.095E+07	2.741E+08	4.920E+06	9.810E+06	8.091E+07
180	57.15	42.45	261.5	0.1	261.4	257.0	2.185E+08	2.199E+07	3.281E+07	2.732E+08	5.327E+06	1.051E+07	8.316E+07
190	56.64	41.94	260.7	0.1	260.6	257.1	2.157E+08	2.197E+07	3.461E+07	2.723E+08	5.732E+06	1.121E+07	8.524E+07
200	56.22	41.52	260.0	0.0	260.0	257.1	2.134E+08	2.197E+07	3.637E+07	2.718E+08	6.135E+06	1.191E+07	8.715E+07
210	55.82	41.12	259.4	0.0	259.4	257.1	2.113E+08	2.194E+07	3.807E+07	2.713E+08	6.535E+06	1.260E+07	8.894E+07
220	55.44	40.74	258.8	0.0	258.8	257.1	2.093E+08	2.193E+07	3.975E+07	2.709E+08	6.933E+06	1.329E+07	9.060E+07

TABLE 9.1-13 (cont.): SUMMARY OF RESULTS FOR CASE 14 - 5.30 sq ft Slot MSLB @ 20% Power with MSIV Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
230	55.06	40.36	258.2	0.1	258.1	257.0	2.072E+08	2.192E+07	4.138E+07	2.705E+08	7.329E+06	1.397E+07	9.215E+07
240	54.67	39.97	257.5	0.1	257.4	256.9	2.051E+08	2.189E+07	4.298E+07	2.699E+08	7.722E+06	1.465E+07	9.360E+07
250	54.27	39.57	256.9	0.1	256.7	256.8	2.029E+08	2.187E+07	4.456E+07	2.693E+08	8.113E+06	1.532E+07	9.495E+07
260	53.90	39.20	256.3	0.1	256.1	256.7	2.009E+08	2.187E+07	4.610E+07	2.689E+08	8.502E+06	1.599E+07	9.622E+07
270	53.54	38.84	255.6	0.1	255.5	256.5	1.990E+08	2.184E+07	4.762E+07	2.684E+08	8.888E+06	1.665E+07	9.742E+07
280	53.17	38.47	255.0	0.1	254.9	256.3	1.970E+08	2.183E+07	4.911E+07	2.679E+08	9.272E+06	1.731E+07	9.854E+07
290	52.91	38.21	254.6	0.1	254.4	256.1	1.950E+08	2.194E+07	5.062E+07	2.676E+08	9.654E+06	1.797E+07	9.961E+07
300	52.60	37.90	254.0	0.1	253.9	255.9	1.933E+08	2.193E+07	5.207E+07	2.674E+08	1.004E+07	1.862E+07	1.006E+08
350	50.93	36.23	251.1	0.0	251.0	254.8	1.843E+08	2.184E+07	5.908E+07	2.652E+08	1.191E+07	2.181E+07	1.052E+08
400	49.15	34.45	247.8	0.2	247.7	253.2	1.747E+08	2.174E+07	6.566E+07	2.621E+08	1.373E+07	2.485E+07	1.088E+08
450	47.61	32.91	244.9	0.2	244.7	251.5	1.659E+08	2.165E+07	7.188E+07	2.594E+08	1.549E+07	2.775E+07	1.118E+08
500	46.13	31.43	241.9	0.1	241.8	249.7	1.579E+08	2.156E+07	7.776E+07	2.572E+08	1.720E+07	3.052E+07	1.143E+08
550	44.78	30.08	239.1	0.1	239.0	247.9	1.505E+08	2.147E+07	8.340E+07	2.554E+08	1.886E+07	3.319E+07	1.164E+08
600	43.53	28.83	236.4	0.3	236.2	246.0	1.437E+08	2.139E+07	8.883E+07	2.540E+08	2.047E+07	3.577E+07	1.182E+08
700	41.33	26.63	231.4	0.2	231.2	242.4	1.314E+08	2.124E+07	9.919E+07	2.518E+08	2.356E+07	4.071E+07	1.212E+08
800	39.31	24.61	226.5	0.2	226.3	239.0	1.205E+08	2.108E+07	1.090E+08	2.505E+08	2.648E+07	4.538E+07	1.235E+08
900	37.54	22.84	221.9	0.4	221.4	235.8	1.109E+08	2.094E+07	1.182E+08	2.500E+08	2.924E+07	4.981E+07	1.252E+08
1000	36.03	21.33	217.6	0.4	217.2	232.7	1.023E+08	2.081E+07	1.271E+08	2.502E+08	3.184E+07	5.404E+07	1.265E+08
1250	32.75	18.05	207.4	0.3	207.1	225.7	8.437E+07	2.052E+07	1.476E+08	2.525E+08	3.778E+07	6.379E+07	1.281E+08
1500	30.25	15.55	198.4	0.1	198.2	219.5	7.091E+07	2.022E+07	1.663E+08	2.574E+08	4.297E+07	7.256E+07	1.279E+08
1750	28.35	13.65	190.6	0.2	190.4	214.0	6.062E+07	1.998E+07	1.836E+08	2.642E+08	4.753E+07	8.052E+07	1.265E+08
2000	26.51	11.81	182.0	0.1	181.9	209.0	5.073E+07	1.969E+07	1.998E+08	2.702E+08	5.152E+07	8.775E+07	1.245E+08
2500	23.64	8.94	165.7	0.1	165.5	199.9	3.562E+07	1.920E+07	2.289E+08	2.837E+08	5.776E+07	9.994E+07	1.198E+08
3000	21.80	7.10	152.4	0.1	152.3	191.9	2.629E+07	1.879E+07	2.546E+08	2.997E+08	6.223E+07	1.096E+08	1.143E+08
3500	20.68	5.98	142.5	0.1	142.4	184.8	2.075E+07	1.850E+07	2.779E+08	3.172E+08	6.546E+07	1.173E+08	1.087E+08
4000	19.99	5.29	135.5	0.2	135.3	178.7	1.745E+07	1.827E+07	2.996E+08	3.353E+08	6.789E+07	1.236E+08	1.032E+08
4500	19.56	4.86	130.7	0.5	130.2	173.3	1.535E+07	1.813E+07	3.201E+08	3.536E+08	6.981E+07	1.290E+08	9.799E+07
5000	19.26	4.56	127.7	1.7	126.0	168.7	1.376E+07	1.804E+07	3.400E+08	3.718E+08	7.134E+07	1.337E+08	9.330E+07

slbrslt1.wb2

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

REVIEW

TABLE 9.1-14: SUMMARY OF HEAT SINK RESULTS FOR CASE 14

Time (sec)	Heat Sink Surface Temperatures (F)				Uchida Cond. HTC (B/hr-ft2-F)
	HS #2 Liner Plate	HS #10 - Sec Shield Wall	HS #18 - CS Th <= 0.5"	HS #19 - Elec & Galv CS	
0.0	118.4	120.0	120.0	119.9	2.00
1	118.9	120.6	120.4	120.0	9.31
5	127.2	137.5	128.6	122.1	23.35
10	137.3	159.4	138.6	129.1	34.76
15	146.5	176.2	147.6	139.6	43.56
20	154.5	188.3	155.6	152.0	50.44
30	168.0	204.6	169.5	178.0	59.69
40	179.5	215.2	181.6	201.1	67.27
50	189.9	223.1	192.9	220.1	75.32
60	198.3	227.9	202.3	234.1	82.02
70	205.2	231.3	210.3	243.7	87.18
80	211.7	235.0	217.8	250.2	90.71
90	217.2	238.2	224.5	255.1	92.70
100	221.9	240.8	230.3	258.7	94.16
120	228.8	243.6	239.2	263.0	94.81
140	233.0	244.3	245.1	264.0	93.89
160	235.7	244.4	249.1	264.0	92.62
180	237.4	244.0	251.8	263.9	91.15
200	238.4	243.5	253.4	263.9	89.70
250	239.2	242.0	255.0	263.6	86.41
300	238.8	240.4	254.6	263.1	83.20
400	235.9	236.0	254.4	261.8	75.74
500	231.7	231.1	253.9	259.9	67.53
600	227.4	226.4	253.2	257.6	61.13
800	219.4	218.2	251.2	252.1	52.41
1000	211.7	210.2	248.5	245.8	44.31
1500	198.1	194.5	239.9	228.5	32.24
2000	183.5	181.6	229.6	211.3	25.06
3000	166.7	162.4	205.6	178.2	16.75
4000	156.3	152.4	182.2	152.7	13.15
5000	149.1	145.9	163.2	137.1	10.26

TABLE 9.1-15: SUMMARY OF RESULTS FOR CASE 15 - 7.05 sq ft Slot MSLB @ 50% Power with MSIV Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
0.0	16.80	2.10	120.0	88.0	32.0	120.0	5.962E+05	1.781E+07	8.800E+01	1.841E+07	0.000E+00	0.000E+00	0.000E+00
0.1	17.19	2.49	126.3	62.8	63.5	120.0	2.041E+06	1.800E+07	8.800E+01	2.004E+07	0.000E+00	0.000E+00	7.153E+01
0.2	17.57	2.87	132.3	52.6	79.7	120.0	3.463E+06	1.819E+07	8.799E+01	2.165E+07	0.000E+00	0.000E+00	3.319E+02
0.3	17.95	3.25	138.1	47.6	90.5	120.0	4.865E+06	1.837E+07	8.799E+01	2.323E+07	0.000E+00	0.000E+00	7.854E+02
0.4	18.32	3.62	143.7	45.1	98.6	120.0	6.249E+06	1.854E+07	8.798E+01	2.478E+07	0.000E+00	0.000E+00	1.424E+03
0.5	18.68	3.98	149.0	43.6	105.4	120.0	7.613E+06	1.870E+07	8.798E+01	2.631E+07	0.000E+00	0.000E+00	2.239E+03
0.6	19.04	4.34	154.1	42.7	111.4	120.0	8.959E+06	1.886E+07	8.798E+01	2.782E+07	0.000E+00	0.000E+00	3.225E+03
0.7	19.39	4.69	159.1	42.6	116.5	120.0	1.029E+07	1.901E+07	8.798E+01	2.930E+07	0.000E+00	0.000E+00	4.375E+03
0.8	19.73	5.03	163.8	42.7	121.1	120.1	1.160E+07	1.916E+07	9.844E+01	3.076E+07	0.000E+00	0.000E+00	5.687E+03
0.9	20.07	5.37	168.5	43.4	125.0	122.6	1.290E+07	1.930E+07	2.636E+02	3.219E+07	0.000E+00	0.000E+00	7.400E+03
1.0	20.41	5.71	172.9	44.3	128.7	124.9	1.417E+07	1.943E+07	4.954E+02	3.361E+07	0.000E+00	0.000E+00	9.756E+03
1.2	21.06	6.36	181.4	46.1	135.4	129.5	1.669E+07	1.970E+07	1.217E+03	3.638E+07	0.000E+00	0.000E+00	1.678E+04
1.4	21.70	7.00	189.4	48.2	141.2	133.7	1.914E+07	1.994E+07	2.315E+03	3.909E+07	0.000E+00	0.000E+00	2.704E+04
1.6	22.32	7.62	196.9	51.0	145.9	137.5	2.155E+07	2.017E+07	3.807E+03	4.172E+07	0.000E+00	0.000E+00	4.047E+04
1.8	22.92	8.22	204.0	53.5	150.5	140.9	2.389E+07	2.039E+07	5.697E+03	4.429E+07	0.000E+00	0.000E+00	5.687E+04
2.0	23.51	8.81	210.6	56.0	154.6	144.1	2.618E+07	2.059E+07	8.002E+03	4.678E+07	0.000E+00	0.000E+00	7.622E+04
2.2	24.08	9.38	216.9	58.6	158.3	147.0	2.842E+07	2.078E+07	1.070E+04	4.922E+07	0.000E+00	0.000E+00	9.824E+04
2.4	24.64	9.94	222.8	61.0	161.9	149.7	3.063E+07	2.097E+07	1.386E+04	5.161E+07	0.000E+00	0.000E+00	1.232E+05
2.6	25.19	10.49	228.5	63.6	164.9	152.3	3.279E+07	2.114E+07	1.747E+04	5.395E+07	0.000E+00	0.000E+00	1.512E+05
2.8	25.72	11.02	233.9	66.0	167.9	154.8	3.492E+07	2.131E+07	2.153E+04	5.625E+07	0.000E+00	0.000E+00	1.819E+05
3	26.25	11.55	239.0	68.3	170.7	157.1	3.701E+07	2.147E+07	2.603E+04	5.850E+07	0.000E+00	0.000E+00	2.153E+05
4	28.73	14.03	261.5	79.1	182.5	166.8	4.700E+07	2.216E+07	5.498E+04	6.921E+07	0.000E+00	0.000E+00	4.190E+05
5	31.02	16.32	279.9	88.3	191.6	174.7	5.629E+07	2.272E+07	9.507E+04	7.910E+07	0.000E+00	0.000E+00	6.825E+05
6	33.14	18.44	295.3	96.1	199.2	181.3	6.501E+07	2.319E+07	1.462E+05	8.835E+07	0.000E+00	0.000E+00	1.001E+06
7	35.12	20.42	308.4	102.9	205.6	187.1	7.325E+07	2.360E+07	2.084E+05	9.706E+07	0.000E+00	0.000E+00	1.373E+06
8	36.99	22.29	319.7	108.5	211.3	192.2	8.109E+07	2.394E+07	2.826E+05	1.053E+08	0.000E+00	0.000E+00	1.802E+06
9	38.76	24.06	329.6	113.6	216.0	196.7	8.854E+07	2.425E+07	3.677E+05	1.132E+08	0.000E+00	0.000E+00	2.280E+06
10	40.42	25.72	338.2	118.0	220.2	200.7	9.556E+07	2.451E+07	4.635E+05	1.205E+08	0.000E+00	0.000E+00	2.804E+06
11	41.94	27.24	345.6	121.4	224.1	204.3	1.021E+08	2.474E+07	5.696E+05	1.274E+08	0.000E+00	0.000E+00	3.373E+06
12	43.33	28.63	351.9	124.1	227.7	207.6	1.080E+08	2.493E+07	6.848E+05	1.336E+08	0.000E+00	0.000E+00	3.978E+06
13	44.61	29.91	357.3	126.8	230.5	210.6	1.135E+08	2.510E+07	8.078E+05	1.394E+08	0.000E+00	0.000E+00	4.613E+06
14	45.78	31.08	362.1	129.1	233.0	213.2	1.186E+08	2.525E+07	9.387E+05	1.448E+08	0.000E+00	0.000E+00	5.280E+06
15	46.88	32.18	366.3	130.9	235.4	215.7	1.234E+08	2.537E+07	1.078E+06	1.499E+08	0.000E+00	0.000E+00	5.978E+06
16	47.90	33.20	370.0	132.4	237.6	217.9	1.279E+08	2.549E+07	1.223E+06	1.546E+08	0.000E+00	0.000E+00	6.703E+06
17	48.86	34.16	373.3	133.6	239.7	220.0	1.321E+08	2.559E+07	1.375E+06	1.591E+08	0.000E+00	0.000E+00	7.450E+06
18	49.76	35.06	376.3	134.9	241.4	221.9	1.361E+08	2.568E+07	1.532E+06	1.633E+08	0.000E+00	0.000E+00	8.216E+06
19	50.62	35.92	379.0	136.0	243.0	223.7	1.399E+08	2.576E+07	1.694E+06	1.674E+08	0.000E+00	0.000E+00	8.995E+06
20	51.43	36.73	381.4	136.9	244.5	225.3	1.435E+08	2.584E+07	1.859E+06	1.712E+08	0.000E+00	0.000E+00	9.787E+06
21	52.20	37.50	383.6	137.7	246.0	226.8	1.470E+08	2.591E+07	2.028E+06	1.749E+08	0.000E+00	0.000E+00	1.059E+07
22	52.94	38.24	385.7	138.3	247.4	228.2	1.503E+08	2.597E+07	2.199E+06	1.785E+08	0.000E+00	0.000E+00	1.140E+07
23	53.64	38.94	387.6	138.8	248.7	229.5	1.535E+08	2.603E+07	2.373E+06	1.819E+08	0.000E+00	0.000E+00	1.221E+07
24	54.32	39.62	389.2	139.2	250.0	230.8	1.566E+08	2.608E+07	2.549E+06	1.852E+08	0.000E+00	1.693E+03	1.303E+07
25	54.96	40.26	390.6	139.4	251.1	232.0	1.596E+08	2.612E+07	2.728E+06	1.885E+08	0.000E+00	6.820E+03	1.386E+07

TABLE 9.1-15 (cont.): SUMMARY OF RESULTS FOR CASE 15 - 7.05 sq ft Slot MSLB @ 50% Power with MSIV Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
26	55.53	40.83	391.5	139.4	252.1	233.1	1.625E+08	2.615E+07	2.910E+06	1.916E+08	0.000E+00	1.472E+04	1.470E+07
27	56.12	41.42	392.4	139.3	253.1	234.2	1.653E+08	2.617E+07	3.095E+06	1.946E+08	0.000E+00	2.470E+04	1.554E+07
28	56.67	41.97	393.1	139.0	254.1	235.2	1.680E+08	2.620E+07	3.281E+06	1.975E+08	0.000E+00	3.681E+04	1.639E+07
29	57.20	42.50	393.6	138.6	255.0	236.1	1.707E+08	2.621E+07	3.470E+06	2.004E+08	0.000E+00	5.110E+04	1.725E+07
30	57.71	43.01	393.9	138.1	255.9	237.1	1.732E+08	2.622E+07	3.661E+06	2.031E+08	0.000E+00	6.758E+04	1.811E+07
31	58.19	43.49	394.1	137.4	256.7	237.9	1.757E+08	2.623E+07	3.852E+06	2.058E+08	0.000E+00	8.729E+04	1.897E+07
32	58.65	43.95	394.0	136.5	257.6	238.8	1.782E+08	2.622E+07	4.046E+06	2.085E+08	0.000E+00	1.113E+05	1.983E+07
33	59.09	44.39	393.7	135.4	258.4	239.6	1.806E+08	2.621E+07	4.240E+06	2.111E+08	0.000E+00	1.395E+05	2.070E+07
34	59.50	44.80	393.2	134.1	259.1	240.4	1.830E+08	2.620E+07	4.435E+06	2.136E+08	0.000E+00	1.721E+05	2.156E+07
35	59.90	45.20	392.5	132.7	259.8	241.1	1.853E+08	2.617E+07	4.630E+06	2.161E+08	0.000E+00	2.091E+05	2.242E+07
36	60.28	45.58	391.6	131.2	260.4	241.8	1.876E+08	2.615E+07	4.826E+06	2.185E+08	0.000E+00	2.489E+05	2.328E+07
37	60.64	45.94	390.7	129.6	261.1	242.5	1.898E+08	2.612E+07	5.022E+06	2.209E+08	0.000E+00	2.900E+05	2.414E+07
38	60.99	46.29	389.7	128.0	261.7	243.1	1.920E+08	2.609E+07	5.218E+06	2.233E+08	0.000E+00	3.326E+05	2.499E+07
39	61.34	46.64	388.7	126.4	262.3	243.7	1.942E+08	2.606E+07	5.413E+06	2.256E+08	0.000E+00	3.765E+05	2.584E+07
40	61.67	46.97	387.6	124.7	262.8	244.3	1.963E+08	2.602E+07	5.609E+06	2.279E+08	0.000E+00	4.218E+05	2.669E+07
41	61.99	47.29	386.4	123.0	263.4	244.9	1.984E+08	2.599E+07	5.804E+06	2.302E+08	0.000E+00	4.682E+05	2.753E+07
42	62.30	47.60	385.3	121.3	264.0	245.5	2.004E+08	2.595E+07	5.999E+06	2.324E+08	0.000E+00	5.156E+05	2.837E+07
43	62.60	47.90	384.1	119.6	264.5	246.0	2.025E+08	2.591E+07	6.193E+06	2.346E+08	0.000E+00	5.639E+05	2.920E+07
44	62.89	48.19	382.8	117.8	265.0	246.5	2.044E+08	2.588E+07	6.387E+06	2.367E+08	0.000E+00	6.132E+05	3.003E+07
45	63.17	48.47	381.5	116.0	265.5	247.0	2.064E+08	2.584E+07	6.580E+06	2.388E+08	0.000E+00	6.633E+05	3.085E+07
50	64.04	49.34	368.4	100.9	267.5	249.3	2.157E+08	2.542E+07	7.533E+06	2.487E+08	4.277E+03	1.082E+06	3.486E+07
55	64.57	49.87	350.1	81.1	268.9	251.3	2.253E+08	2.486E+07	8.510E+06	2.587E+08	2.194E+05	1.643E+06	3.868E+07
60	64.74	50.04	332.2	62.3	269.9	253.0	2.334E+08	2.431E+07	9.456E+06	2.671E+08	4.367E+05	2.169E+06	4.231E+07
65	64.70	50.00	315.0	44.5	270.5	254.4	2.403E+08	2.378E+07	1.036E+07	2.745E+08	6.555E+05	2.659E+06	4.574E+07
70	64.52	49.82	298.5	27.6	270.9	255.5	2.466E+08	2.327E+07	1.123E+07	2.811E+08	8.751E+05	3.113E+06	4.896E+07
75	64.23	49.53	282.7	11.5	271.1	256.5	2.522E+08	2.279E+07	1.206E+07	2.871E+08	1.095E+06	3.533E+06	5.200E+07
80	63.67	48.97	271.1	0.3	270.8	257.5	2.541E+08	2.241E+07	1.305E+07	2.896E+08	1.316E+06	3.921E+06	5.488E+07
85	63.11	48.41	270.3	0.2	270.1	258.7	2.511E+08	2.238E+07	1.444E+07	2.879E+08	1.535E+06	4.297E+06	5.752E+07
90	62.57	47.87	269.5	0.2	269.4	259.5	2.482E+08	2.236E+07	1.577E+07	2.864E+08	1.753E+06	4.672E+06	5.995E+07
95	62.05	47.35	268.8	0.1	268.7	260.2	2.454E+08	2.235E+07	1.705E+07	2.848E+08	1.969E+06	5.044E+06	6.220E+07
100	61.55	46.85	268.1	0.1	268.0	260.7	2.428E+08	2.232E+07	1.828E+07	2.834E+08	2.185E+06	5.415E+06	6.430E+07
110	60.67	45.97	266.8	0.0	266.8	261.3	2.380E+08	2.216E+07	2.060E+07	2.808E+08	2.613E+06	6.151E+06	6.812E+07
120	59.82	45.12	265.6	0.1	265.5	261.7	2.334E+08	2.214E+07	2.283E+07	2.784E+08	3.038E+06	6.881E+06	7.153E+07
130	59.05	44.35	264.4	0.1	264.3	261.8	2.291E+08	2.220E+07	2.497E+07	2.762E+08	3.454E+06	7.604E+06	7.458E+07
140	58.26	43.56	263.6	0.5	263.1	261.9	2.246E+08	2.204E+07	2.697E+07	2.736E+08	3.868E+06	8.319E+06	7.732E+07
150	57.43	42.73	261.9	0.1	261.8	261.8	2.200E+08	2.217E+07	2.895E+07	2.711E+08	4.278E+06	9.027E+06	7.980E+07
160	56.67	41.97	260.8	0.1	260.7	261.6	2.159E+08	2.213E+07	3.082E+07	2.689E+08	4.684E+06	9.728E+06	8.204E+07
170	55.97	41.27	259.6	0.0	259.6	261.4	2.122E+08	2.210E+07	3.262E+07	2.669E+08	5.086E+06	1.042E+07	8.409E+07
180	55.31	40.61	258.6	0.0	258.5	261.2	2.086E+08	2.207E+07	3.436E+07	2.650E+08	5.484E+06	1.111E+07	8.597E+07
190	54.69	39.99	257.6	0.1	257.5	260.9	2.053E+08	2.204E+07	3.605E+07	2.633E+08	5.879E+06	1.179E+07	8.768E+07
200	54.11	39.41	256.6	0.1	256.5	260.5	2.021E+08	2.201E+07	3.768E+07	2.618E+08	6.269E+06	1.246E+07	8.926E+07
210	53.55	38.85	255.7	0.1	255.5	260.2	1.991E+08	2.198E+07	3.928E+07	2.604E+08	6.656E+06	1.313E+07	9.071E+07
220	53.10	38.40	255.1	0.3	254.8	259.8	1.963E+08	2.186E+07	4.082E+07	2.590E+08	7.040E+06	1.379E+07	9.206E+07

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

REVISIONS ⇒

TABLE 9.1-15 (cont.): SUMMARY OF RESULTS FOR CASE 15 - 7.05 sq ft Slot MSLB @ 50% Power with MSIV Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
230	52.61	37.91	254.1	0.1	253.9	259.4	1.935E+08	2.193E+07	4.236E+07	2.578E+08	7.421E+06	1.444E+07	9.332E+07
240	52.12	37.42	253.2	0.1	253.1	259.0	1.909E+08	2.190E+07	4.385E+07	2.566E+08	7.800E+06	1.509E+07	9.449E+07
250	51.66	36.96	252.4	0.1	252.3	258.6	1.884E+08	2.188E+07	4.531E+07	2.556E+08	8.175E+06	1.573E+07	9.558E+07
260	51.21	36.51	251.6	0.1	251.5	258.2	1.859E+08	2.185E+07	4.674E+07	2.545E+08	8.548E+06	1.636E+07	9.662E+07
270	50.77	36.07	250.8	0.0	250.8	257.7	1.836E+08	2.183E+07	4.815E+07	2.536E+08	8.918E+06	1.698E+07	9.762E+07
280	50.35	35.65	250.1	0.0	250.0	257.3	1.813E+08	2.181E+07	4.953E+07	2.527E+08	9.285E+06	1.760E+07	9.856E+07
290	49.94	35.24	249.3	0.1	249.2	256.8	1.791E+08	2.178E+07	5.089E+07	2.518E+08	9.649E+06	1.821E+07	9.946E+07
300	49.55	34.85	248.6	0.1	248.5	256.4	1.770E+08	2.176E+07	5.223E+07	2.510E+08	1.001E+07	1.881E+07	1.003E+08
350	47.83	33.13	245.5	0.4	245.1	254.0	1.673E+08	2.148E+07	5.862E+07	2.474E+08	1.178E+07	2.174E+07	1.041E+08
400	46.21	31.51	242.1	0.1	242.0	251.6	1.584E+08	2.156E+07	6.472E+07	2.447E+08	1.350E+07	2.453E+07	1.071E+08
450	44.76	30.06	239.1	0.1	239.0	249.2	1.506E+08	2.147E+07	7.044E+07	2.425E+08	1.516E+07	2.720E+07	1.096E+08
500	43.45	28.75	236.3	0.3	236.0	246.9	1.435E+08	2.138E+07	7.593E+07	2.408E+08	1.677E+07	2.978E+07	1.117E+08
550	42.31	27.61	233.7	0.3	233.4	244.7	1.368E+08	2.130E+07	8.123E+07	2.394E+08	1.833E+07	3.227E+07	1.135E+08
600	41.17	26.47	231.1	0.2	230.8	242.6	1.307E+08	2.122E+07	8.635E+07	2.382E+08	1.984E+07	3.469E+07	1.151E+08
700	39.10	24.40	226.0	0.2	225.7	238.7	1.194E+08	2.107E+07	9.616E+07	2.367E+08	2.275E+07	3.934E+07	1.178E+08
800	37.29	22.59	221.2	0.5	220.7	235.0	1.096E+08	2.092E+07	1.054E+08	2.360E+08	2.549E+07	4.375E+07	1.197E+08
900	35.74	21.04	216.8	0.3	216.5	231.6	1.009E+08	2.079E+07	1.142E+08	2.359E+08	2.807E+07	4.794E+07	1.211E+08
1000	34.30	19.60	212.5	0.1	212.4	228.4	9.305E+07	2.065E+07	1.227E+08	2.364E+08	3.052E+07	5.193E+07	1.222E+08
1250	31.36	16.66	202.6	0.1	202.5	221.3	7.699E+07	2.031E+07	1.423E+08	2.396E+08	3.606E+07	6.117E+07	1.233E+08
1500	29.13	14.43	193.9	0.0	193.9	215.1	6.486E+07	2.008E+07	1.603E+08	2.452E+08	4.090E+07	6.948E+07	1.228E+08
1750	27.42	12.72	186.4	0.2	186.2	209.7	5.561E+07	1.985E+07	1.770E+08	2.525E+08	4.514E+07	7.704E+07	1.212E+08
2000	25.71	11.01	177.9	0.3	177.5	204.7	4.656E+07	1.959E+07	1.926E+08	2.588E+08	4.884E+07	8.389E+07	1.192E+08
2500	23.09	8.39	162.1	-0.0	162.1	195.8	3.288E+07	1.909E+07	2.209E+08	2.729E+08	5.460E+07	9.543E+07	1.144E+08
3000	21.44	6.74	149.5	0.3	149.2	187.9	2.457E+07	1.870E+07	2.459E+08	2.892E+08	5.871E+07	1.045E+08	1.090E+08
3500	20.44	5.74	140.2	0.1	140.2	181.1	1.966E+07	1.843E+07	2.687E+08	3.068E+08	6.168E+07	1.118E+08	1.034E+08
4000	19.83	5.13	133.8	0.1	133.7	175.1	1.674E+07	1.822E+07	2.900E+08	3.249E+08	6.394E+07	1.178E+08	9.804E+07
4500	19.44	4.74	129.6	0.8	128.8	170.0	1.483E+07	1.809E+07	3.103E+08	3.432E+08	6.573E+07	1.229E+08	9.304E+07
5000	19.17	4.47	126.6	1.8	124.9	165.5	1.333E+07	1.801E+07	3.299E+08	3.613E+08	6.717E+07	1.275E+08	8.853E+07

slbrslt1.wb2

TABLE 9.1-16: SUMMARY OF HEAT SINK RESULTS FOR CASE 15

Time (sec)	Heat Sink Surface Temperatures (F)				Uchida Cond. HTC (B/hr-ft2-F)
	HS #2 Liner Plate	HS #10 - Sec Shield Wall	HS #18 - CS Th </= 0.5"	HS #19 - Elec & Galv CS	
0.0	118.4	120.0	120.0	119.9	2.00
1	119.2	120.9	120.7	120.0	10.46
5	129.5	142.2	130.9	122.8	26.40
10	141.8	167.5	143.0	131.6	40.41
15	152.7	186.1	153.8	144.7	51.17
20	161.9	199.2	163.1	159.8	58.81
30	177.9	216.8	179.4	189.9	71.18
40	191.5	228.5	193.7	216.4	81.09
50	202.6	236.5	205.8	236.6	88.10
60	211.5	241.5	215.8	250.6	93.83
70	218.5	244.5	224.0	259.4	97.72
80	224.1	246.5	230.9	264.6	101.79
90	227.4	246.3	235.4	267.0	99.26
100	230.0	246.0	239.3	267.7	97.40
120	233.7	245.4	245.1	267.7	95.14
140	235.8	244.4	249.0	267.6	92.84
160	236.9	243.2	251.3	267.5	90.50
180	237.4	242.0	252.6	267.3	88.30
200	237.3	240.8	253.1	267.1	86.21
250	236.4	238.0	252.7	266.3	81.35
300	234.7	235.3	252.6	265.4	76.73
400	230.5	230.2	252.2	263.2	67.81
500	226.1	225.3	251.6	260.5	61.04
600	222.1	221.1	250.7	257.6	56.59
800	214.0	212.5	248.5	251.0	47.05
1000	206.9	205.4	245.6	243.8	40.97
1500	193.9	190.0	236.6	225.3	29.38
2000	179.9	178.1	226.1	207.6	23.64
3000	164.1	159.8	202.1	174.6	16.25
4000	154.2	150.4	179.2	150.1	12.68
5000	147.4	144.3	160.8	135.5	9.96

TABLE 9.1-17: CASE 16 - 8.10 sq ft Slot MSLB @ 80% Power with MSIV Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
0.0	16.80	2.10	120.0	88.0	32.0	120.0	5.962E+05	1.781E+07	8.800E+01	1.841E+07	0.000E+00	0.000E+00	0.000E+00
0.1	17.24	2.54	127.0	61.2	65.8	120.0	2.207E+06	1.802E+07	8.800E+01	2.023E+07	0.000E+00	0.000E+00	7.923E+01
0.2	17.66	2.96	133.8	51.5	82.2	120.0	3.788E+06	1.823E+07	8.799E+01	2.202E+07	0.000E+00	0.000E+00	3.694E+02
0.3	18.08	3.38	140.1	46.9	93.3	120.0	5.343E+06	1.843E+07	8.799E+01	2.377E+07	0.000E+00	0.000E+00	8.740E+02
0.4	18.49	3.79	146.3	44.1	102.2	120.0	6.872E+06	1.862E+07	8.798E+01	2.549E+07	0.000E+00	0.000E+00	1.583E+03
0.5	18.89	4.19	152.1	43.3	108.8	120.0	8.377E+06	1.879E+07	8.798E+01	2.717E+07	0.000E+00	0.000E+00	2.486E+03
0.6	19.28	4.58	157.7	42.7	115.0	120.0	9.859E+06	1.897E+07	8.798E+01	2.883E+07	0.000E+00	0.000E+00	3.576E+03
0.7	19.66	4.96	163.0	42.9	120.1	120.0	1.132E+07	1.913E+07	9.515E+01	3.045E+07	0.000E+00	0.000E+00	4.844E+03
0.8	20.04	5.34	168.2	43.6	124.6	122.3	1.275E+07	1.929E+07	2.512E+02	3.204E+07	0.000E+00	0.000E+00	6.469E+03
0.9	20.41	5.71	173.2	44.5	128.7	124.7	1.417E+07	1.944E+07	4.807E+02	3.361E+07	0.000E+00	0.000E+00	8.786E+03
1.0	20.78	6.08	178.0	45.3	132.7	127.3	1.556E+07	1.959E+07	8.030E+02	3.515E+07	0.000E+00	0.000E+00	1.193E+04
1.2	21.49	6.79	187.1	47.9	139.2	132.2	1.830E+07	1.987E+07	1.753E+03	3.817E+07	0.000E+00	0.000E+00	2.091E+04
1.4	22.18	7.48	195.5	50.7	144.8	136.5	2.097E+07	2.013E+07	3.137E+03	4.110E+07	0.000E+00	0.000E+00	3.344E+04
1.6	22.85	8.15	203.4	53.6	149.9	140.4	2.358E+07	2.037E+07	4.958E+03	4.395E+07	0.000E+00	0.000E+00	4.931E+04
1.8	23.51	8.81	210.8	56.3	154.5	143.9	2.612E+07	2.060E+07	7.239E+03	4.672E+07	0.000E+00	0.000E+00	6.845E+04
2.0	24.14	9.44	217.8	59.2	158.6	147.2	2.859E+07	2.081E+07	9.962E+03	4.941E+07	0.000E+00	0.000E+00	9.059E+04
2.2	24.75	10.05	224.3	61.8	162.5	150.2	3.101E+07	2.101E+07	1.319E+04	5.204E+07	0.000E+00	0.000E+00	1.160E+05
2.4	25.36	10.66	230.5	64.7	165.8	153.0	3.339E+07	2.120E+07	1.692E+04	5.461E+07	0.000E+00	0.000E+00	1.447E+05
2.6	25.94	11.24	236.4	67.3	169.1	155.7	3.573E+07	2.138E+07	2.114E+04	5.714E+07	0.000E+00	0.000E+00	1.764E+05
2.8	26.52	11.82	242.0	70.1	171.9	158.1	3.803E+07	2.156E+07	2.584E+04	5.961E+07	0.000E+00	0.000E+00	2.109E+05
3	27.09	12.39	247.3	72.7	174.5	160.4	4.028E+07	2.172E+07	3.099E+04	6.203E+07	0.000E+00	0.000E+00	2.481E+05
4	29.76	15.06	270.4	83.9	186.5	170.3	5.106E+07	2.243E+07	6.421E+04	7.355E+07	0.000E+00	0.000E+00	4.751E+05
5	32.21	17.51	289.1	93.2	195.9	178.4	6.111E+07	2.300E+07	1.100E+05	8.422E+07	0.000E+00	0.000E+00	7.678E+05
6	34.50	19.80	304.8	101.1	203.6	185.2	7.058E+07	2.349E+07	1.679E+05	9.424E+07	0.000E+00	0.000E+00	1.119E+06
7	36.65	21.95	318.1	107.9	210.2	191.1	7.958E+07	2.389E+07	2.395E+05	1.037E+08	0.000E+00	0.000E+00	1.536E+06
8	38.70	24.00	329.6	113.7	215.8	196.3	8.818E+07	2.425E+07	3.239E+05	1.128E+08	0.000E+00	0.000E+00	2.011E+06
9	40.63	25.93	339.6	118.8	220.7	200.9	9.638E+07	2.455E+07	4.208E+05	1.214E+08	0.000E+00	0.000E+00	2.541E+06
10	42.43	27.73	348.2	122.8	225.4	205.0	1.041E+08	2.482E+07	5.302E+05	1.294E+08	0.000E+00	0.000E+00	3.124E+06
11	44.09	29.39	355.5	126.2	229.4	208.8	1.112E+08	2.504E+07	6.506E+05	1.369E+08	0.000E+00	0.000E+00	3.751E+06
12	45.60	30.90	361.8	129.2	232.6	212.1	1.178E+08	2.524E+07	7.811E+05	1.438E+08	0.000E+00	0.000E+00	4.418E+06
13	46.99	32.29	367.1	131.6	235.6	215.2	1.238E+08	2.540E+07	9.222E+05	1.501E+08	0.000E+00	0.000E+00	5.128E+06
14	48.26	33.56	371.8	133.5	238.3	217.9	1.293E+08	2.554E+07	1.073E+06	1.560E+08	0.000E+00	0.000E+00	5.874E+06
15	49.45	34.75	375.9	135.1	240.8	220.5	1.346E+08	2.567E+07	1.231E+06	1.615E+08	0.000E+00	0.000E+00	6.650E+06
16	50.56	35.86	379.5	136.6	242.9	222.7	1.395E+08	2.578E+07	1.396E+06	1.667E+08	0.000E+00	0.000E+00	7.449E+06
17	51.61	36.91	382.7	137.9	244.8	224.8	1.441E+08	2.588E+07	1.567E+06	1.716E+08	0.000E+00	0.000E+00	8.267E+06
18	52.60	37.90	385.6	139.0	246.7	226.7	1.485E+08	2.597E+07	1.743E+06	1.762E+08	0.000E+00	0.000E+00	9.101E+06
19	53.53	38.83	388.3	139.8	248.4	228.5	1.527E+08	2.605E+07	1.923E+06	1.807E+08	0.000E+00	0.000E+00	9.948E+06
20	54.42	39.72	390.6	140.5	250.1	230.2	1.567E+08	2.612E+07	2.107E+06	1.850E+08	0.000E+00	0.000E+00	1.081E+07
21	55.23	40.53	392.8	141.1	251.5	231.7	1.606E+08	2.618E+07	2.295E+06	1.890E+08	0.000E+00	0.000E+00	1.168E+07
22	56.04	41.34	394.6	141.7	252.8	233.2	1.642E+08	2.624E+07	2.488E+06	1.930E+08	0.000E+00	0.000E+00	1.256E+07
23	56.81	42.11	396.4	142.2	254.1	234.5	1.678E+08	2.630E+07	2.685E+06	1.968E+08	0.000E+00	0.000E+00	1.346E+07
24	57.55	42.85	397.9	142.6	255.4	235.8	1.712E+08	2.635E+07	2.886E+06	2.004E+08	0.000E+00	1.799E+03	1.437E+07
25	58.25	43.55	399.2	142.6	256.6	237.0	1.745E+08	2.639E+07	3.089E+06	2.039E+08	0.000E+00	7.262E+03	1.529E+07

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

REVISIONS

E&TS DEPARTMENT

CALCULATION SHEET

Project or DCP/FCN SONGS 2 & 3 Calc. No. N-4080-027

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Subject Containment P/T Analysis for Design Basis MSLB Events

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REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

TABLE 9.1-17 (cont.): CASE 16 - 8.10 sq ft Slot MSLB @ 80% Power with MSIV Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
26	58.91	44.21	400.2	142.5	257.7	238.2	1.777E+08	2.642E+07	3.296E+06	2.074E+08	0.000E+00	1.570E+04	1.621E+07
27	59.55	44.85	401.0	142.2	258.8	239.3	1.807E+08	2.644E+07	3.505E+06	2.107E+08	0.000E+00	2.640E+04	1.714E+07
28	60.16	45.46	401.7	141.9	259.8	240.3	1.837E+08	2.646E+07	3.715E+06	2.139E+08	0.000E+00	3.939E+04	1.808E+07
29	60.74	46.04	402.2	141.5	260.7	241.3	1.866E+08	2.647E+07	3.927E+06	2.170E+08	0.000E+00	5.471E+04	1.901E+07
30	61.30	46.60	402.5	140.9	261.6	242.2	1.895E+08	2.648E+07	4.140E+06	2.201E+08	0.000E+00	7.239E+04	1.995E+07
31	61.84	47.14	402.6	140.2	262.4	243.1	1.923E+08	2.649E+07	4.354E+06	2.231E+08	0.000E+00	9.354E+04	2.088E+07
32	62.35	47.65	402.5	139.3	263.2	244.0	1.950E+08	2.649E+07	4.569E+06	2.260E+08	0.000E+00	1.193E+05	2.181E+07
33	62.84	48.14	402.3	138.2	264.0	244.8	1.976E+08	2.648E+07	4.784E+06	2.289E+08	0.000E+00	1.497E+05	2.274E+07
34	63.31	48.61	401.8	137.0	264.8	245.6	2.002E+08	2.646E+07	4.999E+06	2.317E+08	0.000E+00	1.847E+05	2.367E+07
35	63.75	49.05	401.1	135.5	265.5	246.3	2.028E+08	2.644E+07	5.214E+06	2.344E+08	0.000E+00	2.244E+05	2.460E+07
36	64.17	49.47	400.2	134.0	266.2	247.0	2.053E+08	2.641E+07	5.429E+06	2.371E+08	0.000E+00	2.672E+05	2.552E+07
37	64.57	49.87	399.3	132.4	266.9	247.7	2.077E+08	2.638E+07	5.644E+06	2.397E+08	0.000E+00	3.114E+05	2.643E+07
38	64.96	50.26	398.3	130.8	267.5	248.3	2.101E+08	2.635E+07	5.859E+06	2.423E+08	0.000E+00	3.569E+05	2.734E+07
39	65.33	50.63	397.3	129.2	268.1	249.0	2.124E+08	2.632E+07	6.073E+06	2.448E+08	0.000E+00	4.038E+05	2.824E+07
40	65.69	50.99	396.2	127.6	268.6	249.6	2.147E+08	2.629E+07	6.286E+06	2.473E+08	0.000E+00	4.520E+05	2.914E+07
41	66.03	51.33	395.1	125.9	269.1	250.2	2.169E+08	2.625E+07	6.498E+06	2.496E+08	0.000E+00	5.012E+05	3.003E+07
42	66.36	51.66	393.9	124.2	269.6	250.7	2.191E+08	2.622E+07	6.709E+06	2.520E+08	0.000E+00	5.514E+05	3.091E+07
43	66.68	51.98	392.7	122.5	270.1	251.2	2.212E+08	2.618E+07	6.919E+06	2.543E+08	0.000E+00	6.024E+05	3.179E+07
44	67.00	52.30	391.4	120.8	270.6	251.8	2.233E+08	2.614E+07	7.127E+06	2.566E+08	0.000E+00	6.543E+05	3.265E+07
45	67.31	52.61	390.2	119.1	271.1	252.3	2.254E+08	2.610E+07	7.335E+06	2.589E+08	0.000E+00	7.070E+05	3.351E+07
50	68.23	53.53	377.4	104.5	272.9	254.5	2.351E+08	2.570E+07	8.354E+06	2.692E+08	4.470E+03	1.147E+06	3.769E+07
55	68.51	53.81	359.0	85.0	274.0	256.4	2.438E+08	2.513E+07	9.388E+06	2.783E+08	2.290E+05	1.734E+06	4.164E+07
60	68.57	53.87	341.4	66.6	274.8	258.0	2.514E+08	2.459E+07	1.038E+07	2.864E+08	4.553E+05	2.285E+06	4.535E+07
65	67.63	52.93	322.3	48.0	274.2	259.3	2.540E+08	2.401E+07	1.132E+07	2.893E+08	6.823E+05	2.797E+06	4.884E+07
70	65.44	50.74	300.3	28.3	272.1	260.2	2.512E+08	2.333E+07	1.217E+07	2.867E+08	9.063E+05	3.263E+06	5.196E+07
75	63.29	48.59	278.7	8.8	270.0	260.8	2.484E+08	2.267E+07	1.294E+07	2.840E+08	1.127E+06	3.681E+06	5.474E+07
80	62.00	47.30	268.8	0.2	268.6	261.4	2.452E+08	2.238E+07	1.400E+07	2.815E+08	1.344E+06	4.058E+06	5.724E+07
85	61.34	46.64	267.8	0.1	267.7	261.9	2.417E+08	2.234E+07	1.529E+07	2.793E+08	1.559E+06	4.429E+06	5.955E+07
90	60.71	46.01	266.9	0.0	266.9	262.2	2.383E+08	2.232E+07	1.654E+07	2.772E+08	1.772E+06	4.796E+06	6.170E+07
95	60.12	45.42	266.0	0.1	265.9	262.4	2.351E+08	2.229E+07	1.775E+07	2.752E+08	1.984E+06	5.162E+06	6.371E+07
100	59.60	44.90	265.2	0.1	265.1	262.6	2.323E+08	2.212E+07	1.887E+07	2.733E+08	2.195E+06	5.525E+06	6.559E+07
110	58.52	43.82	263.6	0.1	263.5	262.6	2.265E+08	2.222E+07	2.113E+07	2.699E+08	2.611E+06	6.245E+06	6.904E+07
120	57.68	42.98	262.3	0.1	262.2	262.5	2.214E+08	2.218E+07	2.324E+07	2.668E+08	3.023E+06	6.956E+06	7.211E+07
130	56.80	42.10	261.0	0.1	260.9	262.3	2.167E+08	2.214E+07	2.524E+07	2.641E+08	3.430E+06	7.658E+06	7.487E+07
140	56.00	41.30	259.7	0.0	259.7	262.0	2.124E+08	2.210E+07	2.716E+07	2.616E+08	3.832E+06	8.353E+06	7.735E+07
150	55.25	40.55	258.5	0.1	258.4	261.6	2.083E+08	2.206E+07	2.899E+07	2.594E+08	4.230E+06	9.040E+06	7.960E+07
160	54.56	39.86	257.4	0.1	257.2	261.2	2.046E+08	2.203E+07	3.076E+07	2.574E+08	4.624E+06	9.718E+06	8.165E+07
170	53.91	39.21	256.3	0.1	256.1	260.8	2.011E+08	2.200E+07	3.247E+07	2.555E+08	5.013E+06	1.039E+07	8.351E+07
180	53.30	38.60	255.2	0.1	255.1	260.3	1.978E+08	2.196E+07	3.412E+07	2.539E+08	5.399E+06	1.105E+07	8.522E+07
190	52.82	38.12	254.4	0.1	254.3	259.9	1.947E+08	2.194E+07	3.573E+07	2.523E+08	5.782E+06	1.171E+07	8.680E+07
200	52.27	37.57	253.5	0.1	253.3	259.4	1.917E+08	2.191E+07	3.730E+07	2.509E+08	6.161E+06	1.236E+07	8.826E+07
210	51.74	37.04	252.6	0.1	252.5	258.9	1.889E+08	2.188E+07	3.882E+07	2.496E+08	6.537E+06	1.300E+07	8.960E+07
220	51.25	36.55	251.7	0.1	251.6	258.4	1.862E+08	2.185E+07	4.031E+07	2.484E+08	6.910E+06	1.363E+07	9.086E+07

TABLE 9.1-17 (cont.): CASE 16 - 8.10 sq ft Slot MSLB @ 80% Power with MSIV Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
230	50.77	36.07	250.8	0.0	250.8	257.9	1.836E+08	2.183E+07	4.176E+07	2.472E+08	7.280E+06	1.426E+07	9.202E+07
240	50.32	35.62	250.0	0.0	250.0	257.3	1.812E+08	2.180E+07	4.318E+07	2.462E+08	7.647E+06	1.487E+07	9.311E+07
250	49.88	35.18	249.2	0.1	249.1	256.8	1.788E+08	2.178E+07	4.457E+07	2.452E+08	8.012E+06	1.548E+07	9.414E+07
260	49.46	34.76	248.4	0.1	248.3	256.3	1.765E+08	2.175E+07	4.593E+07	2.442E+08	8.373E+06	1.608E+07	9.511E+07
270	49.05	34.35	247.7	0.2	247.5	255.7	1.743E+08	2.173E+07	4.728E+07	2.433E+08	8.731E+06	1.668E+07	9.604E+07
280	48.65	33.95	246.9	-0.2	246.7	255.2	1.722E+08	2.171E+07	4.860E+07	2.425E+08	9.087E+06	1.727E+07	9.692E+07
290	48.27	33.57	246.2	0.2	246.0	254.6	1.701E+08	2.169E+07	4.991E+07	2.417E+08	9.440E+06	1.785E+07	9.776E+07
300	47.90	33.20	245.5	0.2	245.3	254.1	1.681E+08	2.166E+07	5.119E+07	2.409E+08	9.790E+06	1.843E+07	9.857E+07
350	46.26	31.56	242.2	0.1	242.1	251.4	1.587E+08	2.156E+07	5.737E+07	2.377E+08	1.151E+07	2.123E+07	1.021E+08
400	44.73	30.03	239.1	0.1	239.0	248.7	1.505E+08	2.147E+07	6.319E+07	2.351E+08	1.317E+07	2.390E+07	1.050E+08
450	43.37	28.67	236.1	0.3	235.8	246.2	1.431E+08	2.138E+07	6.873E+07	2.332E+08	1.478E+07	2.648E+07	1.073E+08
500	42.19	27.49	233.5	0.3	233.2	243.9	1.363E+08	2.129E+07	7.406E+07	2.316E+08	1.634E+07	2.897E+07	1.093E+08
550	41.02	26.32	230.7	0.2	230.5	241.6	1.299E+08	2.121E+07	7.920E+07	2.303E+08	1.785E+07	3.138E+07	1.110E+08
600	39.93	25.23	228.1	0.0	228.1	239.5	1.240E+08	2.113E+07	8.418E+07	2.293E+08	1.932E+07	3.372E+07	1.126E+08
700	37.97	23.27	223.0	0.4	222.6	235.5	1.134E+08	2.098E+07	9.371E+07	2.280E+08	2.212E+07	3.823E+07	1.150E+08
800	36.31	21.61	218.5	0.4	218.0	231.8	1.040E+08	2.084E+07	1.027E+08	2.276E+08	2.476E+07	4.250E+07	1.168E+08
900	34.77	20.07	213.9	0.1	213.8	228.4	9.566E+07	2.070E+07	1.113E+08	2.277E+08	2.725E+07	4.656E+07	1.182E+08
1000	33.40	18.70	209.6	0.2	209.4	225.3	8.824E+07	2.056E+07	1.196E+08	2.284E+08	2.961E+07	5.043E+07	1.191E+08
1250	30.61	15.91	199.8	0.1	199.7	218.2	7.302E+07	2.021E+07	1.387E+08	2.320E+08	3.494E+07	5.938E+07	1.201E+08
1500	28.51	13.81	191.3	0.1	191.2	212.1	6.160E+07	2.000E+07	1.563E+08	2.379E+08	3.957E+07	6.744E+07	1.194E+08
1750	26.91	12.21	184.0	0.1	183.9	206.7	5.295E+07	1.978E+07	1.727E+08	2.454E+08	4.364E+07	7.477E+07	1.178E+08
2000	25.30	10.60	175.7	0.4	175.3	201.9	4.437E+07	1.950E+07	1.880E+08	2.519E+08	4.717E+07	8.142E+07	1.157E+08
2500	22.79	8.09	160.0	0.1	159.9	193.1	3.140E+07	1.902E+07	2.158E+08	2.662E+08	5.268E+07	9.258E+07	1.109E+08
3000	21.24	6.54	147.8	0.3	147.4	185.4	2.362E+07	1.866E+07	2.405E+08	2.827E+08	5.658E+07	1.014E+08	1.056E+08
3500	20.31	5.61	139.0	0.1	138.8	178.7	1.906E+07	1.838E+07	2.630E+08	3.004E+08	5.941E+07	1.084E+08	1.001E+08
4000	19.74	5.04	132.8	-0.0	132.8	172.9	1.632E+07	1.819E+07	2.840E+08	3.185E+08	6.158E+07	1.142E+08	9.483E+07
4500	19.37	4.67	128.8	0.9	127.9	167.9	1.452E+07	1.807E+07	3.041E+08	3.367E+08	6.329E+07	1.192E+08	8.994E+07
5000	19.11	4.41	126.0	1.8	124.2	163.5	1.308E+07	1.799E+07	3.237E+08	3.548E+08	6.467E+07	1.236E+08	8.554E+07

slbrslt1.wb2

TABLE 9.1-18: SUMMARY OF HEAT SINK RESULTS FOR CASE 16

Time (sec)	Heat Sink Surface Temperatures (F)				Uchida Cond. HTC (B/hr-ft2-F)
	HS #2 Liner Plate	HS #10 - Sec Shield Wall	HS #18 - CS Th <= 0.5"	HS #19 - Elec & Galv CS	
0.0	118.4	120.0	120.0	119.9	2.00
1	119.5	121.2	121.0	120.0	11.65
5	130.7	144.5	132.1	123.2	27.74
10	144.3	171.9	145.5	133.1	43.42
15	156.4	191.8	157.5	147.6	55.67
20	165.9	204.8	167.0	164.1	62.76
30	183.7	223.5	185.2	197.1	78.10
40	197.5	235.0	199.8	224.6	87.17
50	208.6	242.5	211.9	244.7	93.37
60	217.1	246.8	221.7	257.9	97.99
70	222.1	246.9	228.0	265.3	99.43
80	224.9	245.1	232.2	267.4	97.97
90	227.5	244.5	236.2	267.5	96.37
100	229.5	243.8	239.4	267.5	94.85
120	232.3	242.6	244.3	267.4	92.04
140	233.8	241.3	247.4	267.3	89.44
160	234.5	240.0	249.2	267.1	87.02
180	234.6	238.7	250.2	266.8	84.76
200	234.6	237.6	250.6	266.5	82.60
250	233.4	234.8	250.1	265.7	77.53
300	231.5	232.0	250.0	264.6	72.72
400	227.3	226.9	249.6	262.1	63.34
500	223.1	222.4	248.9	259.3	58.63
600	219.2	218.2	248.1	256.1	53.91
800	211.2	209.8	245.8	249.2	44.86
1000	204.1	202.4	242.9	241.8	38.96
1500	191.3	188.1	233.9	222.9	28.39
2000	177.9	175.8	223.5	205.2	23.03
3000	162.5	158.4	199.7	172.5	15.95
4000	152.9	149.3	177.2	148.6	12.40
5000	146.3	143.4	159.3	134.5	9.89

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Subject Containment P/T Analysis for Design Basis MSLB Events

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REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

TABLE 9.1-19: SUMMARY OF RESULTS FOR CASE 7 - 8.85 sq ft Slot MSLB @ 102% Power with MSIV Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
0.0	16.80	2.10	120.0	88.0	32.0	120.0	5.962E+05	1.781E+07	8.800E+01	1.841E+07	0.000E+00	0.000E+00	0.000E+00
0.1	17.27	2.57	127.5	60.5	67.0	120.2	2.315E+06	1.804E+07	8.819E+01	2.035E+07	0.000E+00	0.000E+00	8.440E+01
0.2	17.72	3.02	134.6	50.9	83.7	120.2	3.981E+06	1.826E+07	8.815E+01	2.224E+07	0.000E+00	0.000E+00	3.931E+02
0.3	18.15	3.45	141.3	46.4	94.8	120.2	5.606E+06	1.846E+07	8.812E+01	2.407E+07	0.000E+00	0.000E+00	9.271E+02
0.4	18.58	3.88	147.6	44.0	103.6	120.1	7.198E+06	1.866E+07	8.809E+01	2.585E+07	0.000E+00	0.000E+00	1.674E+03
0.5	18.99	4.29	153.6	43.1	110.5	120.1	8.762E+06	1.884E+07	8.807E+01	2.760E+07	0.000E+00	0.000E+00	2.622E+03
0.6	19.40	4.70	159.4	42.9	116.5	120.1	1.030E+07	1.902E+07	8.805E+01	2.932E+07	0.000E+00	0.000E+00	3.763E+03
0.7	19.80	5.10	165.0	43.1	121.9	120.8	1.182E+07	1.919E+07	1.514E+02	3.101E+07	0.000E+00	0.000E+00	5.103E+03
0.8	20.19	5.49	170.3	44.1	126.2	123.2	1.331E+07	1.935E+07	3.342E+02	3.267E+07	0.000E+00	0.000E+00	6.960E+03
0.9	20.58	5.88	175.5	45.0	130.5	125.8	1.479E+07	1.951E+07	6.010E+02	3.430E+07	0.000E+00	0.000E+00	9.601E+03
1.0	20.96	6.26	180.4	46.1	134.4	128.5	1.625E+07	1.967E+07	9.718E+02	3.591E+07	0.000E+00	0.000E+00	1.317E+04
1.2	21.71	7.01	189.8	48.7	141.1	133.5	1.911E+07	1.995E+07	2.042E+03	3.907E+07	0.000E+00	0.000E+00	2.313E+04
1.4	22.43	7.73	198.6	52.0	146.6	137.9	2.192E+07	2.022E+07	3.573E+03	4.214E+07	0.000E+00	0.000E+00	3.679E+04
1.6	23.14	8.44	206.8	54.8	152.0	141.9	2.466E+07	2.048E+07	5.578E+03	4.514E+07	0.000E+00	0.000E+00	5.395E+04
1.8	23.82	9.12	214.5	57.9	156.5	145.5	2.734E+07	2.071E+07	8.065E+03	4.806E+07	0.000E+00	0.000E+00	7.450E+04
2.0	24.49	9.79	221.7	60.9	160.8	148.8	2.995E+07	2.093E+07	1.105E+04	5.089E+07	0.000E+00	0.000E+00	9.834E+04
2.2	25.14	10.44	228.4	63.9	164.6	151.9	3.251E+07	2.114E+07	1.459E+04	5.367E+07	0.000E+00	0.000E+00	1.258E+05
2.4	25.78	11.08	234.8	66.8	168.1	154.8	3.503E+07	2.134E+07	1.866E+04	5.639E+07	0.000E+00	0.000E+00	1.565E+05
2.6	26.40	11.70	240.9	69.6	171.3	157.5	3.751E+07	2.152E+07	2.324E+04	5.905E+07	0.000E+00	0.000E+00	1.903E+05
2.8	27.01	12.31	246.7	72.5	174.1	160.0	3.994E+07	2.170E+07	2.832E+04	6.167E+07	0.000E+00	0.000E+00	2.270E+05
3	27.60	12.90	252.1	75.2	176.9	162.3	4.232E+07	2.187E+07	3.392E+04	6.422E+07	0.000E+00	0.000E+00	2.668E+05
4	30.42	15.72	275.8	86.7	189.1	172.5	5.373E+07	2.259E+07	6.998E+04	7.639E+07	0.000E+00	0.000E+00	5.090E+05
5	33.02	18.32	295.0	96.3	198.7	180.8	6.439E+07	2.318E+07	1.195E+05	8.770E+07	0.000E+00	0.000E+00	8.204E+05
6	35.45	20.75	310.9	104.4	206.5	187.7	7.450E+07	2.367E+07	1.828E+05	9.836E+07	0.000E+00	0.000E+00	1.198E+06
7	37.76	23.06	324.5	111.1	213.5	193.8	8.419E+07	2.409E+07	2.611E+05	1.085E+08	0.000E+00	0.000E+00	1.645E+06
8	39.96	25.26	336.3	117.3	219.0	199.1	9.352E+07	2.446E+07	3.532E+05	1.183E+08	0.000E+00	0.000E+00	2.155E+06
9	42.06	27.36	346.6	122.2	224.4	203.9	1.024E+08	2.477E+07	4.598E+05	1.277E+08	0.000E+00	0.000E+00	2.727E+06
10	44.02	29.32	355.4	126.2	229.2	208.2	1.109E+08	2.504E+07	5.798E+05	1.365E+08	0.000E+00	0.000E+00	3.353E+06
11	45.81	31.11	362.8	129.8	233.0	212.0	1.188E+08	2.527E+07	7.121E+05	1.446E+08	0.000E+00	0.000E+00	4.029E+06
12	47.43	32.73	369.1	132.6	236.5	215.5	1.256E+08	2.546E+07	8.574E+05	1.520E+08	0.000E+00	0.000E+00	4.757E+06
13	48.89	34.19	374.3	134.6	239.7	218.7	1.320E+08	2.562E+07	1.014E+06	1.586E+08	0.000E+00	0.000E+00	5.528E+06
14	50.23	35.53	378.8	136.6	242.2	221.5	1.379E+08	2.576E+07	1.179E+06	1.648E+08	0.000E+00	0.000E+00	6.332E+06
15	51.46	36.76	382.8	138.3	244.5	224.0	1.433E+08	2.588E+07	1.352E+06	1.706E+08	0.000E+00	0.000E+00	7.161E+06
16	52.62	37.92	386.3	139.6	246.7	226.3	1.485E+08	2.599E+07	1.531E+06	1.760E+08	0.000E+00	0.000E+00	8.011E+06
17	53.71	39.01	389.4	140.7	248.8	228.4	1.534E+08	2.609E+07	1.716E+06	1.812E+08	0.000E+00	0.000E+00	8.880E+06
18	54.71	40.01	392.1	141.5	250.6	230.3	1.580E+08	2.617E+07	1.905E+06	1.861E+08	0.000E+00	0.000E+00	9.762E+06
19	55.68	40.98	394.6	142.4	252.2	232.1	1.624E+08	2.624E+07	2.101E+06	1.907E+08	0.000E+00	0.000E+00	1.066E+07
20	56.60	41.90	396.8	143.1	253.7	233.8	1.666E+08	2.631E+07	2.302E+06	1.952E+08	0.000E+00	0.000E+00	1.158E+07
21	57.48	42.78	398.9	143.7	255.2	235.3	1.705E+08	2.638E+07	2.508E+06	1.994E+08	0.000E+00	0.000E+00	1.252E+07
22	58.32	43.62	400.7	144.1	256.6	236.8	1.744E+08	2.643E+07	2.719E+06	2.035E+08	0.000E+00	0.000E+00	1.347E+07
23	59.12	44.42	402.5	144.5	258.0	238.2	1.780E+08	2.649E+07	2.933E+06	2.075E+08	0.000E+00	0.000E+00	1.443E+07
24	59.89	45.19	404.0	144.7	259.3	239.5	1.816E+08	2.653E+07	3.151E+06	2.113E+08	0.000E+00	1.886E+03	1.540E+07
25	60.62	45.92	405.2	144.8	260.4	240.7	1.851E+08	2.657E+07	3.371E+06	2.150E+08	0.000E+00	7.612E+03	1.637E+07

TABLE 9.1-19 (cont.): SUMMARY OF RESULTS FOR CASE 7 - 8.85 sq ft Slot MSLB @ 102% Power with MSIV Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
26	61.32	46.62	406.2	144.7	261.4	241.8	1.884E+08	2.660E+07	3.594E+06	2.186E+08	0.000E+00	1.646E+04	1.735E+07
27	61.99	47.29	407.0	144.5	262.5	242.9	1.917E+08	2.662E+07	3.817E+06	2.221E+08	0.000E+00	2.767E+04	1.833E+07
28	62.63	47.93	407.6	144.1	263.5	243.9	1.948E+08	2.664E+07	4.043E+06	2.255E+08	0.000E+00	4.129E+04	1.931E+07
29	63.25	48.55	408.0	143.6	264.4	244.9	1.979E+08	2.666E+07	4.269E+06	2.288E+08	0.000E+00	5.735E+04	2.029E+07
30	63.85	49.15	408.4	143.0	265.4	245.8	2.009E+08	2.666E+07	4.496E+06	2.320E+08	0.000E+00	7.589E+04	2.127E+07
31	64.41	49.71	408.5	142.2	266.3	246.7	2.038E+08	2.667E+07	4.724E+06	2.352E+08	0.000E+00	9.807E+04	2.225E+07
32	64.95	50.25	408.4	141.3	267.1	247.6	2.067E+08	2.666E+07	4.952E+06	2.383E+08	0.000E+00	1.251E+05	2.322E+07
33	65.46	50.76	408.1	140.3	267.9	248.4	2.094E+08	2.666E+07	5.180E+06	2.413E+08	0.000E+00	1.568E+05	2.419E+07
34	65.95	51.25	407.6	139.1	268.5	249.1	2.121E+08	2.664E+07	5.407E+06	2.442E+08	0.000E+00	1.933E+05	2.516E+07
35	66.41	51.71	406.9	137.7	269.2	249.9	2.148E+08	2.662E+07	5.634E+06	2.470E+08	0.000E+00	2.345E+05	2.612E+07
36	66.84	52.14	406.1	136.2	269.8	250.5	2.173E+08	2.659E+07	5.861E+06	2.498E+08	0.000E+00	2.788E+05	2.707E+07
37	67.26	52.56	405.2	134.7	270.4	251.2	2.198E+08	2.656E+07	6.086E+06	2.525E+08	0.000E+00	3.244E+05	2.801E+07
38	67.66	52.96	404.2	133.2	271.0	251.8	2.223E+08	2.653E+07	6.311E+06	2.551E+08	0.000E+00	3.715E+05	2.895E+07
39	68.04	53.34	403.2	131.6	271.6	252.5	2.246E+08	2.650E+07	6.534E+06	2.577E+08	0.000E+00	4.199E+05	2.988E+07
40	68.43	53.73	402.1	130.0	272.2	253.0	2.271E+08	2.647E+07	6.757E+06	2.603E+08	0.000E+00	4.696E+05	3.080E+07
41	68.81	54.11	401.1	128.3	272.7	253.6	2.295E+08	2.644E+07	6.979E+06	2.629E+08	0.000E+00	5.205E+05	3.171E+07
42	69.15	54.45	399.9	126.6	273.2	254.2	2.317E+08	2.640E+07	7.199E+06	2.653E+08	0.000E+00	5.722E+05	3.262E+07
43	69.47	54.77	398.7	124.9	273.7	254.7	2.338E+08	2.636E+07	7.418E+06	2.676E+08	0.000E+00	6.248E+05	3.352E+07
44	69.77	55.07	397.4	123.2	274.2	255.2	2.359E+08	2.632E+07	7.636E+06	2.698E+08	0.000E+00	6.782E+05	3.441E+07
45	70.07	55.37	396.1	121.4	274.7	255.7	2.379E+08	2.628E+07	7.852E+06	2.721E+08	0.000E+00	7.324E+05	3.529E+07
50	71.01	56.31	383.6	107.2	276.5	257.8	2.477E+08	2.589E+07	8.910E+06	2.825E+08	4.597E+03	1.185E+06	3.956E+07
55	70.22	55.52	363.2	87.0	276.2	259.7	2.516E+08	2.526E+07	9.973E+06	2.868E+08	2.350E+05	1.788E+06	4.356E+07
60	67.91	53.21	339.9	66.0	273.9	261.0	2.483E+08	2.455E+07	1.093E+07	2.837E+08	4.624E+05	2.341E+06	4.713E+07
65	65.67	50.97	317.2	45.4	271.7	261.8	2.450E+08	2.385E+07	1.178E+07	2.807E+08	6.859E+05	2.845E+06	5.030E+07
70	63.48	48.78	294.7	25.1	269.6	262.3	2.422E+08	2.316E+07	1.255E+07	2.779E+08	9.056E+05	3.298E+06	5.313E+07
75	61.36	46.66	272.9	5.4	267.6	262.6	2.397E+08	2.244E+07	1.324E+07	2.754E+08	1.122E+06	3.702E+06	5.567E+07
80	60.37	45.67	266.4	0.1	266.3	262.9	2.365E+08	2.231E+07	1.436E+07	2.731E+08	1.334E+06	4.070E+06	5.797E+07
85	59.75	45.05	265.5	0.1	265.4	263.0	2.332E+08	2.226E+07	1.560E+07	2.710E+08	1.545E+06	4.435E+06	6.012E+07
90	59.17	44.47	264.6	0.1	264.5	263.1	2.300E+08	2.221E+07	1.678E+07	2.690E+08	1.755E+06	4.796E+06	6.214E+07
95	58.60	43.90	263.7	0.1	263.6	263.1	2.270E+08	2.222E+07	1.795E+07	2.672E+08	1.963E+06	5.155E+06	6.402E+07
100	58.18	43.48	263.1	0.1	263.0	263.0	2.241E+08	2.220E+07	1.907E+07	2.654E+08	2.169E+06	5.512E+06	6.580E+07
110	57.18	42.48	261.6	0.1	261.5	262.8	2.188E+08	2.216E+07	2.121E+07	2.621E+08	2.578E+06	6.219E+06	6.907E+07
120	56.28	41.58	260.1	0.0	260.1	262.4	2.139E+08	2.211E+07	2.325E+07	2.593E+08	2.982E+06	6.917E+06	7.198E+07
130	55.45	40.75	258.8	0.0	258.8	262.0	2.094E+08	2.207E+07	2.518E+07	2.567E+08	3.382E+06	7.606E+06	7.460E+07
140	54.68	39.98	257.6	0.1	257.5	261.5	2.053E+08	2.203E+07	2.703E+07	2.543E+08	3.776E+06	8.286E+06	7.695E+07
150	53.98	39.28	256.4	0.1	256.3	261.0	2.015E+08	2.191E+07	2.879E+07	2.522E+08	4.167E+06	8.958E+06	7.909E+07
160	53.30	38.60	255.3	0.1	255.1	260.5	1.978E+08	2.196E+07	3.052E+07	2.503E+08	4.553E+06	9.622E+06	8.104E+07
170	52.77	38.07	254.4	0.1	254.2	260.0	1.945E+08	2.194E+07	3.219E+07	2.486E+08	4.935E+06	1.028E+07	8.282E+07
180	52.18	37.48	253.3	0.1	253.2	259.4	1.913E+08	2.191E+07	3.379E+07	2.470E+08	5.314E+06	1.093E+07	8.446E+07
190	51.63	36.93	252.4	0.1	252.3	258.9	1.883E+08	2.188E+07	3.535E+07	2.455E+08	5.689E+06	1.157E+07	8.598E+07
200	51.10	36.40	251.4	0.1	251.4	258.3	1.855E+08	2.185E+07	3.687E+07	2.442E+08	6.062E+06	1.220E+07	8.737E+07
210	50.60	35.90	250.5	0.0	250.5	257.7	1.827E+08	2.182E+07	3.835E+07	2.429E+08	6.431E+06	1.282E+07	8.867E+07
220	50.12	35.42	249.7	0.1	249.6	257.1	1.802E+08	2.179E+07	3.979E+07	2.417E+08	6.797E+06	1.343E+07	8.987E+07

TABLE 9.1-19 (cont.): SUMMARY OF RESULTS FOR CASE 7 - 8.85 sq ft Slot MSLB @ 102% Power with MSIV Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
230	49.66	34.96	248.8	0.1	248.7	256.5	1.777E+08	2.177E+07	4.120E+07	2.407E+08	7.160E+06	1.404E+07	9.098E+07
240	49.23	34.53	248.0	0.1	247.9	255.9	1.753E+08	2.174E+07	4.257E+07	2.397E+08	7.519E+06	1.464E+07	9.202E+07
250	48.81	34.11	247.2	0.2	247.0	255.3	1.731E+08	2.172E+07	4.393E+07	2.387E+08	7.876E+06	1.523E+07	9.301E+07
260	48.40	33.70	246.4	0.2	246.2	254.7	1.709E+08	2.169E+07	4.526E+07	2.378E+08	8.230E+06	1.581E+07	9.394E+07
270	48.01	33.31	245.7	0.2	245.5	254.1	1.687E+08	2.167E+07	4.657E+07	2.370E+08	8.581E+06	1.639E+07	9.484E+07
280	47.71	33.01	245.1	0.2	244.9	253.5	1.666E+08	2.165E+07	4.787E+07	2.362E+08	8.930E+06	1.696E+07	9.569E+07
290	47.34	32.64	244.4	0.2	244.2	252.9	1.646E+08	2.163E+07	4.914E+07	2.354E+08	9.277E+06	1.753E+07	9.651E+07
300	46.98	32.28	243.7	0.2	243.5	252.3	1.627E+08	2.161E+07	5.039E+07	2.347E+08	9.621E+06	1.809E+07	9.729E+07
350	45.31	30.61	240.3	0.0	240.2	249.5	1.536E+08	2.150E+07	5.642E+07	2.315E+08	1.131E+07	2.081E+07	1.007E+08
400	43.83	29.13	237.1	0.2	236.9	246.7	1.456E+08	2.141E+07	6.210E+07	2.292E+08	1.293E+07	2.342E+07	1.035E+08
450	42.51	27.81	234.2	0.3	233.9	244.2	1.385E+08	2.132E+07	6.753E+07	2.273E+08	1.451E+07	2.594E+07	1.057E+08
500	41.36	26.66	231.5	0.2	231.3	241.8	1.318E+08	2.124E+07	7.276E+07	2.258E+08	1.603E+07	2.838E+07	1.077E+08
550	40.23	25.53	228.8	0.1	228.7	239.5	1.256E+08	2.115E+07	7.781E+07	2.246E+08	1.751E+07	3.074E+07	1.094E+08
600	39.17	24.47	226.2	0.2	226.0	237.4	1.199E+08	2.107E+07	8.270E+07	2.237E+08	1.895E+07	3.304E+07	1.108E+08
700	37.27	22.57	221.2	0.5	220.7	233.4	1.096E+08	2.092E+07	9.205E+07	2.226E+08	2.169E+07	3.745E+07	1.132E+08
800	35.66	20.96	216.6	0.3	216.3	229.7	1.005E+08	2.078E+07	1.009E+08	2.222E+08	2.427E+07	4.164E+07	1.149E+08
900	34.17	19.47	212.1	0.1	212.0	226.3	9.243E+07	2.064E+07	1.094E+08	2.225E+08	2.670E+07	4.562E+07	1.162E+08
1000	32.84	18.14	207.8	0.3	207.5	223.2	8.527E+07	2.051E+07	1.175E+08	2.233E+08	2.900E+07	4.941E+07	1.171E+08
1250	30.14	15.44	198.0	0.1	197.9	216.2	7.053E+07	2.021E+07	1.364E+08	2.271E+08	3.419E+07	5.819E+07	1.179E+08
1500	28.13	13.43	189.7	0.2	189.5	210.1	5.964E+07	1.995E+07	1.537E+08	2.333E+08	3.871E+07	6.609E+07	1.172E+08
1750	26.59	11.89	182.5	0.0	182.5	204.8	5.132E+07	1.973E+07	1.699E+08	2.409E+08	4.266E+07	7.328E+07	1.155E+08
2000	25.03	10.33	174.2	0.3	173.9	200.0	4.302E+07	1.946E+07	1.851E+08	2.475E+08	4.610E+07	7.980E+07	1.134E+08
2500	22.60	7.90	158.7	0.2	158.5	191.3	3.049E+07	1.900E+07	2.125E+08	2.620E+08	5.144E+07	9.072E+07	1.087E+08
3000	21.12	6.42	146.8	0.3	146.4	183.7	2.304E+07	1.863E+07	2.369E+08	2.786E+08	5.521E+07	9.932E+07	1.033E+08
3500	20.23	5.53	138.2	0.2	138.0	177.1	1.870E+07	1.835E+07	2.592E+08	2.963E+08	5.796E+07	1.062E+08	9.791E+07
4000	19.68	4.98	132.2	0.1	132.1	171.4	1.606E+07	1.817E+07	2.802E+08	3.144E+08	6.006E+07	1.119E+08	9.271E+07
4500	19.33	4.63	128.4	0.9	127.4	166.5	1.432E+07	1.806E+07	3.002E+08	3.326E+08	6.172E+07	1.168E+08	8.790E+07
5000	19.07	4.37	125.6	1.8	123.7	162.3	1.293E+07	1.797E+07	3.197E+08	3.506E+08	6.307E+07	1.212E+08	8.357E+07

slbrslt1.wb2

TABLE 9.1-20: SUMMARY OF HEAT SINK RESULTS FOR CASE 7

Time (sec)	Heat Sink Surface Temperatures (F)				Uchida Cond. HTC (B/hr-ft2-F)
	HS #2 Liner Plate	HS #10 - Sec Shield Wall	HS #18 - CS Th <= 0.5"	HS #19 - Elec & Galv CS	
0.0	118.4	120.0	120.0	119.9	2.00
1	119.6	121.4	121.1	120.0	12.17
5	131.4	145.9	132.8	123.4	28.54
10	146.2	175.1	147.4	134.1	45.48
15	159.0	195.8	160.1	149.9	58.73
20	169.4	209.3	170.5	167.5	67.75
30	187.5	227.9	189.0	202.2	82.28
40	201.3	239.0	203.7	230.1	90.71
50	212.4	246.3	215.8	249.9	96.35
60	218.4	247.0	223.2	261.7	97.30
70	221.8	245.0	228.0	266.3	96.76
80	224.3	243.2	232.0	266.9	95.93
90	226.6	242.5	235.6	266.9	94.34
100	228.5	241.9	238.7	266.9	92.78
120	230.9	240.6	243.1	266.8	89.90
140	232.1	239.3	245.9	266.6	87.24
160	232.7	237.9	247.6	266.3	84.78
180	232.8	236.8	248.5	266.1	82.44
200	232.7	235.6	248.8	265.7	80.22
250	231.4	232.7	248.4	264.8	75.01
300	229.5	230.0	248.2	263.7	70.04
400	225.3	224.8	247.8	261.1	61.72
500	221.3	220.5	247.2	258.1	57.02
600	217.3	216.2	246.3	254.9	52.12
800	209.4	207.9	244.0	247.9	43.72
1000	202.3	200.6	241.1	240.4	37.61
1500	189.6	186.7	232.1	221.4	27.88
2000	176.5	174.3	221.7	203.7	22.63
3000	161.5	157.5	198.2	171.2	15.75
4000	152.1	148.6	175.9	147.6	12.22
5000	145.6	142.8	158.3	133.9	9.85

9.2 Results Tables for Equipment Qualification Cases

This Section contains summary results tables for the following cases:

Case 5EQ: 8.85 sq ft Slot MSLB @ 102% Power w/cooling train failure
Case 7EQ: 8.85 sq ft Slot MSLB @ 102% Power w/MSIV failure

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

TABLE 9.2-1: SUMMARY OF RESULTS FOR CASE 5EQ - 8.85 sq ft Slot MSLB @ 102% Power with Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
0.0	13.80	-0.90	120.0	88.0	32.0	120.0	5.962E+05	1.461E+07	8.800E+01	1.467E+07	0.000E+00	0.000E+00	0.000E+00
0.1	14.27	-0.43	129.1	62.1	67.1	120.0	2.316E+06	1.484E+07	8.800E+01	1.716E+07	0.000E+00	0.000E+00	1.009E+02
0.2	14.71	0.01	137.6	53.8	83.9	120.0	3.985E+06	1.506E+07	8.799E+01	1.904E+07	0.000E+00	0.000E+00	4.730E+02
0.3	15.15	0.45	145.6	50.5	95.1	120.0	5.614E+06	1.526E+07	8.799E+01	2.087E+07	0.000E+00	0.000E+00	1.116E+03
0.4	15.57	0.87	153.1	49.3	103.9	120.0	7.211E+06	1.545E+07	8.798E+01	2.266E+07	0.000E+00	0.000E+00	2.012E+03
0.5	15.99	1.29	160.2	49.3	110.9	120.0	8.781E+06	1.563E+07	8.798E+01	2.441E+07	0.000E+00	0.000E+00	3.148E+03
0.6	16.39	1.69	167.0	50.0	117.0	120.0	1.033E+07	1.580E+07	8.798E+01	2.612E+07	0.000E+00	0.000E+00	4.510E+03
0.7	16.79	2.09	173.5	51.1	122.4	121.1	1.185E+07	1.596E+07	1.599E+02	2.781E+07	0.000E+00	0.000E+00	6.120E+03
0.8	17.18	2.48	179.7	52.9	126.8	123.6	1.335E+07	1.612E+07	3.688E+02	2.947E+07	0.000E+00	0.000E+00	8.415E+03
0.9	17.57	2.87	185.6	54.5	131.1	126.4	1.484E+07	1.627E+07	6.763E+02	3.110E+07	0.000E+00	0.000E+00	1.172E+04
1.0	17.95	3.25	191.3	56.4	135.0	129.1	1.630E+07	1.641E+07	1.095E+03	3.271E+07	0.000E+00	0.000E+00	1.610E+04
1.2	18.69	3.99	202.0	60.2	141.9	134.1	1.918E+07	1.668E+07	2.270E+03	3.587E+07	0.000E+00	0.000E+00	2.801E+04
1.4	19.41	4.71	211.9	64.5	147.5	138.4	2.201E+07	1.693E+07	3.905E+03	3.894E+07	0.000E+00	0.000E+00	4.389E+04
1.6	20.11	5.41	221.1	68.1	153.0	142.5	2.477E+07	1.716E+07	6.040E+03	4.193E+07	0.000E+00	0.000E+00	6.368E+04
1.8	20.79	6.09	229.6	72.1	157.4	146.1	2.746E+07	1.737E+07	8.719E+03	4.485E+07	0.000E+00	0.000E+00	8.767E+04
2.0	21.45	6.75	237.5	75.6	161.8	149.5	3.010E+07	1.757E+07	1.193E+04	4.768E+07	0.000E+00	0.000E+00	1.155E+05
2.2	22.09	7.39	244.8	79.3	165.6	152.7	3.268E+07	1.776E+07	1.567E+04	5.045E+07	0.000E+00	0.000E+00	1.470E+05
2.4	22.72	8.02	251.8	82.6	169.2	155.6	3.521E+07	1.793E+07	1.996E+04	5.317E+07	0.000E+00	0.000E+00	1.822E+05
2.6	23.34	8.64	258.3	86.0	172.3	158.3	3.770E+07	1.810E+07	2.480E+04	5.583E+07	0.000E+00	0.000E+00	2.210E+05
2.8	23.94	9.24	264.4	89.2	175.2	160.8	4.015E+07	1.825E+07	3.015E+04	5.843E+07	0.000E+00	0.000E+00	2.631E+05
3	24.53	9.83	270.2	92.1	178.1	163.2	4.255E+07	1.840E+07	3.605E+04	6.099E+07	0.000E+00	0.000E+00	3.085E+05
4	27.30	12.60	294.8	104.4	190.4	173.5	5.403E+07	1.902E+07	7.419E+04	7.312E+07	0.000E+00	0.000E+00	5.869E+05
5	29.85	15.15	314.1	114.2	199.9	181.9	6.474E+07	1.951E+07	1.274E+05	8.437E+07	0.000E+00	0.000E+00	9.495E+05
6	32.22	17.52	329.8	122.1	207.7	189.0	7.486E+07	1.990E+07	1.958E+05	9.495E+07	0.000E+00	0.000E+00	1.394E+06
7	34.44	19.74	342.6	128.2	214.4	195.0	8.444E+07	2.022E+07	2.799E+05	1.049E+08	0.000E+00	0.000E+00	1.917E+06
8	36.52	21.82	353.3	133.4	219.8	200.2	9.347E+07	2.049E+07	3.777E+05	1.143E+08	0.000E+00	0.000E+00	2.506E+06
9	38.42	23.72	362.0	137.1	224.9	204.9	1.019E+08	2.071E+07	4.904E+05	1.231E+08	0.000E+00	0.000E+00	3.166E+06
10	40.07	25.37	368.8	139.7	229.1	209.0	1.092E+08	2.088E+07	6.173E+05	1.307E+08	0.000E+00	0.000E+00	3.890E+06
11	41.49	26.79	374.0	141.8	232.2	212.6	1.156E+08	2.102E+07	7.545E+05	1.374E+08	0.000E+00	0.000E+00	4.659E+06
12	42.81	28.11	378.5	143.3	235.2	215.7	1.216E+08	2.113E+07	9.003E+05	1.436E+08	0.000E+00	0.000E+00	5.462E+06
13	44.04	29.34	382.2	144.3	237.9	218.4	1.272E+08	2.122E+07	1.054E+06	1.495E+08	0.000E+00	0.000E+00	6.295E+06
14	45.19	30.49	385.4	145.0	240.5	220.9	1.325E+08	2.130E+07	1.214E+06	1.550E+08	0.000E+00	0.000E+00	7.156E+06
15	46.26	31.56	388.2	145.7	242.5	223.2	1.375E+08	2.137E+07	1.384E+06	1.603E+08	0.000E+00	0.000E+00	8.052E+06
16	47.28	32.58	390.6	146.1	244.5	225.3	1.423E+08	2.143E+07	1.560E+06	1.653E+08	0.000E+00	0.000E+00	8.977E+06
17	48.24	33.54	392.6	146.2	246.4	227.2	1.468E+08	2.148E+07	1.743E+06	1.700E+08	0.000E+00	0.000E+00	9.925E+06
18	49.14	34.44	394.4	146.2	248.2	229.0	1.511E+08	2.153E+07	1.931E+06	1.746E+08	0.000E+00	0.000E+00	1.089E+07
19	49.96	35.26	395.7	145.9	249.8	230.7	1.552E+08	2.156E+07	2.124E+06	1.789E+08	0.000E+00	0.000E+00	1.187E+07
20	50.77	36.07	396.9	145.7	251.2	232.2	1.592E+08	2.159E+07	2.321E+06	1.831E+08	0.000E+00	0.000E+00	1.286E+07
21	51.55	36.85	398.0	145.5	252.6	233.6	1.629E+08	2.162E+07	2.520E+06	1.871E+08	0.000E+00	0.000E+00	1.388E+07
22	52.29	37.59	399.0	145.1	253.9	235.0	1.666E+08	2.165E+07	2.722E+06	1.910E+08	0.000E+00	0.000E+00	1.487E+07
23	53.01	38.31	399.8	144.7	255.1	236.2	1.701E+08	2.167E+07	2.926E+06	1.947E+08	0.000E+00	0.000E+00	1.588E+07
24	53.70	39.00	400.5	144.2	256.3	237.4	1.736E+08	2.168E+07	3.132E+06	1.984E+08	0.000E+00	1.000E+03	1.689E+07
25	54.37	39.67	401.1	143.6	257.5	238.5	1.769E+08	2.170E+07	3.339E+06	2.019E+08	0.000E+00	4.019E+03	1.790E+07

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

TABLE 9.2-1 (cont.): SUMMARY OF RESULTS FOR CASE 5EQ - 8.85 sq ft Slot MSLB @ 102% Power with Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
26	55.00	40.30	401.4	142.8	258.6	239.6	1.801E+08	2.171E+07	3.547E+06	2.054E+08	0.000E+00	8.653E+03	1.891E+07
27	55.62	40.92	401.7	142.0	259.7	240.6	1.833E+08	2.171E+07	3.756E+06	2.088E+08	0.000E+00	1.449E+04	1.991E+07
28	56.21	41.51	401.8	141.2	260.6	241.5	1.864E+08	2.171E+07	3.965E+06	2.121E+08	0.000E+00	2.154E+04	2.092E+07
29	56.78	42.08	401.8	140.3	261.5	242.4	1.894E+08	2.171E+07	4.175E+06	2.153E+08	0.000E+00	2.980E+04	2.192E+07
30	57.33	42.63	401.7	139.4	262.4	243.3	1.923E+08	2.171E+07	4.384E+06	2.184E+08	0.000E+00	3.927E+04	2.291E+07
31	57.86	43.16	401.6	138.3	263.2	244.1	1.951E+08	2.171E+07	4.593E+06	2.214E+08	0.000E+00	5.052E+04	2.390E+07
32	58.37	43.67	401.3	137.2	264.1	244.9	1.979E+08	2.170E+07	4.802E+06	2.244E+08	0.000E+00	6.414E+04	2.488E+07
33	58.86	44.16	400.8	136.0	264.9	245.6	2.006E+08	2.169E+07	5.010E+06	2.273E+08	0.000E+00	8.012E+04	2.586E+07
34	59.33	44.63	400.3	134.6	265.6	246.3	2.032E+08	2.167E+07	5.217E+06	2.301E+08	0.000E+00	9.845E+04	2.682E+07
35	59.78	45.08	399.6	133.2	266.4	247.0	2.058E+08	2.166E+07	5.424E+06	2.329E+08	0.000E+00	1.191E+05	2.778E+07
36	60.21	45.51	398.9	131.8	267.1	247.7	2.083E+08	2.164E+07	5.630E+06	2.356E+08	0.000E+00	1.413E+05	2.874E+07
37	60.62	45.92	398.1	130.4	267.7	248.3	2.107E+08	2.162E+07	5.835E+06	2.382E+08	0.000E+00	1.641E+05	2.968E+07
38	61.02	46.32	397.2	129.0	268.3	248.9	2.131E+08	2.160E+07	6.039E+06	2.407E+08	0.000E+00	1.875E+05	3.062E+07
39	61.40	46.70	396.4	127.5	268.8	249.5	2.154E+08	2.158E+07	6.243E+06	2.432E+08	0.000E+00	2.116E+05	3.155E+07
40	61.77	47.07	395.5	126.1	269.4	250.1	2.176E+08	2.155E+07	6.446E+06	2.456E+08	0.000E+00	2.364E+05	3.247E+07
41	62.13	47.43	394.5	124.6	269.9	250.6	2.198E+08	2.153E+07	6.648E+06	2.480E+08	0.000E+00	2.618E+05	3.339E+07
42	62.47	47.77	393.6	123.2	270.4	251.1	2.220E+08	2.151E+07	6.850E+06	2.503E+08	0.000E+00	2.873E+05	3.430E+07
43	62.80	48.10	392.6	121.7	270.9	251.6	2.241E+08	2.148E+07	7.050E+06	2.526E+08	0.000E+00	3.134E+05	3.521E+07
44	63.12	48.42	391.6	120.2	271.4	252.1	2.261E+08	2.145E+07	7.250E+06	2.548E+08	0.000E+00	3.398E+05	3.610E+07
45	63.43	48.73	390.5	118.7	271.8	252.6	2.281E+08	2.143E+07	7.448E+06	2.570E+08	0.000E+00	3.667E+05	3.699E+07
50	64.67	49.97	382.2	108.4	273.8	254.7	2.376E+08	2.121E+07	8.420E+06	2.672E+08	2.251E+03	5.913E+05	4.131E+07
55	64.15	49.45	367.6	94.1	273.5	256.5	2.400E+08	2.085E+07	9.372E+06	2.702E+08	1.151E+05	8.955E+05	4.537E+07
60	62.44	47.74	351.0	79.3	271.7	257.8	2.364E+08	2.043E+07	1.022E+07	2.670E+08	2.266E+05	1.182E+06	4.897E+07
65	60.73	46.03	334.6	64.7	269.9	258.6	2.330E+08	2.001E+07	1.097E+07	2.639E+08	3.366E+05	1.450E+06	5.216E+07
70	59.13	44.43	318.8	50.6	268.2	259.2	2.299E+08	1.961E+07	1.164E+07	2.611E+08	4.449E+05	1.700E+06	5.501E+07
75	57.63	42.93	303.4	36.9	266.6	259.6	2.272E+08	1.923E+07	1.225E+07	2.586E+08	5.519E+05	1.933E+06	5.758E+07
80	56.21	41.51	288.4	23.6	264.9	259.8	2.247E+08	1.885E+07	1.281E+07	2.564E+08	6.573E+05	2.149E+06	5.993E+07
85	54.84	40.14	273.8	10.6	263.2	259.9	2.225E+08	1.848E+07	1.332E+07	2.543E+08	7.612E+05	2.349E+06	6.207E+07
90	53.73	39.03	262.1	0.2	261.9	260.0	2.203E+08	1.818E+07	1.385E+07	2.524E+08	8.637E+05	2.534E+06	6.405E+07
95	53.26	38.56	261.3	0.1	261.2	260.1	2.178E+08	1.815E+07	1.465E+07	2.506E+08	9.654E+05	2.712E+06	6.588E+07
100	52.81	38.11	260.6	0.1	260.5	260.1	2.153E+08	1.815E+07	1.542E+07	2.489E+08	1.066E+06	2.890E+06	6.761E+07
110	51.99	37.29	259.2	0.0	259.2	260.0	2.109E+08	1.808E+07	1.687E+07	2.459E+08	1.267E+06	3.242E+06	7.077E+07
120	51.27	36.57	258.1	0.1	258.0	259.9	2.070E+08	1.791E+07	1.819E+07	2.431E+08	1.465E+06	3.593E+06	7.358E+07
130	50.56	35.86	256.9	0.1	256.8	259.6	2.032E+08	1.800E+07	1.950E+07	2.407E+08	1.661E+06	3.940E+06	7.611E+07
140	49.93	35.23	255.8	0.1	255.7	259.4	1.997E+08	1.804E+07	2.071E+07	2.385E+08	1.855E+06	4.284E+06	7.839E+07
150	49.35	34.65	254.8	0.1	254.7	259.1	1.966E+08	1.801E+07	2.185E+07	2.365E+08	2.047E+06	4.626E+06	8.046E+07
160	48.92	34.22	254.1	0.1	254.0	258.8	1.937E+08	1.797E+07	2.295E+07	2.347E+08	2.238E+06	4.965E+06	8.237E+07
170	48.42	33.72	253.2	0.1	253.1	258.6	1.910E+08	1.797E+07	2.400E+07	2.330E+08	2.427E+06	5.303E+06	8.413E+07
180	47.95	33.25	252.4	0.1	252.3	258.3	1.885E+08	1.795E+07	2.502E+07	2.314E+08	2.615E+06	5.638E+06	8.576E+07
190	47.51	32.81	251.6	0.1	251.5	258.0	1.861E+08	1.793E+07	2.600E+07	2.300E+08	2.801E+06	5.970E+06	8.726E+07
200	47.10	32.40	250.9	0.0	250.8	257.6	1.838E+08	1.791E+07	2.694E+07	2.287E+08	2.986E+06	6.300E+06	8.867E+07
210	46.70	32.00	250.1	0.0	250.1	257.3	1.817E+08	1.789E+07	2.786E+07	2.274E+08	3.170E+06	6.628E+06	8.997E+07
220	46.33	31.63	249.5	0.1	249.4	257.0	1.796E+08	1.788E+07	2.876E+07	2.263E+08	3.352E+06	6.954E+06	9.120E+07

TABLE 9.2-1 (cont.): SUMMARY OF RESULTS FOR CASE 5EQ - 8.85 sq ft Slot MSLB @ 102% Power with Cooling Train Failure

Time (sec)	Cont'nm'nt Pressure Absolute (psia)	Cont'nm'nt Pressure Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
230	45.97	31.27	248.8	0.1	248.7	256.7	1.777E+08	1.786E+07	2.963E+07	2.252E+08	3.533E+06	7.278E+06	9.234E+07
240	45.64	30.94	248.2	0.1	248.0	256.4	1.759E+08	1.784E+07	3.048E+07	2.242E+08	3.713E+06	7.601E+06	9.342E+07
250	45.31	30.61	247.5	0.2	247.4	256.1	1.741E+08	1.783E+07	3.131E+07	2.232E+08	3.892E+06	7.921E+06	9.445E+07
260	45.02	30.32	247.0	0.2	246.8	255.8	1.725E+08	1.771E+07	3.211E+07	2.223E+08	4.070E+06	8.239E+06	9.543E+07
270	44.69	29.99	246.4	0.2	246.2	255.5	1.707E+08	1.780E+07	3.294E+07	2.214E+08	4.247E+06	8.555E+06	9.637E+07
280	44.39	29.69	245.8	0.2	245.6	255.2	1.691E+08	1.778E+07	3.373E+07	2.206E+08	4.422E+06	8.869E+06	9.728E+07
290	44.11	29.41	245.2	0.2	245.0	254.9	1.675E+08	1.777E+07	3.451E+07	2.198E+08	4.597E+06	9.181E+06	9.815E+07
300	43.92	29.22	244.8	0.2	244.6	254.5	1.660E+08	1.776E+07	3.528E+07	2.190E+08	4.771E+06	9.492E+06	9.898E+07
350	42.64	27.94	242.3	0.1	242.1	253.0	1.590E+08	1.770E+07	3.898E+07	2.157E+08	5.627E+06	1.102E+07	1.027E+08
400	41.51	26.81	239.9	0.0	239.9	251.5	1.528E+08	1.764E+07	4.245E+07	2.129E+08	6.462E+06	1.250E+07	1.059E+08
450	40.53	25.83	237.8	0.2	237.6	249.9	1.475E+08	1.752E+07	4.572E+07	2.107E+08	7.277E+06	1.392E+07	1.085E+08
500	39.62	24.92	235.8	0.3	235.5	248.4	1.425E+08	1.753E+07	4.885E+07	2.088E+08	8.074E+06	1.530E+07	1.108E+08
550	38.84	24.14	234.0	0.3	233.8	246.8	1.380E+08	1.741E+07	5.184E+07	2.073E+08	8.854E+06	1.665E+07	1.128E+08
600	38.09	23.39	232.3	0.3	232.0	245.3	1.337E+08	1.744E+07	5.477E+07	2.059E+08	9.619E+06	1.795E+07	1.147E+08
700	36.69	21.99	228.9	0.1	228.8	242.4	1.260E+08	1.736E+07	6.031E+07	2.037E+08	1.111E+07	2.046E+07	1.179E+08
800	35.45	20.75	225.8	0.2	225.6	239.6	1.192E+08	1.728E+07	6.556E+07	2.020E+08	1.254E+07	2.286E+07	1.205E+08
900	34.36	19.66	222.9	0.4	222.5	237.0	1.132E+08	1.721E+07	7.056E+07	2.009E+08	1.392E+07	2.517E+07	1.227E+08
1000	33.43	18.73	220.3	0.5	219.9	234.6	1.077E+08	1.714E+07	7.537E+07	2.002E+08	1.525E+07	2.740E+07	1.246E+08
1250	31.30	16.60	214.1	0.1	213.9	229.1	9.600E+07	1.698E+07	8.674E+07	1.997E+08	1.841E+07	3.269E+07	1.281E+08
1500	29.57	14.87	208.5	0.3	208.2	224.3	8.649E+07	1.684E+07	9.731E+07	2.006E+08	2.133E+07	3.763E+07	1.304E+08
1750	28.17	13.47	203.6	0.1	203.5	220.0	7.860E+07	1.672E+07	1.073E+08	2.026E+08	2.404E+07	4.227E+07	1.319E+08
2000	26.65	11.95	197.8	0.1	197.7	216.1	7.030E+07	1.658E+07	1.167E+08	2.036E+08	2.656E+07	4.663E+07	1.326E+08
2500	24.30	9.60	187.7	0.2	187.5	209.1	5.720E+07	1.632E+07	1.340E+08	2.075E+08	3.098E+07	5.452E+07	1.318E+08
3000	22.60	7.90	179.2	0.3	178.9	203.1	4.799E+07	1.611E+07	1.497E+08	2.138E+08	3.474E+07	6.153E+07	1.292E+08
3500	21.30	6.60	171.8	0.2	171.7	197.7	4.088E+07	1.592E+07	1.644E+08	2.212E+08	3.797E+07	6.782E+07	1.261E+08
4000	20.23	5.53	164.9	0.1	164.8	192.9	3.511E+07	1.574E+07	1.783E+08	2.291E+08	4.076E+07	7.349E+07	1.229E+08
4500	19.36	4.66	158.7	0.2	158.5	188.5	3.050E+07	1.558E+07	1.914E+08	2.374E+08	4.316E+07	7.859E+07	1.197E+08
5000	18.66	3.96	153.1	0.0	153.1	184.5	2.683E+07	1.545E+07	2.039E+08	2.461E+08	4.523E+07	8.319E+07	1.165E+08
6000	17.67	2.97	144.2	0.3	143.9	177.5	2.165E+07	1.520E+07	2.273E+08	2.642E+08	4.858E+07	9.114E+07	1.101E+08
7000	17.01	2.31	137.3	0.2	137.1	171.5	1.831E+07	1.503E+07	2.492E+08	2.826E+08	5.118E+07	9.778E+07	1.042E+08
8000	16.57	1.87	132.3	0.3	132.1	166.4	1.605E+07	1.491E+07	2.701E+08	3.010E+08	5.325E+07	1.034E+08	9.865E+07
9000	16.25	1.55	128.8	1.4	127.4	162.0	1.432E+07	1.482E+07	2.902E+08	3.193E+08	5.491E+07	1.084E+08	9.374E+07
10000	15.99	1.29	125.9	2.2	123.7	158.2	1.292E+07	1.476E+07	3.097E+08	3.374E+08	5.625E+07	1.128E+08	8.935E+07

slbrslt1.wb2

TABLE 9.2-2: SUMMARY OF HEAT SINK RESULTS FOR CASE 5EQ

Time (sec)	Heat Sink Surface Temperatures (F)				Uchida Cond. HTC (B/hr-ft2-F)
	HS #2 Liner Plate	HS #10 - Sec Shield Wall	HS #18 - CS Th <= 0.5"	HS #19 - Elec & Galv CS	
0.0	118.4	120.0	120.0	119.9	2.00
1	119.9	121.7	121.3	120.0	14.29
5	133.7	149.5	135.1	124.1	34.27
10	150.3	180.6	151.5	136.6	55.19
15	162.8	199.4	163.9	154.0	68.49
20	174.0	212.7	175.0	173.1	79.92
30	191.0	229.2	192.6	208.1	92.64
40	204.8	239.8	207.1	234.5	101.84
50	216.5	247.5	219.9	252.8	111.38
60	222.4	248.4	227.1	263.3	111.90
70	225.7	246.7	231.8	266.9	110.19
80	227.9	244.8	235.4	267.4	108.93
90	229.4	243.0	238.1	267.5	107.85
100	230.9	242.2	240.7	267.4	105.51
120	232.8	240.8	244.5	267.2	101.24
140	233.7	239.5	246.7	267.0	97.73
160	234.3	238.6	248.2	266.7	96.00
180	234.5	237.7	248.9	266.4	94.41
200	234.4	236.9	249.1	266.0	92.93
250	233.6	234.9	248.6	265.1	89.55
300	232.4	233.1	248.5	264.0	86.46
400	229.7	229.7	248.2	261.6	80.74
500	226.7	226.4	247.7	259.0	75.48
600	223.9	223.5	247.0	256.2	70.38
800	218.6	218.0	245.4	250.5	61.74
1000	213.8	213.1	243.4	244.7	56.96
1500	203.7	202.9	237.3	230.9	45.38
2000	194.9	193.8	230.2	218.5	37.93
3000	179.2	179.1	214.2	196.2	27.62
4000	167.9	165.9	198.3	178.5	22.62
5000	160.5	158.4	183.5	164.1	19.36
7500	148.2	146.5	154.3	140.0	14.90
10000	140.5	139.4	136.9	128.6	12.00

E&TS DEPARTMENT

CALCULATION SHEET

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CCN CONVERSION: CCN NO. CCN --

Subject Containment P/T Analysis for Design Basis MSLB Events

Sheet No. 249 of 312

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

REVIEW ⇒

TABLE 9.2-3: SUMMARY OF RESULTS FOR CASE 7EQ - 8.85 sq ft Slot MSLB @ 102% Power with MSIV Failure

Time (sec)	Cont'nm'nt Absolute (psia)	Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
0.0	13.80	-0.90	120.0	88.0	32.0	120.0	5.962E+05	1.461E+07	8.800E+01	1.467E+07	0.000E+00	0.000E+00	0.000E+00
0.1	14.27	-0.43	129.1	62.1	67.1	120.2	2.316E+06	1.484E+07	8.819E+01	1.716E+07	0.000E+00	0.000E+00	1.009E+02
0.2	14.71	0.01	137.6	53.8	83.9	120.2	3.985E+06	1.506E+07	8.815E+01	1.904E+07	0.000E+00	0.000E+00	4.731E+02
0.3	15.15	0.45	145.6	50.5	95.1	120.2	5.614E+06	1.526E+07	8.812E+01	2.087E+07	0.000E+00	0.000E+00	1.116E+03
0.4	15.57	0.87	153.1	49.3	103.9	120.1	7.211E+06	1.545E+07	8.809E+01	2.266E+07	0.000E+00	0.000E+00	2.012E+03
0.5	15.99	1.29	160.2	49.3	110.9	120.1	8.781E+06	1.563E+07	8.807E+01	2.441E+07	0.000E+00	0.000E+00	3.148E+03
0.6	16.39	1.69	167.0	50.0	117.0	120.1	1.033E+07	1.580E+07	8.805E+01	2.612E+07	0.000E+00	0.000E+00	4.510E+03
0.7	16.79	2.09	173.5	51.1	122.4	121.1	1.185E+07	1.596E+07	1.599E+02	2.781E+07	0.000E+00	0.000E+00	6.121E+03
0.8	17.18	2.48	179.7	52.9	126.8	123.7	1.335E+07	1.612E+07	3.689E+02	2.947E+07	0.000E+00	0.000E+00	8.416E+03
0.9	17.57	2.87	185.6	54.5	131.1	126.4	1.484E+07	1.627E+07	6.763E+02	3.110E+07	0.000E+00	0.000E+00	1.172E+04
1.0	17.95	3.25	191.3	56.4	135.0	129.1	1.630E+07	1.641E+07	1.095E+03	3.271E+07	0.000E+00	0.000E+00	1.610E+04
1.2	18.69	3.99	202.0	60.2	141.9	134.1	1.918E+07	1.668E+07	2.270E+03	3.587E+07	0.000E+00	0.000E+00	2.801E+04
1.4	19.41	4.71	211.9	64.5	147.5	138.4	2.201E+07	1.693E+07	3.905E+03	3.894E+07	0.000E+00	0.000E+00	4.389E+04
1.6	20.11	5.41	221.1	68.1	153.0	142.5	2.477E+07	1.716E+07	6.040E+03	4.193E+07	0.000E+00	0.000E+00	6.368E+04
1.8	20.79	6.09	229.6	72.1	157.4	146.2	2.746E+07	1.737E+07	8.719E+03	4.485E+07	0.000E+00	0.000E+00	8.767E+04
2.0	21.45	6.75	237.5	75.6	161.8	149.5	3.010E+07	1.757E+07	1.193E+04	4.768E+07	0.000E+00	0.000E+00	1.155E+05
2.2	22.09	7.39	244.8	79.3	165.6	152.7	3.268E+07	1.776E+07	1.567E+04	5.045E+07	0.000E+00	0.000E+00	1.470E+05
2.4	22.72	8.02	251.8	82.6	169.2	155.6	3.521E+07	1.793E+07	1.996E+04	5.317E+07	0.000E+00	0.000E+00	1.822E+05
2.6	23.34	8.64	258.3	86.0	172.3	158.3	3.770E+07	1.810E+07	2.480E+04	5.583E+07	0.000E+00	0.000E+00	2.210E+05
2.8	23.94	9.24	264.4	89.2	175.2	160.8	4.015E+07	1.825E+07	3.015E+04	5.843E+07	0.000E+00	0.000E+00	2.631E+05
3	24.53	9.83	270.2	92.1	178.1	163.2	4.255E+07	1.840E+07	3.605E+04	6.099E+07	0.000E+00	0.000E+00	3.085E+05
4	27.30	12.60	294.8	104.4	190.4	173.5	5.403E+07	1.902E+07	7.419E+04	7.312E+07	0.000E+00	0.000E+00	5.869E+05
5	29.85	15.15	314.1	114.2	199.9	181.9	6.474E+07	1.951E+07	1.274E+05	8.437E+07	0.000E+00	0.000E+00	9.495E+05
6	32.23	17.53	329.8	122.1	207.7	189.0	7.487E+07	1.990E+07	1.959E+05	9.497E+07	0.000E+00	0.000E+00	1.394E+06
7	34.47	19.77	342.8	128.3	214.5	195.1	8.456E+07	2.023E+07	2.800E+05	1.051E+08	0.000E+00	0.000E+00	1.918E+06
8	36.61	21.91	353.6	133.7	220.1	200.3	9.389E+07	2.051E+07	3.782E+05	1.148E+08	0.000E+00	0.000E+00	2.509E+06
9	38.64	23.94	363.1	137.7	225.5	205.0	1.028E+08	2.074E+07	4.924E+05	1.240E+08	0.000E+00	0.000E+00	3.175E+06
10	40.52	25.82	370.9	140.8	230.1	209.3	1.112E+08	2.094E+07	6.220E+05	1.327E+08	0.000E+00	0.000E+00	3.912E+06
11	42.25	27.55	377.3	143.4	233.9	213.2	1.189E+08	2.110E+07	7.641E+05	1.407E+08	0.000E+00	0.000E+00	4.702E+06
12	43.79	29.09	382.4	145.1	237.3	216.5	1.258E+08	2.123E+07	9.166E+05	1.480E+08	0.000E+00	0.000E+00	5.535E+06
13	45.17	30.47	386.6	146.2	240.4	219.6	1.322E+08	2.133E+07	1.079E+06	1.546E+08	0.000E+00	0.000E+00	6.404E+06
14	46.43	31.73	389.9	147.2	242.8	222.3	1.380E+08	2.142E+07	1.251E+06	1.606E+08	0.000E+00	0.000E+00	7.316E+06
15	47.59	32.89	392.8	147.7	245.0	224.8	1.434E+08	2.149E+07	1.432E+06	1.663E+08	0.000E+00	0.000E+00	8.264E+06
16	48.67	33.97	395.2	148.0	247.1	227.0	1.484E+08	2.155E+07	1.621E+06	1.716E+08	0.000E+00	0.000E+00	9.239E+06
17	49.68	34.98	397.1	148.0	249.1	229.1	1.532E+08	2.160E+07	1.816E+06	1.766E+08	0.000E+00	0.000E+00	1.024E+07
18	50.58	35.88	398.7	147.8	250.8	231.0	1.577E+08	2.164E+07	2.016E+06	1.814E+08	0.000E+00	0.000E+00	1.125E+07
19	51.48	36.78	400.1	147.7	252.4	232.7	1.620E+08	2.167E+07	2.221E+06	1.859E+08	0.000E+00	0.000E+00	1.228E+07
20	52.32	37.62	401.3	147.4	253.8	234.3	1.661E+08	2.170E+07	2.428E+06	1.902E+08	0.000E+00	0.000E+00	1.331E+07
21	53.12	38.42	402.3	147.1	255.2	235.8	1.700E+08	2.173E+07	2.639E+06	1.944E+08	0.000E+00	0.000E+00	1.435E+07
22	53.88	39.18	403.2	146.6	256.5	237.2	1.738E+08	2.175E+07	2.851E+06	1.984E+08	0.000E+00	0.000E+00	1.540E+07
23	54.62	39.92	403.9	146.1	257.8	238.5	1.774E+08	2.177E+07	3.066E+06	2.023E+08	0.000E+00	0.000E+00	1.644E+07
24	55.32	40.62	404.5	145.5	259.1	239.7	1.809E+08	2.178E+07	3.281E+06	2.060E+08	0.000E+00	2.047E+03	1.749E+07
25	55.99	41.29	404.8	144.7	260.1	240.8	1.844E+08	2.179E+07	3.498E+06	2.096E+08	0.000E+00	8.221E+03	1.853E+07

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

TABLE 9.2-3 (cont.): SUMMARY OF RESULTS FOR CASE 7EQ - 8.85 sq ft Slot MSLB @ 102% Power with MSIV Failure

Time (sec)	Cont'nm'nt Absolute (psia)	Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
26	56.63	41.93	404.9	143.8	261.2	241.9	1.877E+08	2.179E+07	3.716E+06	2.132E+08	0.000E+00	1.769E+04	1.957E+07
27	57.24	42.54	404.9	142.7	262.1	242.9	1.909E+08	2.179E+07	3.933E+06	2.166E+08	0.000E+00	2.958E+04	2.061E+07
28	57.83	43.13	404.6	141.6	263.1	243.8	1.940E+08	2.179E+07	4.151E+06	2.200E+08	0.000E+00	4.391E+04	2.164E+07
29	58.40	43.70	404.3	140.3	264.0	244.7	1.971E+08	2.178E+07	4.368E+06	2.232E+08	0.000E+00	6.067E+04	2.267E+07
30	58.94	44.24	403.8	139.0	264.9	245.6	2.001E+08	2.176E+07	4.585E+06	2.264E+08	0.000E+00	7.986E+04	2.369E+07
31	59.46	44.76	403.2	137.5	265.7	246.4	2.030E+08	2.175E+07	4.802E+06	2.296E+08	0.000E+00	1.026E+05	2.470E+07
32	59.95	45.25	402.4	135.8	266.5	247.2	2.058E+08	2.173E+07	5.018E+06	2.328E+08	0.000E+00	1.301E+05	2.570E+07
33	60.42	45.72	401.3	134.0	267.3	247.9	2.086E+08	2.170E+07	5.234E+06	2.356E+08	0.000E+00	1.623E+05	2.670E+07
34	60.86	46.16	400.1	132.1	268.0	248.6	2.113E+08	2.167E+07	5.448E+06	2.385E+08	0.000E+00	1.990E+05	2.769E+07
35	61.27	46.57	398.7	130.1	268.6	249.3	2.140E+08	2.163E+07	5.663E+06	2.413E+08	0.000E+00	2.404E+05	2.867E+07
36	61.67	46.97	397.1	128.0	269.2	249.9	2.165E+08	2.159E+07	5.876E+06	2.440E+08	0.000E+00	2.846E+05	2.964E+07
37	62.04	47.34	395.6	125.8	269.7	250.6	2.190E+08	2.155E+07	6.089E+06	2.467E+08	0.000E+00	3.300E+05	3.061E+07
38	62.40	47.70	393.9	123.6	270.3	251.2	2.215E+08	2.151E+07	6.302E+06	2.493E+08	0.000E+00	3.766E+05	3.157E+07
39	62.74	48.04	392.2	121.4	270.8	251.7	2.238E+08	2.147E+07	6.513E+06	2.518E+08	0.000E+00	4.242E+05	3.253E+07
40	63.09	48.39	390.6	119.2	271.3	252.3	2.263E+08	2.143E+07	6.724E+06	2.544E+08	0.000E+00	4.730E+05	3.348E+07
41	63.43	48.73	388.9	117.0	271.9	252.8	2.287E+08	2.138E+07	6.934E+06	2.570E+08	0.000E+00	5.226E+05	3.442E+07
42	63.73	49.03	387.1	114.8	272.3	253.3	2.309E+08	2.134E+07	7.142E+06	2.593E+08	0.000E+00	5.729E+05	3.535E+07
43	64.01	49.31	385.3	112.5	272.8	253.8	2.330E+08	2.129E+07	7.350E+06	2.616E+08	0.000E+00	6.238E+05	3.627E+07
44	64.28	49.58	383.4	110.2	273.2	254.3	2.351E+08	2.125E+07	7.555E+06	2.639E+08	0.000E+00	6.754E+05	3.718E+07
45	64.54	49.84	381.6	107.9	273.6	254.8	2.371E+08	2.120E+07	7.760E+06	2.661E+08	0.000E+00	7.275E+05	3.809E+07
50	65.31	50.61	366.2	91.0	275.2	256.8	2.468E+08	2.080E+07	8.759E+06	2.764E+08	4.552E+03	1.157E+06	4.246E+07
55	64.39	49.69	342.7	68.0	274.7	258.6	2.507E+08	2.021E+07	9.759E+06	2.806E+08	2.325E+05	1.721E+06	4.653E+07
60	62.00	47.30	316.4	44.2	272.2	259.8	2.473E+08	1.955E+07	1.065E+07	2.775E+08	4.571E+05	2.228E+06	5.012E+07
65	59.63	44.93	290.8	20.9	269.8	260.5	2.442E+08	1.890E+07	1.144E+07	2.745E+08	6.774E+05	2.678E+06	5.327E+07
70	57.53	42.83	267.8	0.1	267.7	260.9	2.414E+08	1.820E+07	1.216E+07	2.718E+08	8.935E+05	3.072E+06	5.604E+07
75	56.79	42.09	266.7	0.0	266.6	261.5	2.375E+08	1.831E+07	1.354E+07	2.693E+08	1.107E+06	3.441E+06	5.856E+07
80	56.14	41.44	265.7	0.1	265.6	261.9	2.340E+08	1.826E+07	1.483E+07	2.671E+08	1.318E+06	3.807E+06	6.089E+07
85	55.53	40.83	264.8	0.2	264.7	262.1	2.306E+08	1.824E+07	1.607E+07	2.649E+08	1.528E+06	4.172E+06	6.305E+07
90	54.94	40.24	263.9	0.1	263.8	262.2	2.274E+08	1.824E+07	1.726E+07	2.629E+08	1.736E+06	4.535E+06	6.506E+07
95	54.48	39.78	263.3	0.2	263.1	262.2	2.246E+08	1.809E+07	1.838E+07	2.611E+08	1.943E+06	4.896E+06	6.694E+07
100	53.97	39.27	262.5	0.2	262.3	262.2	2.216E+08	1.820E+07	1.953E+07	2.593E+08	2.148E+06	5.255E+06	6.870E+07
110	52.99	38.29	260.8	0.1	260.8	262.1	2.163E+08	1.816E+07	2.167E+07	2.561E+08	2.555E+06	5.968E+06	7.191E+07
120	52.11	37.41	259.4	0.0	259.4	261.9	2.115E+08	1.813E+07	2.369E+07	2.533E+08	2.956E+06	6.675E+06	7.475E+07
130	51.30	36.60	258.1	0.1	258.0	261.6	2.071E+08	1.809E+07	2.562E+07	2.508E+08	3.353E+06	7.376E+06	7.729E+07
140	50.56	35.86	256.9	0.1	256.8	261.2	2.031E+08	1.803E+07	2.745E+07	2.486E+08	3.745E+06	8.070E+06	7.956E+07
150	49.86	35.16	255.7	0.1	255.6	260.9	1.993E+08	1.803E+07	2.923E+07	2.466E+08	4.133E+06	8.758E+06	8.161E+07
160	49.34	34.64	255.4	0.7	254.7	260.5	1.960E+08	1.784E+07	3.092E+07	2.447E+08	4.517E+06	9.441E+06	8.347E+07
170	48.70	34.00	253.7	0.1	253.6	260.1	1.925E+08	1.798E+07	3.262E+07	2.431E+08	4.897E+06	1.012E+07	8.518E+07
180	48.13	33.43	252.7	0.1	252.6	259.7	1.893E+08	1.796E+07	3.424E+07	2.415E+08	5.274E+06	1.079E+07	8.676E+07
190	47.59	32.89	251.7	0.1	251.7	259.3	1.864E+08	1.793E+07	3.581E+07	2.401E+08	5.647E+06	1.146E+07	8.820E+07
200	47.07	32.37	250.8	0.0	250.8	258.9	1.836E+08	1.791E+07	3.735E+07	2.388E+08	6.017E+06	1.212E+07	8.954E+07
210	46.58	31.88	249.9	0.0	249.9	258.4	1.809E+08	1.789E+07	3.886E+07	2.376E+08	6.384E+06	1.277E+07	9.079E+07
220	46.10	31.40	249.0	0.1	248.9	258.0	1.783E+08	1.787E+07	4.033E+07	2.365E+08	6.748E+06	1.342E+07	9.193E+07

REVIEW ⇓

TABLE 9.2-3 (cont.): SUMMARY OF RESULTS FOR CASE 7EQ - 8.85 sq ft Slot MSLB @ 102% Power with MSIV Failure

Time (sec)	Cont'nm'nt Absolute (psia)	Gauge (psig)	Vapor Temp (F)	Degrees of SH (F)	Sat. Temp (F)	Sump Temp (F)	Steam Energy (Btu)	Air Energy (Btu)	Sump Energy (Btu)	Total Energy (Btu)	Integrated ECU Energy (Btu)	Integrated CS Ht Trans (Btu)	Heat Sink Net HT (Btu)
230	45.65	30.95	248.2	0.1	248.0	257.6	1.758E+08	1.784E+07	4.178E+07	2.355E+08	7.108E+06	1.407E+07	9.302E+07
240	45.21	30.51	247.3	0.2	247.2	257.2	1.735E+08	1.782E+07	4.320E+07	2.345E+08	7.466E+06	1.471E+07	9.404E+07
250	44.79	30.09	246.5	0.2	246.3	256.7	1.711E+08	1.780E+07	4.460E+07	2.336E+08	7.820E+06	1.534E+07	9.502E+07
260	44.38	29.68	245.7	0.2	245.5	256.3	1.689E+08	1.778E+07	4.598E+07	2.327E+08	8.172E+06	1.597E+07	9.595E+07
270	44.07	29.37	245.2	0.3	244.9	255.9	1.669E+08	1.759E+07	4.731E+07	2.318E+08	8.521E+06	1.659E+07	9.683E+07
280	43.68	28.98	244.4	0.2	244.2	255.4	1.646E+08	1.775E+07	4.869E+07	2.310E+08	8.867E+06	1.721E+07	9.767E+07
290	43.31	28.61	243.6	0.2	243.4	255.0	1.625E+08	1.773E+07	5.002E+07	2.303E+08	9.211E+06	1.783E+07	9.848E+07
300	42.94	28.24	242.9	0.2	242.7	254.5	1.605E+08	1.771E+07	5.133E+07	2.296E+08	9.553E+06	1.844E+07	9.925E+07
350	41.25	26.55	239.4	0.1	239.3	252.2	1.513E+08	1.762E+07	5.762E+07	2.265E+08	1.122E+07	2.139E+07	1.026E+08
400	39.77	25.07	236.1	0.3	235.9	249.9	1.432E+08	1.754E+07	6.351E+07	2.242E+08	1.283E+07	2.419E+07	1.053E+08
450	38.52	23.82	233.3	0.3	233.0	247.5	1.359E+08	1.747E+07	6.911E+07	2.225E+08	1.439E+07	2.687E+07	1.075E+08
500	37.30	22.60	230.4	0.2	230.2	245.2	1.292E+08	1.740E+07	7.445E+07	2.210E+08	1.590E+07	2.942E+07	1.094E+08
550	36.18	21.48	227.6	0.1	227.6	242.9	1.230E+08	1.733E+07	7.958E+07	2.200E+08	1.736E+07	3.187E+07	1.110E+08
600	35.14	20.44	225.0	0.3	224.7	240.7	1.174E+08	1.726E+07	8.453E+07	2.191E+08	1.877E+07	3.423E+07	1.124E+08
700	33.34	18.64	220.1	0.5	219.6	236.5	1.071E+08	1.714E+07	9.396E+07	2.182E+08	2.147E+07	3.875E+07	1.146E+08
800	31.70	17.00	215.3	0.2	215.0	232.6	9.808E+07	1.702E+07	1.029E+08	2.180E+08	2.401E+07	4.300E+07	1.162E+08
900	30.25	15.55	210.7	0.2	210.5	229.1	9.012E+07	1.690E+07	1.114E+08	2.184E+08	2.640E+07	4.703E+07	1.174E+08
1000	29.01	14.31	206.6	0.3	206.3	225.8	8.311E+07	1.680E+07	1.195E+08	2.194E+08	2.865E+07	5.086E+07	1.181E+08
1250	26.44	11.74	196.9	0.1	196.8	218.4	6.890E+07	1.652E+07	1.383E+08	2.237E+08	3.375E+07	5.967E+07	1.186E+08
1500	24.51	9.81	188.6	0.2	188.4	212.0	5.834E+07	1.635E+07	1.556E+08	2.302E+08	3.818E+07	6.758E+07	1.176E+08
1750	23.05	8.35	181.5	0.1	181.4	206.4	5.026E+07	1.616E+07	1.717E+08	2.381E+08	4.206E+07	7.475E+07	1.157E+08
2000	21.55	6.85	173.2	0.3	173.0	201.4	4.210E+07	1.593E+07	1.868E+08	2.448E+08	4.543E+07	8.123E+07	1.136E+08
2500	19.25	4.55	157.8	0.2	157.6	192.4	2.986E+07	1.556E+07	2.141E+08	2.595E+08	5.065E+07	9.205E+07	1.087E+08
3000	17.87	3.16	146.0	0.3	145.7	184.6	2.264E+07	1.527E+07	2.384E+08	2.763E+08	5.434E+07	1.005E+08	1.033E+08
3500	17.04	2.34	137.6	0.2	137.4	177.8	1.844E+07	1.505E+07	2.606E+08	2.941E+08	5.703E+07	1.073E+08	9.788E+07
4000	16.53	1.83	131.8	0.1	131.7	172.0	1.591E+07	1.489E+07	2.814E+08	3.122E+08	5.909E+07	1.130E+08	9.267E+07
4500	16.21	1.51	128.1	1.1	127.1	167.0	1.420E+07	1.481E+07	3.014E+08	3.304E+08	6.072E+07	1.178E+08	8.786E+07
5000	15.97	1.27	125.4	1.9	123.5	162.7	1.283E+07	1.474E+07	3.209E+08	3.485E+08	6.205E+07	1.222E+08	8.355E+07

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1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

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TABLE 9.2-4: SUMMARY OF HEAT SINK RESULTS FOR CASE 7EQ

Time (sec)	Heat Sink Surface Temperatures (F)				Uchida Cond. HTC (B/hr-ft2-F)
	HS #2 Liner Plate	HS #10 - Sec Shield Wall	HS #18 - CS Th </= 0.5"	HS #19 - Elec & Galv CS	
0.0	118.4	120.0	120.0	119.9	2.00
1	119.9	121.7	121.3	120.0	14.29
5	133.7	149.5	135.1	124.1	34.27
10	150.9	181.3	152.0	136.7	56.07
15	164.9	202.1	165.9	155.1	71.86
20	176.1	215.6	177.2	175.2	82.94
30	193.3	231.8	194.8	211.2	95.00
40	207.4	242.3	209.8	237.7	106.16
50	218.8	249.4	222.3	255.7	115.60
60	224.4	249.5	229.1	265.3	117.36
70	227.1	246.9	233.2	267.5	116.66
80	229.6	245.8	237.1	267.5	113.69
90	231.5	244.9	240.2	267.5	110.98
100	232.9	244.1	242.8	267.4	108.40
120	234.6	242.4	246.3	267.3	103.63
140	235.3	240.8	248.3	267.1	99.26
160	235.5	239.4	249.4	266.8	96.61
180	235.3	238.2	249.8	266.5	94.69
200	235.0	237.1	249.7	266.2	92.85
250	233.3	234.1	249.2	265.2	88.48
300	231.3	231.4	249.1	264.0	84.21
400	226.7	226.0	248.6	261.3	75.88
500	222.1	221.2	247.8	258.2	67.55
600	217.6	216.4	246.9	254.8	61.03
800	209.5	208.1	244.4	247.5	52.13
1000	202.1	200.5	241.4	239.8	44.07
1500	188.6	186.7	232.1	220.5	32.40
2000	175.8	173.6	221.5	202.8	25.32
3000	161.1	157.2	197.7	170.3	17.23
4000	151.8	148.3	175.4	147.0	14.24
5000	145.4	142.6	157.9	133.6	11.92

10 COPATTA MASS AND ENERGY BALANCE TABLES

This section of the calculation provides separate mass and energy balance tables for Case 7. This MSLB at 102% power with MSIV failure, is identified in this calculation as the design basis MSLB event for containment maximum post-accident pressure.

The two tables show that the COPATTA program mass inventory balances for the Case 7 MSLB event agree within about 0.002% and that the program energy inventory balances for this case are within 0.03%. These results are typical for all the cases, and show that the mass and energy input parameters are well conserved within the COPATTA program logic.

Table 10-1
Mass Balance Table for Case 7
MSLB at 102% Power with MSIV Failure

	ELAPSED TIME FOLLOWING MSLB (SECONDS)			
	52 [a]	200 [b]	1750 [c]	5000 [d]
PROGRAM INPUTS (lb_m)				
Initial Steam	567	567	567	567
Initial Air	179660	179660	179660	179660
Break Flow (card series 301)	257000	260394	260394	260394
Break Flow (card series 501)	419	1611	14097	14500
Containment Spray Flow (card series 801)	4938	70360	755517	2192140
Initial Spillage (card series 601)	1	1	1	1
Total Program Input	442585	512593	1210236	2647262
PROGRAM INVENTORY (lb_m)				
Steam	221810	170427	48007	12290
Air	179660	179660	179660	179660
Sump Water	41118	162516	982581	2455330
Total Program Inventory	442588	512603	1210248	2647280
Program Inventory minus Program Input (lb_m)	(+) 3	(+) 10	(+) 12	(+) 18
Per Cent Difference with respect to Prog. Input	(+) 0.00068	(+) 0.00195	(+) 0.00099	(+) 0.00068

Notes:
(a) The time of 52 seconds corresponds to the printed run output closest to the run-identified time of peak containment pressure of 52.2 seconds (56.5 psig).

(b) The time of 200 seconds corresponds to the end time for ABB-CE supplied break mass and energy release data.

(c) The time of 1750 seconds corresponds to the printed run output closest to the termination at 1800 seconds of steam back flow from the intact steam generator to the break via inter-connected piping supplying steam to the turbine-driven auxiliary feedwater pump.

(d) The time of 5000 seconds corresponds to the end of the COPATTA run.

Table 10-2
Energy Balance Table for Case 7
MSLB at 102% Power with MSIV Failure

	ELAPSED TIME FOLLOWING MSLB (SECONDS)			
	52 [a]	200 [b]	1750 [c]	5000 [d]
PROGRAM INPUTS (million Btu) [f]				
Initial Steam	0.596	0.596	0.596	0.596
Initial Air	17.808	17.808	17.808	17.808
Break Flow (card series 301)	308.418	312.495	312.495	312.495
Break Flow (card series 501)	0.500	1.922	16.817	17.297
Containment Spray Flow (card series 801)	0.336	4.784	51.370	149.050
Initial Spillage (card series 601) [e]	0.000	0.000	0.000	0.000
Total Program Input	327.658	337.605	399.086	497.246
PROGRAM INVENTORY (million Btu) [f]				
Steam	251.351	185.453	51.324	12.926
Air	25.666	21.847	19.731	17.975
Sump Water	9.344	36.871	169.883	319.707
Structural Heat Sinks	41.199	87.372	115.487	83.574
Emergency Air Coolers	0.000	6.062	42.663	63.067
Total Program Inventory	327.560	337.605	399.088	497.249
Program Inventory minus Program Input (10^6 Btu)	(-) 0.098	0.000	(+) 0.002	(+) 0.003
Per Cent Difference with respect to Prog. Input	(-) 0.0299	0.0000	(+) 0.00050	(+) 0.00060

Notes:
(a) The time of 52 seconds corresponds to the printed run output closest to the run-identified time of peak containment pressure of 52.2 seconds (56.5 psig).
(b) The time of 200 seconds corresponds to the end time for ABB-CE supplied break mass and energy release data.
(c) The time of 1750 seconds corresponds to the printed run output closest to the termination at 1800 seconds of steam back flow from the intact steam generator to the break via inter-connected piping supplying steam to the turbine-driven auxiliary feedwater pump.
(d) The time of 5000 seconds corresponds to the end of the COPATTA run.
(e) Actual spillage energy addition is 88 Btu which is only 0.000088×10^6 Btu (which is well below 0.001×10^6 Btu).
(f) Reference temperatures for energies are 32°F for water and steam, 0°R for air, and 120°F for structural heat sinks.

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1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

APPENDIX A
COPATTA I/O FILE INFORMATION

A total of 12 COPATTA runs were made for this calculation. The input data files for these runs are provided in Section 8.1.3 of the calculation. All COPATTA runs were performed on the NFM RISC 6000 Workstation device number D037571. The output files have been archived on the NFM CDROM system as calculation type nfm23pt.

Case Description and Output File Name	Run Calendar Data		NFM CDROM Information		
	Date	Time	Archive Date	RISC File Size	Checksum
CASE 1: 0% Power MSLB w/Cooling Train Failure Output File Name: mslbc1.lis	0728/99	08:12:28	10/29/99	1289241	12417
CASE 2: 20% Power MSLB w/Cooling Train Failure Output File Name: mslbc2.lis	0728/99	08:12:38	10/29/99	1290296	32252
CASE 3: 50% Power MSLB w/Cooling Train Failure Output File Name: mslbc3.lis	0728/99	08:12:54	10/29/99	1288617	47926
CASE 4: 80% Power MSLB w/Cooling Train Failure Output File Name: mslbc4.lis	07/28/99	08:13:04	10/29/99	1288617	43369
CASE 5: 102% Power MSLB w/Cooling Train Failure Output File Name: mslbc5.lis	07/28/99	08:13:11	10/29/99	1288617	45814
CASE 13: 0% Power MSLB w/MSIV Failure Output File Name: mslbc13.lis	07/28/99	08:13:42	10/29/99	1223379	16347
CASE 14: 20% Power MSLB w/MSIV Failure Output File Name: mslbc14.lis	07/28/99	08:13:49	10/29/99	1225124	39184
CASE 15: 50% Power MSLB w/MSIV Failure Output File Name: mslbc15.lis	07/28/99	08:14:02	10/29/99	1222755	10668
CASE 16: 80% Power MSLB w/MSIV Failure Output File Name: mslbc16.lis	07/28/99	08:14:14	10/29/99	1222755	18099
CASE 7: 102% Power MSLB w/MSIV Failure Output File Name: mslbc7.lis	07/28/99	08:14:23	10/29/99	1222755	05681
CASE 5EQ: 102% Power MSLB w/Cooling Train Failure Output File Name: mslbc5eq.lis	07/28/99	08:14:33	10/29/99	1288617	13059
CASE 7EQ: 102% Power MSLB w/MSIV Failure Output File Name: mslbc7eq.lis	07/28/99	08:14:45	10/29/99	1222755	51169

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1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

APPENDIX B
MEMORANDUM FOR FILE (REFERENCE 6.15)

(7-page memorandum follows)

MEMORANDUM FOR FILE

March 8, 1999

SUBJECT: Main Steam Line Break Mass-Energy Release Data for Equipment Qualification in Containment
San Onofre Nuclear Generating Station Units 2 and 3

REFERENCES:

1. ABB-CE Calculation 010-ST98-C-020, Rev. 0, 12/9/98, "SONGS Units 2 & 3 MSLB Mass and Energy Release Data for Teold Reduction Program" [Transmitted to SCE as Enclosure (1) to ABB letter ST-98-740, 12/9/98].
2. CESSAR System 80 PSAR, Thru Amendment 8, 10/7/74, Appendix 6B, "Description of the SGNIII Digital Computer Code Used in Developing Main Steam Line Break Mass/Energy Release Data for Containment Analysis".
3. AR 980502634, "Preliminary Equipment Qualification Calculations for Containment Temperature Response".
4. NUREG-75/112, "NRC Safety Evaluation Report for CESSAR System 80", 12/31/75.
5. NUREG-0588, Rev. 1, July, 1981, USNRC, "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment".
6. DBD-SO23-TR-EQ, Rev. 4, 12/29/98, "Environmental Qualification Topical Report".
7. NRC IE Information Notice 84-90, 12/7/84, "Main Steam Line Break Effect on Environmental Qualification of Equipment".
8. Supplement A to Calculation N-4081-002, Rev. 0, 11/13/95, "MSIV Enclosure Building Pressure-Temperature Transient Analysis".
9. Supplement A to Calculation N-4080-027, Rev. 0, 11/14/94, "Containment P/T Design Basis MSLB for Equipment Qualification".

A. PURPOSE

The purpose of this memorandum is to identify the design basis Main Steam Line Break mass and energy release data to be used in a pending revision to calculation N-4080-027 which will define the bounding short-term harsh environment for the environmental qualification (EQ) of electrical equipment in the SONGS Units 2 and 3 containment buildings.

B. INTRODUCTION/BACKGROUND

ABB-CE has completed their reanalysis of mass-energy (M-E) release rates from main steam line breaks (MSLBs) inside containment which was initiated as a part of the T_{cold} reduction project. Two sets of mass-energy release data are provided in the ABB calculation (Ref. 1) for SCE use.

One set of results consists of dry steam and superheated break flows calculated using the SGNIII code described in Appendix 6B to the CESSAR System 80 PSAR (Ref. 2). This first set of results consists of 10 cases covering 5 power levels (0 to 102% power) with either cooling train single failure or main steam isolation valve (MSIV) failure. These results are to be used to calculate the bounding MSLB event for peak containment pressure and temperature response as reported in Section 6.2 of the UFSAR. This M-E data was created using the same methodology employed during the initial design and licensing of SONGS 2/3 to generate the MSLB M-E data provided to support design basis containment response calculations for peak containment pressure and equipment qualification. The break flow for these cases is dry saturated steam until the SG approaches dry-out, at which point, the steam flow becomes superheated in flowing over the exposed dry SG tubes.

A second set of results included by ABB-CE in the calculation provides dry and superheated steam break flows following an MSLB at 102% power with either cooling train single failure or MSIV failure. These results are calculated using the same SGNIII code and methodology used for the first set of data **augmented** by inclusion of superheating of the dry steam release earlier than occurs with the first set of data. This second set of results provides a much more conservative calculation of containment vapor temperature (*i.e.*, higher containment vapor temperatures) for equipment qualification (EQ) purposes. Preliminary COPATTA runs using the **augmented**, early superheat data produced a substantial increase in short-term peak temperature with a potential adverse impact on in-containment EQ. Action Request AR980502634 (Ref. 3) was created and analysis margins were identified to support continued plant operation. Licensing was assigned a task to research and review SONGS Units 2 and 3 requirements and commitments regarding the calculation of post-MSLB environment inside containment for EQ.

C. RECOMMENDATION

It is recommended that SCE continue to define the bounding short-term EQ environment in containment by using the MSLB mass-energy release data provided by ABB-CE in their Reference 1 calculation for containment functional design using the same methodology as documented in UFSAR Section 6.2. This mass-energy data corresponds to the first set of data provided in the new ABB-CE calculation, **without** the early onset of superheat included in the second set of data. This recommendation is consistent with the NRA response to AR 980502634, Assignment 3. This recommendation is supported by the following facts:

1) It is consistent with the licensing basis for SONGS Units 2 and 3.

   The bounding short-term harsh environment in containment for EQ due to a large MSLB since original plant licensing has been based on mass-energy release data generated by ABB-CE in 1977 to support the initial design and

licensing of the plant. The computer code and methodology used by ABB-CE for steam line break mass-energy release calculations is documented in CESSAR System 80 PSAR Appendix 6B (including Amendment 8 in 1974) which has been reviewed and accepted by the NRC in NUREG-75/112 (Ref. 4).

NUREG-0588, Appendix A, (Ref. 5) also identifies the CESSAR System 80 PSAR Appendix 6B as providing acceptable methods for calculating the mass and energy release for determining the MSLB environment to be used for equipment qualification in Combustion Engineering plants.

A review of Section 4 of the Environmental Qualification Topical Report (Ref. 6) indicates that the EQ program at SONGS was documented, reviewed, audited, and accepted by the NRC during the initial licensing of SONGS Units 2 and 3. Open items remaining from the initial plant licensing have been closed and subsequent NRC inspections and audits have not identified any deficiencies with regard to the determination of the post-MSLB environment used to support in-containment equipment qualification.

NRA in their response to AR980502634, Assignment 3, concludes that there is no requirement in the licensing basis for the plant to reanalyze the MSLB accident for the steam superheat issue.

2) It does not directly conflict with NRC Information Notice 84-90.

Information Notice 84-90 (Ref. 7) advised licensees of a non-conservatism identified by Westinghouse regarding heat transfer between the uncovered portion of the steam generator tube bundle and the escaping steam. Westinghouse indicated that their blowdown model did not account for this bare tube-to-steam heat transfer which can superheat the steam exiting the break.

A review of the ABB-CE MSLB methodology contained in Appendix 6B to the CESSAR PSAR clearly shows that heat transfer between exposed SG tubes and the dry steam is included as the calculated height of the two-phase region in the SG drops. Thus, in contrast with the Westinghouse model, ABB-CE has always included bare tube heat transfer to the steam. However, in the CESSAR Appendix 6B, Section II.D.1, the steam dome region in the SG (feeding the break at the outlet nozzle) is described as consisting

> ". . . primarily of saturated steam with the possible presence of a residual amount of condensate. The steam dome region is always on or very near the saturation line except when the steam generator vessel blows dry, at which point the steam becomes superheated."

Furthermore, examination of the energy balance equations presented in Appendix 6B, Section II.D.2, show that the enthalpy of the steam exiting the SG nozzle is treated as no greater than that of saturated steam at the SG pressure. The simultaneous solution of the mass, energy and volume equations involves iteration on steam generator pressure, using saturated steam properties, to obtain a convergent solution. Thus, it is likely that the inclusion of bare tube heat transfer to the dry steam retards the rate of decrease in SG pressure, resulting in higher steam flow rates without allowing the calculation of a superheated break flow until the SG reaches dry-out. The absence of superheat in the ABB-CE large steam line break model until near SG dryout conditions is consistent with expected conditions in the SG during the event, as described in item 3, which follows.

3) It includes very conservatively determined break areas for dry steam flow.

The dry steam/late-superheat mass-energy release data generated in accordance with the methodology in Appendix 6B of the CESSAR PSAR is a very conservative representation of the break flow expected from a large MSLB event. ABB-CE's SGNIII code uses the Allis Chalmers correlation to predict the superficial steam velocity in the two-phase region within the steam generator after the void fraction is calculated. A constant steam separation rate multiplier (zeta) is applied to the steam separation rate in SGNIII. The multiplier is chosen so that SGNIII will give conservative predictions of the two-phase level swell (*i.e.*, under predict the swell) and, thereby, give a conservative calculation of the largest break area at which a pure steam blowdown can occur for a given set of conditions. The multiplier (zeta) was determined by running the SGNIII code to calculate SG level swell and break flow quality for comparison with data measured in steam line break scale model testing performed by CE's Kreisinger Development Laboratory, Battelle Memorial Institute, General Electric, and at the ESADA Vallecitos Experimental Superheat Reactor. Although much of the experimental data were well correlated with a zeta factor of 1.0, a value of 2.5 for zeta was chosen by ABB-CE in 1974 to allow the SGNIII code to conservatively bound the experimental test data.

Based on mass-energy release data in the Reference 1 calculation, this conservative zeta value of 2.5 results in the selection of a MSLB slot break area of 8.85 ft^2 for the 102% power bounding MSLB event which allows initial dry steam break flow rates, from both SGs, about 4 times the plant design value. The dry steam flow rate from the failed SG is still about 3 times the design value following MSIV closure (at about 10 seconds into the event), and the flow does not drop to the design value until about 52 seconds into the event (a few seconds before SG dryout occurs). The substantial conservatism in the ABB-CE steam separation modeling is evident when one considers that, in reality, recirculating steam generators are not typically capable of delivering dry steam

flow at rates substantially greater than their design values at normal operating pressure, much less at the low pressures and high steam velocities which exist following the large area MSLB. In fact, steam generators rely on drying devices (cans) located in the steam dome to remove unvaporized water droplets and mist entrained by the steam exiting the two-phase boiling pool at design steam flow rates. Thus, because of ABB-CE's conservative break area sizing criteria which allow steam flow rates several times above design until SG dryout is approached, a substantial amount of water entrainment must be present above the boiling pool interface as the tube bundle becomes exposed. Under such conditions, steam superheating would be expected to be delayed until both a substantial area of tubing became exposed and the steam flow rate had decreased at least to near, or below, the design value.

Use of smaller zeta factors in the SGNIII code substantially reduces the bounding break area size for dry steam flow. The slot break area for the 102% power MSLB (with early superheat) drops from 8.6 ft^2 with a zeta of 2.5, to about 6.6 ft^2 with a zeta of 2.0, and to about 2.5 ft^2 for a zeta of 1.0. Initial break flows are directly proportional to the break area, so the smaller break areas from lower zeta values substantially reduce the rate of containment pressure and temperature rise following the break, and also delay the uncovery of the SG tube bundle. Thus, regardless of the criteria for establishing break area, the onset of superheated steam discharges will be delayed until the containment spray system is functioning, and peak containment vapor temperatures will continue to be based on a dry, saturated steam break flow. In addition, because of the moderating effect of energy absorption by the initially cool containment structure and internals (passive heat sinks), the largest break area MSLBs, determined with a zeta of 2.5, produce the most rapid pressurization and heat-up of containment and, consequently, the bounding peak pressure and vapor temperature for containment EQ and design.

4) The modified SGNIII early superheat model is overly conservative.

In an attempt to address their concern about the absence of superheat in the MSLB M-E data prior to SG dry-out and provide additional conservatism in the mass/energy release rates for EQ, ABB-CE has provided a simple modification to the SGNIII code which sets the steam temperature in the steam dome equal to the average SG tube wall temperature (basically, the RCS average coolant temperature) as soon as the two-phase level in the SG is calculated to drop to the top of the tube bundle. The effect is a step increase in break flow enthalpy equivalent to about 55F superheat at 27 seconds into the full power MSLB event when uncovery of the tube bundle begins. This methodology implies a near infinite heat transfer rate from the tubes since the exposed tube surface is near zero as the bundle begins to uncover, a physically impossible condition. The model then continues to set the steam temperature at the nozzle equal to the

average RCS temperature out through SG dry-out.

While conservatively ignoring the presence of entrained water droplets in the steam above the pool, more appropriate ways of addressing steam superheat could still have been used by ABB-CE, but were not. As an example, a heat transfer algorithm which calculates heat transfer as a function of the exposed tube surface area using an appropriate steam superheating heat transfer coefficient, together with steam saturation temperature, tube wall temperature and steam flow rate could have been used. This method would calculate a gradual increase in superheat as the exposed tube surface area increases, and delay the onset of significant superheat until containment sprays are functioning at or near the design flow rate.

It is believed that the arguments presented in the foregoing four points provide ample justification for the use of the large break MSLB mass and energy release data provided by ABB-CE in their Reference 1 calculation based on the methodology of Appendix 6B to the CESSAR PSAR, **without** augmentation for early superheat. The recommended M-E data represents conservative input for determination of the containment transient response to large MSLB events, both for containment functional design as described in Section 6.2 of the UFSAR and equipment qualification as described in Section 3.11 of the USFAR.

It should be noted that ABB-CE has not submitted the early superheat modification of the SGNIII code to the NRC for review. ABB-CE has, however, used the early superheat modification to support licensing changes at other plants. One example is the power upgrade for Palo Verde NGS. The impact of the early superheat was minimal at PVNGS because of the much smaller break area calculated for the smaller main steam lines at PVNGS and resultant increased delay to tube bundle uncovery and onset of superheating.

It is also a matter of record that SCE has accepted the early superheat modification of the SGNIII code for calculation of the harsh EQ environment outside containment in the MSIV/MFWIV enclosure structures (Ref. 8). At the time NFM believed use of the superheated MSLB data was appropriate based on prior SCE evaluations which concluded that the superheated steam issue was applicable to outside containment breaks and that there were no spray systems in the area to quench potential superheated steam releases. This position caused little impact and was considered prudent for outside containment breaks.

D. CONCLUSION

This memorandum identifies the bases for continuing to determine the bounding short term peak containment vapor temperature for EQ using MSLB mass-energy data calculated according to the methodology described in ABB-CE's System 80 CESSAR,

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1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

Appendix 6B, and identified as applicable in NUREG-0588. Calculation N-4080-027 (Ref. 9) will be revised to include an updated analysis of containment response to the design basis MSLB for equipment qualification using the dry steam/late superheat M-E data provided by ABB-CE in their Reference 1 calculation. The ABB-CE dry steam/early superheat methodology is rejected as not applicable to SONGS 2 & 3, and will not be used.

The new containment response analysis will conform to current format and criteria for SCE Nuclear calculations. The calculation will be consistent with SONGS Units 2 & 3 licensing requirements. The calculation will utilize updated design input, reflect current plant configuration, and include instrument TLUs on applicable limiting conditions for operation (LCOs) and other input parameters, as appropriate. The analysis will be defendable to the NRC. Issue of the revised containment MSLB calculation is scheduled for June 1, 1999.

Prepared by: PAUL BARBOUR
Nuclear Fuels Engineering & Analysis

Reviewed by: MARK DRUCKER
Nuclear Fuels Engineering & Analysis

Approved by: SCOTT SWOOPE
Nuclear Fuels Engineering & Analysis

cc: M. I. Drucker, W. Fargo, M. M. McGawn, P. D. Myers, R. F. Osborne, D. F. Pilmer, J. L. Rainsberry, S. C. Swoope, O. J. Thomsen, B. L. Woods, P. Barbour, CDM Files

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1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

APPENDIX C
CONTAINMENT SPRAY SYSTEM NOZZLE FLOW SUMMATION ANALYSIS

Summary of Results

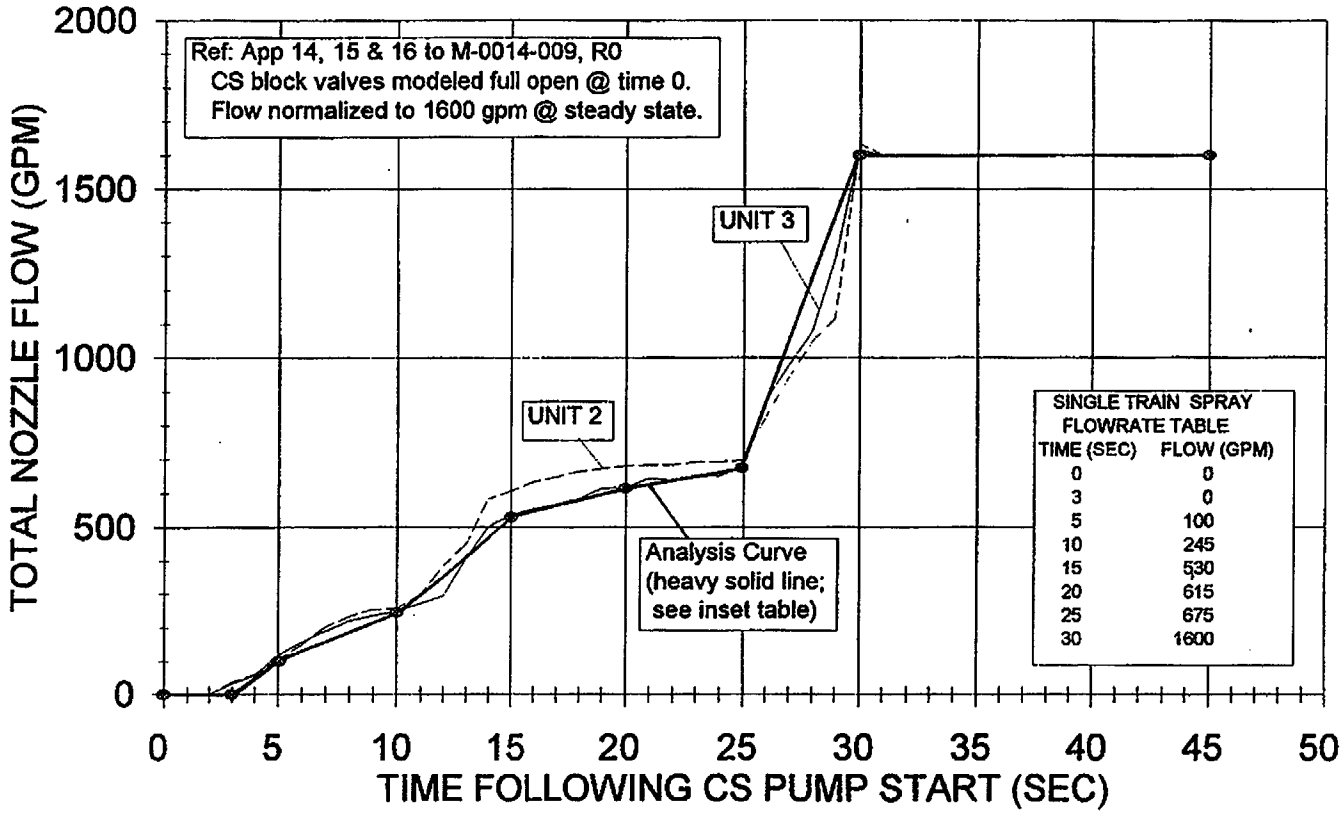
Figure C-1 presents the containment spray flow rate as a function of time based on results of the Unit 2 and Unit 3 transient fill analyses in Calculation M-0014-009 [Ref. 6.17]. The figure also includes an overlay of the flow versus time table used as a basis for the COPATTA containment P-T response calculations. Table C-1 provides the values used to generate the curves in Figure C-1. Time zero in this analysis is start time for the containment spray pump with the spray line block valves assumed to be full open, as modeled in the hydraulic transient analysis of Reference 6.17.

Tables C-2 (A, B & C) and C-3 (A, B & C) are Quattro Pro spreadsheets used to develop the time history of the containment spray flow delivered through the spray nozzles during the header fill period for Units 2 and 3, respectively. These tables show the volumetric flow rate through each spray nozzle group (link) in each spray ring header from 0 to 45 seconds which were manually scaled from the link flow plots included in Reference 6.17, Appendices 16-5 (Unit 2) and 15-5 (Unit 3). The A, B and C tables apply to the lower, middle and top ring headers, respectively. These tables also provide a visual indication of the delay in spray flow from the various nozzle groups in the individual ring headers during the filling transient.

The spreadsheet results in Table C-1 show the Unit 2 steady state spray flow to be 1572 gpm and the Unit 3 steady state spray flow to be 1639 gpm. These values compare closely with the values identified in the Reference 6.17 calculation of 1568 gpm and 1633 gpm for Units 2 and 3, respectively. Based on the results of Supplement A to the Reference 6.17 calculation, a minimum injection mode containment spray flow of 1606 gpm has been identified as applicable to containment P-T response calculations for peak pressure and temperature response to LOCA and MSLB events. As identified in References 6.7 and 6.8 (Section IX.008) the analysis value for minimum containment spray flow is 1600 gpm. Therefore, the header filling transient spray flows have been normalized to a maximum steady state value of 1600 gpm.

The spray flow rates as a function of time used to create the COPATTA containment spray flow versus time input table (Card Series 801) were selected to be slightly less than either the Unit 2 or Unit 3 flow rates at times of 3, 5, 10, 15, 20 and 25 seconds, and equal to 1600 gpm at 30 seconds from start of header filling, when the system is shown to be completely filled. The values used are shown in Table C-1 and Figure C-1. Section 8.1.1.17 of the COPATTA analysis develops the 20-second offset used to relate the start of spray header filling to the occurrence of the MSLB event. The time to generate the containment spray pump actuation signal based on a containment high pressure analysis set point of 5 psig is less than 16 seconds following the MSLB for all the large steam line breaks analyzed in this calculation. In addition, the spray block valves are either fully open, or close enough to fully open to support modeling the spray header filling transient to begin at 20 seconds following occurrence of the MSLB event.

FIGURE C-1
CONTAINMENT SPRAY HEADER FILLING TRANSIENT ANALYSIS - SONGS 2 & 3



SINGLE TRAIN SPRAY FLOWRATE TABLE

TIME (SEC)	FLOW (GPM)
0	0
3	0
5	100
10	245
15	530
20	615
25	675
30	1600

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1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

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TABLE C-1: CONTAINMENT SPRAY FLOW SUMMARY

	SONGS UNIT 2					SONGS UNIT 3					SONGS UNITS 2&3	
	Individual Header Flows (gpm)			Total	Normalized	Individual Header Flows (gpm)			Total	Normalized		Spray Flow
Time (sec)	Lower Header	Middle Header	Top Header	Spray Flow (gpm)	Spray Flow (gpm)	Lower Header	Middle Header	Top Header	Spray Flow (gpm)	Spray Flow (gpm)	Time (sec)	Input Table (gpm)
0.0	0	0	0	0	0	0	0	0	0	0	0.0	0
1.0	0	0	0	0	0	0	0	0	0	0	1.0	
2.0	0	0	0	0	0	0	0	0	0	0	2.0	
3.0	38	0	0	38	39	35	0	0	35	34	3.0	0
4.0	60	0	0	60	61	60	0	0	60	58	4.0	
5.0	105	0	0	105	106	121	0	0	121	118	5.0	100
6.0	147	0	0	147	150	161	0	0	161	157	6.0	
7.0	200	0	0	200	204	195	0	0	195	191	7.0	
8.0	228	0	0	228	232	227	0	0	227	222	8.0	
9.0	252	0	0	252	256	242	0	0	242	236	9.0	
10.0	253	0	0	253	258	256	0	0	256	250	10.0	245
11.0	291	0	0	291	296	279	0	0	279	272	11.0	
12.0	379	0	0	379	386	302	0	0	302	294	12.0	
13.0	444	0	0	444	452	418	0	0	418	408	13.0	
14.0	572	0	0	572	582	514	0	0	514	502	14.0	
15.0	596	0	0	596	607	548	0	0	548	534	15.0	530
16.0	597	27	0	624	635	546	22	0	568	554	16.0	
17.0	595	42	0	636	648	545	37	0	583	569	17.0	
18.0	589	66	0	656	667	546	53	0	599	584	18.0	
19.0	585	78	0	663	675	551	80	0	631	616	19.0	
20.0	581	89	0	670	682	544	90	0	634	618	20.0	615
21.0	577	96	0	673	685	546	114	0	681	645	21.0	
22.0	574	100	0	674	686	544	110	0	654	638	22.0	
23.0	574	107	0	681	693	544	121	0	665	649	23.0	
24.0	573	110	0	683	695	543	124	0	668	652	24.0	
25.0	572	112	0	684	696	548	148	0	697	680	25.0	675
26.0	601	210	0	811	825	597	300	0	897	875	26.0	
27.0	637	290	0	927	944	646	342	16	1004	980	27.0	
28.0	674	332	26	1031	1050	685	379	44	1109	1082	28.0	
29.0	692	353	52	1097	1116	701	399	226	1325	1293	29.0	
30.0	837	531	237	1604	1633	868	539	250	1657	1617	30.0	1600
31.0	844	504	224	1573	1600	865	532	244	1641	1602	31.0	
45.0	846	502	224	1572	1600	865	531	244	1639	1600	45.0	1600

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1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

TABLE C-2A: LOWER RING HEADER SPRAY NOZZLE FLOWS - SONGS UNIT 2
Reference: Appendix 16-5 of Calculation M-0014-009 [Ref. 6.17]

Time (sec)	Lower Ring Header Nozzle Group (LINK) Flow Rate (cubic feet per second)																			Total Nozzle Flow (cfs)	Total Nozzle Flow (gpm)
	91	99	98	97	96	95	94	93	92	100	111	112	113	114	115	116	117	118	110		
0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.0	0	0	0	0	0	0	0	0	0	0.038	0.049	0	0	0	0	0	0	0	0	0.085	38
4.0	0	0	0	0	0	0	0	0	0.046	0.039	0.049	0	0	0	0	0	0	0	0	0.134	60
5.0	0	0	0	0	0	0	0	0.046	0.049	0.038	0.051	0.049	0	0	0	0	0	0	0	0.233	105
6.0	0	0	0	0	0	0	0.045	0.048	0.054	0.038	0.052	0.049	0.042	0	0	0	0	0	0	0.328	147
7.0	0	0	0	0	0.036	0.041	0.045	0.050	0.054	0.038	0.052	0.049	0.042	0.039	0	0	0	0	0	0.446	200
8.0	0	0	0	0.032	0.036	0.041	0.045	0.049	0.052	0.037	0.052	0.049	0.042	0.039	0.035	0	0	0	0	0.509	228
9.0	0	0	0.028	0.032	0.036	0.041	0.044	0.048	0.052	0.036	0.050	0.049	0.042	0.039	0.035	0.029	0	0	0	0.561	252
10.0	0	0	0.030	0.032	0.036	0.041	0.043	0.047	0.052	0.036	0.050	0.049	0.042	0.039	0.036	0.031	0	0	0	0.564	253
11.0	0.035	0.022	0.030	0.032	0.036	0.041	0.043	0.047	0.051	0.037	0.050	0.049	0.042	0.039	0.037	0.032	0.025	0	0	0.648	291
12.0	0.039	0.057	0.057	0.055	0.056	0.057	0.057	0.057	0.057	0.039	0.053	0.052	0.049	0.039	0.038	0.033	0.028	0.022	0	0.845	379
13.0	0.041	0.061	0.061	0.059	0.062	0.060	0.060	0.062	0.063	0.048	0.059	0.062	0.056	0.055	0.048	0.050	0.042	0.042	0	0.989	444
14.0	0.045	0.069	0.065	0.068	0.068	0.068	0.069	0.069	0.069	0.047	0.068	0.072	0.070	0.068	0.067	0.068	0.069	0.068	0.090	1.275	572
15.0	0.047	0.070	0.070	0.069	0.071	0.071	0.071	0.072	0.072	0.048	0.072	0.072	0.072	0.071	0.072	0.071	0.072	0.070	0.095	1.328	596
16.0	0.048	0.070	0.070	0.069	0.071	0.071	0.071	0.072	0.072	0.049	0.072	0.072	0.072	0.072	0.072	0.071	0.072	0.070	0.094	1.330	597
17.0	0.047	0.070	0.070	0.069	0.069	0.071	0.070	0.072	0.072	0.048	0.072	0.072	0.072	0.072	0.072	0.072	0.071	0.070	0.094	1.325	595
18.0	0.046	0.070	0.070	0.069	0.069	0.070	0.070	0.070	0.072	0.047	0.071	0.072	0.071	0.071	0.071	0.070	0.070	0.070	0.094	1.313	589
19.0	0.048	0.070	0.070	0.069	0.068	0.070	0.070	0.070	0.072	0.048	0.070	0.071	0.070	0.070	0.070	0.069	0.070	0.069	0.094	1.304	585
20.0	0.048	0.070	0.070	0.068	0.068	0.069	0.069	0.070	0.071	0.047	0.069	0.070	0.069	0.069	0.069	0.069	0.069	0.069	0.093	1.294	581
21.0	0.045	0.069	0.069	0.068	0.068	0.069	0.069	0.069	0.071	0.046	0.069	0.069	0.069	0.069	0.069	0.068	0.069	0.069	0.092	1.286	577
22.0	0.045	0.069	0.069	0.068	0.068	0.068	0.068	0.068	0.070	0.046	0.069	0.069	0.069	0.069	0.068	0.068	0.069	0.068	0.091	1.279	574
23.0	0.045	0.069	0.070	0.067	0.068	0.068	0.068	0.068	0.069	0.046	0.069	0.069	0.069	0.069	0.068	0.068	0.069	0.068	0.091	1.278	574
24.0	0.045	0.069	0.070	0.066	0.068	0.068	0.068	0.068	0.068	0.046	0.069	0.069	0.069	0.069	0.068	0.068	0.069	0.068	0.091	1.276	573
25.0	0.044	0.069	0.070	0.066	0.068	0.068	0.068	0.067	0.068	0.047	0.069	0.069	0.069	0.069	0.068	0.068	0.069	0.068	0.091	1.275	572
26.0	0.048	0.070	0.074	0.069	0.071	0.071	0.073	0.073	0.073	0.049	0.072	0.072	0.072	0.072	0.072	0.071	0.072	0.070	0.095	1.339	601
27.0	0.053	0.075	0.077	0.073	0.075	0.075	0.078	0.077	0.078	0.052	0.078	0.078	0.075	0.076	0.075	0.075	0.076	0.074	0.100	1.420	637
28.0	0.055	0.079	0.079	0.079	0.079	0.080	0.081	0.081	0.082	0.055	0.082	0.082	0.081	0.082	0.080	0.079	0.080	0.079	0.106	1.501	674
29.0	0.055	0.083	0.082	0.080	0.082	0.081	0.083	0.084	0.084	0.055	0.085	0.084	0.083	0.083	0.082	0.082	0.082	0.082	0.110	1.542	692
30.0	0.063	0.097	0.096	0.100	0.100	0.097	0.101	0.102	0.104	0.068	0.104	0.104	0.101	0.101	0.098	0.101	0.098	0.097	0.132	1.864	837
31.0	0.067	0.100	0.100	0.100	0.101	0.100	0.101	0.101	0.102	0.068	0.102	0.101	0.101	0.101	0.101	0.100	0.101	0.100	0.134	1.881	844
45.0	0.068	0.100	0.100	0.100	0.101	0.100	0.101	0.102	0.102	0.068	0.103	0.101	0.101	0.101	0.101	0.101	0.100	0.100	0.134	1.884	846

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TABLE C-2B: MIDDLE RING HEADER SPRAY NOZZLE FLOWS - SONGS UNIT 2
Reference: Appendix 16-5 of Calculation M-0014-009 [Ref. 6.17]

Time (sec)	Middle Ring Header Nozzle Group (LINK) Flow Rate (cubic feet per second) 134	140	139	138	137	136	135	141	149	150	151	152	153	148	Total Nozzle Flow (cfs)	Total Nozzle Flow (gpm)
0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16.0	0	0	0	0	0	0	0	0.024	0.036	0	0	0	0	0	0.060	27
17.0	0	0	0	0	0	0	0.033	0.024	0.036	0	0	0	0	0	0.093	42
18.0	0	0	0	0	0	0.029	0.033	0.024	0.033	0.029	0	0	0	0	0.148	66
19.0	0	0	0	0	0.026	0.029	0.033	0.023	0.033	0.029	0	0	0	0	0.173	78
20.0	0	0	0	0	0.025	0.030	0.033	0.023	0.033	0.029	0.026	0	0	0	0.199	89
21.0	0	0	0	0.023	0.024	0.028	0.032	0.022	0.032	0.028	0.025	0	0	0	0.214	96
22.0	0	0	0	0.021	0.023	0.027	0.031	0.022	0.030	0.027	0.023	0.019	0	0	0.223	100
23.0	0	0	0.020	0.020	0.023	0.027	0.031	0.021	0.030	0.026	0.023	0.018	0	0	0.239	107
24.0	0	0	0.016	0.020	0.022	0.027	0.031	0.021	0.030	0.026	0.023	0.017	0.013	0	0.246	110
25.0	0	0.004	0.013	0.018	0.023	0.027	0.030	0.021	0.030	0.026	0.023	0.020	0.014	0	0.249	112
26.0	0.031	0.026	0.027	0.029	0.030	0.036	0.037	0.029	0.039	0.036	0.035	0.038	0.036	0.038	0.467	210
27.0	0.032	0.047	0.049	0.049	0.046	0.048	0.049	0.033	0.049	0.049	0.051	0.048	0.047	0.049	0.646	290
28.0	0.037	0.056	0.055	0.055	0.055	0.057	0.055	0.037	0.055	0.055	0.056	0.055	0.055	0.056	0.739	332
29.0	0.039	0.059	0.057	0.059	0.059	0.060	0.059	0.039	0.060	0.059	0.059	0.059	0.059	0.059	0.786	353
30.0	0.058	0.088	0.089	0.087	0.088	0.088	0.091	0.059	0.089	0.090	0.090	0.088	0.089	0.090	1.184	531
31.0	0.056	0.083	0.084	0.085	0.084	0.084	0.085	0.055	0.085	0.084	0.085	0.085	0.084	0.084	1.123	504
45.0	0.056	0.083	0.083	0.084	0.083	0.084	0.085	0.055	0.085	0.085	0.084	0.084	0.084	0.084	1.119	502

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TABLE C-2C: TOP RING HEADER SPRAY NOZZLE FLOWS - SONGS UNIT 2
Reference: Appendix 16-5 of Calculation M-0014-009 [Ref. 6.17]

Time (sec)	Top Ring Header Nozzle Group (LINK) Flow Rate (cubic feet per second) 167	168	169	162	163	161	Total Nozzle Flow (cfs)	Total Nozzle Flow (gpm)
0.0	0	0	0	0	0	0	0	0
1.0	0	0	0	0	0	0	0	0
2.0	0	0	0	0	0	0	0	0
3.0	0	0	0	0	0	0	0	0
4.0	0	0	0	0	0	0	0	0
5.0	0	0	0	0	0	0	0	0
6.0	0	0	0	0	0	0	0	0
7.0	0	0	0	0	0	0	0	0
8.0	0	0	0	0	0	0	0	0
9.0	0	0	0	0	0	0	0	0
10.0	0	0	0	0	0	0	0	0
11.0	0	0	0	0	0	0	0	0
12.0	0	0	0	0	0	0	0	0
13.0	0	0	0	0	0	0	0	0
14.0	0	0	0	0	0	0	0	0
15.0	0	0	0	0	0	0	0	0
16.0	0	0	0	0	0	0	0	0
17.0	0	0	0	0	0	0	0	0
18.0	0	0	0	0	0	0	0	0
19.0	0	0	0	0	0	0	0	0
20.0	0	0	0	0	0	0	0	0
21.0	0	0	0	0	0	0	0	0
22.0	0	0	0	0	0	0	0	0
23.0	0	0	0	0	0	0	0	0
24.0	0	0	0	0	0	0	0	0
25.0	0	0	0	0	0	0	0	0
26.0	0	0	0	0	0	0	0	0
27.0	0	0	0	0	0	0	0	0
28.0	0	0	0.028	0.030	0	0	0.058	26
29.0	0	0.020	0.036	0.038	0.022	0	0.116	52
30.0	0.100	0.082	0.082	0.082	0.081	0.100	0.527	237
31.0	0.100	0.075	0.075	0.075	0.075	0.100	0.500	224
45.0	0.099	0.075	0.076	0.076	0.075	0.099	0.500	224

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E&TS DEPARTMENT

CALCULATION SHEET

Project or DCP/FCN SONGS 2 & 3 Calc. No. N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events

ICCN NO./ PRELIM. CCN NO. PAGE OF

CCN CONVERSION: CCN NO. CCN –

Sheet No. 272 of 312

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1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

TABLE C-3A: LOWER RING HEADER SPRAY NOZZLE FLOWS - SONGS UNIT 3
Reference: Appendix 15-5 of Calculation M-0014-009 [Ref. 6.17]

Time (sec)	Lower Ring Header Nozzle Group (LINK) Flow Rate (cubic feet per second)																				Total Nozzle Flow (cfs)	Total Nozzle Flow (gpm)
	111	120	119	118	117	116	115	114	113	112	121	89	90	91	92	93	94	95	96	88		
0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.000	0
1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.000	0
2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.000	0
3.0	0	0	0	0	0	0	0	0	0	0	0.029	0.048	0	0	0	0	0	0	0	0	0.077	35
4.0	0	0	0	0	0	0	0	0	0	0.049	0.036	0.048	0	0	0	0	0	0	0	0	0.133	60
5.0	0	0	0	0	0	0	0	0.034	0.048	0.054	0.039	0.049	0.045	0	0	0	0	0	0	0	0.269	121
6.0	0	0	0	0	0	0	0.039	0.043	0.049	0.054	0.038	0.049	0.046	0.041	0	0	0	0	0	0	0.359	161
7.0	0	0	0	0	0	0.036	0.039	0.045	0.051	0.054	0.038	0.049	0.046	0.041	0.038	0	0	0	0	0	0.435	195
8.0	0	0	0	0	0.034	0.037	0.040	0.046	0.051	0.054	0.038	0.049	0.046	0.042	0.037	0.032	0	0	0	0	0.506	227
9.0	0	0	0	0.029	0.034	0.038	0.040	0.047	0.051	0.054	0.039	0.049	0.046	0.042	0.038	0.032	0	0	0	0	0.539	242
10.0	0	0	0	0.029	0.034	0.039	0.043	0.047	0.051	0.054	0.039	0.049	0.046	0.042	0.038	0.033	0.027	0	0	0	0.571	256
11.0	0	0	0.024	0.029	0.034	0.039	0.043	0.047	0.051	0.054	0.039	0.049	0.046	0.043	0.039	0.034	0.028	0.022	0	0	0.621	279
12.0	0.021	0.022	0.025	0.030	0.034	0.039	0.043	0.047	0.052	0.054	0.039	0.052	0.046	0.043	0.039	0.035	0.029	0.022	0	0	0.672	302
13.0	0.021	0.056	0.055	0.056	0.058	0.057	0.058	0.058	0.054	0.058	0.042	0.055	0.053	0.049	0.052	0.038	0.030	0.023	0.065	0	0.932	418
14.0	0.021	0.061	0.061	0.061	0.059	0.058	0.061	0.061	0.060	0.063	0.044	0.061	0.063	0.062	0.061	0.058	0.062	0.059	0.065	0.044	1.145	514
15.0	0.021	0.066	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.044	0.066	0.065	0.066	0.066	0.066	0.065	0.066	0.065	0.044	1.220	548
16.0	0.021	0.065	0.064	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.044	0.066	0.065	0.065	0.066	0.065	0.065	0.066	0.065	0.044	1.216	546
17.0	0.021	0.064	0.064	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.044	0.066	0.065	0.065	0.066	0.065	0.065	0.066	0.065	0.044	1.215	545
18.0	0.021	0.066	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.044	0.065	0.065	0.065	0.066	0.065	0.065	0.066	0.065	0.044	1.217	546
19.0	0.021	0.067	0.067	0.065	0.067	0.067	0.065	0.065	0.065	0.066	0.044	0.065	0.065	0.065	0.066	0.068	0.065	0.066	0.065	0.044	1.228	551
20.0	0.021	0.063	0.064	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.044	0.065	0.065	0.064	0.066	0.065	0.065	0.068	0.065	0.044	1.212	544
21.0	0.021	0.068	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.068	0.044	0.065	0.065	0.064	0.065	0.067	0.065	0.065	0.065	0.044	1.217	546
22.0	0.021	0.065	0.064	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.044	0.065	0.065	0.064	0.065	0.066	0.065	0.065	0.065	0.044	1.213	544
23.0	0.021	0.065	0.064	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.044	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.043	1.212	544
24.0	0.021	0.064	0.064	0.065	0.065	0.065	0.064	0.065	0.065	0.065	0.045	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.065	0.043	1.211	543
25.0	0.022	0.063	0.064	0.065	0.065	0.065	0.063	0.065	0.068	0.065	0.048	0.068	0.069	0.069	0.068	0.065	0.065	0.065	0.065	0.043	1.222	548
26.0	0.024	0.067	0.072	0.069	0.069	0.070	0.072	0.071	0.071	0.070	0.052	0.072	0.072	0.073	0.074	0.071	0.070	0.073	0.070	0.048	1.330	597
27.0	0.026	0.077	0.076	0.074	0.075	0.078	0.075	0.077	0.077	0.080	0.054	0.078	0.078	0.078	0.078	0.078	0.077	0.077	0.078	0.051	1.440	646
28.0	0.027	0.081	0.081	0.081	0.081	0.083	0.082	0.082	0.083	0.082	0.055	0.083	0.083	0.081	0.082	0.081	0.081	0.082	0.081	0.055	1.527	685
29.0	0.028	0.083	0.083	0.082	0.082	0.084	0.083	0.083	0.086	0.086	0.058	0.084	0.085	0.084	0.084	0.084	0.082	0.083	0.083	0.056	1.561	701
30.0	0.034	0.103	0.104	0.103	0.103	0.104	0.104	0.103	0.104	0.103	0.070	0.104	0.104	0.104	0.103	0.104	0.103	0.104	0.104	0.069	1.934	868
31.0	0.034	0.103	0.104	0.103	0.103	0.104	0.103	0.103	0.103	0.103	0.070	0.104	0.103	0.103	0.103	0.103	0.102	0.104	0.104	0.068	1.927	865
45.0	0.034	0.103	0.104	0.103	0.103	0.104	0.103	0.103	0.103	0.103	0.070	0.104	0.103	0.103	0.103	0.103	0.102	0.104	0.104	0.068	1.927	865

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REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

TABLE C-3B: MIDDLE RING HEADER SPRAY NOZZLE FLOWS - SONGS UNIT 3

Reference: Appendix 15-5 of Calculation M-0014-009 [Ref. 6.17]

Time (sec)	Middle Ring Header Nozzle Group (LINK) Flow Rate (cubic feet per second)														Total Nozzle Flow (cfs)	Total Nozzle Flow (gpm)
	149	154	153	152	151	150	155	134	135	136	137	138	139	133		
0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16.0	0	0	0	0	0	0	0.024	0.025	0	0	0	0	0	0	0.049	22
17.0	0	0	0	0	0	0.034	0.025	0.024	0	0	0	0	0	0	0.083	37
18.0	0	0	0	0	0	0.034	0.025	0.024	0.034	0	0	0	0	0	0.117	53
19.0	0	0	0	0	0.031	0.034	0.025	0.026	0.034	0.029	0	0	0	0	0.179	80
20.0	0	0	0	0.027	0.031	0.034	0.026	0.022	0.031	0.029	0	0	0	0	0.200	90
21.0	0	0	0.022	0.028	0.032	0.036	0.026	0.025	0.034	0.030	0.022	0	0	0	0.255	114
22.0	0	0	0.021	0.027	0.031	0.034	0.025	0.023	0.032	0.029	0.022	0	0	0	0.244	110
23.0	0	0.016	0.021	0.025	0.029	0.033	0.024	0.022	0.031	0.029	0.022	0.017	0	0	0.269	121
24.0	0	0.016	0.021	0.025	0.029	0.033	0.023	0.022	0.031	0.029	0.022	0.017	0.009	0	0.277	124
25.0	0.033	0.016	0.021	0.025	0.029	0.037	0.028	0.022	0.031	0.029	0.022	0.020	0.017	0	0.330	148
26.0	0.047	0.043	0.045	0.047	0.095	0.049	0.031	0.033	0.048	0.051	0.048	0.049	0.050	0.033	0.669	300
27.0	0.053	0.059	0.056	0.057	0.058	0.059	0.039	0.039	0.059	0.062	0.059	0.058	0.064	0.040	0.762	342
28.0	0.065	0.064	0.065	0.065	0.064	0.065	0.043	0.043	0.065	0.068	0.065	0.064	0.065	0.044	0.845	379
29.0	0.067	0.066	0.066	0.067	0.068	0.068	0.045	0.045	0.068	0.071	0.068	0.067	0.068	0.055	0.889	399
30.0	0.086	0.093	0.093	0.093	0.093	0.093	0.061	0.061	0.093	0.097	0.093	0.093	0.092	0.061	1.202	539
31.0	0.086	0.092	0.091	0.091	0.092	0.092	0.060	0.061	0.091	0.095	0.091	0.092	0.091	0.061	1.186	532
45.0	0.086	0.092	0.090	0.091	0.091	0.091	0.060	0.061	0.091	0.095	0.091	0.092	0.091	0.061	1.183	531

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TABLE C-3C: TOP RING HEADER SPRAY NOZZLE FLOWS - SONGS UNIT 3
Reference: Appendix 15-5 of Calculation M-0014-009 [Ref. 6.17]

Time (sec)	Top Ring Header Nozzle Group (LINK) Flow Rate (cubic feet per second) 167	175	174	176	177	173	Total Nozzle Flow (cfs)	Total Nozzle Flow (gpm)
0.0	0	0	0	0	0	0	0	0
1.0	0	0	0	0	0	0	0	0
2.0	0	0	0	0	0	0	0	0
3.0	0	0	0	0	0	0	0	0
4.0	0	0	0	0	0	0	0	0
5.0	0	0	0	0	0	0	0	0
6.0	0	0	0	0	0	0	0	0
7.0	0	0	0	0	0	0	0	0
8.0	0	0	0	0	0	0	0	0
9.0	0	0	0	0	0	0	0	0
10.0	0	0	0	0	0	0	0	0
11.0	0	0	0	0	0	0	0	0
12.0	0	0	0	0	0	0	0	0
13.0	0	0	0	0	0	0	0	0
14.0	0	0	0	0	0	0	0	0
15.0	0	0	0	0	0	0	0	0
16.0	0	0	0	0	0	0	0	0
17.0	0	0	0	0	0	0	0	0
18.0	0	0	0	0	0	0	0	0
19.0	0	0	0	0	0	0	0	0
20.0	0	0	0	0	0	0	0	0
21.0	0	0	0	0	0	0	0	0
22.0	0	0	0	0	0	0	0	0
23.0	0	0	0	0	0	0	0	0
24.0	0	0	0	0	0	0	0	0
25.0	0	0	0	0	0	0	0	0
26.0	0	0	0	0	0	0	0	0
27.0	0	0	0.021	0.015	0	0	0.036	16
28.0	0	0.012	0.037	0.033	0.016	0	0.098	44
29.0	0.190	0.031	0.042	0.040	0.031	0.169	0.503	226
30.0	0.110	0.084	0.085	0.083	0.084	0.110	0.556	250
31.0	0.108	0.082	0.083	0.082	0.081	0.108	0.544	244
45.0	0.108	0.081	0.083	0.082	0.081	0.108	0.543	244

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APPENDIX D

UNIT 2 FLOOR AND LINER PLATE COATING THICKNESS SURVEY (REFERENCE 6.21)

(18-page report follows)

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1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

Unit 2 Floor and Liner Plate Coating Thickness Survey

Performed by Maintenance Support Services
Mike Mason

Unit 2 Mid Cycle

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Subject Containment P/T Analysis for Design Basis MSLB Events **Sheet No.** 277 of 312

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

Contents

Section 1 Floors

63' data.....Pg. 1
63' map.....Pg. 2
45' data.....Pg. 3
45' map.....Pg. 4
30' data.....Pg. 5
30' map.....Pg. 6
17' data.....Pg. 7
17' map.....Pg. 8

Section 2 Liner Plate

63' data.....Pg. 1
63' map.....Pg. 2
45' data.....Pg. 3
45' map.....Pg. 4
30' data.....Pg. 5
30' map.....Pg. 6
17' data.....Pg. 7
17' map.....Pg. 8

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REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

CONTAINMENT PAINT THICKNESS SURVEY

SONGS Unit: 2 Liner plate **Survey Performed By:** Kip Nelson **Date:** 2/20/98

Floor Elevation: 63 **Test Method:** magnetic dry film gauge **Page** 1 **of** 8

Data Point No.	Sampling Location	Thickness (mils)	Notes
1	See attached map	7	opposite 2me400
2		10	opposite manway of 2me397
3		7	below 16" open flange
4		15	above stairway handrail
5		13	bottom of 101 pbp circle
6		8	opposite corner of 2me398
7		12	above handrail at opening
8		9	behind valve cage 2L024
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			

Comments:
A total of 8 data points were assigned all measurements taken aproximately 5' from deck unless otherwise noted.

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Subject Containment P/T Analysis for Design Basis MSLB Events

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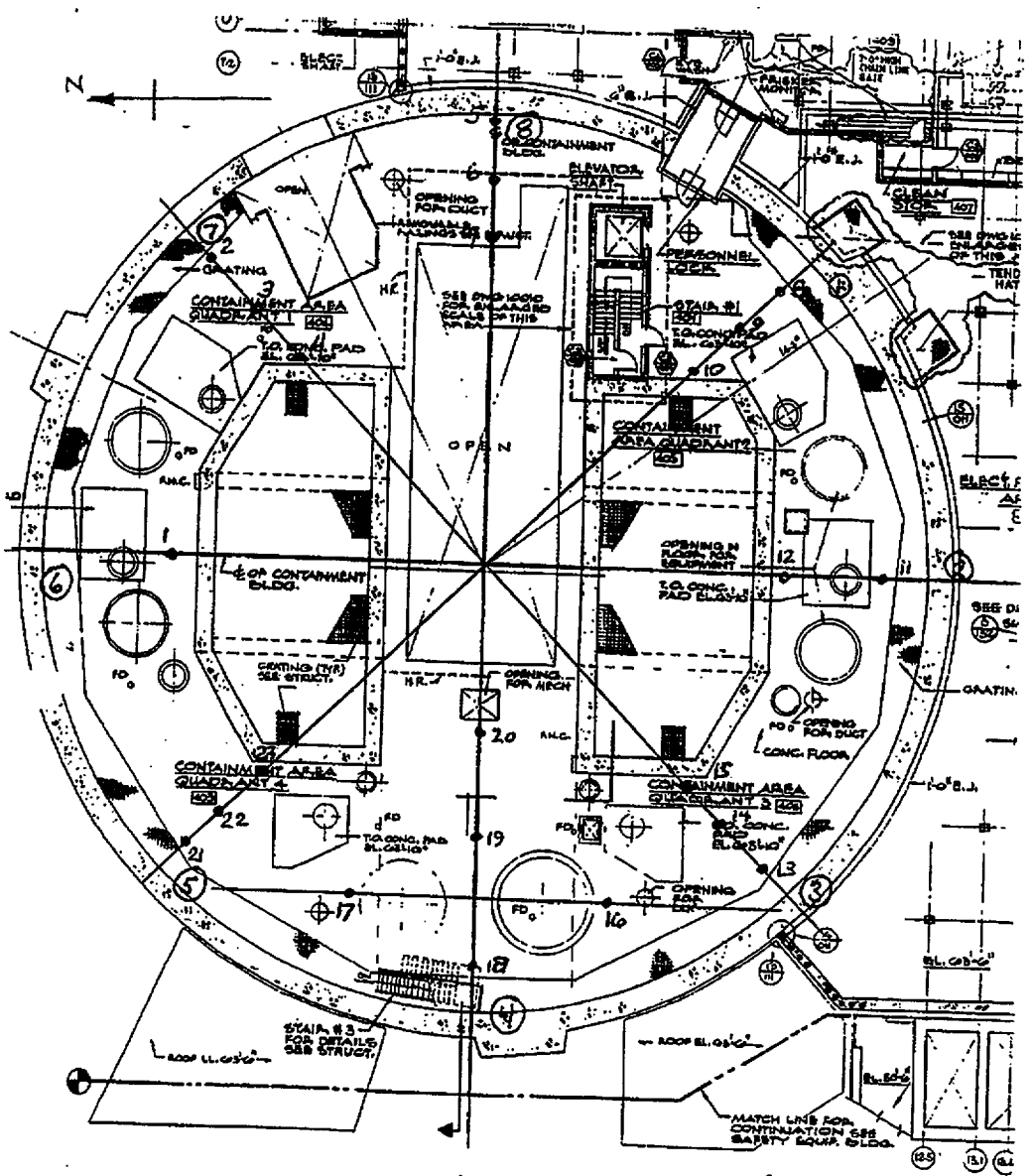
REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						



PLAN AT EL. 63'-6"
SCALE: 1/8" = 1'-0"

8 Points

SAFETY EQUIPMENT BLDG

10003-2 UNIT 2

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Subject Containment P/T Analysis for Design Basis MSLB Events **Sheet No.** 280 of 312

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

CONTAINMENT PAINT THICKNESS SURVEY

SONGS Unit: 2 Liner plate **Survey Performed By:** Kip Nelson **Date:** 2/20/98

Floor Elevation: 45' **Test Method:** magnetic dry film gauge **Page** 3 **of** 8

Data Point No.	Sampling Location	Thickness (mils)	Notes
1	See attached map	9	2 ½ ' from left edge of embedded unistrut opposite 2me393
2		13	below 2nd 16" opening next to BPXJB5
3		9	right edge of 2AC3RP08
4		7	opposite stairwell handrail behind I beam
5		16	above grating opposite col 12
6		10	bottom of 73 RBP circle
7		11	opposite corner of 2me396
8		9	edge of grating opposite CHXX01
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			

Comments:
A total of 8 data points were assigned all measurements taken aproximately 5' from deck unless otherwise noted.

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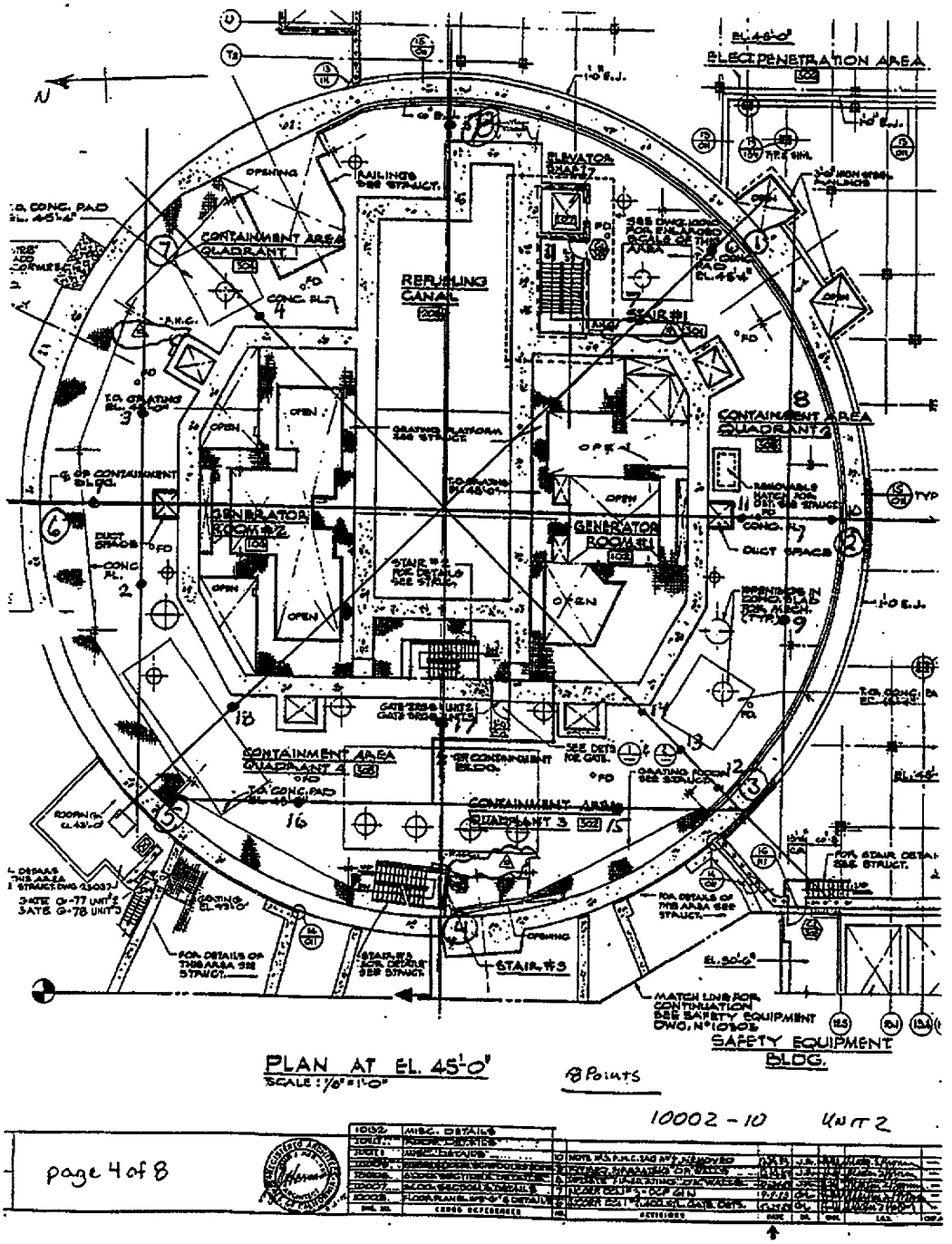
REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						



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REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

CONTAINMENT PAINT THICKNESS SURVEY

SONGS Unit: 2 Liner plate **Survey Performed By:** Kip Nelson **Date:** 2/20/98

Floor Elevation: 30' **Test Method:** magnetic dry film gauge **Page** 5 **of** 8

Data Point No.	Sampling Location	Thickness (mils)	Notes
1	See attached map	9	near embedded unistrut opposite Col 6
2		8	above middle of pen 73B placard
3		11	below meddle of pen 10C placard
4		10	above stairwell handrail behind I beam
5		6	between welded plates
6		7	bottom of 49 RBP circle
7		9	6' from right edge of embedded unistrut
8		7	below middle of pen 11 placard
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			

Comments:
A total of 8 data points were assigned all measurements taken aproximately 5' from deck unless otherwise noted.

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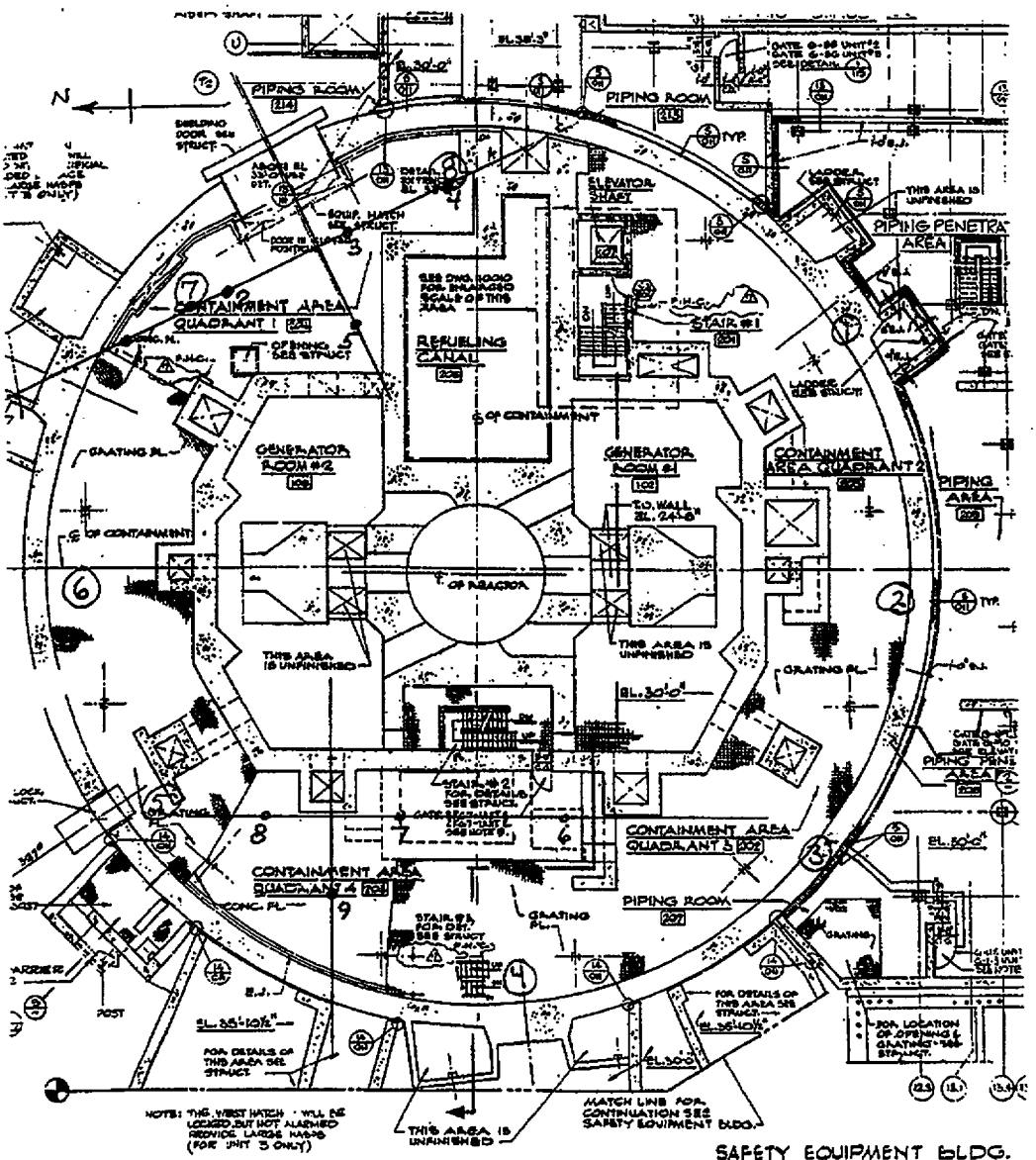
Project or DCP/FCN SONGS 2 & 3 **Calc. No.** N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events **Sheet No.** 283 of 312

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						



8 Points

10001-17 UNIT 2

page 6 of 8

E&TS DEPARTMENT

CALCULATION SHEET

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Project or DCP/FCN SONGS 2 & 3 **Calc. No.** N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events **Sheet No.** 284 of 312

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99					

REV ⇓

CONTAINMENT PAINT THICKNESS SURVEY

SONGS Unit: 2 Liner plate **Survey Performed By:** Kip Nelson **Date:** 2/20/98

Floor Elevation: 17' **Test Method:** magnetic dry film gauge **Page** 7 of 8

Data Point No.	Sampling Location	Thickness (mils)	Notes
1	See attached map	11	opposite middle of scaffold rack near elevator platform
2		12	below middle of pen # 73B plackard
3		8	below middle of pen # 9 plackard
4		9	6" right of weld oppsite bottom step
5		11	oppsite col. 12
6		8	opposite middle of chemical storage box
7		8	below middle embeded unistrut opposite P2
8		9	1' from wall with the pen #15 plackard
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			

Comments:
A total of 8 data points were assigned all measurements taken aproximately 5' from deck unless otherwise noted.

E&TS DEPARTMENT

CALCULATION SHEET

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CCN CONVERSION: CCN NO. CCN --	

Project or DCP/FCN SONGS 2 & 3 **Calc. No.** N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events

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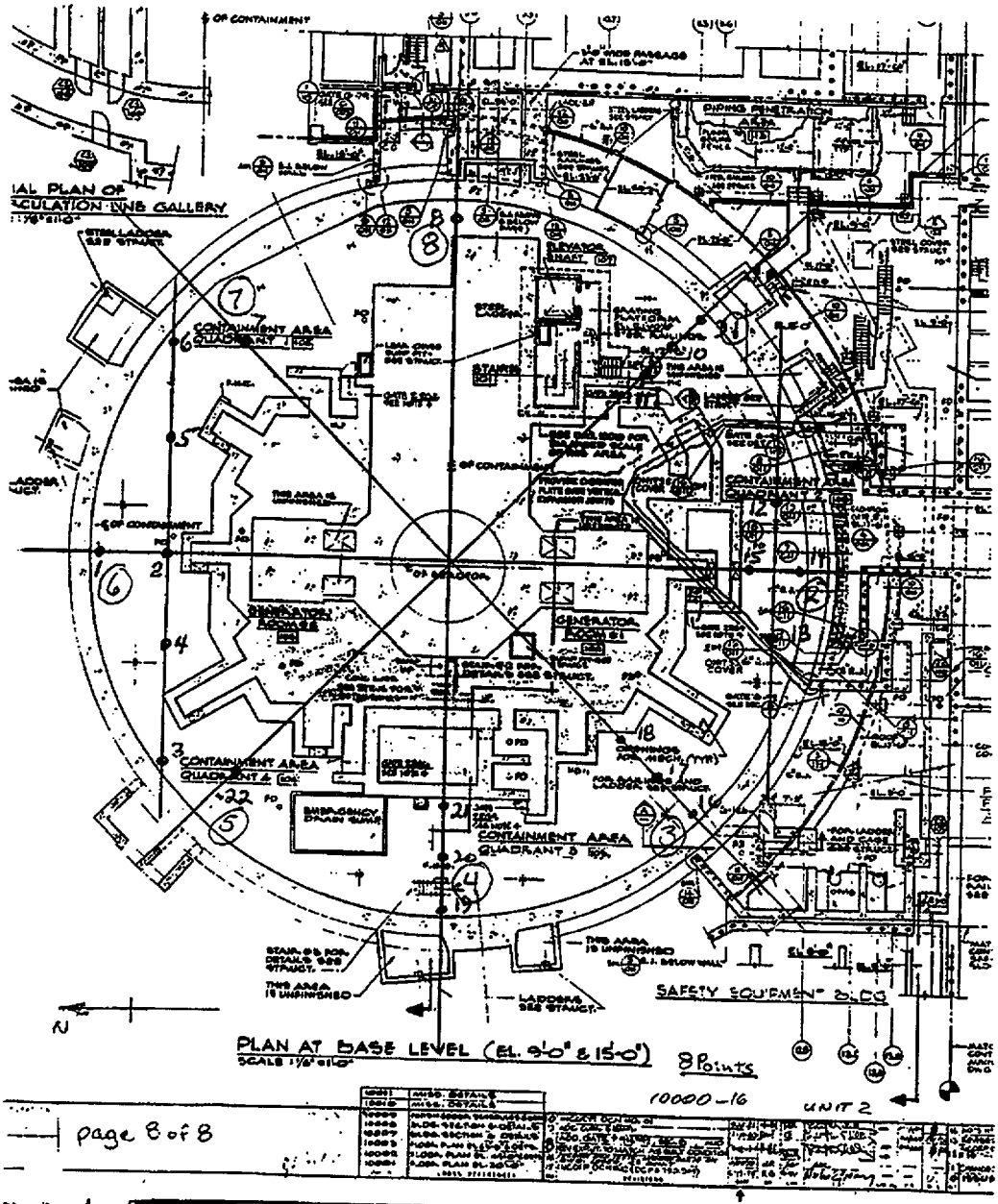
REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						



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E&TS DEPARTMENT

CALCULATION SHEET

ICCN NO./ PRELIM. CCN NO.	PAGE__ OF__
CCN CONVERSION: CCN NO. CCN –	

Project or DCP/FCN SONGS 2 & 3 **Calc. No.** N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events **Sheet No.** 286 of 312

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

CONTAINMENT PAINT THICKNESS SURVEY

SONGS Unit: 2 floors **Survey Performed By:** Mike Mason **Date:** 2/19/98

Floor Elevation: 63 **Test Method:** Took Gage **Page** 1 **of** 8

Data Point No.	Sampling Location	Thickness (mils)	Notes
1	See attached map	25	
2		27	
3		30	
4		20	
5		17	
6		———	not taken area contaminated
7		———	not taken area contaminated
8		12	taken from repaint mo 97081557
9		12	taken from repaint mo 97081557
10		12	taken from repaint mo 97081557
11		30	
12		17	
13		22	
14		60	
15		30	
16		18	
17		12	taken from repaint mo 97081557
18		12	taken from repaint mo 97081557
19		12	taken from repaint mo 97081557
20		12	taken from repaint mo 97081557
21		14	
22		20	
23		15	

Comments: A total of 23 data points were assigned however points 6 & 7 could not be taken do to contamination. Data for points 8,9,10,17,18, and 19 were taken from MO 97081557.

E&TS DEPARTMENT

CALCULATION SHEET

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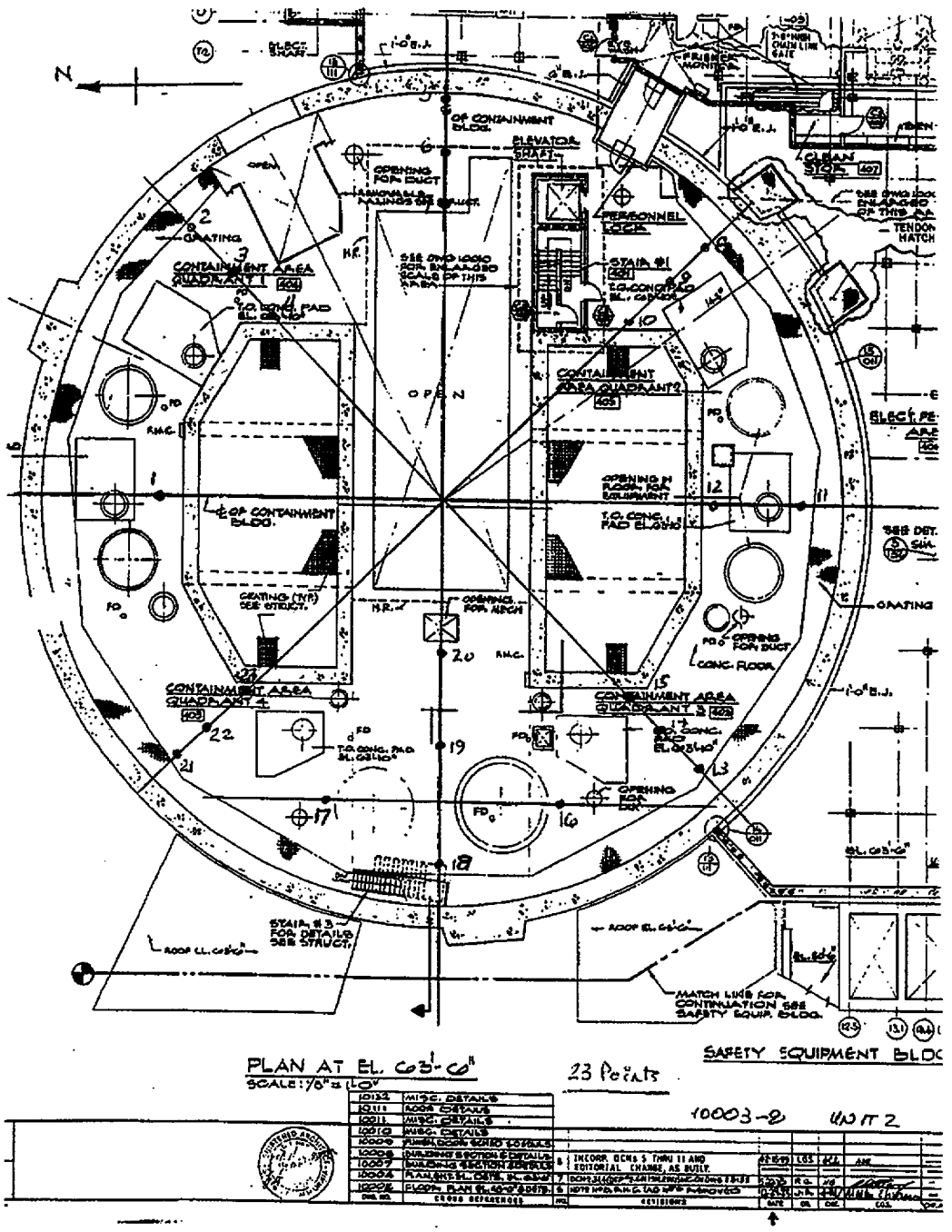
Project or DCP/FCN SONGS 2 & 3 **Calc. No.** N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events **Sheet No.** 287 of 312

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						



PLAN AT EL. 63'-0"

SCALE: 1/8" = 1'-0"

23 Points

10003-8 UNIT 2

E&TS DEPARTMENT

CALCULATION SHEET

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Project or DCP/FCN SONGS 2 & 3 **Calc. No.** N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events **Sheet No.** 288 of 312

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

CONTAINMENT PAINT THICKNESS SURVEY

SONGS Unit: 2 floors **Survey Performed By:** Mike Mason **Date:** 2/20/98

Floor Elevation: 45 **Test Method:** Took gage **Page** 3 **of** 8

Data Point No.	Sampling Location	Thickness (mils)	Notes
1	See attached map	10	taken on North center line
2		11	at col. 13
3		10	at col. 2
4		10	taken behind 2ME396
5		5	
6		7	by 2HV9940EB
7		12	8' west of stair
8		27	between col. 6&7 near MT008
9		15	below phone on col. 9
10		11	west side of col. 7
11		20	below 2LT1105
12		11	near col. 9
13		10	below 2HV9940EC
14		10	
15		10	
16		6	by containment purge duct
17		14	between 2ME404 and wall
18		11	

Comments:

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CALCULATION SHEET

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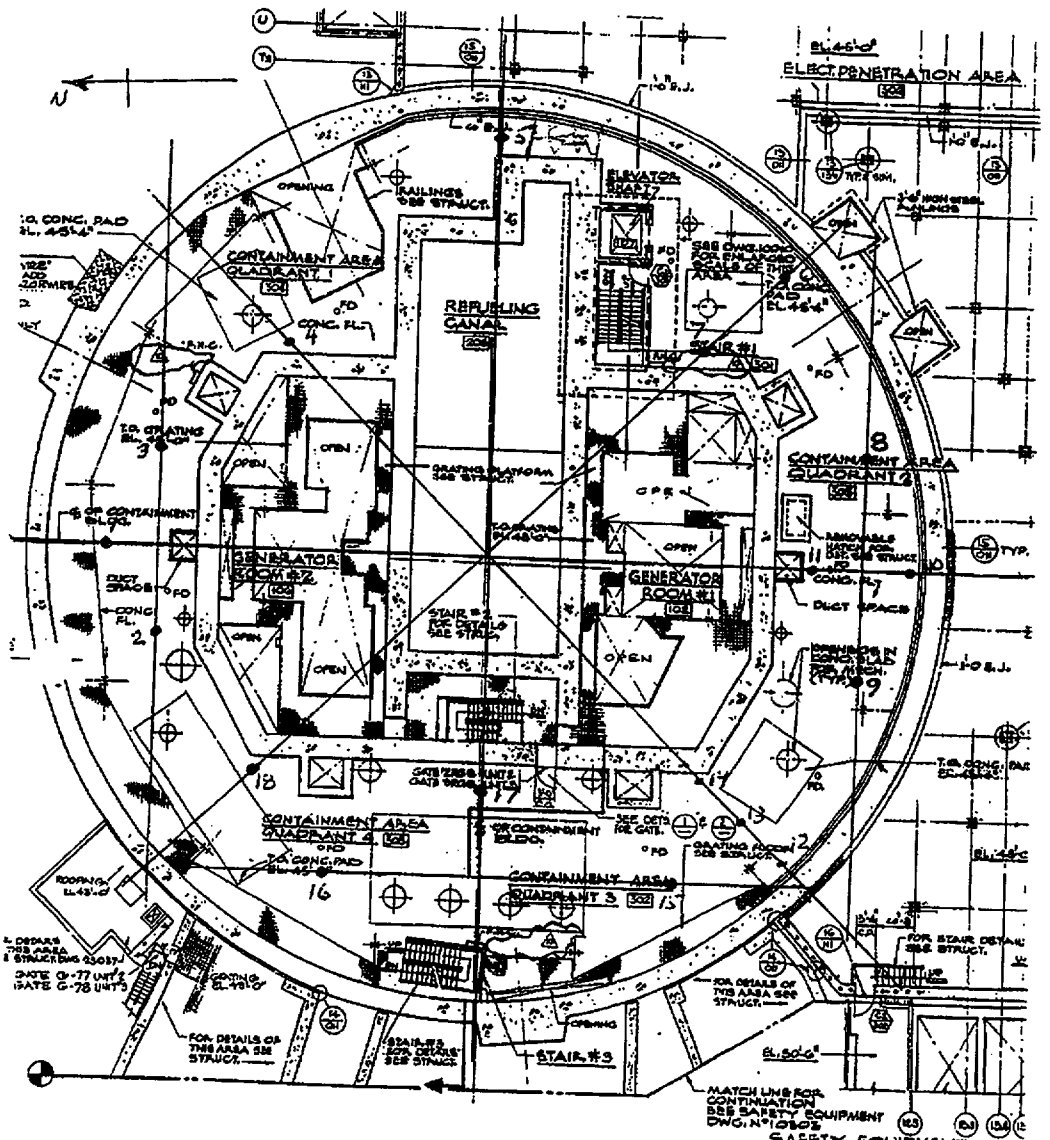
Project or DCP/FCN SONGS 2 & 3 **Calc. No.** N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events

Sheet No. 289 of 312

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						



PLAN AT EL. 45'-0"
SCALE: 1/8" = 1'-0"

18 Points

10002 - 10 Unit 2

E&TS DEPARTMENT

CALCULATION SHEET

ICCN NO./ PRELIM. CCN NO.	PAGE__ OF__
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Project or DCP/FCN SONGS 2 & 3 **Calc. No.** N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events

Sheet No. 290 of 312

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

CONTAINMENT PAINT THICKNESS SURVEY

SONGS Unit: 2 **Survey Performed By:** Mike Mason **Date:** 2/19/98

Floor Elevation: 30 **Test Method:** Took gage **Page** 5 **of** 8

Data Point No.	Sampling Location	Thickness (mils)	Notes
1	See attached map	12	data taken from MO 97090436001
2		12	data taken from MO 97090436001
3		12	data taken from MO 97090436001
4		12	data taken from MO 97090436001
5		12	data taken from MO 97090436001
6		22	below 2MU092
7		21	below hanger 19
8		30	next to 2HV9378 on concrete
9		32	by pen 29

Comments:

Points 1 through 5 were taken from data in MO 97090436001 no destructive measurements were taken.

E&TS DEPARTMENT

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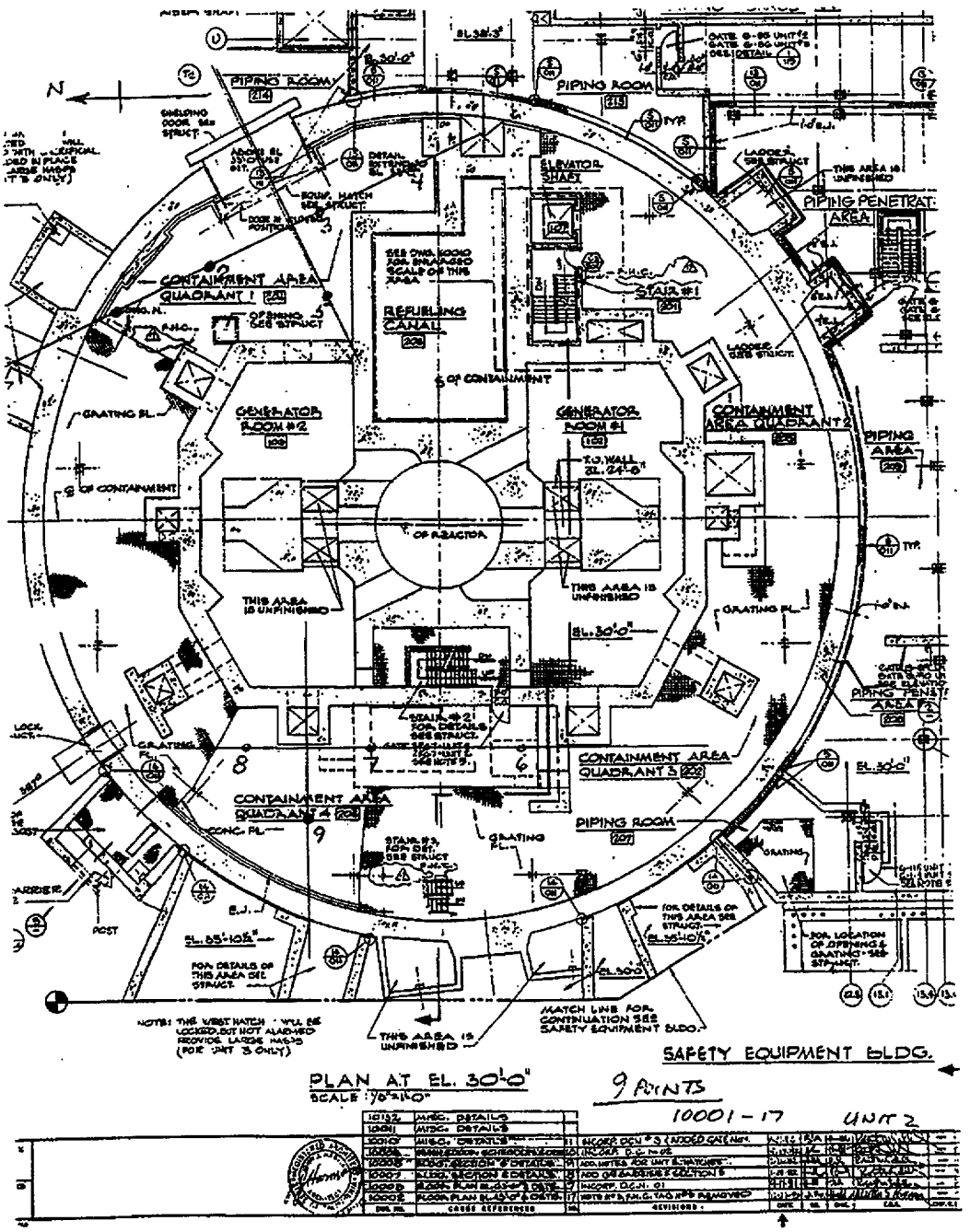
Project or DCP/FCN SONGS 2 & 3 **Calc. No.** N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events **Sheet No.** 291 of 312

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						



PLAN AT EL. 30'-0"
SCALE: 1/8"=1'-0"

9 PRINTS
10001-17 UNIT 2

E&TS DEPARTMENT

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Project or DCP/FCN SONGS 2 & 3 **Calc. No.** N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events **Sheet No.** 292 of 312

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

CONTAINMENT PAINT THICKNESS SURVEY

SONGS Unit: 2 floors **Survey Performed By:** Mike Mason **Date:** 2/19/98

Floor Elevation: 17 **Test Method:** _____ **Page** 7 **of** 8

Data Point No.	Sampling Location	Thickness (mils)	Notes
1	See attached map	12	taken from repaint mo 97090438001
2		12	taken from repaint mo 97090438001
3		12	
4		12	
5		12	
6		12	
7		12	
8		12	
9		12	
10		12	
11		12	
12		12	
13		12	
14		12	
15		12	
16		12	
17		12	
18		12	
19		12	
20		12	
21		12	
22		12	

Comments:
A total of 22 data points were assigned however the entire area outside the bio shield was painted and data was taken from mo 97090438001 and the maximum of 12 mils was given to the entire floor, no destructive testing was performed.

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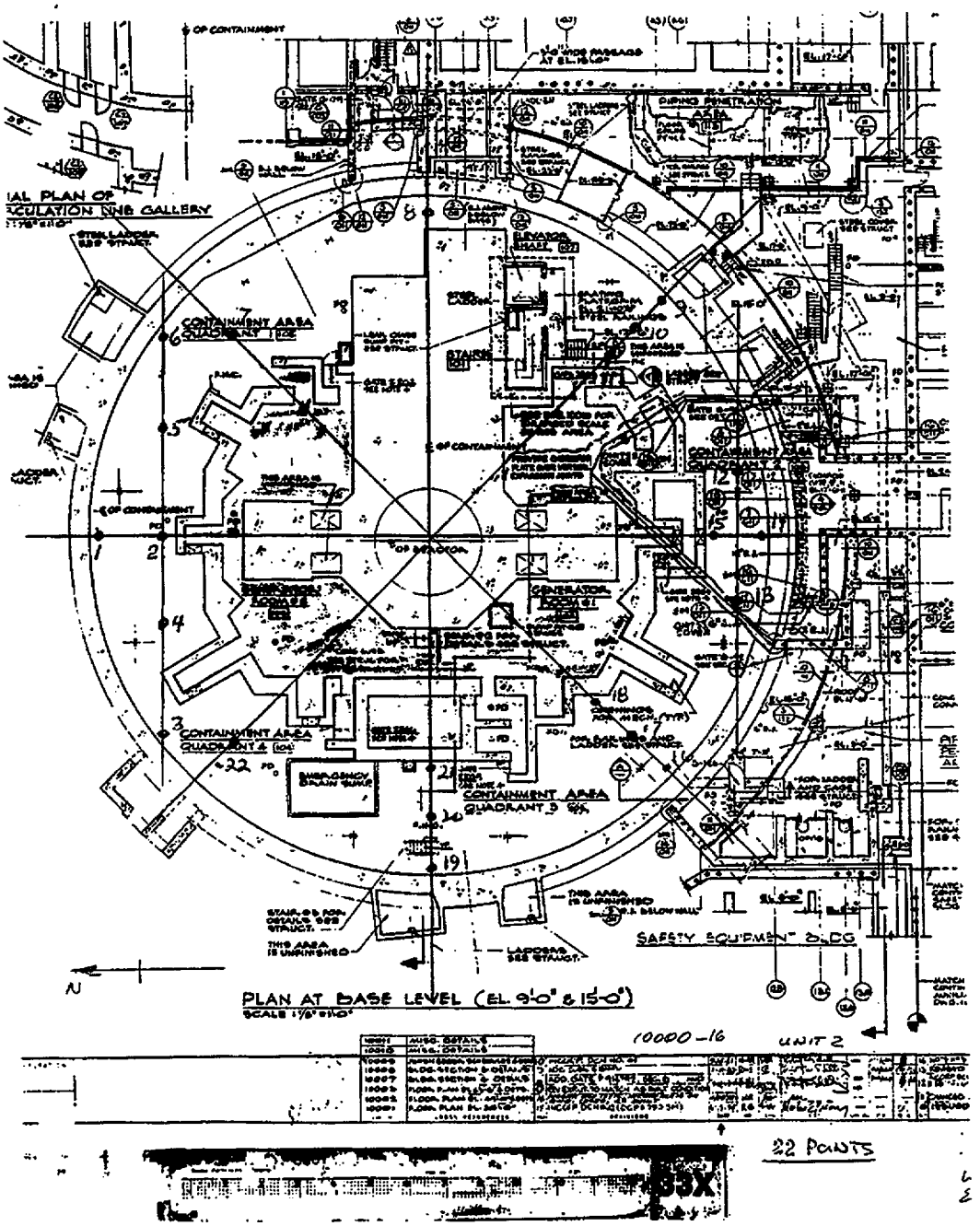
Subject Containment P/T Analysis for Design Basis MSLB Events **Sheet No.** 293 of 312

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						



APPENDIX E
COPIES OF REFERENCES CITED IN RESOLUTION OF ASSIGNMENT 5 OF AR980101683
Thermal Conductivity of Epoxy Coatings

1) 15-page FAX, H. Kline (Ameron) to Jon Cavallo (SCE), dated 9/30/98

2) 3-page Memorandum, G. Keesler (Ameron) to Pat Young (SCE), dated 5/27/98

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Project or DCP/FCN SONGS 2 & 3 **Calc. No.** N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events

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REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

SEP 30 '98 14:58 FROM: T-482 P.01 F-778

FAX IT!

AMERON INTERNATIONAL

Protective Coatings Group
201 North Berry Street
P. O. Box 1020 (92822)
Brea, CA 92821 (U.S.A.)

FROM: H. Kline **DATE:** 9-30-98

TO: SCE **FAX NO.:** 714-368-2451

ATTN: Jon Cavallo **# PAGES:** 15 (including cover sheet).

RE: Thermal Conductivity - Vy Guard

attached are test reports for your information.

H. Kline

H. H. KLINE
Technical Service Manager

AMERON INTERNATIONAL

AMERON PROTECTIVE COATINGS
Headquarters
201 North Berry Street
Brea, CA 92821

Phone: 714/529-1951
800/828-3766, Ext. 362
Fax: 714/671-2858
Internet: www.ameron-net.com

SEP 30 '98 14:68 FROM: T-432 P.02 F-779

FAX 714-368-2451

DYNATECH

THE THERMAL CONDUCTANCE OF
SEVERAL MATERIALS

Prepared for:

Mobil Chemical Company
Post Office Box 250
Edison, New Jersey 08817

Dynatech Report Number MOB-3
Work carried out under P.O. Letter of 12/7/78

Submitted by: _____
Stewart C. Spinney, Manager
Thermophysical Properties Testing

May, 1979

SEP 30 '98 14:58 FROM: T-432 P.03 F-779

DYNATECH

Report on:

THE THERMAL CONDUCTANCE OF
SEVERAL MATERIALS

Three discs were submitted for analysis of the thermal conductance. Two of the discs were plastic coatings on one surface of a substrate and the third was the substrate without coating. The discs were 18 mm diameter. The following table indicates the specimens designations and thicknesses:

Table 1

Sample	Thickness mm
5 3 mils of 13-G-10	3.43
6 5 mils of 13-G-10	3.49
7 Substrate	3.38

Experimental Procedure

The thermal conductance was determined using the Colora Thermo-conductometer. The sample was placed between polished silver plates which could be kept at the given boiling points of two liquids by a constant supply of heat to the higher boiling point liquid. When steady equilibrium was attained, the lower boiling point liquid vaporized at a constant rate and was condensed and collected in a measuring vessel. The time for a given volume to distill was measured.

The thermal conductance was calculated from:

$$C = (q/\Delta T)\ (1/A)$$

Reference: MOB-3 May, 1979

DYNATECH

where $q/\Delta T$ = reciprocal thermal resistivity obtained from calibration curves

A = specimen cross sectional area

Table II

THE THERMAL CONDUCTANCE OF THREE DISCS

Sample	Thermal Conductance at 40C $Wm^{-2}K^{-1}$	$Btu\ h^{-1}ft^{-2}F^{-1}$
5 3 mils of 13-G-10	2900	510
6 5 mils of 13-G-10	1400	250
7 Substrate	4100	720

SEP 30 '98 14:55 FROM: T-432 P.05/15 F-778

DYNATECH

THE THERMAL CONDUCTANCE AND SPECIFIC HEAT OF SEVERAL MATERIALS

Prepared for:

Mobil Chemical Company
P.O. Box 250
Edison, New Jersey 08817

Dynatech Report Number MOB-3

Work carried out under P.O. Letter of 12/7/78

Submitted by: _____
Stewart C. Spinney, Manager
Thermophysical Properties Testing

May, 1979

SEP 30 '98 14:59 FROM: T-492 P.06/16 F-779

DYNATECH

Report on

THE THERMAL CONDUCTANCE
AND SPECIFIC HEAT OF
SEVERAL MATERIALS

Three discs were submitted for analysis of the thermal conductance. Two of the discs were plastic coatings on one surface of a substrate and the third was the substrate without coating. The discs were 18 mm diameter. The following table indicates the specimens designations and thicknesses:

Table 1

Sample	Thickness mm
3 15 mils of 46-x-29	3.66
4 5 mils of 89-F-34	3.43
7 Substrate	3.38

In addition two 25 mm plastic cubes were submitted for analysis of the specific heat. One sample was designated 46-x-29 and the other, 89-F-34.

Experimental Procedures

Thermal Conductance

The thermal conductance was determined using the Colora Thermo-conductometer. The sample was placed between polished silver plates which could be kept at the given boiling points of two liquids by a constant supply of heat to the higher boiling point liquid. When steady equilibrium

DYNATECH

was attained, the lower boiling point liquid vaporized at a constant rate and was condensed and collected in a measuring vessel. The time for a given volume to distill was measured.

The thermal conductance was calculated from:

$$C = (q/\Delta T)\ (1/A)$$

where $q/\Delta T$ = reciprocal thermal resistivity obtained from calibration curves

A = specimen cross-sectional area

The results for the samples tested are shown in Table II.

Specific Heat

The specific heat was determined by low temperature water receiver drop calorimetry in accordance with ASTM C351, "Mean Specific Heat of Thermal Insulation." A sample of the material was suspended at the center of a uniform temperature zone of a resistance furnace by a 0.3 mm diameter nickel alloy wire. The temperature of the furnace was maintained to ±0.5C and after a period of stabilization at temperature the sample was dropped rapidly in a dewar flask containing 500 ml of distilled water maintained at a steady temperature as measured by a multi-junction thermopile. Successive readings of water temperature were taken at 5-minute intervals prior to the drop and 1-minute intervals afterwards until the maximum temperature had been reached. and a well-defined cooling curve obtained.

The specific heat was calculated from:

$$C_p = \frac{(mC_p)_r \Delta T_r}{\Delta T_s m_s}$$

where C_p = specific heat of sample

$(mC_p)_r$ = heat capacity of water receiver obtained by dropping standard materials.

ΔT_r = temperature rise of water receiver after drop from output of differential thermopile

ΔT_s = temperature difference between sample in furnace and final sample temperature in water receiver

m_s = mass of sample

The results for the sample tested are shown in table III.

Table II

THE THERMAL CONDUCTANCE OF THREE DISCS

Sample	Thermal Conductance at 40C $Wm^{-2}K^{-1}$	$Btu\ h^{-1}ft^{-2}F^{-1}$
3 15 mils of 46-x-29	790	140
4 5 mils of 89-F-34	2000	350
7 Substrate	4100	720

Table III

THE SPECIFIC HEAT OF TWO PLASTICS

Sample	Specific Heat at 58C (136F) $J\ kg^{-1}K^{-1}$	$Btu\ lb^{-1}F^{-1}$
46-x-29	1600	0.38
89-F-34	1330	0.32

Reference: MOB-3

E&TS DEPARTMENT

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Project or DCP/FCN SONGS 2 & 3 **Calc. No.** N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events **Sheet No.** 303 of 312

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

"BEST AVAILABLE COPY"

SEP 30 '98 14:58 FROM: T-432 P.08/16 F-778

Mobil Chemical Co.
LABORATORY REPORT
[illegible]
Lawson, N.Y.

COPIES TO: [illegible] FILE: [illegible]
J. [illegible] G. [illegible]
P. [illegible] J. [illegible]
H. [illegible]
W. [illegible]

SUBJECT: DETERMINATION OF THERMAL CONDUCTIVITY OF COATINGS USING AN UNSTEADY STATE HEAT TRANSFER METHOD DATE: 4/23/78

BACKGROUND

Thermal conductivities of organic and inorganic coating systems are important where specific designs of nuclear containment facilities are dependent upon the heat transfer of the containment shell. Coatings with specific thermal coefficients may be called out by engineering firms and if we are going to service this industry, we must be prepared to provide these values.

DEVELOPMENT

The thermal conductivity of thin film protective coatings can be determined by coating an infinitely long cylinder of finite diameter. The time required for the temperature at a specific point within a cylinder initially at some [illegible] temperature T_0 and which is maintained in a constant temperature bath, to obtain another temperature T_1 is a function of the geometry and physical properties of the material. The time required to product the same thermal change of composite coatings on steel cylinders can be determined by obtaining time-temperature data utilizing an unsteady state method. The forementioned method was established by the American National Standard Institute as reported in their publication ANSI N 101. 5-1970 American National Standard Protective Coatings (Paints) for Light Water Nuclear Reactor Containment Facilities and was the procedure by which Mobil's thermal conductivity values were obtained.

The apparatus necessary to conduct the k values were:

A. A constant-temperature water bath with agitator, maintained at 25°C±0.2°C.

B. A constant-temperature water bath with agitator, maintained at 55°C±0.2°C.

C. A strip chart recorder with a 0-10 mv range and 0.01 mv sensitivity.

D. Cylindrical test specimens with copper-constantan thermocouples located at their geometric centers.

Drawings of apparatus are attached to this report.

"BEST AVAILABLE COPY"

EXPERIMENTAL PROCEDURE

A. Steel cylinders 2" diameter by 10" long and made of carbon steel meeting the requirement of the standard was placed in a 25° C. constant temperature water bath with agitator. After the specimen has attained at 25°C for 15 minutes the specimen then rapidly transferred to another water bath being held at a constant temperature of 55°C with agitator. The temperature of the specimen prior to and during its transfer to the other bath was recorded with a Sargent recorder using a copper-constantan thermocouple which is mounted in the geometric center of the specimen. The data obtained from the time vs temperature plots is then used to determine the heat transfer coefficient of the water film used surrounding the uncoated cylinder. This value is the control used in calculating the k values for the subsequent coating systems.

B. The uncoated cylinder is pickled in sodium hydroxide and sulfuric acid solutions.

C. The cylinder is coated with the specific coating and allowed to cure or air-dry as required.

D. A total of 20 readings at various points on the specimen are taken using an Elcometer thickness guage. No single reading may vary more than ± 15% from the average thickness.

E. The coated cylinder is then run in the same method as described in A.

F. The cylinders are then stripped of their coating and reused for subsequent test.

All coatings were run in duplicate.

CALCULATION OF THERMAL CONDUCTIVITY

A. Record the time/temperature plots for the uncoated bar. When the curve levels off indicating no further increase in temperature, mark off the point at which this occurs. From known speed of chart determine time required to go from T_1 to T_2. Take 90% of this time value. This is done in order to minimize error in determining exact point of curve leveling off. Convert time in terms of hours. This will be known as t.

B. Using 90% of recorded value gives us a constant $(T_2-T)/(T_2-T_1) = 0.10$. This value is one we will use when we enter chart that is attached to this report.

C. Calculate $k/\rho C_p R^2$ of bar
k=thermal conductivity of substrate = 26.1
ρ= density of substrate in #/ft³ (474.46)

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

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[illegible]

Item 3

C_p=heat capacity of bar in BTU/c_p 0.12
R=radius in feet (.05)

D. Calculate (h/kC_pR^2) =

E. Enter chart with $(T_2-T)/(T_2-T_1)$ constant and value from (D). Value obtained will be known as X.

F. Calculate $h = k/_{RX}$

Where h is the heat transfer coefficient of the water film in BTU/hr ft^2 °F. This is control value for uncoated bar.

G. Run bar coated with prescribed coating system in same manner. When determining (E) give this value designation Y.

H. Calculate $h = k/_{RY}$

J. Calculate thermal conductivity of polymer film

$$K_p = \frac{L}{1/h \text{ coated} - 1/h \text{ uncoated}} = \text{BTU/hr ft °F}$$

Where L is thickness of polymer film in ft.

The thermal conductivity values determined can be found in tabular form attached to this report.

Since the completion of the forementioned work by our laboratory, several papers have been published utilizing a more complicated method for determining thermal conductivity of coatings through differential equations and a computer. The experimental and mathematical procedures described in this report offer a simplified method within a reasonable degree of accuracy.

This is because no matter how sophisticated the equipment or calculations used within the articles were, the major source of error still remains in determining an accurate film thickness. Due to this situation present, we did not feel that assuming certain physical characteristics as being constant would affect our result in any significant manner.

However, the basic concept of the experimental procedures and mathematical calculation of the two methods are similar. The method used in this report is considered by our laboratory personnel more applicable to the coatings industry, since not everyone has a computer readily available, and the calculations are greatly simplified. The values of k determined by this method on multilayered coatings are considered to be accurate to ± 10% and are in line with the results published in the above mentioned papers.

By A. Blakley

Approved By ORIGINAL SIGNED BY R. LOHR

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CALCULATION SHEET

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Project or DCP/FCN SONGS 2 & 3 **Calc. No.** N-4080-027

Subject Containment P/T Analysis for Design Basis MSLB Events **Sheet No.** 306 of 312

REV	ORIGINATOR	DATE	IRE	DATE	REV	ORIGINATOR	DATE	IRE	DATE	REV ⇓
1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

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SEP 30 '98 15:00 FROM: T-432 P.12/15 F-773

TEST RESULTS

COATING SYSTEM	DRY FILM THICKNESS (*)	THERMAL CONDUCTIVITY (B.T.U. in/hr ft² °F)
MOBIL ZINC 7	2.9 mils	1.2
MOBIL ZINC 4	2.0 "	0.8
MOBIL ZINC 7 & 69-W-9 HI-BUILD EPOXY	10.5 "	0.97
MOBIL ZINC 4 & 69-W-9 HI-BUILD EPOXY	11.4 "	0.57
MOBIL ZINC 7 & ZOT 89- 78-W-3 TANK LINING HI-BUILD EPOXY	10.0 "	0.48
MOBIL ZINC 4 & ZOT 89 & 78-W-3 TANK LINING HI-BUILD EPOXY	10.8 "	0.50
MOBIL ZINC 7 & ETHYL SILICATE INORGANIC WHITE & ZINC	8.2 "	0.08
MOBIL ZINC 7 & ETHYL SILICATE INORGANIC WHITE & STAINLESS STEEL	8.3 "	0.68

* AVERAGE D.F.T. DUPLICATE SPECIMEN

ZOT

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1	P. Barbour	11/01/99	J. M. Gilmer	11/01/99						

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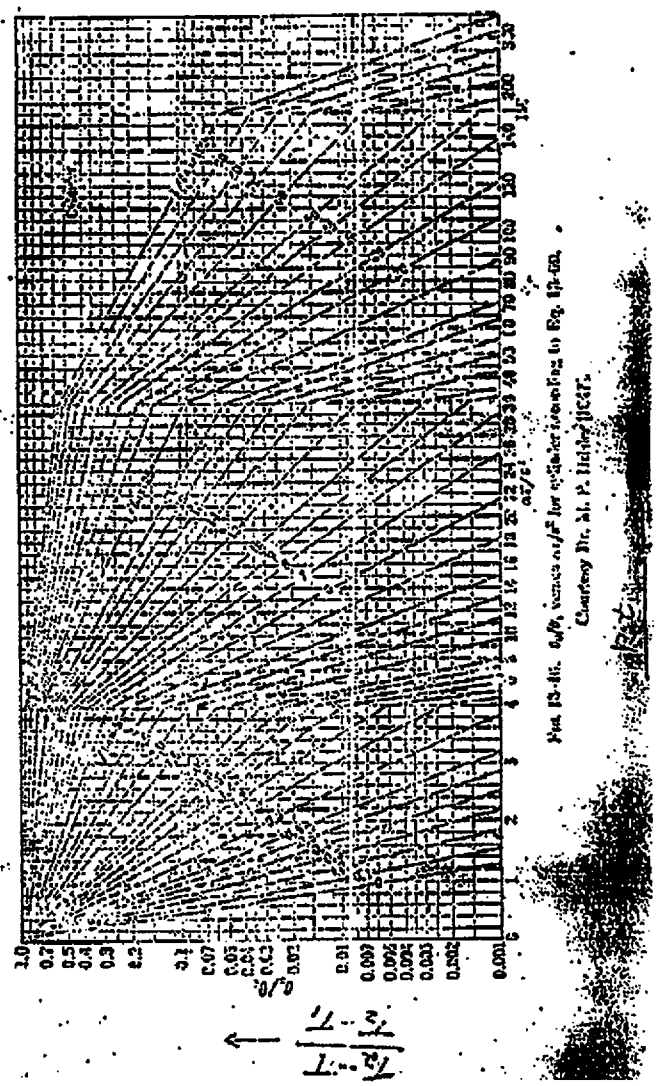

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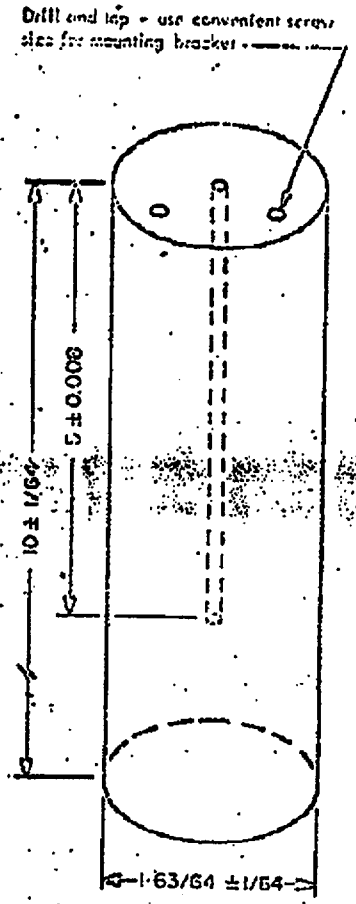
ORNL DWG 67-14291



Construction

(1) Drill a 1/4-inch diam. hole along the axis of the cylinder to the geometric center. The location of the hole is critical and shall be within 0.003 inch of the geometric center.

(2) Mounting brackets, fabricated from 16-gauge 1/2-inch wide steel strip shall be mounted on the cylinder to position it at the center of the bath.

(3) The external surface of the cylinder shall be brazed to "White Metal" in accordance with [illegible]-3P5, or pickled to the degree achieved by [illegible], immediately prior to coating or testing.

(4) Fill the 1/4-inch hole with clean mercury so that when the thermometer is in place the mercury is within 1/2-inch of the top of the hole.

Fig. 1. Cylindrical Test Specimen.

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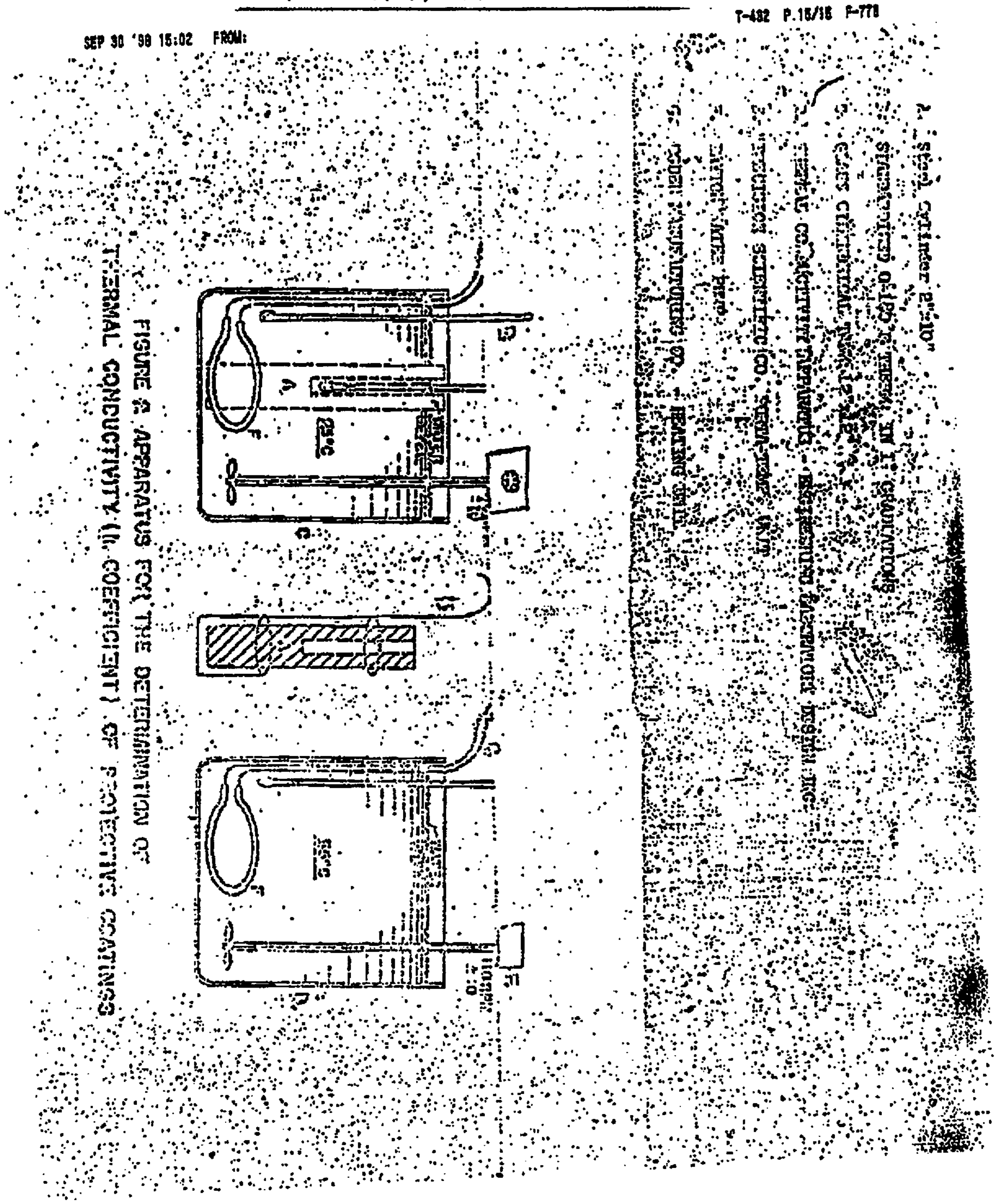

FIGURE 6. APPARATUS FOR THE DETERMINATION OF THERMAL CONDUCTIVITY (k COEFFICIENT) OF PROTECTIVE COATINGS

AMERON INTERNATIONAL

PROTECTIVE COATINGS GROUP
Headquarters
201 North Berry Street
P.O. Box 1020 (92822-1020)
Brea, California 92821

Telephone: 714/529-1951
Fax: 714/990-0437

Internet: www.ameron-net.com

To: Mr. Pat Young

Date: May 27, 1998

From: Ameron International

Subject: DBA & Thermal Conductivity On Amerlock 400NT

I'm sending you some DBA results at 290°F curve. Thermal Conductivity, we have results on the following epoxies Amercoat 66 and 90. These results and results in the ANSI 5.12 spec. will put 400NT results close to these figures. Further testing of 400NT is under consideration. Any Question, please call Greg Keesler or Harlan Kline at
(714)529-1951 Fax (714)671-2839.

Thank You
G. Keesler
Ameron Tech. Service

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Amercoat
Protective Coatings Division

NUCLEAR COATINGS

Page 1 of 2 Issue 2 of Number 11

Supersedes 11/2/77 Effective Date 6/20/79

Title SPECIFIC HEAT & THERMAL CONDUCTIVITY

The specific heat for coatings and surfacings was estimated by calculation from the specific heat of the dried coating components using component values such as:

	BTU/lb.°F
Cured resin & organic	0.5
Silica	0.32
Silicates	0.22
TiO_2	0.15
Mica	0.20
Iron oxide	0.22
Metal oxides (estimated)	0.10
Zinc	0.10

The calculated specific heat for coatings and surfacings is as follows:

SPECIFIC HEAT

PRODUCT	Dry Density (lbs./gal.)	BTU/lb.°F	BTU/mil sq.ft.°F	BTU/cu. ft.°F
Amercoat 66 (White)	21.7	0.29	0.0039	47.1
Amercoat 71	16.0	0.32	0.0032	38.3
Amercoat 90 (White)	21.5	0.31	0.0042	49.9
Dimetcote EZ*	23.96	0.125	0.0019	22.4
Dimetcote 6 *	26.32	0.11	0.0018	21.7
Nu-Klad 114 formerly 1871	11.0	0.34	0.0023	28.0
Nu-Klad 110AA	16.2	0.23	0.0023	27.9
Dimetcote 4	37.8	0.12	0.0028	33.8
Nu-Klad 108	9.56	0.5	0.0030	35.7

*based on void measurement for coverage

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Amercoat
Protective Coatings Division

NUCLEAR COATINGS

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Supersedes 11/2/77 Effective Date 6/20/
Title SPECIFIC HEAT & THERMAL CONDUCTIVITY

Thermal conductivity was determined following the ANSI N101.2 procedure except for Nu-Klad 110AA where ASTM C 177 was used.

PRODUCT	THERMAL CONDUCTIVITY BTU mil/hr.sq.ft.°F	TEST METHOD
Amercoat 71/66	2,800	ANSI N101.2
Amercoat 90	4,500	ANSI N101.2
Amercoat 71/90	2,800	ANSI N101.2
Dimetcote 4	11,300	ANSI N101.2
Dimetcote EZ/90	3,800	ANSI N101.2
Dimetcote 6	7,600	ANSI N101.2
Dimetcote 6/66	3,000	ANSI N101.2
Dimetcote 6/90	4,600	ANSI N101.2
Nu-Klad 114 (formerly 1871)/66	1,800	ANSI N101.2
Nu-Klad 114	1,900	ASTM C-177
Nu-Klad 117	2,760	ASTM C-177
Nu-Klad 110AA	4,680	ASTM C-177
Dimetcote EZ	4,330	ANSI N101.2
Nu-Klad 108	1,200	Typical for cured epoxy resin

ANSI N101.2 Typical Values

Inorganic zinc	11,000-18,000
Inorganic zinc/Inorganic zinc	7,000-12,000
Inorganic zinc/Organic zinc	2,500- 7,000
Organic zinc	1,000- 3,500

H Kline