Plant Operating Range Analyzed by the Best-Estimate Large-Break LOCA Analysis for D. C. Cook Unit 2

PARAMETER		ANALYZED VALUE OR RANGE
1.0	**Plant Physical Description**	
a)	Dimensions	Nominal
b)	Pressurizer location	On an intact loop(4)
c)	Hot assembly location	Anywhere in core(1)
d)	Hot assembly type(2)	17x17 V5 Fuel with ZIRLO® cladding or **Optimized ZIRLO™** cladding, non-IFBA or IFBA
e)	Steam generator tube plugging level(5)	≤10%
f)	Fuel assembly type(2)	17x17 V5 Fuel with ZIRLO® cladding or **Optimized ZIRLO™** cladding, non-IFBA or IFBA
2.0	**Plant Initial Operating Conditions**	
2.1	**Reactor Power**	
a)	Maximum Core power	3479.8 MWt
b)	Peak heat flux hot channel factor (F_Q)(2)(5)	≤ 2.335

Plant Operating Range Analyzed by the Best-Estimate Large-Break LOCA Analysis for D. C. Cook Unit 2

PARAMETER		ANALYZED VALUE OR RANGE
c)	Peak hot rod enthalpy rise hot channel factor ($F_{\Delta H}$)(2)(5)	≤ 1.644
d)	Hot assembly radial peaking factor (P_{HA})(2)	≤ 1.644 / 1.04
e)	Hot assembly heat flux hot channel factor (F_{QHA})	≤ 2.335 / 1.04
f)	Axial power distribution (P_{BOT}, P_{MID})(2)	Figure 14.3.1-2
g)	Low power region relative power (P_{LOW})(2)	$0.20 \leq P_{LOW} \leq 0.70$
h)	Hot assembly burn up	≤ 75,000 MWD / MTU, lead rod(1)(3)
i)	MTC	≤ 0 at hot full power (HFP)
j)	Typical cycle length	18 months
k)	Minimum core average burn up(2)	≥10,000 MWD / MTU
l)	Maximum steady state depletion, F_Q(2)	1.90
2.2	**Fluid Conditions**	
a)	T_{AVG}(5)	$547.6 - 5.6°F \leq T_{AVG} \leq 578.1 + 4.1°F$
b)	Pressurizer pressure	$2{,}100 - 63$ psia $\leq P_{RCS} \leq 2{,}100 + 63$ psia $2{,}250 - 63$ psia $\leq P_{RCS} \leq 2{,}250 + 63$ psia
c)	Minimum thermal design flow	88,500 gpm / loop

Plant Operating Range Analyzed by the Best-Estimate Large-Break LOCA Analysis for D. C. Cook Unit 2

PARAMETER		ANALYZED VALUE OR RANGE
d)	Upper head design	T_{HOT}
e)	Pressurizer level (at hot full power)	59.8% of span (High T_{AVG}) 40.0% of span (Low T_{AVG})
f)	Accumulator temperature(5)	60ºF ≤ T_{ACC} ≤ 120ºF
g)	Accumulator pressure	599.7 psia ≤ P_{ACC} ≤ 672.7 psia
h)	Accumulator liquid volume	921 ft^3 ≤ V_{ACC} ≤ 971 ft^3
i)	Minimum accumulator boron	2228 ppm
3.0	**Accident Boundary Conditions**	
a)	Minimum safety injection flow	Table 14.3.1-4a and 14.3.1-4b
b)	Safety injection temperature(5)	70ºF ≤ SI Temp ≤ 105ºF
c)	Safety injection delay(5)	27 seconds (with offsite power) 54 seconds (with LOOP)
d)	Containment modeling	See Figures 14.3.1-3 thru 14.3.1-9 and raw data in Tables 14.3.1-2, 14.3.1-3, & 14.3.1-7
e)	Initial containment pressure	See Table 14.3.1-2
f)	Containment spray initiation delay	See Table 14.3.1-2

Plant Operating Range Analyzed by the Best-Estimate Large-Break LOCA Analysis for D. C. Cook Unit 2

PARAMETER		ANALYZED VALUE OR RANGE
g)	Deck Fan initiation delay	See Table 14.3.1-2
h)	Single failure	Loss of one ECCS train

Notes:

1. *44 peripheral locations will not physically be lead power assembly.*
2. *In the Westinghouse Reload Safety Analysis Checklist (RSAC) process, this parameter is identified as a key safety analysis parameter that could be impacted by a fuel reload.*
3. *The fuel temperature and rod internal pressure data is only provided up to 62,000 MWD / MTU. In addition, the hot assembly / hot rod will not have a burn up this high in ASTRUM analyses.*
4. *Analyzing the pressurizer as being located on an intact loop is limiting per Westinghouse methodology.*
5. *Parameter values affected by evaluation described in Section 14.3.1.5.1*

Large Break Containment Data (Ice Condenser Containment)

Net Free Volume Distribution Between Upper (UC), Lower (LC), Ice Condenser (IC) and, Dead-Ended (DE) Compartments	UC: 729,969 ft^3 LC: 295,258 ft^3 IC: 122,350 ft^3 DE: 60,209 ft^3
Initial Condition Containment Pressure	14.7 psia
Maximum Temperature for the Upper (UC), Lower (LC) and, Dead-Ended (DE) Compartments	UC: 100°F LC: 120°F DE: 120°F
Minimum Temperature for the Upper (UC), Lower (LC) and Dead-Ended (DE) Compartments	
Temperature Outside Containment	-22°F
Initial Spray Temperature at 14.7 psia	45°F (1)
Maximum Containment Spray Flow Rate	3700 gpm / pump
Number of Spray Pumps Operating	2
Post-Accident Initiation of Spray System	47 sec
Post-Accident Initiation of Deck Fans	108 sec
Deck Fan Flow Rate	48,000 cfm / fan
Assumed Spray Efficiency of Water from Ice Condenser Drains	100%

Notes:

1. Due to errors identified with the LOTIC2 containment backpressure calculation, an evaluation was performed assuming a revised initial CTS temperature. See Section 14.3.1.5 for more information.

Large Break Containment- Heat Sinks Data (Ice Condenser Containment)

Wall	Compartment	Area [ft^2]	Thickness [ft]	Material
1	UC	24036	0.0329 / 3.2	steel/concrete
2	UC	599.	0.0329 / 3.7	steel/concrete
3	UC	2593	2.1	concrete
4	UC	17742	4.2	concrete
5	UC	4973	0.0392 / 13.7	steel/concrete
6	UC	20923	0.0091	steel
7	UC	17754	0.0194	steel
8	UC	5923	0.1078	steel
9	UC	5079	0.2300	steel
10	UC	23429	0.1284	steel
11	LC	2682	0.0218 / 5.3	steel/concrete
12	LC	447	5.3	concrete
13	LC	51219	6.8	concrete
14	LC	15033	0.0200 / 5.40	steel/concrete
15	LC	40784	0.0079	steel
16	LC	15792	0.0153	steel
17	LC	14566	0.0650	steel
18	LC	61214	0.1076	steel
19	LC	4529	14.04	concrete
20	LC	3439	0.1561	steel

Minimum HHSI and RHR Combined Injection Flow

Pressure (psia)	HHSI + RHR Total Injected Flow (gpm)
14.7	3,146.4
34.7	2,483.0
54.7	1,746.9
74.7	1,427.1
94.7	1,062.6
114.7	616.1
134.7	242.7
154.7	239.5
174.7	236.3
194.7	233.0
214.7	229.7
234.7	226.4
254.7	223.0
274.7	219.6
294.7	216.2
314.7	212.7

Minimum CHSI Injection Flow

Pressure (psia)	CHSI Total Injected Flow (gpm)
14.7	267.6
114.7	260.0
214.7	252.4
314.7	244.6
414.7	236.6
514.7	228.4
614.7	220.1
714.7	211.6
814.7	202.9
914.7	194.1
1014.7	185.0
1114.7	175.3
1214.7	165.1
1314.7	154.5
1414.7	143.5
1514.7	132.0
1614.7	119.2
1714.7	104.0

D. C. Cook Unit 2
Best-Estimate Large Break LOCA Results

ASTRUM Result	Value	Criteria
95 / 95 PCT (ºF)	2107	< 2,200
95 / 95 LMO (%)	9.7	< 17
95 / 95 CWO (%)	0.55	< 1

INDIANA MICHIGAN POWER An AEP Company	INDIANA MICHIGAN POWER D. C. COOK NUCLEAR PLANT UPDATED FINAL SAFETY ANALYSIS REPORT	Revised: 29.0 Table: 14.3.1-6 Page: 1 of 1

Peak Cladding Temperature Including All Penalties and Benefits, Best-Estimate Large Break LOCA (BE LBLOCA) for D. C. Cook Unit 2

PCT for Analysis-of-Record (AOR)	2107°F
PCT Assessments Allocated to AOR	
• Design Input Changes with Respect to Plant Operation	-239°F
• Evaluation of Pellet Thermal Conductivity Degradation and Peaking Factor	+73°F
• Changes to Grid Blockage Ratio and Porosity	+16°F
• Revised Heat Transfer Multiplier Distribution	-3°F
• HOTSPOT Burst Strain Error	+13°F
• Upflow Conversion	+37°F
BE LBLOCA PCT for Comparison to 10 CFR 50.46 Requirements	**2004 F**

Nitrogen Mass and Energy Release Rates

Time [s]	Flow Rate [lb_m / s]
0	0
50	0
50.01	247.8
70.01	247.8
70.02	0
1000	0

Sequence of Events for the Limiting Case

Event	Time (sec)
Start of Transient	0.0
Safety Injection Signal	5.7
Accumulator Injection Begins	18.5
End of Blowdown	26.5
Bottom of Core Recovery	43.5
Accumulator Empty	52.2
Safety Injection Begins	59.7
PCT Occurs	315.9
End of Transient	600.0

PLANT INPUT PARAMETERS
FOR SMALL BREAK LOSS-OF-COOLANT ACCIDENT

Core Rated Thermal Power - 100%, MWt	3600(1)
Peak Linear Power, kW / ft	12.822
Fuel Type	17 x 17 Vantage 5 Fuel
Total Core Peaking Factor, F_Q	2.32
Hot Channel Enthalpy Rise Factor, $F_{\Delta H}$	1.62
Hot Assembly Average Power Factor, P_{HA}	1.46
Thermal Design Flow, gpm / loop	88,500
Nominal Vessel Average Temperature, °F	578.2(2)
Nominal Pressurizer Pressure, psia	2250(3)
Minimum Auxiliary Feedwater Flow Rate, lb_m / s per SG	25.78
Steam Generator Tube Plugging (Maximum), %	10
Initial Accumulator Water Volume, ft^3	946
Accumulator Tank Volume, ft^3 / tank	1350
Accumulator Water Temperature, °F	130
Minimum Accumulator Cover Gas Pressure (minus uncertainties), psia	600
Refueling Water Storage Tank Temperature, °F	120
Nominal Steam Pressure, psia	791.863
SI Flow Delay Time, seconds	54
HHSI Cross-Tie Valve Position	Open
RHR Cross-Tie Valve Position	Open (Injection) Closed (Recirculation)

(1) Calorimetric uncertainty of 1.0034 resulted in an analyzed core power of 3612 MWt.
(2) Analysis supports operation over the range of nominal full-power Tavg values of 547.6°F- 578.1 °F with Tavg uncertainty range of +4.1 °F / -5.6°F.
(3) Analysis supports operation at nominal initial pressurizer pressure of 2100 psia and 2250 psia with ±62.6 psi uncertainty.

Time Sequence of Events for Small Break Loss-of-Coolant Accident

Event Time (sec)	1.5-inch	2-inch	3-Inch	4-Inch	6-Inch	8.75-inch
Break Initiation	0.00	0.00	0.00	0.00	0.00	0.00
Reactor Trip Signal	89.72	46.48	19.17	11.02	6.09	4.83
S-Signal	108.11	59.03	27.57	17.71	9.65	7.66
SI Flow Delivered(1)	162.11	113.03	81.57	71.71	63.65	61.66
Loop Seal Clearing(2)	2630	1422	551	310	146	26
Core Uncovery(4)	N/A	1726	877	602	N/A	N/A
Accumulator Injection	N/A	N/A	1800	864	352	168(3)
RWST Volume Delivered(5)	2161.88	2151.71	2115.48	2088.59	2052.49	1565.20
PCT Time (BOL)	N/A	1989.1	1603.1	971.5	N/A	N/A
Core Recovery(4)	N/A	5070	N/A(6)	2830	N/A	N/A

Notes:

(1) SI is assumed to begin 54.0 seconds (SI delay time) after the S-Signal.

(2) Loop seal clearing is assumed to occur when the steam flow through the broken loop, loop seal is sustained above the 1 lb_m / s.

(3) For 8.75-inch break, accumulator injection begins for Loops 2-4 only; Loop 1 (broken loop) accumulator line is the location of the break and assumed to spill to containment.

(4) The latest point of sustained core uncovery/recovery is reported.

(5) The analysis assumes minimum usable RWST volume (280,000 gal) delivered via ECCS injection and containment spray before the low level RWST water level signal for switchover to cold leg recirculation is reached.

(6) The run was successfully terminated per the NOTRUMP transient termination criteria.

TIME SEQUENCE OF EVENTS FOR SMALL BREAK LOSS-OF-COOLANT ACCIDENT UPFLOW CONVERSION

Event Time (sec)	4-Inch
Break Initiation	0.0
Reactor Trip Signal	11.06
S-Signal	17.85
SI Flow Delivered(1)	71.85
Loop Seal Clearing(2)	313
Core Uncovery(3)	575
Accumulator Injection	830
RWST Volume Delivered(4)	2087.54
PCT Time (BOL)	969.0
Core Recovery(3)	2860

Notes

(1) SI is assumed to begin 54.0 seconds (SI delay time) after the S-Signal.

(2) Loop seal clearing is assumed to occur when the steam flow through the broken loop, loop seal is sustained above 1 lbm/s and the mixture level is at or below the top of the loop seal.

(3) The latest point of sustained core uncovery/recovery is reported

(4) The analysis assumes minimum usable RWST volume (280,000 gal) delivered via ECCS injection and containment spray before the low level RWST water level signal for switchover to cold leg recirculation is reached.

Small Break Loss-of-Coolant Accident Calculations

Break Size (in)	**2.0**	**3.0**	**4.0**
PCT (°F)	977.9	1176.5	1273.7
PCT Time (s)	1989.1	1603.1	971.5
PCT Elevation (ft)	11.00	11.25	11.25
Max. Local $Zr0_2$ (%)	0.01	0.11	0.11
Max. Local $Zr0_2$ Elev. (ft)	11.00	11.50	11.25
Hot Rod Axial Average $Zr0_2$ (%)(1)	0.00	0.02	0.02

Notes:

(1) The hot rod axial average $Zr0_2$ conservatively represents the core wide average oxidation, since the core wide average $Zr0_2$ thickness will always be less than the corresponding hot rod axial average $Zr0_2$ thickness.

SMALL BREAK LOSS-OF-COOLANT ACCIDENT CALCULATIONS

UPFLOW CONVERSION

Break Size (in)	**4.0**
PCT (°F)	**1348.7**
PCT Time (s)	**969.0**
PCT Elevation (ft)	**11.50**
Max. Local ZrO_2 (%)	**0.19**
Max. Local ZrO_2 Elev. (ft)	**11.25**
Hot Rod Axial Average ZrO_2 (%)	**0.03**

Note:

(1) The hot rod axial average ZrO_2 conservatively represents the core wide average oxidation, since the core wide average ZrO_2 thickness will always be less than the corresponding hot rod axial average ZrO_2 thickness.

Safety Injection Flows Used in the SBLOCA Analysis - Injection Phase

(1 CBG pump, 1 HHSI pump, 1 RHR pump- faulted loop injects to RCS pressure)
(1.5-inch through 6-inch breaks)

RCS Pressure (psia)	Broken Loop (lb_m / sec)	Intact Loops (lb_m / sec)		
	Loop 1	**Loop 2**	**Loop 3**	**Loop 4**
14.7	177.8	155.5	157.6	156.5
34.7	169.2	148.1	150.0	149.0
54.7	159.3	139.5	141.2	140.4
74.7	148.1	129.8	131.2	130.6
94.7	135.8	119.1	120.3	119.8
114.7	121.5	106.7	107.7	107.4
134.7	103.3	91.0	91.5	91.5
154.7	77.0	68.1	68.2	68.4
174.7	31.3	28.5	27.6	28.4
194.7	31.1	28.3	27.4	28.2
214.7	30.9	28.1	27.2	28.0
234.7	30.6	27.9	26.9	27.8
254.7	30.4	27.6	26.7	27.6
274.7	30.1	27.4	26.5	27.4
294.7	29.9	27.2	26.3	27.1
314.7	29.7	27.0	26.1	26.9
414.7	28.4	25.8	25.0	25.8
514.7	27.2	24.7	23.9	24.6
614.7	25.8	23.4	22.7	23.4
714.7	24.4	22.1	21.5	22.1
814.7	23.0	20.8	20.2	20.8
914.7	21.4	19.3	18.8	19.3
1014.7	19.5	17.5	17.1	17.5
1114.7	17.4	15.6	15.2	15.5
1214.7	14.4	12.9	12.6	12.8

Safety Injection Flows Used in the SBLOCA Analysis - Injection Phase

(1 CBG pump, 1 HHSI pump, 1 RHR pump- faulted loop injects to RCS pressure)
(1.5-inch through 6-inch breaks)

RCS Pressure (psia)	Broken Loop (lb_m / sec)	Intact Loops (lb_m / sec)		
	Loop 1	**Loop 2**	**Loop 3**	**Loop 4**
1314.7	10.1	8.8	8.8	8.7
1414.7	9.0	7.9	7.9	7.8
1514.7	8.6	7.5	7.5	7.4
1614.7	8.1	7.1	7.1	7.0
1714 7	7.6	6.6	6.6	6.5
1814.7	7.1	6.2	6.1	6.1
1914.7	5.3	4.6	4.6	4.6
2014.7	4.7	4.1	4.1	4.0
2114.7	3.9	3.5	3.4	3.4
2214.7	3.1	2.7	2.7	2.6
2314.7	0.0	0.0	0.0	0.0
2414.7	0.0	0.0	0.0	0.0

Safety Injection Flows Used in the SBLOCA Analysis - Injection Phase

(1 CHG pump, 1 HHSI pump, 1 RHR pump
faulted loop CHG flow injects to RCS pressure and faulted loop HHSI / RHR flow spills to containment (0 psia) - 8.75-inch break)

RCS Pressure (psia)	Broken Loop (lb_m / sec)		Intact Loops (lb_m / sec)		
	Loop 1 CHG	Loop 1 RHR / HHSI	Loop 2	Loop 3	Loop 4
14.7	14.1	163.7	155.5	157.6	156.5
34.7	14.1	230.7	142.6	92.1	143.5
54.7	14.0	300.3	132.0	12.2	132.9
74.7	13.9	319.2	110.1	12.2	110.7
94.7	13.9	339.5	85.1	12.1	85.5
114.7	13.8	362.1	54.4	12.0	54.6
134.7	13.7	379.3	28.8	12.0	28.8
154.7	13.7	379.5	28.6	11.9	28.5
174.7	13.6	379.6	28.3	11.9	28.2
194.7	13.6	379.6	28.0	11.8	28.0
214.7	13.5	379.7	27.7	11.8	27.7
234.7	13.4	379.8	27.4	11.7	27.4
254.7	13.4	379.8	27.2	11.7	27.1
274.7	13.3	379.9	26.9	11.6.	26.8
294.7	13.2	379.9	26.6	11.5	26.5
314.7	13.2	380.0	26.3	11.5	26.2
414.7	12.8	380.3	24.7	11.2	24.7
514.7	12.5	380.6	23.1	10.9	23.1
614.7	12.2	386.8	20.8	10.6	20.7
714.7	11.8	387.8	17.6	10.3	17.6
814.7	11.5	388.9	13.9	10.0	13.8
914.7	11.1	390.1	9.7	9.7	9.5
1014.7	10.7	390.1	9.3	9.3	9.2
1114.7	10.3	390.2	9.0	9.0	8.9

Safety Injection Flows Used in the SBLOCA Analysis - Injection Phase

(1 CHG pump, 1 HHSI pump, 1 RHR pump
faulted loop CHG flow injects to RCS pressure and faulted loop HHSI / RHR flow spills to containment (0 psia) - 8.75-inch break)

RCS Pressure (psia)	Broken Loop (lb_m / sec)		Intact Loops (lb_m / sec)		
	Loop 1 CHG	Loop 1 RHR / HHSI	Loop 2	Loop 3	Loop 4
1214.7	9.9	390.2	8.6	8.6	8.5
1314.7	9.5	390.2	8.3	8.3	8.1
1414.7	9.0	390.2	7.9	7.9	7.8
1514.7	8.6	390.2	7.5	7.5	7.4
1614.7	8.1	390.2	7.1	7.1	7.0
1714.7	7.6	390.2	6.6	6.6	6.5
1814.7	7.1	390.2	6.2	6.1	6.1
1914.7	5.3	390.2	4.6	4.6	4.6
2014.7	4.7	390.2	4.1	4.1	4.0
2114.7	3.9	390.2	3.5	3.4	3.4
2214.7	3.1	390.2	2.7	2.7	2.6
2314.7	0.0	390.2	0.0	0.0	0.0
2414.7	0.0	390.2	0.0	0.0	0.0

Safety Injection Flows Used in the SBLOCA Analysis- Recirculation Phase

(1 CHG pump, 1 HHSI pump, 1 RHR pump
faulted loop injects to RCS pressure - RHR Spray active - 1.5- through 6-inch breaks)

RCS Pressure (psia)	Broken Loop (lb_m / sec)	Intact Loops (lb_m / sec)		
	Loop 1	Loop 2	Loop 3	Loop 4
14.7	36.3	32.1	31.0	32.2
26.7	36.3	31.9	30.8	32.2
34.7	36.2	31.8	30.7	31.9
54.7	35.9	31.6	30.5	31.8
74.7	35.8	31.5	30.4	31.6
94.7	35.5	31.2	30.1	31.4
114.7	35.4	31.1	30.0	31.2
134.7	35.1	30.8	29.7	31.0
154.7	34.8	30.7	29.6	30.8
174.7	34.5	30.5	29.4	30.7
194.7	34.4	30.1	29.2	30.4
214.7	34.1	30.0	29.0	30.1
234.7	34.0	29.7	28.8	29.9
254.7	33.6	29.6	28.6	29.7
274.7	33.4	29.4	28.5	29.6
294.7	33.2	29.2	28.2	29.3
314.7	33.0	28.9	27.9	29.2
414.7	31.6	27.9	27.0	28.1
514.7	30.4	26.6	25.7	26.7
614.7	29.2	25.5	24.6	25.6
714.7	27.8	24.2	23.4	24.4
814.7	26.3	22.8	22.2	23.0
914.7	24.8	21.6	20.9	21.6
1014.7	23.0	20.0	19.4	20.1

Safety Injection Flows Used in the SBLOCA Analysis- Recirculation Phase

(1 CHG pump, 1 HHSI pump, 1 RHR pump
faulted loop injects to RCS pressure - RHR Spray active - 1.5- through 6-inch breaks)

RCS Pressure (psia)	Broken Loop (lb_m / sec)	Intact Loops (lb_m / sec)		
	Loop 1	Loop 2	Loop 3	Loop 4
1114.7	21.1	18.2	17.6	18.2
1214.7	18.7	16.1	15.7	16.1
1314.7	15.6	13.2	12.8	13.2
1414.7	11.7	9.5	9.4	9.5
1514.7	9.6	7.7	7.7	7.7
1614.7	9.2	7.3	7.3	7.3
1714.7	8.7	6.9	6.9	6.9
1814.7	8.1	6.5	6.5	6.5
1914.7	7.4	5.9	5.9	5.9
2014.7	6.7	5.5	5.5	5.5
2114.7	6.0	4.9	4.9	4.9
2214.7	5.2.	4.3	4.3	4.3
2314.7	3.3	2.6	2.6	2.6
2414.7	0.0	0.0	0.0	0.0

Safety Injection Flows Used in the SBLOCA Analysis - Recirculation Phase

(1 CHG pump, 1 HHSI pump, 1 RHR pump
faulted loop CHG flow injects to RCS pressure and faulted loop HHSI / RHR flow spills to containment (0 psia) - RHR Spray active - 8.75-inch break)

RCS Pressure (psia)	Broken Loop (lb_m / sec)		Intact Loops (lb_m / sec)		
	Loop 1 CHG	Loop 1 RHR / HHSI	Loop 2	Loop 3	Loop 4
14.7	15.7	20.6	32.1	31.0	32.2
26.7	15.7	39.5	31.9	12.6	32.1
34.7	15.7	39.5	31.8	12.5	31.9
54.7	15.5	39.6	31.5	12.5	31.6
74.7	15.5	39.8	31.4	12.5	31.5
94.7	15.4	39.9	31.0	12.4	31.1
114.7	15.4	40.0	30.7	12.4	31.0
134.7	15.3	40.2	30.4	12.2	30.5
154.7	15.3	40.3	30.1	12.2	30.4
174.7	15.1	40.4	30.0	12.2	30.1
194.7	15.1	40.6	29.6	12.1	29.7
214.7	15.0	40.7	29.4	12.1	29.6
234.7	15.0	40.9	29.0	12.0	29.2
254.7	14.8	41.0	28.8	12.0	28.9
274.7	14.8	41.1	28.6	12.0	28.8
294.7	14.7	41.1	28.2	11.8	28.3
314.7	14.7	41.3	27.9	11.8	28.1
414.7	14.3	42.0	26.4	11.5	26.6
514.7	13.9	42.6	24.8	11.1	24.9
614.7	13.6	56.0	22.8	10.9	23.0
714.7	13.2	57.9	20.0	10.6	20.1
814.7	12.8	59.8	16.5	10.2	16.7
914.7	12.4	62.0	12.5	9.9	12.5

Safety Injection Flows Used in the SBLOCA Analysis - Recirculation Phase

(1 CHG pump, 1 HHSI pump, 1 RHR pump
faulted loop CHG flow injects to RCS pressure and faulted loop HHSI / RHR flow spills to containment (0 psia) - RHR Spray active - 8.75-inch break)

RCS Pressure (psia)	Broken Loop (lb_m / sec)		Intact Loops (lb_m / sec)		
	Loop 1 CHG	Loop 1 RHR / HHSI	Loop 2	Loop 3	Loop 4
1014.7	12.0	64.1	9.6	9.6	9.6
1114.7	11.5	64.1	9.2	9.2	9.2
1214.7	11.1	64.1	8.9	8.9	8.9
1314.7	10.6	-	8.5	8.5	8.5
1414.7	10.2	-	8.1	8.1	8.1
1514.7	9.6	-	7.7	7.7	7.7
1614.7	9.2	-	7.3	7.3	7.3

PEAK CLADDING TEMPERATURE INCLUDING ALL PENALTIES AND BENEFITS, SMALL BREAK LOCA (SBLOCA) FOR D. C. COOK UNIT 2

PCT for Analysis-of-Record			**1274°F**
PCT Assessments Allocated to AOR			
• Upflow Conversion			**+75°F**
SBLOCA PCT for Comparison to 10 CFR 50.46 Requirements			**1349°F**