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SUBJECT: Provides annual submittal of LOCA model changes, per requirements of 10CFR50.46(a)(3)(ii).

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April 10, 1997

AEP:NRC:1118L

Docket Nos.: 50-315
50-316

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Gentlemen:

Donald C. Cook Nuclear Plant Units 1 and 2
ANNUAL REPORT OF LOCA EVALUATION MODEL CHANGES

Pursuant to the requirements of 10 CFR 50.46(a)(3)(ii), this letter provides our annual submittal of loss-of-coolant accident (LOCA) model changes.

Attachment 1, provided to us by Westinghouse Electric Corporation, describes LOCA model changes that have been permanently implemented and provides a discussion in general terms of the impact of these changes on calculated peak clad temperatures (PCTs).

Attachment 2 contains the PCTs calculated specifically for Cook Nuclear Plant units 1 and 2. In all cases, the calculated PCTs remain within the 10 CFR 50.46 limit of 2200°F. In accordance with the guidance in WCAP-13451, "Westinghouse Methodology for Implementation of 10 CFR 50.46 Reporting," evaluations of plant changes performed under 10 CFR 50.59 are not reported under 10 CFR 50.46, unless an offsetting change to the evaluation model was made to provide sufficient margin to accommodate the proposed change.

The analysis of record for the unit 1 large break loss-of-coolant accident (LBLOCA) and small break loss-of-coolant accidents (SBLOCAs) has been updated as reported in our submittal dated May 26, 1995 (AEP:NRC:1207), and supplemented by letters dated September 26, 1995 (AEP:NRC:1207A), August 2, 1996 (AEP:NRC:1207B), and February 6, 1997 (AEP:NRC:1207C). This submittal was approved by your staff by letter dated March 13, 1997. The new analyses resolve LOCA model assessments for unit 1 made prior to 1995.

We have included two margin utilization sheets for the unit 1 LBLOCA in attachment 2. The first margin utilization sheet (page 1 of the attachment) shows the chopped cosine analysis of record as

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described in our submittal AEP:NRC:1207 with LOCA model assessments from 1995 and 1996. The second sheet (page 2 of the attachment) includes the LOCA model assessment for the change in power shape methodologies previously reported by letter AEP:NRC:1207A. This margin utilization sheet has been provided to comply with the requirements of 10 CFR 50.46 regarding a "change or error in an acceptable evaluation model, or in the application of such a model that affects the temperature calculation,...". As described in AEP:NRC:1207A, the power shape sensitivity model (PSSM) was replaced by the explicit shape analysis for PCT effects (ESHAPE) and the hot leg nozzle gap model.

In discussions with the NRC staff (January 23 and 27, 1997), it was agreed we would report the changes in the evaluation model resulting from the change in power shape methodologies as an assessment to the analysis of record. It is provided for comparison purposes with the chopped cosine power shape to demonstrate that the cosine power shape is limiting when full credit is given for the hot leg nozzle gap benefit. Because the hot leg nozzle gap model is not yet approved, we also agreed to provide a schedule for re-analysis using acceptable evaluation models. The schedule for re-analysis was submitted by our letter dated February 6, 1997 (AEP:NRC:1207C).

In last year's annual report, AEP:NRC:1118K, the new analysis of record for unit 1, discussed in the previous two paragraphs, was reported for information only. It was not the analysis of record at that time. Further, the assessment for the skewed power case was not described.

Attachment 3 contains LOCA PCTs calculated for unit 2 based on analyses that have not yet been approved by the NRC. This data is provided for information and does not reflect the current license basis for Cook Nuclear Plant unit 2. Currently, both LBLOCA and SBLOCA re-analysis are being reviewed by NRC staff in conjunction with evaluations and analyses to support an uprated power level for unit 2. This work was submitted to the staff in July 1996, with our letter AEP:NRC:1223, and subsequent clarifications submitted in September 1996, letter AEP:NRC:1223A.

In addition to the LBLOCA for unit 1, PCT assessments for both the LBLOCA and SBLOCA analyses of record for unit 2 exceed the 50°F requirement for committing to a new analysis. As indicated in our previous report, AEP:NRC:1118K, new analyses (attachment 3) were submitted in July of 1996. Furthermore, the SBLOCA assessments of

attachment 3 exceed 50°F. A commitment for a new analysis will be made in our first report after the SBLOCA of attachment 3 becomes the analysis of record.

Sincerely,



E. E. Fitzpatrick
Vice President

vlb

Attachments

cc: A. A. Blind
A. B. Beach
MDEQ - DW & RPD
NRC Resident Inspector - Bridgman
J. R. Padgett

ATTACHMENT 1 TO AEP:NRC:1118L

WESTINGHOUSE ELECTRIC CORPORATION
DESCRIPTION OF LOCA MODEL CHANGES

LOOP SEAL ELEVATION ERROR

Background

An error was discovered in raw plant geometric data that supports input to the Evaluation Model codes. The erroneous datum was a term associated with the relative elevation of the crossover leg.

This change is considered to be a Non-Discretionary Change as described in WCAP-13451.

Affected Evaluation Models

1985 Westinghouse Small Break LOCA Evaluation Model Using NOTRUMP
1981 Westinghouse Large Break LOCA Evaluation Model
1981 Westinghouse Large Break LOCA Evaluation Model Using BART
1981 Westinghouse Large Break LOCA Evaluation Model Using BASH

Estimated Effects

The erroneous elevation terms are estimated to have a negligible effect on Large Break LOCA Evaluation Model calculations. Representative sensitivity calculations with NOTRUMP have determined that a non-significant PCT effect is to be expected due to the influence of the erroneous elevation on the loop seal clearing process. PCT effects ranging from -44°F to +24°F have been assigned to affected plants depending on the magnitude and direction of the error.

SBLOCTA FUEL ROD INITIALIZATION

Background

An error was discovered in the SBLOCTA code related to adjustments which are made as part of the fuel rod initialization process which is used to obtain agreement between the SBLOCTA model and the fuel data supplied from the fuel thermal-hydraulic design calculations at full power, steady-state conditions. Specifically, an adjustment to the power, which is made to compensate for adjustments to the assumed pellet diameter was incorrect. Additionally, updates were made to the fuel rod clad creep and strain model to correct logic errors that could occur in certain transient conditions. These model revisions also had a small affect on the fuel rod initialization process, and can produce small affects during the transient. Due to the small magnitude of affects, and the interaction between the two items, they are being evaluated as a single, closely related affect.

This change is considered to be a Non-Discretionary Change as described in WCAP-13451.

Affected Evaluation Models

1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP

Estimated Effects

Representative plant calculations with the corrected model demonstrated that these revisions result in a predicted peak clad temperature increase on the order of +10 °F. This 10 °F penalty has been assessed against all existing analyses of record with the above model.

TRANSLATION OF FLUID CONDITIONS FROM SATAN TO LOCTA

Background

An error was discovered in the coding related to the translation of fluid conditions between the SATAN blowdown hydraulics code and the LOCTA code used for subchannel analysis of the fuel rods. In performing axial interpolations to translate the SATAN fluid conditions onto the mesh nodalization used by the LOCTA code, the length of the lower core channel fluid connection to the lower plenum node was incorrectly calculated.

This change is considered to be a Non-Discretionary Change as described in WCAP-13451.

Affected Evaluation Models

1981 Westinghouse Large Break LOCA Evaluation Model
1981 Westinghouse Large Break LOCA Evaluation Model with BART
1981 Westinghouse Large Break LOCA Evaluation Model with BASH

Estimated Effects

Representative plant calculations with the corrected model demonstrated that this correction resulted in approximately a ± 15 °F effect on the BASH large break LOCA evaluation model. Evaluations based on these studies conclude that the effect on the BART and 1981 evaluation models was a 5°F benefit. Therefore the following estimated effects are assigned:

BASH EM	15°F penalty
BART and 1981 EM	5°F benefit.

LOCBART CLAD CREEP AND BURST

Background

An error was discovered in the LOCBART code related to improper modeling of fuel rod cladding creep and burst. The high temperature creep model did not properly account for pellet/clad contact which can often occur during creepdown in the first several seconds of a large break LOCA when there is still a compressive stress exerted on the clad. The incorrect clad strain which was calculated during this time period then contributed some residual cumulative effect on the stress and strain calculations of clad ballooning and burst during the later phase of the transient. For the burst model, logic previously used in the code only examined the highest temperature axial node at any given timestep to determine if the temperature and hoop stress met burst conditions. However, since for the Zirlo clad model there is an additional requirement that a preburst strain of 10% must have occurred in order to burst, it is possible on occasion that a node which is not the highest temperature one for a given timestep simultaneously meets all of the burst criteria first. Due to the small magnitude of effects and the interaction between these two items, they are being evaluated as a single, closely related effect.

This change is considered to be a Non-Discretionary Change as described in WCAP-13451.

Affected Evaluation Models

1981 Westinghouse Large Break LOCA Evaluation Model

1981 Westinghouse Large Break LOCA Evaluation Model with BASH

Estimated Effects

Representative plant calculations with the corrected model demonstrated that this revision produced small reductions in calculated peak clad temperature over a limited range. Because the effect varies between clad material and specific plant transient conditions, the small benefit will be conservatively assessed as a 0 °F change for evaluating existing analyses of record.

ATTACHMENT 2 TO AEP:NRC:1118L

WESTINGHOUSE ELECTRIC CORPORATION
DETERMINATION OF EFFECT OF LOCA MODEL CHANGES ON
COOK NUCLEAR PLANT LOCA ANALYSES

LARGE BREAK LOCA

PLANT NAME: Donald C. Cook Nuclear Plant Unit 1

Comments: Evaluation Model: BASH, FQT=2.15, FdH=1.55, SGTP= 30% Other: RHR Cross Tie Valve Closed, 3250 MWt Reactor Power
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A. ANALYSIS OF RECORD	PCT = <u>2164°F</u>
B. PRIOR LOCA ASSESSMENTS - 1995 ¹	
1. SALIBRARY Double Precision Errors	Δ PCT = <u>-5°F</u>
2. Skewed Power Shape Penalty ²	Δ PCT = <u>N/A</u>
3. Hot Leg Nozzle Gap Benefit ²	Δ PCT = <u>N/A</u>
C. 1996 10 CFR 50.46 MODEL ASSESSMENTS	
1. Translation of Fluid Conditions from SATAN	Δ PCT = <u>+15°F</u>
2. LOCBART Clad Creep and Burst Error ³	Δ PCT = <u>-9°F</u>
D. LICENSING BASIS PCT + PERMANENT ASSESSMENTS	PCT = <u>2165°F</u>

Notes:

1. All permanent loss-of-coolant accident (LOCA) model assessments prior to 1995 were resolved by the new analysis.
2. This large break loss-of-coolant accident (LBLOCA) analysis uses the power shape sensitivity model (PSSM) with a cosine axial power distribution. Since the PSSM has been withdrawn from NRC review, the explicit shape analysis for PCT effects (ESHAPE) methodology has been incorporated into the Westinghouse LOCA evaluation model. However, since the calculated PCT with a cosine power shape is reached at approximately 77 seconds, the effect of the skewed power shape penalty and hot leg nozzle gap benefit is not significant. The application of the skewed power shape (shown on page 2 of this attachment) with the hot leg nozzle gap model shows that the cosine power shape remains limiting.
3. A plant specific analysis with the corrected LOCBART code resulted in a change in the generic 0°F PCT assessment to a 9°F PCT benefit.

LARGE BREAK LOCA

PLANT NAME: Donald C. Cook Nuclear Plant Unit 1

Comments: Evaluation Model: BASH, FQT=2.15, FdH=1.55, SGTP=30% Other: RHR Cross Tie Valve Closed, 3250 MWt Reactor Power

- A. ANALYSIS OF RECORD¹ PCT = 2266°F
- B. PRIOR LOCA ASSESSMENTS - 1995²
1. SALIBRARY Double Precision Errors Δ PCT = -5°F
2. Hot Leg Nozzle Gap Benefit Δ PCT = -237°F
- C. 1996 10 CFR 50.46 MODEL ASSESSMENTS
1. Translation of Fluid Conditions from SATAN Δ PCT = +15°F
2. LOCBART Clad Creep and Burst Error³ Δ PCT = -9°F
- D. LICENSING BASIS PCT + PERMANENT ASSESSMENTS PCT = 2030°F

Notes:

1. This PCT is the result of the change in axial power distribution models from the power shape sensitivity model (PSSM) to the explicit shape analysis for PCT effects (ESHAPE) methodology. Since the PSSM has been withdrawn from NRC review, the ESHAPE methodology has been incorporated into the analysis. An analysis for this case with the limiting skewed power shape resulted in a PCT increase of 102°F over the analysis performed using the cosine axial power distribution. The application of the hot leg nozzle gap model results in a benefit of 237°F. This shows that the cosine power shape (shown on page 1 of this attachment) remains limiting.
2. All permanent LOCA model assessments prior to 1995 were resolved by the new analysis.
3. A plant specific analysis with the corrected LOCBART code resulted in a change in the generic 0°F PCT assessment to a 9°F PCT benefit.

SMALL BREAK LOCA

PLANT NAME: Donald C. Cook Nuclear Plant Unit 1

Comments: Evaluation Model: <u>NOTRUMP</u> , FQ= <u>2.32</u> , F*H= <u>1.55</u> , SGTP= <u>30%</u> Other: HHSI Cross Tie Valve <u>Closed</u> , <u>3250</u> MWt Reactor Power

A. ANALYSIS OF RECORD	PCT = <u>1443°F</u>
B. PRIOR LOCA ASSMENTS - 1995 ¹	ΔPCT = <u>+5°F</u>
C. 1996 10 CFR 50.46 MODEL ASSESSMENTS	
1. SBLOCTA Fuel Rod Initialization Error	ΔPCT = <u>+10°F</u>
D. LICENSING BASIS PCT + PERMANENT ASSESSMENTS	PCT = <u>1458°F</u>

Notes:

1. All permanent LOCA model assessments prior to 1995 were resolved by the new analysis.

LARGE BREAK LOCA

PLANT NAME: Donald C. Cook Nuclear Plant Unit 2

Comments: Evaluation Model: BASH, FQT=2.335, FdH=1.644, SGTP= 15t, Other: RHR Cross Tie Valve Closed, 3413 MWT Reactor Power

A. ANALYSIS OF RECORD	PCT = <u>2090°F</u>
B. PRIOR LOCA MODEL ASSESSMENTS - 1989 ¹	ΔPCT = <u>N/A</u>
C. PRIOR LOCA MODEL ASSESSMENTS - 1990	ΔPCT = <u>0°F</u>
D. PRIOR LOCA MODEL ASSESSMENTS - 1991	ΔPCT = <u>+30°F</u>
E. PRIOR LOCA MODEL ASSESSMENTS - 1992	ΔPCT = <u>-25°F</u>
F. PRIOR LOCA MODEL ASSESSMENTS - 1993	ΔPCT = <u>-6°F</u>
G. PRIOR LOCA MODEL ASSESSMENTS - 1994	ΔPCT = <u>0°F</u>
H. PRIOR LOCA MODEL ASSESSMENTS - 1995	ΔPCT = <u>+16°F</u>
I. 1996 10 CFR 50.46 MODEL ASSESSMENTS	
1. Translation of Fluid conditions from SATAN to LOCTA.	ΔPCT = <u>+15°F</u>
J. LICENSING BASIS PCT + PERMANENT ASSESSMENTS	ΔPCT = <u>2120°F</u>

Notes:

1. Analysis of record was completed in January 1990. No prior LOCA model assessments were made.

LARGE BREAK LOCA

PLANT NAME: Donald C. Cook Nuclear Plant Unit 2

Comments: Evaluation Model: BASH, PQT=2.22, FdH=1.62, SGTP=15%, Other: RHR Cross Tie Valve Open, 3588 MWt Reactor Power
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A. ANALYSIS OF RECORD	PCT = 2140°F
B. PRIOR LOCA MODEL ASSESSMENTS - 1989 ¹	ΔPCT = N/A
C. PRIOR LOCA MODEL ASSESSMENTS - 1990	ΔPCT = 0°F
D. PRIOR LOCA MODEL ASSESSMENTS - 1991	ΔPCT = +30°F
E. PRIOR LOCA MODEL ASSESSMENTS - 1992	ΔPCT = -25°F
F. PRIOR LOCA MODEL ASSESSMENTS - 1993	ΔPCT = -6°F
G. PRIOR LOCA MODEL ASSESSMENTS - 1994	ΔPCT = 0°F
H. PRIOR LOCA MODEL ASSESSMENTS - 1995	ΔPCT = +16°F
I. 1996 10 CFR 50.46 MODEL ASSESSMENTS	
1. Translation of Fluid Conditions from SATAN to LOCTA	ΔPCT = +15°F
J. OTHER MARGIN ALLOCATIONS	
1. Power Margin ²	ΔPCT = -98°F
K. LICENSING BASIS PCT + PERMANENT ASSESSMENTS	PCT = 2072°F

Notes:

1. Analysis of record was completed in January 1990. No prior LOCA model assessments were made.
2. This value was obtained by temporarily allocating 4.9% of power margin using a sensitivity of 20°F/% power. See the justification for the use of power margin in the Cook Nuclear Plant unit 2 large break PCT rack up on page 6 of this attachment.

JUSTIFICATION FOR USE OF POWER MARGIN
IN COOK NUCLEAR PLANT UNIT 2 LARGE BREAK PCT RACK UP

A sensitivity to power was previously determined for the Cook Nuclear Plant Unit 2 large break analysis. It was conservatively demonstrated that a reduction of $20^{\circ}\text{F}_{\text{PCT}}/\%$ power could be applied for reduced power. This sensitivity will be applied to the reduction in power from the unit 2 analysis power of 3588 MW_t to the licensed operating condition of 3413 MW_t (a 4.9% reduction in power):

$$(20^{\circ}\text{F}_{\text{PCT}}/\% \text{ Power}) (4.9\% \text{ Power}) = 98^{\circ}\text{F}$$

This sensitivity is conservative since it only accounts for the assumed power reduction in the LOCBART run. A similar reduction in the assumed power for the SATAN run produces an added benefit to PCT during the blowdown portion of the transient. A reduction in power in the blowdown portion of the transient (i.e., SATAN) would be an added benefit which was not accounted for in this sensitivity.

SMALL BREAK LOCA

PLANT NAME: Donald C. Cook Nuclear Plant Unit 2

Comments: Evaluation Model: <u>NOTRUMP</u> , FQT= <u>2.45</u> , FdH= <u>1.666</u> , SGTP= <u>15t</u> , Other: <u>HHSI Cross Tie Valve Closed, 3250 MWT Reactor Power</u>

A. ANALYSIS OF RECORD	PCT = <u>1956°F</u>
B. PRIOR LOCA MODEL ASSESSMENTS - October 1993	Δ PCT = <u>-13°F</u>
C. PRIOR LOCA MODEL ASSESSMENTS - March 1994	Δ PCT = <u>-16°F</u>
D. PRIOR LOCA MODEL ASSESSMENTS - December 1994	Δ PCT = <u>+69°F</u>
E. PRIOR LOCA MODEL ASSESSMENTS - 1995	Δ PCT = <u>+20°F</u>
F. 1996 10 CFR 50.46 MODEL ASSESSMENTS	
1. SBLOCTA Fuel Rod Initialization Error	Δ PCT = <u>+10°F</u>
2. Loop Seal Evaluation Error	Δ PCT = <u>-38°F</u>
G. Burst and BLockage/Time in Life ¹	Δ PCT = <u>0°F</u>
H. LICENSING BASIS PCT + PERMANENT ASSESSMENTS	PCT = <u>1988°F</u>

Notes:

1. It should be noted that the burst and blockage assessment is subject to change as other model assessments are made because the magnitude of the burst and blockage assessments depends on the PCT without burst and blockage.



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SMALL BREAK LOCA

PLANT NAME: Donald C. Cook Nuclear Plant Unit 2

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| Comments: Evaluation Model: <u>NOTRUMP</u> , FQT= <u>2.44</u> , FdH= <u>1.644</u> , SGTP= <u>15t</u> ,
Other: <u>HHSI Cross Tie Valve Closed, 3413 MWt Reactor Power</u> |
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|---|-----------------------------|
| A. ANALYSIS OF RECORD | PCT = <u>1947°F</u> |
| B. PRIOR LOCA MODEL ASSESSMENTS - October 1993 | Δ PCT = <u>-13°F</u> |
| C. PRIOR LOCA MODEL ASSESSMENTS - March 1994 | Δ PCT = <u>-16°F</u> |
| D. PRIOR LOCA MODEL ASSESSMENTS - December 1994 | Δ PCT = <u>-33°F</u> |
| E. PRIOR LOCA MODEL ASSESSMENTS - 1995 | Δ PCT = <u>+20°F</u> |
| F. 1996 10 CFR 50.46 MODEL ASSESSMENTS | |
| 1. SBLOCTA Fuel Rod Initialization Error | Δ PCT = <u>+10°F</u> |
| 2. Loop Seal Evaluation Error | Δ PCT = <u>-38°F</u> |
| G. Burst and Blockage/Time in Life ¹ | Δ PCT = <u>+52°F</u> |
| H. LICENSING BASIS PCT + PERMANENT ASSESSMENTS | PCT = <u>1929°F</u> |

Notes:

1. It should be noted that the burst and blockage assessment is subject to change as other model assessments are made because the magnitude of the burst and blockage assessments depends on the PCT without burst and blockage.

SMALL BREAK LOCA

PLANT NAME: Donald C. Cook Nuclear Plant Unit 2

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| Comments: Evaluation Model:NOTRUMP, FQT=2.32, FdH=1.62, SGTP= 15%,
Other: HHSI Cross Tie Valve Open, 3588 MWt Reactor Power |
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| A. ANALYSIS OF RECORD | PCT = <u>1531°F</u> |
| B. PRIOR LOCA MODEL ASSESSMENTS - October 1993 | Δ PCT = <u>-13°F</u> |
| C. PRIOR LOCA MODEL ASSESSMENTS - March 1994 | Δ PCT = <u>-16°F</u> |
| D. PRIOR LOCA MODEL ASSESSMENTS - December 1994 | Δ PCT = <u>+35°F</u> |
| E. PRIOR LOCA MODEL ASSESSMENTS - 1995 | Δ PCT = <u>+20°F</u> |
| F. 1996 10 CFR 50.46 MODEL ASSESSMENTS | |
| 1. SBLOCTA Fuel Rod Initialization Error | Δ PCT = <u>+10°F</u> |
| 2. Loop Seal Evaluation Error | Δ PCT = <u>-38°F</u> |
| H. LICENSING BASIS PCT + PERMANENT ASSESSMENTS | PCT = <u>1529°F</u> |

ATTACHMENT 3 TO AEP:NRC:1118K

WESTINGHOUSE ELECTRIC CORPORATION
DETERMINATION OF EFFECT OF LOCA MODEL CHANGES ON
UNAPPROVED COOK NUCLEAR PLANT LOCA ANALYSES

LARGE BREAK LOCA

PLANT NAME: Donald C. Cook Nuclear Plant Unit 2

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| Comments: Evaluation Model: <u>BASH</u> , FQT= <u>2.335</u> , FdH= <u>1.644</u> , SGTP= <u>15%</u> ,
Other: RHR Cross Tie Valve Closed, 3588 MWt Reactor Power |
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| A. <u>NOT YET APPROVED</u> ANALYSIS OF RECORD | PCT = <u>2051°F</u> |
| B. PRIOR LOCA MODEL ASSESSMENTS ¹ | ΔPCT = <u>0°F</u> |
| C. 1996 10 CFR 50.46 MODEL ASSESSMENTS | |
| 1. Translation of Fluid Conditions from SATAN to LOCTA ² | ΔPCT = <u>+8°F</u> |
| 2. LOCBART Clad Creep and Burst Error ³ | ΔPCT = <u>-6°F</u> |
| D. LICENSING BASIS PCT + PERMANENT ASSESSMENTS | PCT = <u>2053°F</u> |

Notes:

1. All prior permanent LOCA model assessments were resolved by the new analysis.
2. A plant specific analysis with the corrected model resulted in a reduction in generic 15°F PCT penalty to a 8°F PCT penalty.
3. A plant specific analysis with the corrected LOCBART code resulted in a change in the generic 0°F PCT assessment to a 6°F benefit.

SMALL BREAK LOCA

PLANT NAME: Donald C. Cook Nuclear Plant Unit 2

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| Comments: Evaluation Model: <u>NOTRUMP</u> , FQT= <u>2.32</u> , FdH= <u>1.62</u> , SGTP= <u>15%</u> ,
Other: <u>HHSI Cross Tie Valve Closed, 3588 MWt Reactor Power</u> |
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| A. <u>NOT YET APPROVED</u> ANALYSIS OF RECORD | PCT = <u>2065°F</u> |
| B. PRIOR LOCA MODEL ASSESSMENTS ¹ | Δ PCT = <u>+5°F</u> |
| C. 1996 10 CFR 50.46 MODEL ASSESSMENTS | |
| 1. SBLOCTA Fuel Rod Initialization Error | Δ PCT = <u>+10°F</u> |
| 2. Loop Seal Evaluation Error | Δ PCT = <u>-38°F</u> |
| D. LICENSING BASIS PCT + PERMANENT ASSESSMENTS | PCT = <u>2042°F</u> |

Notes:

1. All permanent LOCA model assessments prior to 1995 were resolved by the new analysis.

