



Commonwealth Edison
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January 26, 1995
BW/95-0011

Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Document Control Desk

Subject: Report Of the Findings Regarding Failure Of A Review
Criterion During the Braidwood Unit 2 Cycle 5 Rod Swap
Testing

References:

1. Letter, C.O. Thomas (NRC) to E.P. Rahe
(Westinghouse), "Acceptance for Referencing of
Licensing Topical Report WCAP-9863(P), WCAP-
9864(NP) 'Rod Bank Worth Measurements
Utilizing Bank Exchange,'" dated May 1983,
with Enclosure.
2. Letter, E. H. Young to D.J. Miller,
"Evaluation of Rod Swap Results for Braidwood
Unit 2 Cycle 5," BR2C5/046, dated January 9,
1995.

Gentlemen:

Section 2 of the Enclosure to Reference (1) requires that a
report of the findings of the investigation of failure to meet
a review criterion during Rod Swap testing be provided to the
Nuclear Regulatory Commission within 75 days of the test.

Measurements conducted and analyzed on November 16 and 17,
1994, in accordance with WCAP-9863-A, "Rod Bank Worth
Measurements Utilizing Bank Exchange," failed the review
criterion for Control Bank B of the Rod Control System. The
review criterion for Control Bank B is that the difference
between measured and predicted reactivity worth must be less
than or equal to $\pm 15\%$. Measurements conducted during the Rod
Swap testing indicated that the difference between measured
and predicted reactivity worth for Control Bank B was -16.7% .

ComEd, Nuclear Fuel Services, has conducted an investigation
into the failure of the review criterion, as reported in
Reference 2 (attached). This investigation included
verification that neutronic design computer models were
generated in accordance with current approved methodology, and

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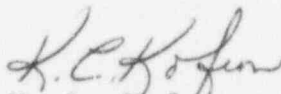
that the predictive calculations performed to generate the predicted values for Rod Swap testing were correct. No errors were found that would have caused failure of the review criterion.

Since no errors in the predicted values were found that could have caused the failure, an evaluation of the effect of the failure of the review criterion was conducted. This evaluation determined that the failure had negligible impact on safety analysis parameters.

Current neutronic design methodology does not include explicit corrections to match predictions to measured values. All other measurements obtained during performance of Low Power Physics testing for Braidwood Unit 2 Cycle 5 showed close agreement to predictions. As a result of this agreement and the above-mentioned investigation, no corrective actions for the failed review criterion are deemed to be appropriate.

Please direct any questions regarding this submittal to Douglas S. Huston, Braidwood Regulatory Assurance, Licensing Group, (815)458-2801 extension 3182.

Sincerely,



K. L. Kofron
Station Manager
Braidwood Nuclear Station

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Attachment

cc: S. G. DuPont, Senior Resident Inspector, Braidwood
R. R. Assa, Braidwood Project Manager, NRR
B. Clayton, Branch Chief, RIII
T. A. Rieck, Nuclear Fuel Services
D. M. Saccomando, NLA
K. G. Bartes, Regulatory Assurance Supervisor
L. Kepley, System Engineering

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Mr. David J. Miller
Technical Services Superintendent
Braidwood Station

Subject: Evaluation of Rod Swap Results for Braidwood Unit 2 Cycle 5

References:

- 1) "Revised Westinghouse Physics Test Results Evaluation Criteria", Westinghouse letter 94CB*-G-0063/94CW*-G-0049, dated April 25, 1994.
- 2) "Acceptance for Referencing of Licensing Topical Report WCAP-9863(P), WCAP-9864(NP) 'Rod Bank Worth Measurements Utilizing Bank Exchange'", C. O. Thomas (NRC) to E. P. Rahe, Jr. (Westinghouse).
- 3) "Braidwood Nuclear Plant Unit 2 Cycle 5 Reload Safety Evaluation", by S. L. Davidson, et al., dated October 1994.
- 4) "Braidwood Unit 2 Cycle 5 Revised Reload SPIL Transmittal", Westinghouse letter 94CB*-G-0174, dated October 11, 1994.
- 5) "Rod Swap Misprediction Review", by D. J. Wise, BR2C5 NDN, NR-30, dated December 8, 1994.
- 6) "Braidwood 2, Cycle 5 Rod Exchange Data", R. C. Lee to D. J. Miller, BR2C5/039, dated November 1, 1994.

The Rod Swap results for Control Bank B from the Braidwood Unit 2 Cycle 5 startup physics testing violated the review criterion specified in References 1 and 2. The review criterion for the difference in predicted and measured reactivity worth for Control Bank B is (+/-)15%. The results from the Rod Swap test showed a difference in the measured to predicted Control Bank B worth of (-)16.7%.

The Reference 2 document requires that when there is a violation of a review criterion that an investigation be performed and solutions determined within 60 days, and a report supplied to the NRC within 75 days. To support this regulatory requirement, Nuclear Fuel Services (NFS) has performed a review of the Rod Swap information supplied in Reference 6. This review consisted of verifying that the neutronic design models used were generated properly, and calculations performed for the Reference 5 Rod Swap transmittal are correct.

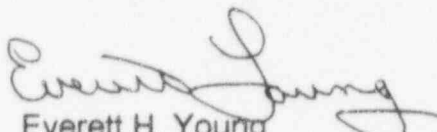
The review of the models and calculations, performed in Reference 5, found no errors that would cause the failure of the review criterion for Control Bank B. Since no

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errors were found in the predicted values supplied by NFS in Reference 6, an evaluation of the Braidwood Unit 2 Cycle 5 Safety Parameter Interaction List (SPIL), Reference 4, and the Reload Safety Evaluation (RSE), Reference 3 was performed to determine the impact caused by the misprediction. The evaluation determined that there is negligible impact on the analyses and the Reference 3 RSE and Reference 4 SPIL are still valid. Also, the operational data transmitted to Braidwood for use in Braidwood Unit 2 Cycle 5 is still valid for use and does not need to be revised.

Considering the conclusion from the SPIL/RSE evaluation discussed above, no corrective actions are required.

Should you have any questions or comments to this memo, please contact Douglas J. Wise at G. O. Ext. 8129.


Everett H. Young
PWR Nuclear Design Supervisor
Nuclear Fuel Services

EHY:DJW:pc

cc: L. K. Kepley
NFS-CF
D. R. Lawson
D. R. Redden/W. J. Funke