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MEMORANDUM FOR: Harold R. Denton, Director
Office of Nuclear Reactor Regulation

FROM: Hugh L. Thompson, Jr., Director
Division of Licensing

SUBJECT: RESULTS OF REGIONAL SURVEY - IMPACT ON PLANT
OPERATIONS DUE TO PROCESSING OF LICENSE AMENDMENTS

On April 5, 1985, DL sent a memorandum (Enclosure 1) to all Regional Division Directors which requested that they identify specific situations where Sholly procedural delays resulted in plant shutdowns, derating, or startup delays and were unrelated to safety.

Regions I, IV and V did not identify any examples. Region II (Enclosure 2) identified eleven related examples, but none actually involving plant shutdown, derating or preventing startup due to Sholly delays. Region III (Enclosure 3) identified four examples; none actually involving Sholly delays. The examples provided by the Regions may be incomplete because of the limited amount of time available for the Regions to respond.

We have discussed the specific cases identified by Regions II and III with the plant PMs. Based on these discussions, it seems that of the eleven examples provided by Region II, none involved actual Sholly delays primarily because no amendment requests were involved. Nine of the examples were resolved by enforcement discretion which allowed the licensee to either submit a routine amendment request or no request at all in the cases where there was no time for any amendment. Two of the examples did not involve Sholly or license amendments: one involved a revised licensee commitment; the other involved an environmental assessment for an ISI relief.

Had the Region not exercised its enforcement discretion, however, emergency amendment requests may have been submitted which may have involved Sholly delays. For some of these cases, it is not clear that there would have been sufficient time to obtain the necessary safety evaluations from the licensee (properly reviewed in the licensee's organization) and to complete staff reviews needed for staff agreement with license assessment.

Region III provided four examples. Again, none involved actual Sholly delays. Three did not involve actual amendment requests and the fourth involved an amendment which was withdrawn when circumstances led to its not being needed. Shutdown was started on both LaSalle units when standby gas treatment heaters were found to be slightly outside a surveillance tolerance band, but the shutdown was halted when Region III and NRR agreed that the heaters were operable. If Region III had not exercised enforcement discretion, NRR was ready to issue an emergency amendment, but some further reduction in power may have resulted until then.

The Region III Duane Arnold and Point Beach examples are cases where enforcement discretion was not exercised, but could have been. At Duane Arnold, a shutdown was started but later terminated when a hydrogen analyzer was returned to service. Since a third analyzer was available but not credited in the technical specifications, enforcement discretion would probably have been appropriate. (NRR has since revised the technical specifications to allow credit for the new analyzer which was added in response to NUREG-0737.)

In the Point Beach case, the licensee added an unneeded snubber to get around both the need for an amendment and an enforcement problem.

The Region III response suggests that all Sholly amendments must take in excess of thirty days which indicates that the Regions may not be fully familiar with the Sholly rules. The Sholly rule (§50.91) states that Sholly (noticing) procedures can be bypassed in an emergency situation involving derating or shutdown of a plant for which good cause and no significant hazards can be demonstrated.

A copy of the Region II and III response is enclosed and each Regional example is evaluated in Enclosure 4.

As a matter of note, we, in licensing, have observed a significant decrease in emergency amendment requests since the inception of the Sholly procedures. This may be due to licensee confusion regarding Sholly requirements and possibly may be due to more formalization of requesting procedures. We now require a written request for the emergency amendment together with a safety evaluation, a no significant hazards consideration discussion, and a written explanation about how the licensee found itself needing an emergency amendment, i.e., the timeliness of the request. In addition, in accordance with technical specification requirements, amendment requests must be reviewed by the licensee review committees. For short technical specification LCOs, e.g., six hours, achieving all of the above (plus NRR review) in time is impractical. However, emergency requests with reasonable LCO's have been granted. A total of 29 emergency amendments have been issued since the Sholly rule became effective on May 6, 1983.

Although not included in the Regional survey, there are two situations that involved plant derate, i.e., continued operation at less than 100% power, during the Sholly notice period.

One involved Crystal River Unit 3. The unit was operating at 96% of full power. The staff was ready to issue an amendment allowing 100% power operation on or about May 8, 1984, but waited until the expiration of a 30-day monthly Sholly notice on May 25, 1984 to issue the amendment. This involved 17 days of Sholly delay. The licensee's original application of January 30, 1984 was technically incomplete and could not be noticed. A supplementary letter of March 20, 1984 cured the deficiency, but did not justify emergency treatment for the original inadequate application, i.e., the needed test for timeliness.

The second involved McGuire Unit 1 which was operating at 90% of full power. The NRC staff was ready to issue an amendment allowing operation of 100% power on or about June 13, 1983, but waited until a notice was published in the Federal Register. The amendment was issued on June 28, 1983, a Sholly delay of some 15 days. The licensee requested that the amendment be processed as an emergency involving derating. However, since the unit had been operating derated for several months and the original application was dated November 23, 1982, there was a question as to whether a valid emergency situation existed justifying no notice, i.e., the timeliness of the application. There was also some staff confusion as to whether or not the emergency provision applied in this case (i.e., lifting an existing derating). The Sholly rule had only recently become effective on May 6, 1983. This question has since been resolved - an emergency situation applies to plant shutdown or derating as well as delaying a startup or delaying of the lifting of a derating. OELD believes that a reasonable argument can be made to support this position, however, OGC might well disagree. In summary, the McGuire delay was mostly due to the newness of the Sholly procedures.

Summary

In summary, the Regional survey disclosed no actual shutdowns, etc., due to purely Sholly procedural delays. There were examples where Regional enforcement discretion was utilized and an emergency amendment request was unnecessary, and several others where the Sholly amendment procedures seemed to influence the outcome (e.g., Point Beach). However, we in licensing identified two examples where Sholly did have an influence in plants being operated in a derated condition.

We have not done a complete review of all possible instances where Sholly procedures may have resulted in plant derating or shutdown. It is clear however, that because of the procedures that we use in implementing Sholly, i.e., written requests from licensees, written staff evaluations, and the short duration of LCOs in plant technical specifications, plant operations, would have been impacted if Regional enforcement discretion were not resorted to. As you know, I am reviewing our policy for granting temporary relief from Technical Specifications to avoid any need for Regional discretion.

Hugh L. Thompson, Jr., Director
Division of Licensing

Enclosures:

1. Survey Request
2. Region II Response
3. Region III Response
4. Evaluation of Examples

CONTACT:

C. Trammell
49-27389

*SEE PREVIOUS CONCURRENCES

ORB#3:DL	ORB#3:DL	AD-OR:DL	D:DL
CTrammell*	JMiller*	GLainas*/dn	HThompson
4/29/85	4/29/85	5/2/85	5/ /85

April 10, 1985

T. Quinn

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	Docket Nos. 50-250 OLA
FLORIDA POWER & LIGHT COMPANY)	50-251 OLA
)	(Vessel Flux Reduction)
(Turkey Point Plant, Units 3 and 4))	

NRC STAFF RESPONSE TO MOTION TO
SUSPEND OR REVOKE LICENSE AMENDMENT

I. INTRODUCTION

On October 7, 1983, the NRC published in the Federal Register a notice of consideration of the issuance of amendments to the Turkey Point 3 and 4 licenses and offered an opportunity for hearing. 48 Fed. Reg. 45862. ^{1/} Pursuant to that notice, the Center for Nuclear Responsibility, Inc. and Joette Lorion (Petitioners or Intervenors) filed a timely petition to intervene and request for hearing on November 4, 1983. Subsequently, the Petitioners were found to have standing to intervene pursuant to 10 C.F.R. § 2.714 and their proposed Contentions (b) and (d) were admitted for adjudication. Prehearing Conference Order, May 16, 1984.

On August 10, 1984, Florida Power & Light Company ("Licensee") filed two motions for summary disposition of Contentions (b) and (d) with

1/ Pursuant to 10 C.F.R. § 50.91(a)(4), the Staff made a final no significant hazards consideration determination and issued the contested amendments on December 23, 1983.

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accompanying statements of material facts as to which it alleged there was no genuine issue to be heard and supporting affidavits. Both motions were supported by a single memorandum of law. On September 4, 1984, the NRC Staff filed a response, which included affidavits, in support of the motions. On that same date, the Intervenors filed a response, including supporting affidavits by Joette Lorion and Dr. Gordon D. J. Edwards, in opposition to Licensee's motions. Intervenors Response to Licensee's Motion for Summary Disposition of Intervenors' Contentions (b) and (d) ("Intervenor's Response"), September 4, 1984.

By letter dated March 18, 1985, counsel for Licensee notified the Board that Westinghouse Electric Corporation had informed Licensee that it was "necessary to revise the ECCS evaluation model procedure by which the core flooding rate information generated by the WREFLOOD code is introduced into the BART heat transfer coefficient calculation." Letter to Drs. Lazo, Cole and Leubke, NRC, from M. A. Bauser, March 18, 1985 at 1. At a prehearing conference held to receive additional oral evidence on Licensee's summary disposition motions, Intervenors served a motion to suspend or revoke the contested license amendments alleging that the letter: (a) "informs that there is no valid technical basis for the WREFLOOD BART (sic) computer model," (b) "clearly identifies at least one disputed issue of material fact," and (c) "undermines the Commission's own determination that there was a no significant hazards consideration involved." Intervenors' Motion to Suspend or Revoke License Amendments, March 26, 1985, at 1-2 ("Motion"). Intervenors request that the amendments be suspended or revoked until the Board has determined

that there is a valid technical basis for the amendments. Motion at 1, 3. The Staff response to this motion is set forth below.

II. DISCUSSION

Intervenors request that the license amendments be summarily suspended or revoked prior to the completion of a hearing on the amendments. The stated grounds for this relief are that there is no valid technical basis for the amendments and that the Staff's conclusion that the amendments involve no significant hazards has been undermined. Motion at 1-2.

This latter assertion as to the significant hazards consideration determination provides no basis for staying the effectiveness of the amendments. Under Section 189 of the Atomic Energy Act, as amended, and NRC regulations, an amendment may be issued and made immediately effective "in advance of the holding and completion of any required hearing," upon a final determination that the amendment involves no significant hazards considerations. 42 U.S.C. § 2239(a)(2)(A); Notice and State Consultation, 48 Fed. Reg. 14873, 14876 (April 6, 1983); see 10 C.F.R. § 2.105(a)(4)(i). The Commission has stated that any question as to the "staff's determinations on the issue of significant versus no significant hazards consideration that may be raised in any hearing on the amendment will not stay the effective date of the amendment." Notice and State Consultation, 48 Fed. Reg. 14873, 14876 (April 6, 1983). Thus any challenge or question as to the correctness of the Staff's significant hazards determination may not serve as a basis to stay (suspend or revoke) the amendments in advance of the holding and completion of any required hearing or evidentiary presentation. The Licensing Board lacks the

authority to alter the effectiveness of the amendments based on challenges to the no significant hazards consideration determination per se. ^{2/}

The Board does have the authority to suspend the amendments on safety grounds should it determine as a result of some evidentiary presentation that such action is warranted. The jurisdiction of the Licensing Board is proscribed by the notice of opportunity for hearing. Commonwealth Edison Co. (Zion Station, Units 1 and 2), ALAB-616, 12 NRC 419, 426 (1980); Public Service Co. of Indiana, Inc. (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-316, 3 NRC 167 (1976). Under that notice, the Board has the jurisdiction to take such actions regarding the amendments, including modification or revocation, upon the completion of the proceeding, if it determines that such action is warranted by the evidence presented in the proceeding. Similarly, should a party establish at some earlier point in the proceeding that the evidence requires that the amendments be suspended or revoked on

^{2/} In addition, Intervenors do not provide any basis for concluding that the amendments involve a significant increase in the probability or consequences of an accident previously evaluated, create the possibility of a new or different kind of accident from any previously evaluated or involve a significant reduction in a margin of safety. As discussed below, the amendments are supported by a large break LOCA analysis, with and without BART, which meets 10 C.F.R. § 50.46 and Appendix K. Thus, the Staff's conclusion, pursuant to 10 C.F.R. § 50.92(c), that the amendments do not involve a significant hazards consideration has not been undermined by the revisions to the BART input methodology and the new peak cladding temperature.

substantive grounds, the Board is not precluded from granting such relief. ^{3/}

Intervenors' assertion that the amendments are without a "valid technical basis" is wholly unsupported. The letter on which Intervenors rely does not establish that the amendments lack sufficient technical

^{3/} The means for granting such relief might properly be similar to the procedures followed with respect to a temporary restraining order in federal courts. Under such procedure, the Board would determine whether to suspend or stay the effectiveness of the amendments based on the factors for stay of decisions (set forth in 10 C.F.R. § 2.788(e)):

- (1) Whether the moving party has made a strong showing that it is likely to prevail on the merits;
- (2) Whether the party will be irreparably injured unless a stay is granted;
- (3) Whether the granting of a stay would harm other parties;
and
- (4) Where the public interest lies.

While not necessarily dispositive, the weightiest consideration is "the need to preserve the status quo -- whether the party requesting a stay has shown that it will be irreparably injured unless a stay is granted." Westinghouse Electric Corp. (Exports to the Phillipines), CLI-80-14, 11 NRC 631, 662 (1980). Intervenors, however, have not addressed these factors and would not prevail if the four factors are considered. Intervenors have not made any showing that they would prevail on the merits. Intervenors will not be irreparably injured absent an immediate suspension of the amendments because current operation under the amendments is safe since BART and the new calculated PCT meet ECCS acceptance criteria and any potential harm may be redressed at the conclusion of the proceeding. The Licensee would be harmed if the stay were granted because it would be required to operate in a manner other than the more efficient operation authorized by the amendments. Finally, the public interest favors operation under the amendments because safe and efficient power generation is beneficial to the public.

foundation. To the contrary, the letter merely states that (1) it was "necessary to revise the ECCS evaluation model procedure by which the core flooding rate information generated by the WREFLOOD code is introduced into the BART heat transfer calculation" and (2) use of the revised procedure results in a calculated peak cladding temperature (PCT) higher than the 1972°F PCT indicated in the affidavit of Mark J. Parvin supporting the motion for summary disposition, but "well below the 2200°F limit established by 10 C.F.R. § 50.46." Testimony by Mark J. Parvin and Michael Y. Young at the March 26, 1985 prehearing conference explained the reasons for the revised data transfer procedure and that the resulting calculated PCT is 2051°F. Tr. 124-130.

Further, the NRC Staff agrees with the testimony presented by Messrs. Parvin and Young on this matter and concludes that the revised procedures are in compliance with 10 C.F.R. Part 50, Appendix K, and that the 2051°F calculated PCT is within the temperature limit of 10 C.F.R. § 50.46. Affidavit of Summer B. Sun and G. Norman Lauben, April 9, 1985, at 2-3 (attached). ^{4/} Consequently, the revision in the data transfer procedures which resulted in a higher calculated PCT, to which counsel for Licensee alluded in the March 18, 1985 letter, does not establish

^{4/} As indicated in the attached affidavit, the Staff is preparing a supplement to the BART Safety Evaluation, dated December 21, 1983, to reflect the revision in the data input methodology and will separately document the revised, calculated PCT for Turkey Point. Sun/Lauben Affidavit at 3.

that the amendments lack a valid technical basis or that the requirements of 10 C.F.R. § 50.46 and Part 50, Appendix K, have not been met. ^{5/}

In addition, at the Staff's request the Licensee performed a large break LOCA analysis using the non-modified, approved 1981 ECCS evaluation model including the FLECHT correlation instead of BART which resulted in a calculated PCT of 2130°F. Affidavit of Summer B. Sun, September 4, 1984, at 4, accompanying NRC Staff Response to Licensee Motions for Summary Disposition of Contentions (b) and (d), September 4, 1984. This calculation is wholly unaffected by the revisions to the data transfer procedures from the WREFLOOD code to the BART code of which Intervenors complain. Thus, even assuming that Intervenors could prove that BART does not meet NRC criteria, the Safety Evaluation supporting the amendments provides a sufficient technical basis for the issuance of the amendments. Safety Evaluation, December 23, 1983, at Section 4.2. The assertion that the amendments are without a valid technical basis should be rejected.

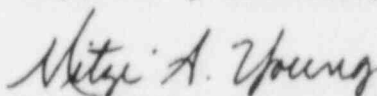
^{5/} Intervenors argue that the information in the letter regarding the revision in input procedures to BART and the resulting higher calculated PCT, read together with Contention (b), "clearly identifies at least one disputed issue of material fact." Motion at 2; Hodder, Tr. 95-96(b). The revisions in the ECCS analysis came as a result of deficiencies discovered in the data transfer procedure between the WREFLOOD and BART computer codes and were not a consequence of deficiencies in BART, as alleged in Contention (b). This error in the evaluation model, which has been corrected through revision of the data transfer procedure, does not affect the appropriateness of summary disposition on Contention (b) because the new calculated PCT of 2051°F is below the 2200°F limit of 10 C.F.R. § 50.46. Thus, this simple revision to the predicted PCT does not establish a genuine issue as to a material fact.

In sum, Intervenor's claims are without merit and provide no justification for suspension or revocation of the amendments prior to some evidentiary presentation or hearing on the merits. The amendments are supported by a valid technical basis in that both the large break LOCA analysis using BART and the previously approved ECCS evaluation model meet Appendix K and yield a calculated PCT that meets the requirements of 10 C.F.R. § 50.46. In addition, Intervenor's challenge as to the adequacy of the Staff's no significant hazards consideration determination provides no basis for staying the effectiveness of the amendments pending the completion of a hearing on the amendments. Accordingly, the motion should be denied.

III. CONCLUSION

Based on the foregoing, the Intervenor's request that the amendments be summarily suspended without any evidentiary presentation should be rejected because the grounds for the Motion are wholly lacking in merit.

Respectfully submitted,



Mitzi A. Young
Counsel for NRC Staff

Dated at Bethesda, Maryland
this 10th day of April, 1985

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
FLORIDA POWER AND LIGHT COMPANY)
(Turkey Point Plant, Units 3 and 4))

Docket Nos. 50-250 OLA-1
50-251 OLA-1

AFFIDAVIT OF SUMMER B. SUN AND G. NORMAN
LAUBEN REGARDING REVISED INPUT METHODOLOGY
FOR BART ECCS COMPUTER CODE

I, Summer B. Sun, being duly sworn, state as follows:

1. I am employed by the U.S. Nuclear Regulatory Commission as a Nuclear Engineer in the Core Performance Branch of the Division of Systems Integration, Office of Nuclear Reactor Regulation. A copy of my professional qualifications is already on record in this proceeding.

I, G. Norman Lauben, being duly sworn, state as follows:

2. I am employed by the U.S. Nuclear Regulatory Commission as a Section Leader in the Reactor Systems Branch of the Division of Systems Integration, Office of Nuclear Reactor Regulation. A copy of my professional qualifications is attached.

3. The purpose of this affidavit is to address the change in input methodology for the BART computer code which was initially reported to the Board on March 18, 1985 in a letter from Michael A. Bauser, Counsel for Licensee. In addition, in consideration of that issue, this affidavit modifies statements in the affidavit of Summer B. Sun, dated September 4,

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1984, which accompanied the staff response to the Licensee's motions for summary disposition, and the Staff's Safety Evaluation related to the amendments, dated December 23, 1983.

4. In a letter dated March 22, 1985, (attached) Westinghouse Electric Corporation informed the NRC Staff of a revision to input methodology or data transfer procedure between the WREFLOOD and BART codes in the Westinghouse Emergency Core Cooling System (ECCS) evaluation model used to demonstrate compliance with 10 CFR 50.46 and Appendix K to 10 CFR 50. Westinghouse indicated that the revision in the way input to the BART code is determined from the WREFLOOD code may result in an increase in calculated peak cladding temperature (PCT) for analyses which used the BART code and provided a reanalysis of the large break LOCA for Turkey Point.

5. Core inlet flooding rate (V_{in}) calculated as a function of time in the WREFLOOD computer code is used as input to the BART code. Under the previous procedure, however, only a limited number of V_{in} points were made available from WREFLOOD. During the first few seconds of the core reflooding transient, the change in V_{in} as a function of time is oscillatory. Consequently, the use of a limited number of points from WREFLOOD did not allow an accurate representation of V_{in} or the integral of V_{in} used in BART. In particular, the integral of V_{in} and consequently the water level in the core was too high as used in BART. See Westinghouse Figures 1 and 2 (attached). The higher water level yielded an earlier onset of entrainment which resulted in an earlier initiation of steam cooling in the core and thus a lower calculated PCT.

6. Westinghouse modified the data transfer procedure so that good agreement now exists between WREFLOOD and BART. The revised procedure also instructs the data analyst to assure that for all times during the reflood the integrated value of Vin used in BART is equal to or less than that calculated by WREFLOOD. A reanalysis of the Turkey Point Units 3 and 4 was performed using the new data transfer procedure. The new results show a 79°F increase in the previously calculated PCT of 1972°F. This PCT of 2051°F is well below the 2200°F limit specified in 10 CFR 50.46.

7. The Staff has reviewed the information submitted by Westinghouse and finds the new data transfer procedure is satisfactory and the ECCS evaluation model now meets the requirements of Appendix K to 10 CFR 50. The Staff also concludes that the newly calculated PCT for Turkey Point 3 and 4 meet the requirements of 10 CFR 50.46. The Staff is preparing a supplement to the Safety Evaluation on the BART Code, dated December 21, 1983, to reflect the revision to the input methodology and will separately document the revised PCT for Turkey Point.

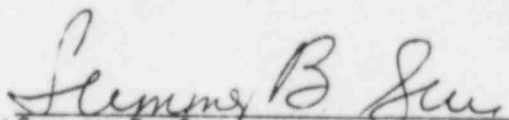
8. We have also reviewed the testimony presented by Mr. Mark J. Parvin and Michael Y. Young (Tr. 124-130) regarding the revisions in data transfers procedures from WREFLOOD to BART and the revised PCT. That testimony is correct and is in agreement with the Staff understanding of the matter.


9. We have reviewed the "Affidavit of Summer B. Sun Regarding Contention (b)," dated September 4, 1984. As a result of the newly calculated PCT, the value for PCT (page 3, paragraph 6) should be changed from "1972°F" to "2051°F." In addition, to correct inadvertent word omissions, the words "reduction in" should be inserted in the third

sentence of paragraph 7 (page 3), so that the sentence now reads: "The reduction in reflood rate" With the exception of the aforementioned items and because the Sun Affidavit discusses the BART code rather than the ECCS evaluation model as a whole, including the transfer of data among various codes, the conclusions of the Sun Affidavit remain unchanged and are hereby affirmed.

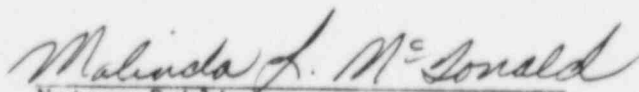
10. Similarly, the calculated value for PCT found in Sections 4.2 and 7.0 of the Staff Safety Evaluation, dated December 23, 1983, will be changed from 1972°F to 2051°F. All other conclusions regarding BART and the results of large break LOCA analysis are unchanged by the revised data procedure and remain valid.

The foregoing and the attached statement of professional qualifications are true and correct.


Summer B. Sun


G. Norman Lauben

Subscribed and sworn to before me, *as to both,*
this 9th day of April, 1985.


Notary Public

My commission expires: 7/1/86

STATEMENT OF PROFESSIONAL QUALIFICATIONS

G. NORMAN LAUBEN

My name is George Norman Lauben. I am employed as a Section Leader in the Reactor Systems Branch, Division of Systems Integration, U.S. Nuclear Regulatory Commission. I have worked in the field of nuclear reactor safety for 22 years, and in nuclear activities for 26 years. I have worked for the Commission and its predecessor, the Atomic Energy Commission, since 1968. During this time, I have worked directly on reactor safety matters, including Emergency Core Cooling Systems (ECCS) performance review and Loss-of-Coolant Accident (LOCA) analysis.

I was a member of the 1971 AEC ECCS task force and the AEC Staff Panel for the ECCS Rulemaking Hearing. I am the author of the TOODEE2 computer program used by the NRC and the nuclear industry for transient fuel pin thermal analysis during a LOCA. In my current position, I supervise the review of transient and accident analyses and analytical methods submitted by vendors and utilities for licensee applicants, fuel reloads, and plant modifications.

I have a B.Sc. and M.Sc. in Chemical Engineering from Case Institute of Technology (now Case Western Reserve University).



Westinghouse
Electric Corporation

Water Reactor
Divisions

Box 355
Pittsburgh Pennsylvania 15230

March 22, 1985

NS-NRC-85-3025

Mr. D. G. Eisenhut

Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Phillips Building
7920 Norfolk Avenue
Bethesda, MD 20014

Subject: BART-WREFLOOD Input Revision

Dear Mr. Eisenhut:

The purpose of this letter is to inform you of an input methodology revision in the interface between two computer codes used in the Westinghouse Emergency Core Cooling System (ECCS) evaluation model which is used to demonstrate compliance with Appendix K to 10CFR50.46. Specifically, the input methodology revision applies the way input to the BART code is determined from the WREFLOOD code in the large break loss-of-coolant-accident (LOCA) analyses. The revision in the input methodology may result in an increase in calculated peak cladding temperature for analyses which have used the BART computer code. This problem has been discussed with Dr. Brian Sheron and Mr. Norman Lauben of your staff. Additional details regarding this problem may be found in the attachment.

Westinghouse has reviewed the LOCA analyses which have been performed with the Westinghouse ECCS evaluation model which incorporates the BART code and WREFLOOD code interface and determined that the effect of the input methodology revision would not result in any of the analyses exceeding the 2200°F regulatory limit on peak cladding temperature. Reanalyses of Turkey Point units 3 and 4 have been completed as reflected in the attachment and reanalyses of the other affected plants is in progress.

If you have any questions concerning these modifications, please contact Mr. Brian McIntyre of my staff at (412)374-5506.

Sincerely,
Westinghouse Electric Corporation
E. P. Rahe, Jr.
E. P. Rahe, Jr., Manager
Nuclear Safety Department

cc: B. Sheron
N. Lauben

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BART Vin ISSUE SUMMARY

BACKGROUND

In the course of performing work unrelated to the Florida Power and Light Company analyses for Turkey Point Units 3 and 4 it was determined that it was necessary to revise the approved procedure by which the flooding rate information generated by the WREFLOOD code was transferred to the BART code. The core inlet flooding rate (Vin) is transferred by hand from the WREFLOOD code output to the BART code input. Examination of a typical flooding rate curve shows that it is divided into two phases; an initial insurge which takes place in approximately the first seven seconds, reaching values on the order of 15 in/sec or more, and the remainder of the transient which is characterized by relatively slowly varying inlet velocities on the order of one inch per second. The transient response is dependent on the integrated value of the inlet velocity.

A limited number of instantaneous values of Vin are available to the analyst for replicating the Vin curve as a part of the BART input. Use of all available Vin values in the initial insurge portion of the transient does not necessarily produce good integrated agreement at the start of the second portion of the transient. Connecting the discrete input points can result in more water in the core than the WREFLOOD code calculates.

A representative example of WREFLOOD output and BART input is presented in figure 1. It can be seen that the area under the BART input Vin curve is greater than under the WREFLOOD output Vin curve. The BART points are the WREFLOOD values normally available to the analyst.

As a result the integrated value of water in the core may be higher in BART than in the WREFLOOD code. This higher water level provides an earlier onset of entrainment which results in an earlier initiation of steam cooling in the upper regions of the core. This earlier initiation of steam cooling gives a lower calculated PCT than would be calculated if the integrated value of the Vin curve from WREFLOOD had been matched exactly.

The WREFLOOD integrated Vin curve and the BART integrated Vin curve for Turkey Point Units 3 and 4 are presented in figure 2.

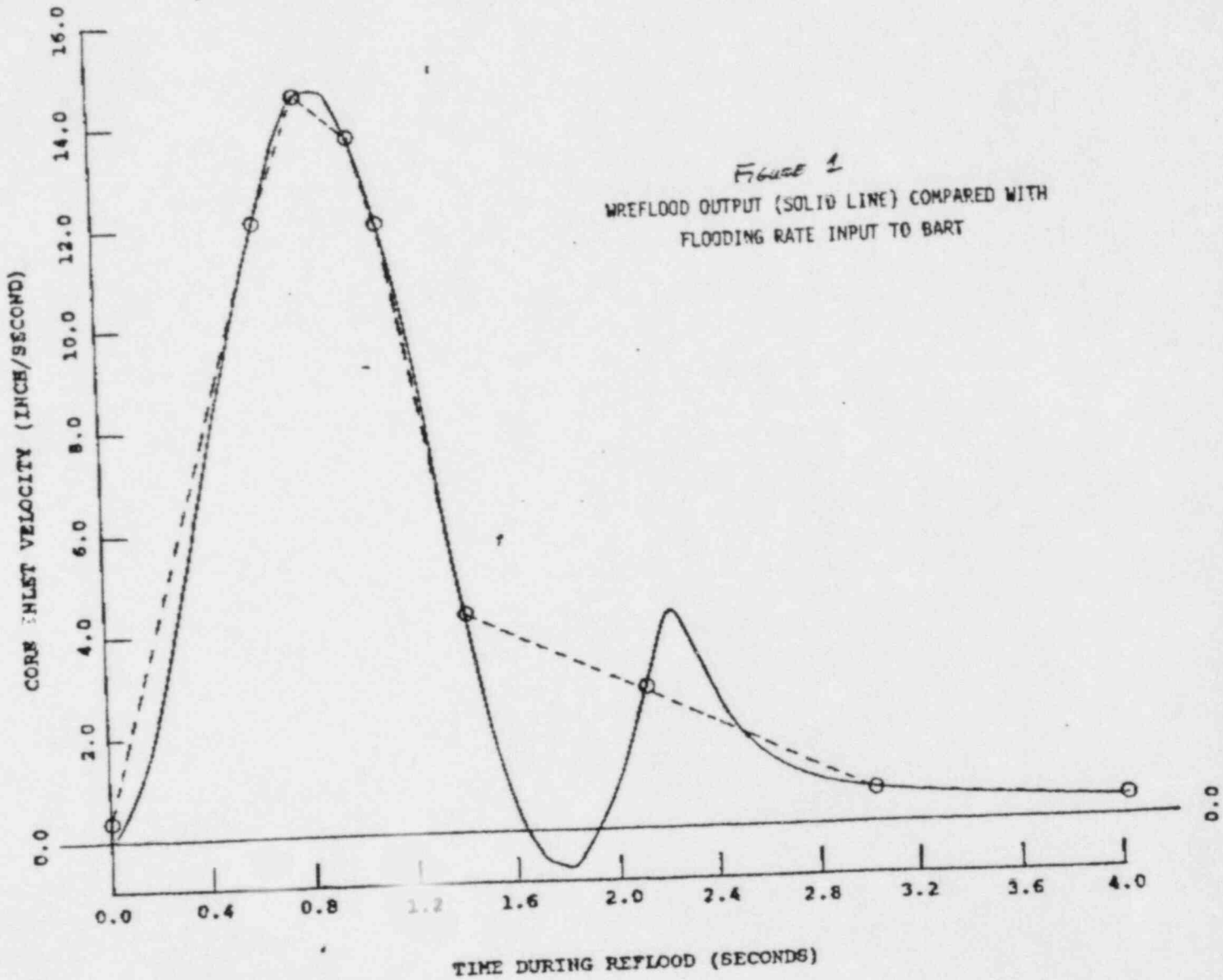
CORRECTIVE ACTION

A data transfer procedure, utilizing the available WREFLOOD Vin output, has been developed and implemented that results in good agreement between the WREFLOOD calculated value of the integrated flooding rate and the BART calculated value of the integrated flooding rate. This procedure also cautions the analysis reviewer to verify the similarity of the integrated Vin curves between the two codes and provides a standard method for comparing the two curves.

IMPACT ON TURKEY POINT UNITS 3 AND 4

A reanalysis of the Turkey Point Units 3 and 4 was performed using this new methodology. The results of this reanalysis indicated that the calculated PCT increased 79 F to 2051 F from the original analysis value of 1972 F.

The revised calculated peak cladding temperature is well below the 2200 F limit of 10CFR50.46.



COMPARISON OF INTEGRATED CORE INLET FLOW
FIGURE 2

