



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

September 14, 2000

Mr. Nathan L. Haskell
Director, Licensing and Performance Assessment
Palisades Plant
27780 Blue Star Memorial Highway
Covert, MI 49043

SUBJECT: PALISADES PLANT - REQUEST FOR ADDITIONAL INFORMATION RELATED TO REVISED INCORE MONITORING CODE, PIDAL-3, AND CHANGES IN INCORE DETECTORS (TAC NO. MA8695)

Dear Mr. Haskell:

By letters dated April 21 and August 11, 2000, Consumers Energy Company (CEC or the licensee) forwarded a report entitled, "The PIDAL-3 Full Core System," dated February 2000, and requested NRC staff review and approval. The submittals also discuss your decision to (1) eliminate seven incore detector strings starting in Operating Cycle 15 and (2) reduce the number of incore detectors required to be operable from 75 percent to 50 percent. The NRC staff finds that the additional information identified in Enclosure 1 is needed.

A draft of the request for additional information (RAI) (Enclosure 2) was e-mailed to Mr. K. Marbaugh (CEC) on August 30, 2000, and discussed by telephone call on September 8, 2000. Based upon the phone call, we have determined that draft RAI questions 6 and 11 are not needed because the information is already on the docket (question 6 is addressed by Figure 4.5-D of your April 21, 2000, submittal and question 11 is addressed by your August 11, 2000, submittal). Except for minor editorial changes and the deletion of draft RAI questions 6 and 11, the information requested by Enclosure 1 is the same as Enclosure 2.

The phone call on September 8, 2000, also established that November 1, 2000, would be a mutually agreeable response date. Please contact me at (301) 415-3049 if future circumstances should require a change in this response date.

Sincerely,

Darl S. Hood, Senior Project Manager, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-255

Enclosures: 1. Request for Additional Information
2. E-mail with Draft Request for Additional Information

cc w/encls: See next page

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/RA/

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Docket No. 50-255

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April 2000

REQUEST FOR ADDITIONAL INFORMATION REGARDING
PALISADES' REVISED INCORE MONITORING CODE, PIDAL-3,
AND CHANGES IN INCORE DETECTORS

By letters dated April 21 and August 11, 2000, Consumers Energy Company (the licensee) forwarded a report entitled, "The PIDAL-3 Full Core System," dated February 2000, and requested NRC staff review and approval. The submittals also discuss the licensee's decision to (1) eliminate seven incore detector strings starting in cycle 15 and (2) reduce the number of detectors required to be operable from 75 percent to 50 percent. The NRC staff finds that the following additional information is needed:

1. The third paragraph of the April 21, 2000, cover letter mentions the licensee's intent to re-use incore detectors. Please clarify how this intent is to be accomplished.
2. Section 1.0 (fifth paragraph) of the report discusses the decision to eliminate seven detectors starting in fuel cycle 15. Although these detectors may not be needed with respect to PIDAL-3 evaluations, the accumulated data from a given position could provide a measured value of an outer assembly power and therefore be useful in the source estimate of the neutron fluence calculations. Please provide a technical justification for the removal of these detectors. The justification should also explain how an unexpected core-wide symmetric power redistribution towards the outer core region would be detected without these seven detectors.
3. Section 1.0 (fifth and sixth paragraphs) of the report discusses reducing the number of operable detectors from 75 percent to 50 percent. Please provide a quantitative technical justification in support of this reduction. This justification should also discuss the ability of the remaining detectors to detect
 - a) misaligned control rods (i.e., misalignment greater than that included in the analysis),
 - b) quadrant power tilts, even if greater than the Technical Specification limit, and
 - c) misloaded fuel.
4. Section 1.0 (seventh paragraph, last sentence) of the report states that the uncertainties associated with cycles 12 thru 14 are bounded by the current Palisades Technical Specifications for PIDAL-3 with CASMO-3/SIMULATE-3. Please explain why this is true.
5. Section 1.2 (page 5) of the report states "If employing an implicit detector model...." Who decides whether an implicit or explicit model is to be used? What criteria are used for the selection? Is this a user input? What would be the consequences of using the wrong detector system model?
6. The first paragraph of Section 4.4.3 (page 26) of the report refers to "current ABBCE specifications." Please either provide references, summarize the pertinent elements of these specifications, or supply these specifications.

ENCLOSURE 1

7. Regarding the fourth paragraph of Section 4.3.3 (page 26) of the report, please describe the "base test case" in detail. Also, address the following:
 - a) Please explain why the five sets of failed detectors cover all possible combinations of failed sets.
 - b) Please describe the five sets of 18 failed detectors and the statistical analysis associated with the five sets of failed detectors.
 - c) Please explain why the effects of the radial power tilts for the 50-percent failed detectors were not examined. Is not this the objective of the analysis?
 - d) Please provide a comparison of the statistical results as tabulated in reference [PID961] of the 25-percent loss of detectors versus the 50-percent loss of detectors and explain how the elimination of assemblies with RPFs<1 support these results.
8. The last sentence of the fifth paragraph of Section 4.4.3 (page 27) of the report discusses the penalties associated with 25-percent and 50-percent detector failures. Please provide a summary of the comparisons of these two results.
9. The third paragraph of Section 4.4.4 (page 27) of the report states that, with the inception of SIMULATE-3, no additional uncertainties are required to account for power tilts of 2.8 percent and 5.0 percent. Please provide quantitative and qualitative information to support this conclusion.

From: Darl Hood
To: INternet:kemarbaugh@cmsenergy.com, internet:ravin...
Date: Wed, Aug 30, 2000 4:30 PM
Subject: Draft RFAs on Palisades' Revised PIDAL-3 Code

Ken/Bob

Attached is the NRC staff's draft Request For Addition Information regarding the Palisades' April 21, 2000 submittal (supplemented August 11, 2000) requesting approval of the revised PIDAL-3 code, removal of 7 incore detector strings, and reduction of minimum operable detectors from 75% to 50%. It is our practice to discuss draft questions with licensees by phone before formal issuance to see if any are unnecessary or in need of modification, and to determine a mutually agreeable response date. Contact me at your earliest convenience to arrange such a telecon. TAC No. MA8695.

CC: Anthony Attard, Anthony Ulses