Consumers Energy

A CMS Energy Company

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DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT
SPENT FUEL STORAGE RACKS - BORAFLEX PERFORMANCE COMMITMENTS

This letter describes changes to commitments made previously regarding blackness testing on the Palisades Region II spent fuel storage racks containing Boraflex.

Blackness testing was last performed on the Region II storage racks in 1995. The test data indicated the Boraflex performance was satisfactory. By letter dated October 24, 1996, in response to Generic Letter 96-04, "Boraflex Degradation in Spent Fuel Pool Storage Racks" (TAC NO. M95981), Consumers Energy committed to perform blackness testing on the Palisades Region II storage racks in the spring of 1998. The commitment was modified by letter dated December 8, 1997, to perform blackness testing in the Spring of 2000, reflecting a 5-year testing period. The 1997 letter also contained a new commitment to perform blackness testing if silica concentration in the spent fuel pool indicates significant Boraflex degradation.

For the reasons listed below, Consumers Energy has determined that the Boraflex in the Region II racks is fulfilling its design criticality control function and that blackness testing is not required in 2000.

1. Fuel assemblies are administratively required to cool for a minimum of one year following discharge from the reactor core prior to placement in the Region II storage racks. This reduces potential degradation of the Boraflex panels due to high radiation exposure.

2. Palisades has a relatively tight rack design, as described in the EPRI RACKLIFE Instruction Manual, that does not allow for a fast dissolution of Boraflex. The tight rack design does not allow for a rapid exchange of the water that comes into contact with the Boraflex. The racks contain stainless steel plates that minimize the water exchange with the Boraflex panels.

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3. EPRI TR-101986, "*Boraflex Test Results and Evaluation*," prepared by Northeast Technology Corp. in February of 1993 reports that the reactivity effects of Boraflex shrinkage and gaps are very small and can generally be accommodated within the existing design basis of most BWR spent-fuel racks. Similarly, Palisades has performed a preliminary criticality evaluation which shows that the calculation of record has sufficient margin to accommodate greater than 5.0 inch gaps in the mid-plane of every Boraflex panel without exceeding a k_{eff} of 0.95 (95/95 k_{eff} with 5.0 inch gaps is 0.936).

4. The Region II storage racks were installed in 1987 and blackness testing was performed in January of 1995. This evolution tested the 48 highest exposure storage cells, representing a total of 14% of the useable Region II cells. The flow characteristics in all the cells in Region II (tested and untested) are similar. A total of 98 full length Boraflex panels were tested, of which 63 panels had no measurable gaps. For the remaining 35 panels, the average gap size was calculated to be 0.7 inches. The largest single gap measured was 1.0 inch. The maximum total amount of gap measured in any one panel was 1.9 inches.

5. Silica concentration in the spent fuel pool is an indicator of Boraflex degradation. Monitoring of spent fuel pool silica levels is accomplished at least monthly in accordance with Chemistry Procedure COP-27, "Spent Fuel Pool Chemistry." Higher silica levels are expected if dissolution of Boraflex from the storage racks is taking place. Silica levels at Palisades have declined gradually since blackness testing was performed in 1995. The attached boron and silica graph covering the last 10 years shows these trends. The stable silica trend indicates minimal Boraflex degradation since blackness testing was last performed.

In addition, Palisades is pursuing criticality evaluations and corresponding Technical Specifications changes that will no longer require Boraflex in the Region II racks for criticality control. This anticipated license submittal is expected to be completed prior to 2005.

In Summary, favorable blackness testing results in 1995, continued stable Silica levels over the past five years, and, the preliminary evaluations of the margin in current design basis criticality calculations indicate that there is no need to perform blackness testing at this time. Further, Palisades is pursuing license amendments which will make it unnecessary to perform blackness testing in the future.

SUMMARY OF COMMITMENTS

This letter contains one rescinded commitment, one continuing commitment and one new commitment.

The rescinded commitment is:

> Consumers Energy will perform blackness testing on the Region II spent fuel storage racks during the spring of 2000. The need and timing of additional blackness testing will be based on the results of the 2000 testing and pool information considered to be good indicators the of Boraflex condition (e.g., pool silica concentration).

The continuing commitment is:

> If silica concentration in the spent fuel pool indicates significant Boraflex degradation, blackness testing will be performed. [The terms "blackness testing" are used here to correct our December 8, 1997 letter which used the terms "Boraflex testing".]

The new commitment is:

> Consumers Energy will pursue changes to Technical Specifications which will eliminate the need to credit Boraflex Poison in Palisades Region II spent fuel pool racks.

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ATTACHMENT

CONSUMERS ENERGY COMPANY
PALISADES PLANT
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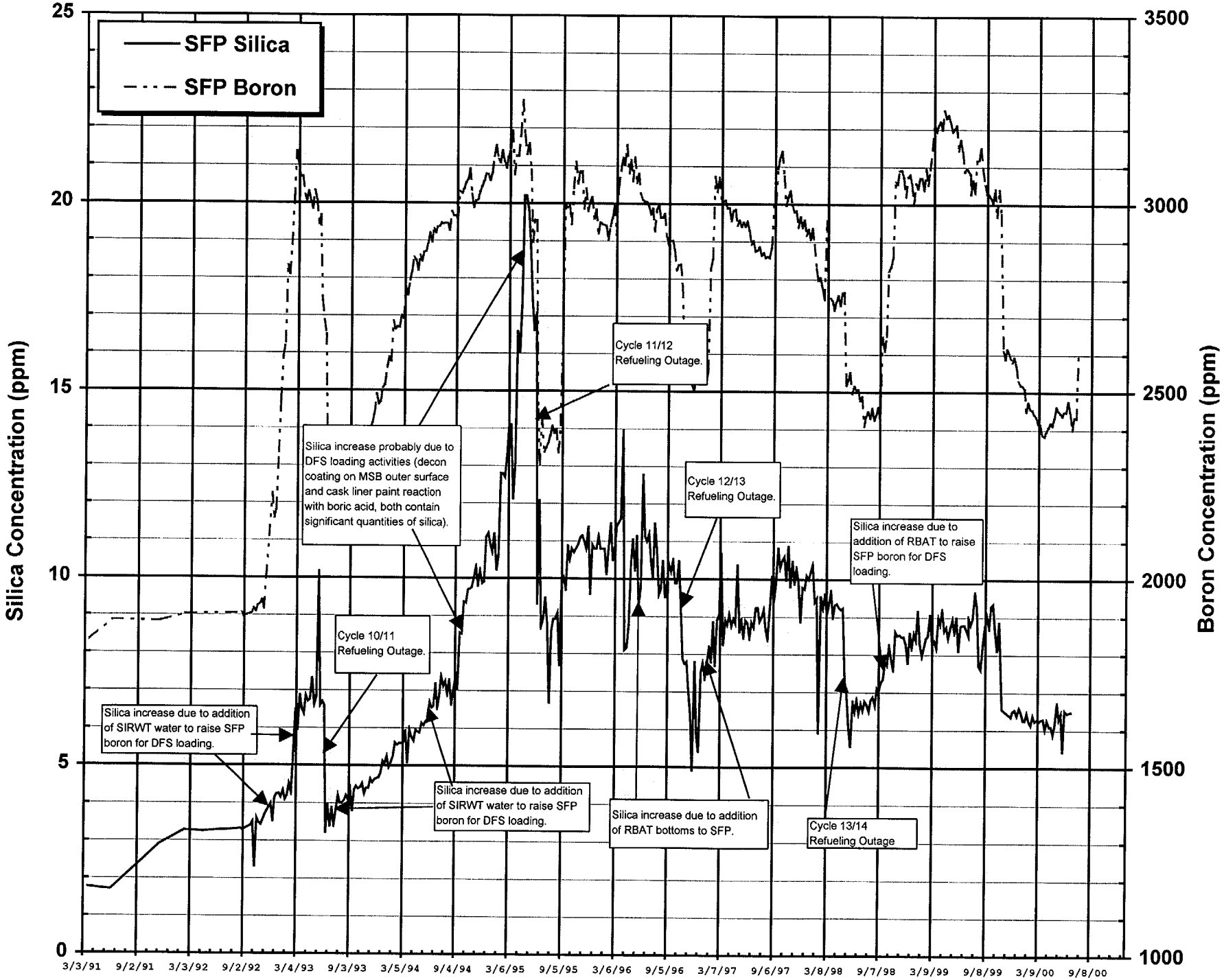
PALISADES SFP SILICA AND BORON CONCENTRATION

SFP SILICA AND BORON CONCENTRATION