

Omaha Public Power District

1623 HARNEY ■ OMAHA, NEBRASKA 68102 ■ TELEPHONE 536-4000 AREA CODE 402

February 25, 1983
LIC-83-051

Mr. Robert A. Clark, Chief
U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Division of Licensing
Operating Reactors Branch No. 3
Washington, D.C. 20555

Reference: Docket No. 50-285

Dear Mr. Clark:

Cycle 8 Reload Application

Your letter dated February 1, 1983 requested additional information in support of the subject application for the Fort Calhoun Station. The February 1, 1983 request was divided into two parts, A and B, with a different schedule for each part. Omaha Public Power District's letter dated February 18, 1983 provided our responses to Part A of your request. The District's response to Part B of the request is attached herewith.

Sincerely,

W. C. Jones
Division Manager
Production Operations

WCJ/TLP:jmm

Attachment

cc: LeBoeuf, Lamb, Leiby & MacRae
1333 New Hampshire Avenue, N.W.
Washington, D.C. 20036

Mr. L. A. Yandell, NRC
Senior Resident Inspector

A001

Attachment

OMAHA PUBLIC POWER DISTRICT'S RESPONSE TO ONRR LETTER DATED FEBRUARY 1, 1983

Request 1

Provide a report containing an independent verification by an organization other than OPPD which addresses the District's implementation of the CE methodology/computer codes and which certifies that the results provided for this current reload (Cycle 8) are correct.

District's Response

The District retained Combustion Engineering, Inc. (CE) to perform the requested independent verification. The attached letter (CE-18074-1313) details the results of this effort.

Request 2

Provide your plans and schedules regarding future reloads in which District personnel will be performing any reload safety analyses.

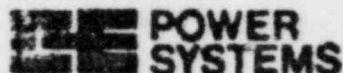
District's Response

The District currently has a reload fuel supply contract with Exxon Nuclear Corporation (ENC) for Cycles 9 and 10. District personnel will be performing reload safety analyses for these reloads. A decision has not been formally made on the responsibility for reload analyses for future reload cores beyond Cycle 10. However, the District will most likely continue to perform reload safety analyses for these reloads.

Cycle 9 is currently scheduled to start operation in May of 1984 and shutdown in September of 1985. As discussed in the Reference, the District's fuel management goal for Cycle 9 is to further reduce the flux to the reactor vessel welds which currently have a large RT_{NDT} shift. To accomplish this goal, the ENC Cycle 9 reload will contain B_4C shims. To account for the B_4C shims, the District will have CE utilize DIT to produce cross sections for the ROCS and PDQ models. The District may also utilize statistical combination of uncertainties for the Cycle 9 reload. The District will keep the staff informed on any methodology changes to be utilized in Cycle 9. The District presently plans to provide the staff with submittals related to new methodologies 180 days prior to startup and Technical Specification changes 90 days prior to startup.

C-E Power Systems
Combustion Engineering, Inc.
1000 Prospect Hill Road
Windsor, Connecticut 06095

Tel 203/688-1911
Telex 99297



February 23, 1983
CE-18074-1313

Omaha Public Power District
Unit #1 - Fort Calhoun Station
General Services Agreement
C-E Contract 2381

Mr. W.C. Jones
Omaha Public Power District
1623 Harney Street
Omaha, Nebraska 68102

Subject: REVIEW OF CYCLE-8 RELOAD APPLICATION

Reference: OPPD Letter LIC-82-380, Dated November 22, 1982

Dear Mr. Jones:

The purpose of this letter is to provide you with the results of our review of the referenced letter and supporting documentation.

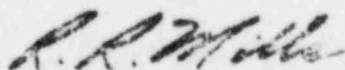
The referenced letter provided the NRC with OPPD's Cycle-8 reload application for the Fort Calhoun Station, Unit #1. Subsequent to that application the District requested that Combustion Engineering review the application and supporting documentation prepared by the District to determine the adequacy of the results of the work performed by District personnel.

The review was accomplished by providing copies of the documents prepared by the District to reviewers in the Physics, Thermal Hydraulics, Safety Analysis and Setpoint areas. The purpose of the review was to determine that the technical specifications, setpoints and conclusions of the safety analysis were conservative. The review was conducted by the most qualified C-E personnel in each technical area including supervisory and management personnel.

Based on our review it is our judgement that the conclusions reached and reported by the District, in those areas which referred to C-E codes and methodology, are conservative.

The work described in this letter has required the expenditure of over 1000 manhours and was accomplished in accordance with the terms and conditions of our Services Agreement. Please let me know if you have any questions in this regard.

Very truly yours,


R.R. Mills
Project Manager,
Fort Calhoun

The startup for Cycle 10 is currently scheduled for November of 1985. The fuel management and safety analysis requirements have not been established for this core.

Reference: Letter from W. C. Jones to R. A. Clark, LIC-83-018, dated January 26, 1983.

Request 3

Your present application contains some analyses that use the CE-1 correlation and some analyses that use the W-3 correlation. Parts of the application are in the form of an updated FSAR. Provide your plans and schedules for updating your SAR to incorporate the use of only one DNB correlation.

District's Response

The District reviewed a number of events which had been previously analyzed for the Cycle 6 application. The results of this review are discussed in the Reference. The attached table shows a summary of the Cycle 6 events analyzed to assure that the Specified Acceptable Fuel Design Limit (SAFDL) on Minimum DNBR (MDNBR) (1.30 using the W-3 correlation) was met for normal operation and Anticipated Operational Occurrences. The Cycle 6 analyses also demonstrate acceptable results for the primary pump seizure or seized rotor accident.

A comparison between the transient conditions shown in the table (i.e., heat flux, pressure and temperature) at which the W-3 correlation reaches its 1.3 limit and those conditions at which the CE-1 correlation reaches its 1.19 limit shows that both limits are approached with similar conditions. Because of this fact, the District has concluded that a transient whose MDNBR, using the W-3 correlation, does not approach the 1.30 limit will not have a MDNBR, using the CE-1 correlation, which approaches the 1.19 limit. Therefore, the transients which do not approach the 1.30 limit of the W-3 correlation will also not approach the 1.19 limit of the CE-1 correlation.

The results of the Cycle 6 analyses for transient with a SAFDL on MDNBR show that the transients that are within 0.25 DNBR units of the W-3 correlation limit of 1.30 are the CEA withdrawal, seized rotor, and CEA drop. These transients were analyzed for Cycle 8. Since the remaining transients are not limiting with respect to MDNBR, they were not analyzed for Cycle 8. At this time, the District does not plan to reanalyze these transients using the CE-1 correlation.

Reference: Letter from W. C. Jones to R. A. Clark, LIC-83-047, dated February 18, 1983.

Summary of Cycle 6 Analysis

<u>Transient</u>	<u>Maximum Power Level (Percent)</u>	<u>Maximum Core Average Heat Flux (Btu/hr-ft²)</u>	<u>Maximum Pressurizer Pressure (psia)</u>	<u>MDMR (W-3)</u>
Initial conditions for transients	102	176,213	2053	1.69
Fast control rod withdrawal ($0.6 \times 10^{-3} \Delta p/\text{sec}$)	112.4	188,721	2270	1.36
Slow control rod withdrawal ($11 \times 10^{-6} \Delta p/\text{sec}$)	120.1	183,401	2108	1.37
Loss of flow				
Four-pump coastdown	102.3	176,213	2123	1.77
Two-pump coastdown	102.3	176,213	2125	1.76
Primary pump seizure	102	177,000	2440	1.30
Loss of feedwater flow	102	176,244	2425	1.87
Excessive Load				
Case 1	104.5	180,428	2056	1.53
Case 2	113.5	184,256	2057	1.47
Loss of load				
Case 1	105	176,244	2530	1.87
Case 2	106	176,244	2530	1.87
Rod drop	102	176,213	2053	1.30