

Omaha Public Power District

P.O. Box 399 Hwy. 75 - North of Ft. Calhoun Fort Calhoun, NE 68023-0399
402/636-2000

August 17, 1995

LIC-95-0156

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station PI-137
Washington, DC 20555-0001

- References:
1. Docket No. 50-285
 2. Letter from OPPD (W. G. Gates) to NRC (Document Control Desk), dated August 12, 1993 (LIC-93-0200)
 3. NRC Generic Letter 92-01, Revision 1, Supplement 1, "Reactor Vessel Structural Integrity," dated May 19, 1995
 4. Letter from OPPD (T. L. Patterson) to NRC (Document Control Desk), dated April 21, 1995 (LIC-95-0097)

SUBJECT: Response to Item 1 of Generic Letter 92-01, Revision 1, Supplement 1, "Reactor Vessel Structural Integrity" (TAC No. 92678)

This letter with attachments provides the Omaha Public Power District (OPPD) response to Item 1 of Generic Letter (GL) 92-01, Revision 1, Supplement 1 (Reference 3). This response applies to the Fort Calhoun Station (FCS) Unit 1 Reactor Pressure Vessel (RPV). Item 1 required that addressees provide a description of those actions taken or planned to locate all data relevant to the determination of RPV integrity, or an explanation of why the existing data base is considered complete as previously submitted.

OPPD's actions are detailed in Attachment 2 of this letter. OPPD has evaluated the information provided in the updated response (Reference 4) to Generic Letter 92-01, Revision 1 and in related submittals, and has determined that the information provided was appropriate and conservative. OPPD's previously reported Pressurized Thermal Shock (PTS) values (Reference 2) summarized the most current FCS data being used, consistent with and utilizing other industry data on reactor vessel materials. Based on our current knowledge of the data in the Reactor Vessel Integrity Database (RVID), OPPD does not expect any significant changes to the PTS results from those provided in the Reference 2 response.

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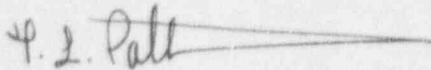
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In accordance with Reference 3, OPPD plans to include appropriate information updates resulting from the actions described in Attachment 2 in the 6-month response to Required Information parts (2), (3), and (4).

Please contact me if you have any questions.

Sincerely,

A handwritten signature in dark ink, appearing to read "T. L. Patterson", followed by a long horizontal line extending to the right.

T. L. Patterson
Division Manager
Nuclear Operations

TLP/tcm

Attachments

c: Winston & Strawn
L. J. Callan, NRC Regional Administrator, Region IV
S. D. Bloom, NRC Project Manager
W. C. Walker, NRC Senior Resident Inspector

LIC-95-0156
Attachment 1

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION


In the Matter of)

Omaha Public Power District)
(Fort Calhoun Station)
Unit No. 1))

Docket No. 50-285


AFFIDAVIT

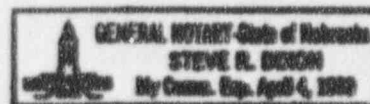
T. L. Patterson, being duly sworn, hereby deposes and says that he is the Division Manager - Nuclear Operations of the Omaha Public Power District; that as such he is duly authorized to sign and file with the Nuclear Regulatory Commission the attached information concerning the response to requirements of NRC Generic Letter 92-01, Rev. 1, Supplement 1; that he is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge, information, and belief.


T. L. Patterson
Division Manager
Nuclear Operations

STATE OF NEBRASKA)
) ss
COUNTY OF DOUGLAS)

Subscribed and sworn to before me, a Notary Public in and for the State of Nebraska on this 17th day of August, 1995.


Notary Public



OPPD Response to Generic Letter 92-01, Revision 1, Supplement 1, Item 1

References

1. Generic Letter 92-01, Revision 1, "Reactor Vessel Structural Integrity, 10 CFR 50.54(f)," dated February 28, 1992
2. Letter from OPPD (W.G. Gates) to NRC (Document Control Desk) dated August 12, 1993 (LIC-93-0200)
3. Letter from OPPD (T. L. Patterson) to NRC (Document Control Desk) dated December 9, 1994 (LIC-94-0250)
4. Letter from OPPD (T. L. Patterson) to NRC (Document Control Desk) dated April 21, 1995 (LIC-95-0097)
5. Generic Letter 92-01, Revision 1, Supplement 1, "Reactor Vessel Structural Integrity," dated May 19, 1995
6. Letter from CEOG (D. Sager) to NRC (Document Control Desk) dated July 27, 1995 (CEOG-95-390)

Required Information - Item 1

"A description of those actions taken or planned to locate all data relevant to the determination of RPV integrity, or an explanation of why the existing data base is considered complete as previously submitted;"

OPPD Response

OPPD has evaluated the information provided in the updated nonproprietary response (Reference 4) to Generic Letter 92-01, Revision 1 and in related submittals, and has determined that the information provided was appropriate and conservative. OPPD's previously reported Pressurized Thermal Shock (PTS) values (Reference 2) summarized the most current Fort Calhoun Station (FCS) data being used, consistent with and utilizing other industry data on reactor pressure vessel (RPV) materials. It was prepared with assistance from ABB/Combustion Engineering, using information obtained from previous efforts including the CE Reactor Vessel Group evaluation of fabrication records available at the time. Also included as part of this work was OPPD's involvement with the Combustion Engineering Owners Group (CEOG) Evaluation of Low Upper Shelf Energy and calculations.

The following actions have been taken to locate all data relevant to the determination of RPV integrity at FCS since submittal of information contained in the Reference 4 response to Generic Letter 92-01, Revision 1:

1. OPPD has been involved in the search for fabrication records of RPV welds for FCS and sister vessels, including participation in the CE Reactor Vessel Group task "Evaluation of Design and Fabrication Records." As-built fabrication documents of the FCS vessel have been received by OPPD, and contain material reports from the fabrication facility. These documents include information incorporated in the submitted database.
2. OPPD removed an additional surveillance capsule (W-275) from the RPV in October 1993. An analysis of the surveillance coupons has been completed, and the results submitted to the NRC in December 1994 (Reference 3). The surveillance results indicate that there was no significant deviation from expected irradiated material properties. The changes in ultimate/yield strengths and corresponding change in ductility for base metal and weld materials were within the limits observed for similar irradiated materials. The observed transition temperature shifts for the surveillance base and weld metal materials were in good agreement with the values predicted using Regulatory Guide 1.99, Revision 2, section 1.1 methods.
3. OPPD has installed an additional surveillance capsule in the RPV which contains FCS-specific PTS limiting weld material (weld wire heat number 27204) as well as less limiting weld material (weld wire heat number 12008/13253). This will provide additional FCS-specific irradiated material response data in the future.
4. OPPD has participated in three CEOG tasks which have provided additional sources of RPV characterization. These include the generic equivalent margins analysis, generic flux comparison evaluation and weld chemistry variability database. The weld chemistry variability database indicates that the PTS limiting weld material (weld wire heat number 27204) for FCS has a tight copper/nickel content range. The range reported in the weld variability database for the copper content in the limiting weld (weld wire heat number 27204) was found to be 0.17-0.21, with a mean of 0.192 and standard deviation of 0.009. The range reported for the nickel content in the limiting weld was found to be 0.98-1.1, with a mean of 1.071 and standard deviation of 0.025. OPPD previously reported a copper content of 0.21 and a nickel content of 1.00 for the limiting weld (Reference 6). The new data represents a small improvement in the chemistry factor reported for FCS. Further evaluation of the data, weighted by the number of data points and number of coils of weld wire used, has also been performed and confirms this improvement. Therefore, the previously reported limiting weld material copper/nickel content is well within the weld variability database range.

5. OPPD has been participating in the Joint Owners Group Review of Reactor Vessel Integrity sponsored by the Nuclear Energy Institute (NEI). Participation in this group facilitates interaction with sister vessel plants to define consistent weld data.
6. OPPD has obtained sister vessel surveillance program data applicable to the FCS beltline limiting weld material, which will be evaluated for incorporation into a potential integrated surveillance program.
7. OPPD continues to participate in the CEOG Reactor Vessel Working Group (RVWG) with ABB/CE on RPV issues (Reference 6).

OPPD plans the following additional actions to locate all data relevant to the determination of RPV integrity at FCS:

1. OPPD will review and evaluate the NRC's RVID to ensure all data points have been incorporated as applicable. OPPD will continue to work with other utilities owning sister vessels for definition of consistent weld data properties. Any applicable information will be included in the OPPD response to Items 2, 3, and 4 of GL 92-01, Revision 1, Supplement 1.
2. Through OPPD's participation in the CEOG RVWG, an evaluation of weld properties and review of welding logs will be conducted. This evaluation will include sister vessels and documents related to fabrication of steam generators and pressurizers in addition to reactor vessels. A primary goal of the CEOG task is to establish uniform best-estimate copper and nickel contents and standard deviations for weld consumables. This information should help resolve inconsistencies currently existing in the NRC RVID database. As noted in Reference 6, this task is not expected to be completed for at least 18 months. OPPD will update the FCS RPV data at that time if any changes are necessary.