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LIC-11-0030

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

- References:
1. Docket No. 50-285
 2. Letter from OPPD (J. A. Reinhart) to NRC (Document Control Desk), "Fort Calhoun Station, Unit No. 1, License Amendment Request (LAR), Revision to Technical Specification (TS) 2.15, Table 2-5, Item 1 and TS 3.1, Table 3-3, Items 1, 2 and 4 Control Element Assembly Position Indication and Correction of TS 2.10.2(7)c," dated July 12, 2010 (LIC-10-0034) (ML101930443)
 3. Letter from OPPD (J. A. Reinhart) to NRC (Document Control Desk), "License Amendment Request (LAR) 10-04, Proposed Changes to Relocate Operating and Surveillance Requirements for the Power Operated Relief Valve and Safety Valve Position and Tail Pipe Temperature Instrumentation," dated August 16, 2010 (LIC-10-0053) (ML102290067)
 4. Letter from NRC (L. Wilkins) to OPPD (D. J. Bannister), "Fort Calhoun Station - Supplemental Information Needed for Acceptance of Requested Licensing Action Re: Amendment Request (TAC No. ME4542)," dated September 17, 2010 (NRC-10-0076) (ML102580129)
 5. Letter from OPPD (J. A. Reinhart) to NRC (Document Control Desk), "Supplement to License Amendment Request (LAR) 10-04, Proposed Changes to Relocate Operating and Surveillance Requirements for the Power Operated Relief Valve and Safety Valve Position and Tail Pipe Temperature Instrumentation," dated September 27, 2010 (LIC-10-0085) (ML102720964)
 6. Letter from NRC (L. E. Wilkins) to OPPD (D. J. Bannister), "Fort Calhoun Station, Unit 1 - Request for Additional Information Re: License Amendment Request to Relocate Operating and Surveillance Requirements for the Power Operated Relief Valve, Safety Valve Position, and Tailpipe Temperature Instrumentation from the Technical Specifications (TAC No. ME4542)," dated March 7, 2011 (NRC-11-0021) (ML110630179)

SUBJECT: Response to Request for Additional Information (RAI) Re: License Amendment Request to Relocate Operating and Surveillance Requirements for the Power Operated Relief Valve, Safety Valve Position, and Tail Pipe Temperature Instrumentation from the Technical Specifications

In References 3 and 5, the Omaha Public Power District (OPPD) requested to relocate the operating and surveillance requirements for the power operated relief valve (PORV) and pressurizer safety valve (PSV) acoustic position and tail pipe temperature indication instrumentation from the Technical Specifications (TS) to licensee controlled documents.

ADD
NRR

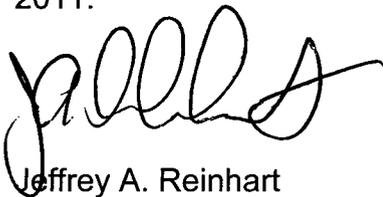
Based on a conference call held with the NRC staff on September 13, 2010, OPPD supplemented the Reference 3 application to provide additional clarifying information regarding the tail pipe temperature position indication. As requested in Reference 4, OPPD provided drawings (interconnection and equipment lists) and photographs of the control room indicators for the PORV/PSV acoustic and tail pipe temperature position indication instrumentation. This information, which was previously provided to the NRC Project Manager via email on September 16, 2010, was also provided in Reference 5.

In Reference 6, the NRC provided three RAI questions related to References 3 and 5. OPPD's responses to the NRC's RAI questions are provided in Attachment 1. Attachments 2 and 3 provide the TS mark-up and retyped "clean" pages, respectively, showing the integrated changes proposed by the license amendment requests submitted in References 2 and 3 in response to RAI question 2.

There are no regulatory commitments made in this letter.

If you should have any questions regarding this submittal, or require additional information, please contact Mr. Bill R. Hansher at 402-533-6894.

I declare under penalty of perjury that the foregoing is true and correct. Executed on April 6, 2011.



Jeffrey A. Reinhart
Site Vice President

Attachments: 1) Responses to Request for Additional Information
2) Technical Specifications Page Markup
3) Retyped "Clean" Technical Specifications Page

c: E. E. Collins, Jr., NRC Regional Administrator, Region IV
L. E. Wilkins, NRC Project Manager
J. C. Kirkland, NRC Senior Resident Inspector
Manager Radiation Control Program, Nebraska Health & Human Services, R & L Public Health Assurance, State of Nebraska

Request for Additional Information

License Amendment Request to Relocate Operating and Surveillance Requirements for the Power-Operated Relief Valve, Safety Valve Position, and Tailpipe Temperature Instrumentation from the Technical Specifications Omaha Public Power District, Fort Calhoun Station, Unit No.1
Docket No. 50-285

By letter dated August 16, 2010, as supplemented by letter dated September 27, 2010, (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML 102290067 and ML 102720964, respectively), Omaha Public Power District (OPPD, the licensee) requested changes to the Technical Specifications (TSs) for Fort Calhoun Station, Unit 1 (FCS). The proposed changes would relocate operating and surveillance requirements (SRs) for the power-operated relief valve (PORV) position, safety valve position (PSV), and tail pipe temperature instrumentation from the FCS TSs to the FCS Updated Safety Analysis Report (USAR). Specifically the proposed changes would revise:

- TS Table 2-5, "Instrumentation Operating Requirements for Other Safety Feature Functions"
- TS Table 3-3, "Minimum Frequencies for Checks, Calibrations and Testing of Miscellaneous Instrumentation and Controls"

TS Table 2-5, Functions 3, 4, and 5, the associated Notes a, b, c, and d, and TS Table 3-3, Functions 23 and 24, would be deleted from the FCS TSs and relocated to the FCS USAR. TS Table 3-3 Function 21 will be revised to be consistent with NUREG-1432, "Standard Technical Specifications, Combustion Engineering Plants," Revision 3.0. Additionally, the TS Table 2-5 associated Note e will be re-lettered as Note a and TS Table 2-5 footnote i to Note c will be deleted.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed and evaluated the information provided by the licensee and determined that the following information is needed in order to complete its evaluation.

1. By letter dated August 16, 2010, the licensee stated,

The loss of the instrumentation has no effect on the probabilistic safety assessment and has not been shown to be significant to health and safety as considered in Criterion 4.

Please provide details on how this statement was concluded. Specifically, please discuss any operating experience involving the failure of this equipment at the plant (or similar experience within the industry) and how this experience is determined to be insignificant. Also, please describe the impact of the failure of this equipment on the base probabilistic risk assessment (PRA) results, including the risk achievement worth and risk reduction worth [or Fussell-Vesely importance] for this equipment (or surrogate PRA component if this equipment is not modeled directly in the PRA), and how these impacts are determined to be insignificant.

OPPD's Response to RAI #1:

An industry operating experience search, using the INPO EPIX database, was performed for acoustic monitors/monitoring and position indicators, and revealed that no industry failures of acoustic monitors/monitoring or position indicators have been reported for the past five years. It was noted, since the acoustic monitors and position indication instrumentation are not functionally scoped in the FCS Maintenance Rule Program, EPIX entries are generally not made for these equipment failures.

An additional search of the condition reporting (CR) system was performed for failures related to the acoustic monitors (FI-141 and FI-142) as well as the tailpipe temperature indicators (TIA-134, TIA-135 and TIA-136) for the past five years. The CR review indicated that there have been no tailpipe temperature indicator failures in this time period and two failures of acoustic monitor FI-142 occurred in April and May of 2010. The FI-142 failure in May 2010 led to the request for and subsequent issuance of Technical Specifications (TS) Amendment No. 265 on June 2, 2010.

The acoustic monitors were added to the FCS TS by Amendment No. 54 to meet the requirements of NUREG-0578, *TMI-2 Lessons Learned Task Force Status Report and Short Term Recommendations*, and NUREG-0737, *Clarification of TMI Action Plan Requirements*. With inoperable acoustic position indication, OPPD utilizes the temperature sensors installed downstream of the pressurizer safety valves (PSVs) to identify flow through these valves. These tail pipe temperature sensors provide indication and alarm in the control room and indication on the plant computer.

NUREG-0737, II.D.3, *Direct Indication of Relief and Safety Valve Position*, states that the "Reactor coolant system relief and safety valves shall be provided with a positive indication in the control room derived from a reliable valve-position detection device or a reliable indication of flow in the discharge pipe." Regulatory Guide 1.97, *Instrumentation for Light-Water Cooled Nuclear Power Plants to Assess Plant and Environs Conditions during and Following an Accident*, Revision 2, designates primary system safety relief valve position instrumentation as Type D, Category 2 instrumentation.

Power operated relief valve (PORV) and safety valve flow is a Type D, Category 2 variable as described in RG 1.97, which will be addressed in a licensee-controlled document as part of the proposed license amendment request (LAR), and is defined as follows:

- Category 2 – provides less stringent requirements and generally applies to instrumentation designated for indicating system operating status.

In the OPPD response to RG 1.97 for the primary system relief valve position, the acoustic flow monitor loops F-141, F-142, F-102-1 and F-102-2 were identified to fulfill the RG 1.97 requirement for the primary system relief valve position. The Category 2 provides for qualification but is less stringent in that it does not include seismic qualification, redundancy, or continuous display and requires only a highly reliable power source. RG 1.97, Type D variables are those that provide indication of operation of individual safety systems and other systems important to safety. RG 1.97 requires Closed/Not Closed indication for primary system relief valve position.

There are no physical plant modifications being made to the plant as a result of this LAR. The intent of this LAR is to relocate the operating and surveillance requirements for the PORV and safety valve position and tail pipe temperature instrumentation from the TS into the FCS Updated Safety Analysis Report (USAR) and associated plant procedures. The primary purpose of this instrumentation is to provide direct evidence that a leak has occurred as a result of a stuck open PORV or PSV. The LAR does not remove the acoustic monitors, which remain available to provide cues to the operators that PORV or safety relief valve leakage is occurring.

This administrative change does not impact the PRA because the acoustic monitors and tailpipe temperature indication remains available in the plant as an indication of PORV leakage. While these components are not directly modeled in the PRA, they are indirectly credited in that the human reliability analysis (HRA) action to close a PORV block valve credits their availability as indicators of flow through the PORV. As a result of the direct nature of these indicators and alarms associated with this equipment, the clarity of the cue is judged to be good.

However, even if this equipment were unavailable, ample cues exist such that the desired action to close the PORV block valves would be implemented well in advance of core uncover. For example, operators could recognize a PORV leak through a combination of low reactor coolant system (RCS) pressure, open indication lights on the control board, acoustic monitors, and quench tank pressure and level indications. Therefore, even if these more direct indications were removed, the net risk impact is judged to be very small. This is demonstrated by the Risk Achievement Worth for the HFE, Operator Fails to Isolate Opened PORV Path, determined to be 1.03 for the Revision 11 PRA model. This is well below the threshold of 2.0 for high risk events in the Maintenance Rule. The Risk Reduction Worth for this HFE is less than 1.001, which is below the Maintenance Rule threshold of 1.005 for high risk events.

- 2. In the letter dated July 12, 2010 (ADAMS Accession No. ML 101930443), OPPD submitted a license amendment request (LAR) to add Note e to TS LCO 2.15, Table 2-5, Item 1. The LAR dated July 12, 2010, is under separate review by the NRC staff. In the letter dated August 16, 2010, OPPD submitted a LAR which requests deletion of TS 2.15, Table 2-5, Notes a through d. The August 16, 2010, LAR also requests re-lettering TS 2.15, Table 2-5, Note e to Note a upon subsequent NRC approval of both LARs. Since the re-lettering of TS 2.15, Table 2-5, Note e to Note a was not reflected on TS 2.15, Table 2-5 in Attachment 1, "Technical Specifications Pages Markup," the NRC staff is concerned that the reference to Note e in TS 2.15, Table 2-5, item 1 will not be re-lettered when TS 2.15, Table 2-5, Note e is re-lettered to Note a.**

Please provide an integrated TS markup that will show all the changes proposed by the LARs dated July 12 and August 16, 2010, and include the clean TS pages.

OPPD's Response to RAI #2:

OPPD provided this information regarding the re-lettering of Note a to Note e in TS 2.15, Table 2-5, item 1, as a courtesy for the NRC reviewers, to provide notification that there are currently two unrelated LARs being processed on the same TS section that potentially impacts the lettering of the notes. Since OPPD can not presume if and when the July 12, 2010, LAR would be approved relative to the August 16, 2010, LAR, OPPD provided the applicable TS markups accordingly.

As stated, OPPD submitted an LAR on July 12, 2010, (ADAMS Accession No. ML 101930443), to add Note e to TS LCO 2.15, Table 2-5, Item 1. TS 2.15, Table 2-5, Item 1 is the minimum number of control element assembly (CEA) position indication system (CEAPIS) channels required to be operable. Note e was proposed for Item 1, which will be applicable when either the primary CEAPIS channel or the secondary CEAPIS channel is inoperable for one or more CEAs. Note e will modify the requirements of TS 2.15 to require the performance of a new SR (TS 3.1, Table 3-3, Item 4) within 15 minutes following any CEA motion in that group. Note e also clarifies that TS 2.15(1), (2), and (3) are not applicable to CEAPIS channels as explained in Reference 6.4. As a result of the proposed CEAPIS LAR adding a new Note e, in conjunction with this proposed LAR 10-04 deleting the existing Notes a through d, the Note e proposed in the CEAPIS LAR will become a new Note a, upon subsequent NRC approval of both LARs.

In response to this RAI, the Technical Specification mark-up and retyped "clean" pages, showing the integrated changes proposed by the LARs dated July 12 and August 16, 2010, are provided in Attachments 2 and 3, respectively.

- 3. In the letters dated May 31 and June 1, 2010 {ADAMS Accession Nos. ML 101520198 and ML 101530319, respectively}, OPPD requested an emergency amendment to modify TS 2.15, Table 2-5, Note c to allow a one-time extension of the 7-day allowed outage time for the inoperability of Function 4 regarding safety valve acoustic position indication for RC-142 to allow repair prior to the next entry into Operating Mode 3 (Hot Shutdown) from Operating Mode 4 (Cold Shutdown). The onetime extension was applied through footnote i associated with Note c. This change allowed FCS to continue power operations with inoperable safety valve acoustic position indication on safety valve RC-142. The NRC staff approved the license amendment request on July 12, 2010, in TS Amendment No. 265 (ADAMS Accession No. ML101520296). In the LAR dated August 16, 2010, the licensee proposes to delete footnote i associated with Note c. However, it is unclear if FCS has used the one-time extension of the 7-day allowed outage time for the inoperability of safety valve acoustic position indication for RC-142 and if RC-142 was repaired prior to the next entry into Operating Mode 3 (Hot Shutdown) from Operating Mode 4 {Cold Shutdown}.**

Please state if, since July 12, 2010, FCS has either used the one-time extension of the 7-day allowed outage time for the inoperability of safety valve acoustic position indication for RC-142, or if it was determined that it was no longer needed.

OPPD's Response to RAI #3:

In the letters dated May 31 and June 1, 2010, {ADAMS Accession Nos. ML 101520198 and ML 101530319, respectively}, OPPD requested an emergency amendment to modify TS 2.15, Table 2-5, Note c to allow a one-time extension of the 7-day allowed outage time for the inoperability of Item 4 regarding safety valve acoustic position indication to allow repair prior to the next entry into Operating Mode 3 (Hot Shutdown) from Operating Mode 4 (Cold Shutdown). The NRC approved the LAR in TS Amendment No. 265 dated June 2, 2010 (ML101520296). This permitted FCS to continue power operations with inoperable safety valve acoustic position indication on safety valve RC-142.

The safety valve RC-142 flow indicator, FI-142, failed and was declared inoperable on May 26, 2010. Operations personnel entered the 7-day TS LCO 2.15, Table 2-5, Item 4. On June 2, 2010, Operations personnel commenced shutdown of FCS in accordance with TS LCO 2.15, Table 2-5, Item 4, Note c. On June 2, 2010, OPPD received TS Amendment No. 265, and the TS 2.15, Table 2-5, Item 4, Note c, Hot Shutdown statement was exited. The flow indicator FI-142 remained inoperable until all post-maintenance testing was completed satisfactorily. The flow indicator, FI-142 was declared operable on June 4, 2010. OPPD used the one-time extension of the 7-day allowed outage time for the inoperability of the safety valve acoustic position indication as permitted by TS Amendment No. 265; therefore, this note is no longer applicable.

Technical Specifications Page Markup

**Integrated Changes Proposed
by LARs dated July 12, 2010 and August 16, 2010**

[Table 2-5, 2.15 - Page 14]

TABLE 2-5

Instrumentation Operating Requirements for Other Safety Feature Functions

<u>No.</u>	<u>Functional Unit</u>	<u>Minimum Operable Channels</u>	<u>Minimum Degree of Redundancy</u>	<u>Permissible Bypass Condition</u>
1	CEA Position Indication Systems	1 ^{(e)(a)}	None	None
2	Pressurizer Level	1	None	Not Applicable
3	PORV Acoustic Position Indication Direct	1 ^{(a)(e)}	None	Not Applicable
4	Safety Valve Acoustic Position Indication	1 ^{(a)(e)}	None	Not Applicable
5	PORV/Safety Valve Tail Pipe Temperature	1 ^{(d)(b)}	None	Not Applicable

NOTES:

- a — One channel per valve.
- b — One RTD for both PORV's; two RTD's, one for each code safety.
- c — If item 5 is operable, requirements of specification 2.15 are modified for items 3 and 4ⁱ to "Restore inoperable channels to operability within 7 days or be in hot shutdown within 12 hours."
- d — If items 3 and 4 are operable, requirements of specification 2.15 are modified for item 5 to "Restore inoperable channels to operability within 7 days or be in hot shutdown within 12 hours."
- e-a If one channel of CEA position indication is inoperable for one or more CEAs, requirements of specification 2.15 are modified for item 1 to "Perform TS 3.1, Table 3-3, Item 4 within 15 minutes following any CEA motion in that group." Specifications 2.15(1), (2), and (3) are not applicable.

ⁱ The requirement of Table 2-5, Note c to restore Safety Valve Acoustic Position Indication in 7 days is extended on a one-time basis. This allows the instrumentation for Functional Unit 4 for pressurizer safety valve RC-142 to be inoperable from June 1, 2010 until the next entry into Mode 3 from Mode 4.

Retyped "Clean" Technical Specifications Page

**Integrated Changes Proposed
by LARs dated July 12, 2010 and August 16, 2010**

[Table 2-5, 2.15 - Page 14]

TABLE 2-5

Instrumentation Operating Requirements for Other Safety Feature Functions

<u>No.</u>	<u>Functional Unit</u>	<u>Minimum Operable Channels</u>	<u>Minimum Degree of Redundancy</u>	<u>Permissible Bypass Condition</u>
1	CEA Position Indication Systems	1 ^(a)	None	None
2	Pressurizer Level	1	None	Not Applicable

NOTE:

- a If one channel of CEA position indication is inoperable for one or more CEAs, requirements of specification 2.15 are modified for item 1 to "Perform TS 3.1, Table 3-3, Item 4 within 15 minutes following any CEA motion in that group." Specifications 2.15(1), (2), and (3) are not applicable.