NRR-DRMAPEm Resource

From: Singal, Balwant
Sent: Monday, August 12, 2019 9:02 AM
To: 'Nicole Good'
Subject: Request for Additional Information - License Amendment Request to Revise Wolf Creek Generating Station Technical Specification 3.3.5 (EPID L-2019-LLA-0062)
Attachments: Wolf Creek TS 3.3.5-RAIs.docx

By letter dated March 18, 2019, (Agencywide Document Access and Management System (ADAMS) Accession No. ML19086A111), Wolf Creek Nuclear Operating Corporation (the licensee) requested an amendment to Facility Operating License No. NPF-42 for the Wolf Creek Generating Station. The proposed license amendment request (LAR) would revise the Technical Specification Surveillance Requirement 3.3.5.3, regarding the degraded voltage and loss of voltage relays nominal Trip Setpoints and Allowable Values.

The NRC staff has determined that additional information is needed to complete the review of the LAR. A copy of the Request for Additional Information (RAI) is attached. A copy of the Draft RAI was provided by email dated July 25, 2019. By email dated August 6, 2019, the licensee confirmed that a clarification call is not needed. You are requested to provide your response to this RAI request by September 10, 2019.

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REQUEST FOR ADDITIONAL INFORMATION

REVISION TO TECHNICAL SPECIFICATION 3.3.5, "LOSS OF POWER (LOP) DIESEL GENERATOR (DG) START INSTRUMENTATION"

WOLF CREEK GENERATING STATION

(EPID NO. L-2019-LLA-0062)

By letter dated March 18, 2019, (Agencywide Document Access and Management System (ADAMS) Accession No. ML19086A111), Wolf Creek Nuclear Operating Corporation (the licensee) requested an amendment to Facility Operating License No. NPF-42 for the Wolf Creek Generating Station (Wolf Creek). The proposed license amendment request (LAR) would revise the Technical Specification (TS) Surveillance Requirement (SR) 3.3.5.3, regarding the degraded voltage (DV) and loss of voltage (LOV) relays nominal Trip Setpoints and Allowable Values.

To complete its review, the U.S. Nuclear Regulatory Commission (NRC) staff has identified the need for the following additional information below:

Regulatory Requirement

The regulations at Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.36, "Technical specifications," establish the requirements related to the content of the TS. Pursuant to 10 CFR 50.36(c), TS are required to include items in five specific categories related to station operation: (1) Safety limits, limiting safety system settings, and limiting control settings, (2) Limited conditions of operation (LCOs), (3) Surveillance requirements (SR), (4) Design features; and (5) Administrative controls. The proposed changes in this LAR relate to the SR category.

10 CFR 50.36(c)(3), "Surveillance requirements" requires surveillance relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.

Request for Additional Information (RAI) No. 1

In the LAR, Attachment I, Page 2, the licensee stated:

> The LOV logic signal is set below the minimum bus voltage encountered during DG [Diesel Generator] sequential loading.

In the LAR, the licensee has proposed to raise the LOV nominal Trip Setpoint from 83 Volts (V) to 91.28 V. Please provide minimum transient bus voltage encountered during DG sequential loading to verify that the LOV logic signal setting will remain below the minimum transient bus voltage.

RAI No. 2

In the LAR, Attachment I, Page 3, the licensee stated:

> Should the DV condition occur in a non-accident condition (no SIS [safety injection signal] present), with the current time delay setting applied, an additional 111 second time delay is provided. These time delays are specific to the feeder breakers (2 per bus). If the DV is not alleviated in the overall 119 seconds (nominal delay), the bus feeder breaker is tripped. An alarm is also provided to alert the operator to a DV condition.

According to LAR, Attachment IV, the TS Bases for SR 3.3.5.4 the Grid Degraded Voltage Function, the total response time without a SIS present will be revised from 144 seconds to 78 seconds. Please explain relationship between 119 seconds mentioned above, and 144 seconds and 78 seconds mentioned in Attachment III of the LAR.

RAI No. 3

In the LAR, Attachment I, Page 4, the licensee stated:

> The current TS value of 119 seconds encompasses both the DV time delay with an SIS present (8 seconds) and without an SIS present (111 seconds). The proposed change revises the TS to provide only the time delay associated with a SIS present.

Please provide justification why the proposed change revises the TS to provide only the time delay associated with a SIS present.

RAI No. 4

In the LAR, Attachment I, Page 5, the licensee stated:

> A review of the current licensing basis calculation of record determined that the existing TS SR 3.3.5.3 allowable vales, nominal Trip Setpoints, and time delays are acceptable and that the Class 1E electrical equipment is OPERABLE. However, WCNOC has determined that current licensing basis margins do not provide sufficient margin for long term operation.

Please provide clarification (with an example) regarding the statement that the current licensing basis margins do not provide sufficient margin for long term operation.

RAI No. 5

In the LAR, Attachment I, Page 7, the licensee stated:

> The following equipment will have running terminal voltages slightly less than the rated voltage (< 90% of rated):
>
> a. Inverter NN011 - 89.11%
> b. Inverter NN012 - 89.91%
> c. Inverter NN013 - 89.87%
> d. Inverter NN014 - 89.26%

The above voltages are slightly below the acceptance criteria of greater than or equal to 90% rated voltage. The licensee stated that this is acceptable, since the NN inverters are not considered OPERABLE unless they are powered from a Class 1E 125 VDC battery bus.

According to the WCGS, Updated Final Safety Analysis Report (UFSAR) Figure 8.3-6-01, "DC Main Single Line Diagram," the NN inverters are normally fed from Class 1E 125 VDC buses. However, if an inverter is inoperable, then based on TS 3.8.7, the associated vital bus can be fed from a regulating transformer, up to a Completion Time of 24 hours. Please describe the voltage regulating feature of regulating transformer, and whether this feature was modelled in the load flow analysis. If not modelled, please explain whether the voltage regulating feature of regulating transformer could alleviate the low voltage conditions at the above inverter buses.

RAI No. 6

In the LAR, Attachment I, Page 8, the licensee stated:

> According to NEI 15-01, the motor starting analysis can either be a dynamic simulation that demonstrates each motor can be successfully started within its required time to perform its safety function or a static "snapshot" load flow analysis that demonstrates the calculated starting voltage at locked rotor conditions is within its design requirement. The analysis performs the dynamic simulation.

Please confirm whether the licensee performed dynamic simulation for all motors or only for certain specific motors, considering that detailed motor data for dynamic simulation is typically not readily available. Please provide a list of motors for which dynamic simulation was performed, and a brief description of the dynamic motor modelling/simulation.

RAI No. 7

In the LAR, Attachment I, Page 10, the licensee stated

> To evaluate the performance of the TOL [thermal overload] during the 8.5-second concurrent LOCA [loss-of-coolant accident] and DV condition, the motor starting current that correlates to its starting voltage was calculated, and this motor starting current was then compared against the TCC [time-current characteristic] curves of the TOLs to obtain the trip time. The fastest operating trip time from the TCC curve was used for this evaluation. If the TOL did not trip during the 8.5-second DV condition, the TOL performance of the TOL relay heater was then evaluated during the subsequent start from the DG.

Please provide an example of worst case evaluation which shows that the TOL relay would not trip during concurrent DV and LOCA condition, and subsequent start from the DG.

RAI No. 8

> In the LAR, Attachment I, Page 11, the licensee stated: The results of the analysis show that the DV relay monitored bus voltage recovers above 3864 V for the scenarios studied at the lowest switchyard voltage of 98% of 345 kV [kilo volt] rated voltage.

Please provide the basis of considering lowest switchyard voltage as 98% of 345 kV rated voltage. Please describe how this value is related to the required Agreement with the Grid/Transmission Operator in accordance with North American Electric Reliability Corporation (NERC) standard NUC-001, "Reliability Standard for Nuclear Plant Interface Coordination."

RAI No. 9

In the LAR, Attachment I, Page 12, the licensee stated:

> At an LOV relay lower analytic limit of 3150.4 V [75.7% at 4160 V base] at the NB buses, the Class 1E motors that are running for plant design basis accidents will not stall, and the Class 1E MCC voltages exceed 345 V [75% of 460V].

Please provide percent allowable stall voltages (maximum and minimum) based on voltage-torque characteristics of various of 4000 V and 460 V rated motors. Please also provide any related references.

RAI No. 10

In the LAR, Attachment I, Page 24, the licensee stated:

> The minimum time delay limit for the [LOV}] relay is calculated such that it prevents spurious operation during momentary voltage transients caused by offsite power disturbances. Since the bus transient voltage is not expected to last longer than the calculated 0.85 second, a time delay setting of 1.0 second is expected to ensure that no spurious trip of the feeder breaker occurs.

Please provide the basis of calculating 0.85 second due to offsite power system faults/disturbances. Also, the margin between the above described 0.85 second and 1.0 second appears to be too low, especially considering the lower limit of LOV time delay as 0.9 second. Please justify this low margin (0.05 second) considering as per industry practice (such as IEEE Standard 242), the time coordination interval is recommended to be not less than 0.2 second for static relays and 0.3 second for electromagnetic relays.

RAI No. 11

In the LAR, Attachment I, Page 24, the licensee stated:

> The maximum time delay for the LOV relay is limited to the 1.2 second time used in the accident analysis response time for starting the DGs during a Loss of Offsite Power Event.

The NRC staff could not find the above stated 1.2 second time delay used in the accident analysis response time in the USAR, for starting the DGs during a Loss of Offsite Power Event. Please provide the requisite Chapter/Section of UFSAR, where it is stated.