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CNS-15-075

August 17, 2015

10 CFR 50.90

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

Subject: Duke Energy Carolinas, LLC (Duke Energy)
Catawba Nuclear Station, Units 1 and 2
Docket Numbers 50-413 and 50-414
License Amendment Request (LAR) for Changes to Technical Specification (TS) 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation" and TS 3.3.5, "Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation"
Resolution of Operable But Degraded Condition Due to Non-Conservative TS
Response to NRC Request for Additional Information

References:
1. Letters from Duke Energy to NRC, dated November 24, 2014 (ADAMS Accession Number ML14330A327) and July 31, 2015 (ADAMS Accession Number not yet available)
2. Letter from NRC to Duke Energy, dated May 18, 2015 (ADAMS Accession Number ML15132A773)

The November 24, 2014 Reference 1 letter requested NRC review and approval to revise the Allowable Value parameter for the TS 3.3.2 Table 3.3.2-1, "Engineered Safety Feature Actuation System Instrumentation" function for Auxiliary Feedwater Loss of Offsite Power (Function 6.d.) and for the TS 3.3.5 Loss of Voltage function in Surveillance Requirement (SR) 3.3.5.2 in order to make this parameter more restrictive. The existing parameter was determined to be non-conservative and this parameter is presently classified as Operable But Degraded in the Catawba Corrective Action Program. In addition, the Nominal Trip Setpoint parameter for this function is being slightly lowered in order to gain additional margin to what is known as a "double sequencing event". Finally, as part of this LAR, applicable footnotes are also being added to the affected TS 3.3.2 function in accordance with TS Task Force Traveler TSTF-493, Revision 4, "Clarify Application of Setpoint Methodology for LSSS Functions".

Reference 2 transmitted NRC Requests for Additional Information (RAIs) associated with the November 24, 2014 Reference 1 letter.

The July 31, 2015 Reference 1 letter provided responses to all but one of the Reference 2 RAIs. This letter indicated that the outstanding RAI response would be provided by August 17, 2015. The purpose of this letter is to formally respond to the outstanding RAI. The enclosure to this

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letter provides Duke Energy's response. The format of the enclosure is to restate the RAI question, followed by its response.

The conclusions of the original Regulatory Evaluation and Environmental Consideration contained in the November 24, 2014 Reference 1 letter are unaffected as a result of this RAI response.

Pursuant to 10 CFR 50.91, a copy of this LAR supplement has been forwarded to the appropriate State of South Carolina official.

There are no regulatory commitments contained in this letter or its enclosure.

If you have any questions or need additional information on this matter, please contact L.J. Rudy at (803) 701-3084.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on August 17, 2015.

Very truly yours,

Kelvin Henderson
Vice President, Catawba Nuclear Station

LJR/s

Enclosure

xc (with enclosure):

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Enclosure

RESPONSE TO NRC REQUESTS FOR ADDITIONAL INFORMATION (RAIs)

Subject: License Amendment Request (LAR) for Changes to Technical Specification (TS) 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation" and TS 3.3.5, "Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation"
Resolution of Operable But Degraded Condition Due to Non-Conservative TS

Enclosure

REQUEST FOR ADDITIONAL INFORMATION REGARDING

CATAWBA NUCLEAR STATION, UNITS 1 AND 2

LICENSE AMENDMENT REQUEST

TS 3.3.2, "ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION"

TS 3.3.5, "LOSS OF POWER DIESEL GENERATOR STARTUP INSTRUMENTATION"

DOCKET NOS. 50-413 AND 50-414

By letter dated November 24, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML 14330A327), Duke Energy Carolinas (Duke) submitted a license amendment request for the Catawba Nuclear Station, Units 1 and 2. The proposed amendment would revise the allowable value in the subject TSs to correct a non-conservative value. In order for the NRC staff to complete its review of the relief request, the following additional information is requested.

6. Please provide a curve showing the minimum voltages at the 4160 V safety-related buses during the starting of LOCA loads after the safety injection signal based on the minimum switchyard voltage (based on agreement with the transmission system operator). Super-impose on this curve, the analytical and reset voltage values of the undervoltage relay settings to demonstrate that adequate margin exists so that the motors would not trip out by the undervoltage relay during a LOCA load sequencing.

Duke Energy Response:

Refer to the two attached figures. These figures assume that the 230 kV switchyard voltage is at the minimum expected value such that there is adequate voltage for the degraded grid voltage relays to reset.

Unit 1 figure:

The maximum loss of voltage trip setpoint is used in the figure.

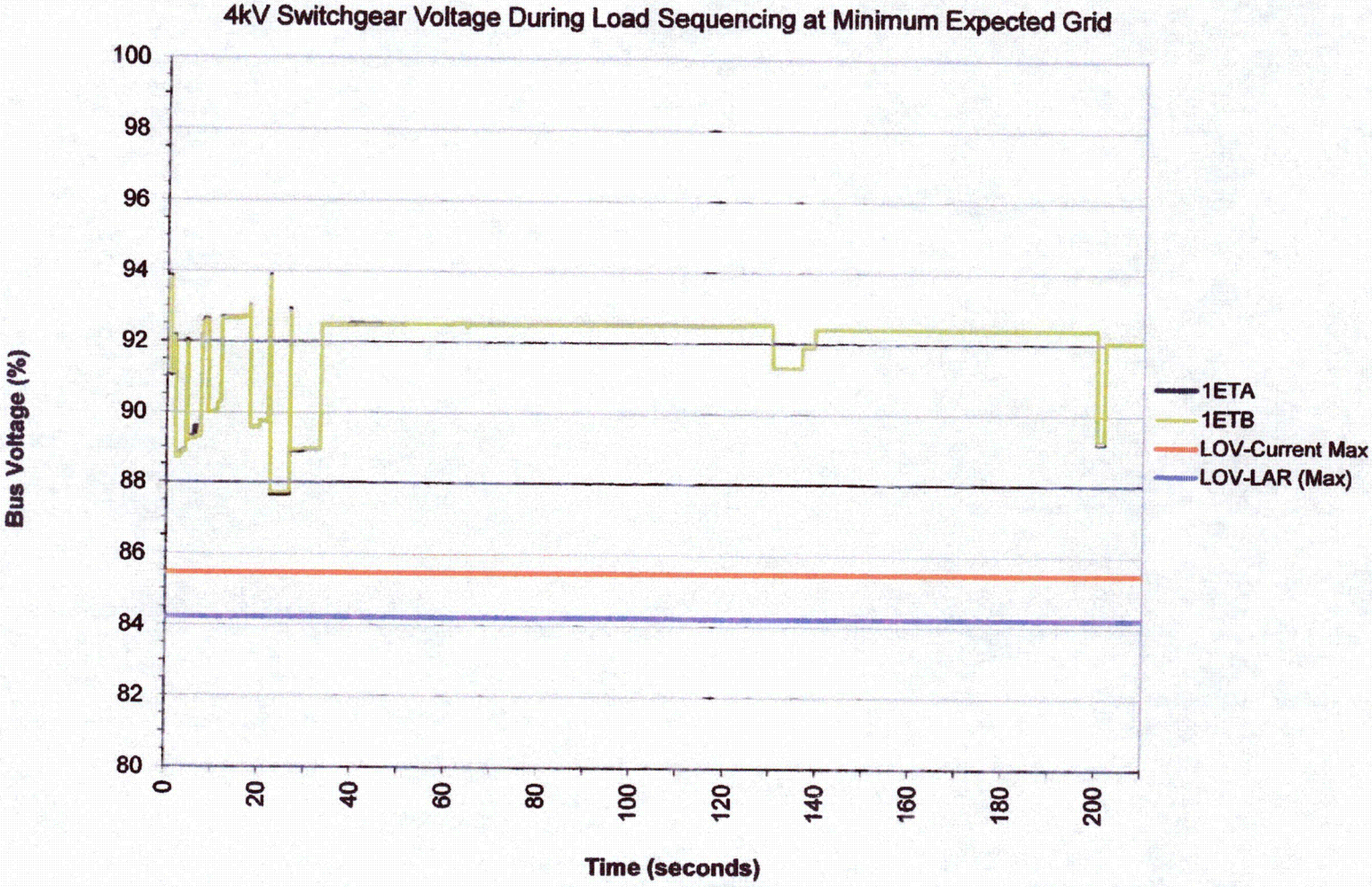
This maximum value assumes that the relay has drifted to the maximum value dictated by the total loop uncertainty. This figure shows that the 4.16 kV switchgear voltage does not dip to 85.48% (current loss of voltage trip maximum setpoint). Additionally, the requested value for the loss of voltage relay setpoint (adjusted to the maximum drift value) of 84.23% is also shown on the figure.

Unit 2 figure:

The voltage transient at 21.9 seconds is due to the switching on and off of loads used to create bounding voltages for the 600 V system as part of the motor operated valve analysis; therefore, it is not reflective of an actual transient. Based upon the figure, the degraded grid voltage relay would not be capable of resetting due to the degraded grid timer timing out prior to the voltage recovering above the reset voltage. This is due to the fact that the 4.16 kV motor start times have been increased to take into account timer

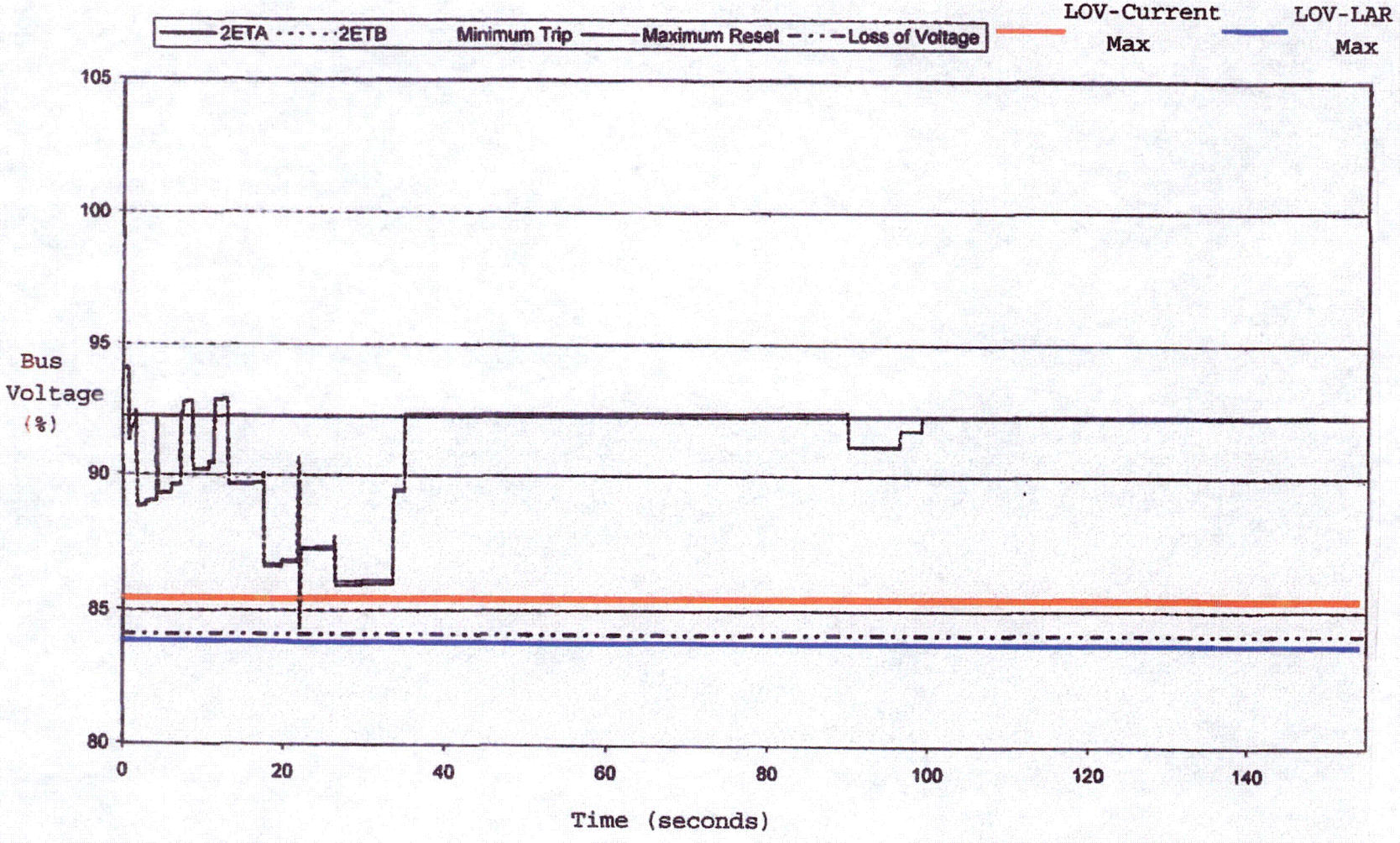
tolerances and additional conservatisms. This was done to ensure that the worst case motor operated valve voltage is determined. However, the switchgear voltage is capable of recovering above the degraded grid voltage reset point prior to the timer timing out when the above conservatisms are removed. The lowest voltage occurs when the containment spray (Duke Energy designation "NS") pump motor starts concurrently with the auxiliary feedwater (Duke Energy designation "CA") pump motor. The automatic starting of the NS pump motors has been deleted as part of the Emergency Core Cooling System Water Management license amendments (Amendments 257/252 for Units 1/2, respectively). As such, the voltage during this transient is bounding once the analysis is re-performed with the automatic (and random) starting of the NS pump motors removed from this time period. Even with the conservative assumption of the concurrent start of the NS and CA pump motors, the switchgear voltage remains above 85.48% (the current loss of voltage trip maximum setpoint). Additionally, the requested value for the loss of voltage relay setpoint (adjusted to the maximum drift value) of 84.23% is also shown on the figure.

UNIT 1


4kV Switchgear Voltage During Load Sequencing at Minimum Expected Grid
Bus Voltage (%)
100
98
96
94
92
90
88
86
84
82
80
0
20
40
60
80
100
120
140
160
180
200
Time (seconds)
1ETA
1ETB
LOV-Current Max
LOV-LAR (Max)

UNIT 2

L2OSCDR1 Results



Note: This graph shows extended starting times for the 4.16KV loads to account for sequencer timer tolerance, as indicated in Section 2.3 of the calculation text.