



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

August 27, 2014

Steven D. Capps
Site Vice-President, McGuire
Duke Energy Carolinas, LLC
McGuire Nuclear Station
12700 Hagers Ferry Road
Huntersville, NC 28078-8985

**SUBJECT: NOTICE OF ENFORCEMENT DISCRETION (NOED) FOR MCGUIRE NUCLEAR
STATION UNIT 1 (TAC NO. MF4664, NOED NO. 14-2-002)**

Dear Mr. Capps:

By letter dated August 25, 2014, you requested that the NRC exercise discretion to not enforce compliance with the actions required in McGuire Nuclear Station (MNS) Unit 1 Technical Specification (TS) Limiting Condition for Operation (LCO) 3.8.1, AC Sources - Operating, Action B.4. Your letter documented information previously discussed with the NRC in a telephone conference on August 21, 2014, at 1:00 p.m. The principal NRC staff members who participated in the telephone conference are listed in the Enclosure. The staff determined that the information in your letter requesting the NOED was consistent with your oral request. The NRC first became aware of the potential for this NOED request on August 19, 2014.

You stated that, on August 18, 2014, at 5:29 p.m., Unit 1 entered into TS LCO 3.8.1, for one emergency diesel generator (EDG) inoperable. TS LCO 3.8.1, Condition B.4, required the EDG be returned to operable within 72 hours. If the time limit specified in Condition B.4 could not be met, TS LCO 3.8.1, Condition G, would apply. TS LCO 3.8.1, Condition G, required Unit 1 be in Mode 3 by 11:29 p.m., on August 21, 2014, and in Mode 5 by 5:29 a.m., on August 23, 2014. You subsequently requested that a NOED be granted pursuant to the NRC's policy regarding exercise of discretion for an operating facility, set out in Section 3.8 of the "General Statement of Policy and Procedures for NRC Enforcement Actions" (Enforcement Policy), and that the NOED be effective until 5:29 p.m., on August 23, 2014. This letter documents our telephone conversation of August 21, 2014, when we orally granted this NOED request. We understand that the condition causing the need for this NOED was corrected, allowing MNS to exit from TS LCO 3.8.1 and from this NOED at 4:24 a.m., on August 23, 2014.

On August 17, 2014, the 1B EDG was undergoing a 24-hour surveillance test. During the test, cylinder 5L exhibited a knocking noise and a significant drop in cylinder exhaust temperature from 741°F to 611°F. Control room and local indications of EDG electrical output were also observed to be fluctuating. The Operations Shift Manager (OSM) directed a procedural shutdown (stepping down load) of the 1B EDG. A senior reactor operator (SRO) in the field then reported an unusual sound from the EDG when load was reduced. At this time the OSM directed unloading and stopping the 1B EDG immediately. On August 18, 2014, at 5:29 p.m., the EDG was stopped and declared inoperable. Duke Energy Carolinas (DEC) determined the cause of the 1B EDG

inoperability to be the failure of an intake valve stem on cylinder 5L. Further examination found that the intake valve stem had broken causing the valve seat to fall into the cylinder damaging the piston, head, exhaust valve, and cylinder liner. Replacement of the piston, head assembly (which includes valves), cylinder liner, and pushrods required approximately 58 hours to complete. DEC also determined that a series of maintenance break-in runs would require an additional 32 hours followed by a three hour post-maintenance operability run. Consequently, the 72-hour LCO time requirement will be exceeded. You requested an additional 48 hours to complete the necessary repairs and perform post-maintenance testing.

The NRC determined that the requested NOED was appropriate to avoid an unnecessary transient as a result of compliance with TS 3.8.1, Condition G, and, thus, minimize potential safety consequences and operational risks (Inspection Manual Chapter (IMC) 0410, Section 03.03, Criterion a). The NRC's basis for the exercise of discretion considered (1) your protection of 1A EDG, 1A Nuclear Service Water train, 1A and 1B offsite power supplies, 1ETA switch gear room, 1ETB-1 breaker, Unit 1/2 McGuire switchyard and relay house, Unit 1/2 main step-up transformer yard, Unit 1/2 6.9kV essential switchgear rooms, Safe Shutdown Facility (SSF), both Unit 1 motor driven auxiliary feedwater (AFW) pumps, Unit 1 turbine driven AFW pump, Station Auxiliary Transformer (SAT) B, and the 1A Hydrogen Igniter; (2) your compensatory actions to (a) defer non-essential surveillances and other discretionary maintenance activities in the switchyard and on electrical equipment where human error could contribute to the likelihood of a loss of offsite power, (b) brief operators regarding the importance of throttling Auxiliary Feedwater flow to the Steam Generators during a Station Blackout Event, (c) communicate to the System Operations Center once per shift regarding Unit 1 status and the need to maintain grid stability during the NOED period, (d) ensure operating crews review the procedures for operating the SSF and station an operator in the SSF, (e) assign a dedicated operator to transfer plant control from the control room to the SSF if necessary and transfer power for the hydrogen igniters from the normal power to SSF power if necessary, (f) ensure no work activities will be performed on Unit 2 that would affect EDGs, (g) perform a briefing each shift with operators regarding the importance of cross-connecting offsite power from Unit 2, (h) ensure no work on the Instrument Air system occurs during the NOED period, (i) perform a briefing each shift with operators regarding the importance of tripping the RCPs at the secondary breakers, (j) implement continuous fire watches with suppression capability for fire areas deemed to be high risk including Unit 1 Cable Spreading Room 801, Unit 1 6.9KV Switchgear Room and Unit 1 Turbine Building near Load Center 1LXF, (k) throttle Unit 1 VUCDT Inlet Isolation per a troubleshooting/alternate system alignment procedure to reduce flow such that it is no longer a Large Early Release pathway, and (l) check weather forecast once per shift; (3) your qualitative risk assessment; and (4) that the cause of the condition and proposed path to resolve the situation were understood such that planned actions would be successful.

The NRC staff performed an independent qualitative assessment of the risk and a review of your protection strategy. You indicated that the calculated increase in Conditional Core Damage Probability (CCDP) from the 48 hour extension was $3.1E-7$, and the increase in Conditional Large Early Release Probability (LERP) was $4.1E-8$, which were below the suggested threshold for NOED approval. NRC risk analysts performed an analysis of this condition with the best available information, including common cause assumptions, using the zero maintenance model, and concluded that the impact of a 48 hour increase in unavailability of the 1A DG resulted in an increase between $5E-7$ and $6E-7$ CCDP for the internal risk. This was based an independent confirmatory analysis that was performed using the McGuire SPAR internal events model. Our risk analysts reviewed the fire and LERP sequences you provided for insights. Our

calculated risk value, added to your fire risk, was above the threshold guidance in IMC 0410; however, this threshold is a guideline. Our staff also considered your compensatory actions to reduce fire risk by implementing additional fire watches with suppression capability in areas representing higher risk. As a result of these actions, the actual risk would be lower than the calculated risk.

In addition, you indicated that the EDG would be available to perform its function, if called upon during the break-in period, and indicated that the NRC would be informed of any change in status if it could not. Since the break-in runs were to commence within several hours after the expiration of the TS operability deadline, the total time of non-functionality was less and this reduced the risk impact by almost an order of magnitude. Our staff also considered the additional risk that would be represented by a Technical Specification required shutdown if enforcement discretion was not granted. Our qualitative analysis indicated that the guidance in IMC 0410 for consideration of risk was met.

On the basis of the NRC staff's evaluation of your request, we have concluded that granting this NOED was consistent with the Enforcement Policy and staff guidance and has no adverse impact on public health and safety or the environment. Therefore, as we informed you at 1:36 p.m., on August 21, 2014, we exercised discretion to not enforce compliance with the TS LCO 3.8.1, Condition G, requirements that Unit 1 be in Mode 3 by 11:29 p.m., on August 21, 2014, and in Mode 5 by 5:29 a.m., on August 23, 2014, for the period from 1:36 p.m., on August 21, until 5:29 p.m., on August 23, 2014. As stated during the conference call and in your letter you have determined that a follow up license amendment is not necessary. NRC staff agrees with this determination.

As stated in the Enforcement Policy, action will be taken, to the extent that violations were involved, for the root cause that led to the noncompliance for which this NOED was necessary.

Sincerely,

/RA/

Leonard D. Wert
Deputy Regional Administrator

Docket No.: 50-369
License No.: NPF-9

Enclosure: List of Participants

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/RA/

Leonard D. Wert
Deputy Regional Administrator

Docket Nos.: 50-369
License Nos.:NPF-9

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NAME	CRapp	GMcCoy	JMunday	MMarkely	EMiller	LWert	
DATE	08/27/2014	08/27/2014	08/27/2014	08/27/2014	08/27/2014	08/27/2014	
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME: [HTTP://FUSION.NRC.GOV/REGIONS/RII/DRP/BRANCH1/SDP AND SERP INFO/MCG EDG CYL 5L FAILURE/NOED LETTER.DOCX](http://fusion.nrc.gov/regions/rii/drp/branch1/sdp_and_serp_info/mcg_edg_cyl_5l_failure/noed_letter.docx)

S. Capps

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Letter to Steven D. Capps from Leonard D. Wert dated August 27, 2014

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Enclosure