REGIS T. REPKO
Vice President
McGuire Nuclear Station

Duke Energy
MG01VP / 12700 Hagers Ferry Rd.
Huntersville, NC 28078

980-875-4111
980-875-4809 fax
regis.repko@duke-energy.com

January 24, 2011

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

Subject: Duke Energy Carolinas, LLC (Duke Energy)
McGuire Nuclear Station, Units 1 and 2
Docket Numbers 50-369, 50-370
Notice of Enforcement Discretion Request (NOED)
Technical Specification (TS) Limiting Condition for Operation (LCO) 3.0.3

This letter documents the background and technical information supporting the McGuire Nuclear Station, Units 1 and 2, Notice of Enforcement Discretion (NOED) request discussed with NRC staff during a telephone conference call held on January 20, 2011. On January 20, 2011 at 23:36 hours, Duke Energy received verbal approval from the NRC staff for the NOED. This submittal fulfills the requirement that a written NOED request be submitted to the NRC within two working days following NRC verbal approval of an NOED. The Attachment provides the basis for the NOED.

Approximately fifteen minutes after the start of the 1B Nuclear Service Water ("RN") pump performance test on January 18, 2011, the 1B RN pump was secured due to low pump suction pressure associated with high strainer differential pressure. Following additional evaluation, it was concluded that the high strainer differential pressure was due to strainer fouling as the result of a large number of small fish drawn in from the standby nuclear service water pond (SNSWP). Due to this condition, both RN trains for both units (1A, 1B, 2A, and 2B) are currently inoperable.

Subsequent to the discovery of the condition with the 1B RN train, Technical Specification (TS) 3.7.7 Condition A was entered for both the 1B and 2B trains. The associated action requires that with one RN train inoperable, the train must be restored to OPERABLE status within 72 hours. When the 1A and 2A trains were determined to also be inoperable at 11:10 on January 20, Limiting Condition for Operation (LCO) 3.0.3 was entered, which required that both units be placed in Mode 3 within 7 hours (January 20 at 18:10), Mode 4 within 13 hours (January 21 at 00:10) and Mode 5 within 37 hours (January 22 at 00:10). Units 1 and 2 are currently in Mode 3.

Duke Energy is requesting that the NRC exercise discretion to allow both units to remain in Mode 3 until January 25, 2011 at noon. This will allow time to repair, test, and restore the affected trains to operable status.

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This request for enforcement discretion was approved by the McGuire Nuclear Station Plant Operations Review Committee (PORC) prior to the January 20, 2011 conference call with the NRC.

Duke Energy does not believe a follow-up License Amendment for a permanent change to the Completion Time for the subject TSs within four days is necessary.

This submittal contains no new regulatory commitments.

Questions on this matter should be directed to Lee A. Hentz at 980-875-4187.

Sincerely,

Regis T. Repko

Attachment

xc with Attachment:

V. M. McCree
Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
Marquis One Tower
245 Peachtree Center Ave. NE, Suite 1200
Atlanta, GA 30303-1257

J. B. Brady
NRC Senior Resident Inspector
McGuire Nuclear Station

J. H. Thompson (addressee only)
NRC Project Manager
U.S. Nuclear Regulatory Commission
Mail Stop O-8 G9A
11555 Rockville Pike
Rockville, MD 20852-2738

W. L. Cox III, Section Chief
North Carolina Department of Environment and Natural Resources
Division of Environmental Health
Radiation Protection Section
1645 Mail Service Center
Raleigh, NC 27699-1645

Duke Energy Carolinas, LLC (Duke Energy)
McGuire Nuclear Station, Units 1 and 2
Notice of Enforcement Discretion (NOED) Request
Technical Specification Limiting Condition for Operation 3.0.3

Background

Approximately fifteen minutes after the start of the 1B Nuclear Service Water ("RN") pump performance test on January 18, 2011, the 1B RN pump was secured due to low pump suction pressure associated with high strainer differential pressure. Following additional evaluation, it was concluded that the high strainer differential pressure was due to strainer fouling as the result of a large number of small fish drawn in from the standby nuclear service water pond (SNSWP). Due to this condition, both RN trains for both units (1A, 1B, 2A, and 2B) are currently inoperable.

As discussed in Section 9.2.1 of the Updated Final Safety Analysis Report (UFSAR), the RN system provides an assured source of cooling water for various Auxiliary Building and Reactor Building heat exchangers during all phases of station operation. Each Unit has two redundant "essential headers" serving two Trains of equipment necessary for safe station shutdown, and a "nonessential header" serving equipment not required for safe shutdown. In conjunction with the Ultimate Heat Sink (the SNSWP), the RN System is designed to meet design flow rates and heads for normal station operation and those required for normal safe station shutdown or shutdowns resulting from a postulated Loss of Coolant Accident (LOCA). The system is further designed to tolerate a single failure following a LOCA on one Unit with a controlled shutdown on the alternate Unit concurrent with a loss-of-offsite power on both Units, or a seismic event causing a loss of Lake Norman resulting in controlled shutdown on both Units concurrent with a loss-of-offsite power on both Units.

The summary flow diagram for the RN System is shown in the attached Figure 1.

As the normal source of water from Lake Norman, the single line from the Low Level Intake Cooling Water system provides water to both Trains of RN pumps. Should any of the Train "A" redundant safety-related components malfunction, the corresponding Unit's "A" RN pump is shut down and the "B" RN pump started, supplying the Unit's Train "B" heat exchangers. As an Engineered Safety Feature, this low-level intake supply is automatically aligned to supply the "A" Trains of both Units following a safety injection signal from either.

Two lines are provided from the SNSWP to meet single failure criteria should a seismic event cause loss of Cowans Ford Dam and resulting loss of Lake Norman. As an Engineered Safety Feature, the Train "B" SNSWP supply is automatically aligned to supply the "B" Trains of both Units following a safety injection signal from either Unit. The Train "A" SNSWP supply then acts as a 100% backup should any Train "B" component fail to function properly. Each Train is of sufficient size to provide total station flow for a Unit LOCA and a Unit cooldown.

The SNSWP, which is qualified for Safe Shutdown Earthquake, serves as the most severe natural phenomena heat sink/cooling water reservoir assuming Lake Norman is lost. All supply and discharge piping for the SNSWP is seismically qualified. SNSWP thermal performance (heat dissipation and flow rate capacity) is verified in calculations showing that the RN System can adequately handle a large break LOCA on one Unit and controlled shutdown on the other Unit while aligned to the SNSWP.

The SNSWP design meets or exceeds the regulatory position as detailed in NRC Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Power Plants," Revision 1, dated March 1974.

Need for NOED

Subsequent to the discovery of the condition with the 1B RN train, Technical Specification (TS) 3.7.7 Condition A was entered for both the 1B and 2B trains. The associated action requires that with one NSWS train inoperable, the train must be restored to OPERABLE status within 72 hours. When the 1A and 2A trains were determined to also be inoperable at 11:10 on January 20, Limiting Condition for Operation (LCO) 3.0.3 was entered, which required that both units be placed in Mode 3 within 7 hours (January 20 at 18:10), Mode 4 within 13 hours (January 21 at 00:10) and Mode 5 within 37 hours (January 22 at 00:10). Units 1 and 2 are currently in Mode 3.

Duke Energy is requesting that the NRC exercise discretion to allow both units to remain in Mode 3 until January 25 at noon. This will allow time to repair, test, and restore the affected trains to operable status. The intended course of action is to chemically treat the SNSWP as a fouling source.

Basis for NOED

Duke Energy has reviewed NRC Regulatory Issue Summary 2005-01, "Changes to Notice of Enforcement Discretion (NOED) Process and Staff Guidance," and the accompanying NRC Inspection Manual Part 9900 Technical Guidance, "Operations – Notices of Enforcement Discretion," and has concluded that Part 9900 Section B.2.1, "Situations Affecting Radiological Safety – Regular NOEDs," Criterion 1.a is satisfied. This criterion applies to plants in power operation desiring to avoid unnecessary transients as a result of compliance with the license condition and, thus, minimize the potential safety consequences and operational risks. The basis for this conclusion and other information required to support a request for NOED is provided below.

1. *The TS or other license conditions that will be violated.*

   Response:

   Duke Energy is requesting enforcement discretion from LCO 3.0.3, which requires that both units be placed in Mode 3 within 7 hours (January 20 at 18:10), Mode 4 within 13 hours (January 21 at 00:10) and Mode 5 within 37 hours (January 22 at 00:10). Units 1 and 2 are currently in Mode 3. Duke Energy is requesting that the NRC exercise discretion to allow both units to remain in Mode 3 until January 25, 2011 at noon.

2. The circumstances surrounding the situation: including likely causes; the need for prompt action; action taken in an attempt to avoid the need for an NOED; and identification of any relevant historical events.

Response:

On January 18 at 12:17, the 1B RN pump was started in support of PT/1/A/4403/001B, 1B RN Pump Performance Test with the pump aligned to the Standby Nuclear Service Water Pond (SNSWP). Prior to this test, the A RN trains were aligned to the Low Level Intake (Lake Norman). After approximately one minute of operation, strainer differential pressure began to slowly increase, indicating fouling of the 1B RN Strainer was occurring. At approximately 12:20, strainer differential pressure began to increase at a faster rate. At approximately 12:22, the high differential pressure setpoint (1.86 psid) was reached on the 1B RN Strainer, initiating backwash supply flow only. After an initial reduction in 1B RN Strainer differential pressure, the differential pressure began to increase again with backwash supply flow still applied. At 12:32, 1B RN Strainer differential pressure began to stabilize at approximately 4.8 psid. At 12:34, 1B RN Strainer differential pressure began a steep increase until the 1B RN Strainer differential pressure reached approximately 7.7 psid at 12:36. At that time, the 1B RN Pump was stopped and the backwash supply valve (1RN-25B) closed when the 1B RN pump was secured. The 1B RN train was declared inoperable at 12:19 and Tech Spec 3.7.7, Nuclear Service Water System (NSWS) was entered.

On January 18 at 16:35 the 1B RN pump was restarted with strainer differential pressure increasing to 9.3 psid on the pump start and then returning to 4.5 psid. The strainer differential pressure continued to increase to 10 psid over the next minute and a half. During this time the pump flow rate went from approximately 5,000 gpm to 1,500 gpm at which time the pump was secured at 16:37. Later in the evening of January 18, activities were put in place to open the strainer backwash effluent discharge valve to the Ground Water (WZ) sump without the 1B RN pump running, the strainer supply valve was opened and the strainer drum was rotated by hand. A catch container was placed on the discharge pipe to the WZ sump to collect a sample of the debris. This debris was analyzed and determined to be small Bluegill fish and some pipe debris (rust tubercles). The preliminary report on this analysis indicates that 4% by weight was due to rust tubercles and the rest was due to small fish.

On January 20 at 01:32, the 2B RN pump was started with personnel at the strainer room with directions to manually align the backwash discharge to the WZ Sump. After the 2B RN pump was started, the strainer differential pressure increased to approximately 0.5 psid and increased to 1.0 psid by 01:36. At approximately 01:39 the strainer differential pressure increased to 2.0 psid. In less than one minute, the strainer differential pressure increased to 3.0 psid and the operator was instructed to open the manual strainer backwash effluent discharge to the WZ sump. Before this could be accomplished, the strainer differential pressure increased to 6.6 psid and the control operator secured the 2B RN pump.

On January 20, the 1B RN Strainer backwash supply and backwash discharge were aligned and flowing to the WZ sump at approximately 200 gpm. Then at 05:26, the 1B RN pump was placed in operation. The 1B RN Strainer differential pressure was stable at approximately 0.55 psid for approximately four minutes. The valve for backwash discharge to the WZ sump (1RN-483) was slowly closed with the pump still in operation, and backwash supply flow remaining in service. After approximately four minutes with no backwash discharge, 1B RN Strainer differential pressure had climbed to approximately 1.5 psid, and backwash discharge was reinitiated to the WZ sump for another four minutes. 1B RN Strainer differential pressure was quickly reduced to approximately 0.5 psid. 1RN-483 was again closed. The 1B RN Pump was allowed to run for an additional 15 minutes with only backwash supply flow aligned. 1B RN Strainer remained at 0.5 psid until the 1B RN Pump was secured at 06:01.

On January 20 at 11:10, the A RN Trains were declared inoperable per TS 3.7.7 due to the Failure Investigation Process (FIP) extent of condition review. At this time, TS 3.0.3 was entered for both Unit 1 and Unit 2 due to both trains of RN being inoperable.

Actions taken in an attempt to avoid the need for the NOED: Unit Threat Team was assembled including cause and recovery teams following the initial fouling of the 1B RN strainer. Efforts were made to evaluate the source of the fouling and the impact on other trains (2B RN train). The results of this evaluation showed that a significant population of fish entered the B train suction piping from the SNSWP. Ultimately the B train and strainers were flushed and verified no further fish intrusion is occurring.

Relevant historical events: Corrective action program document (PIP) M-07-4313 documents the Alewife fish intrusion into the A RN strainers while aligned to the Low Level Intake. During this event, the RN strainers went into automatic backwash numerous times and managed to keep the strainer differential pressure near the automatic actuation setpoint. The long term resolution was to install a fish fence to prevent the fish from entering the Low Level Intake.
PIP M-09-2216 documents corrosion product detachment from the A RN suction line from the SNSWP and fouling of the 2A RN strainer. During testing with backwash secured, 2A RN strainer dP increased to levels where Operations secured the pump. Long term corrective actions include pending modifications to the strainer backwash system. PIP M-09-3526 documents the SNSWP chemical treatment from July, 2009.

3. Information to show that the cause and proposed path to resolve the situation are understood by the licensee, such that there is a high likelihood that planned actions to resolve the situation can be completed within the proposed NOED time frame.

Response:

The cause of the RN strainer high differential pressure was due to the fish intrusion into the strainers. The resolution of this cause will be to chemically treat the SNSWP to eliminate the fish as a fouling source. Various inspections will be performed and the operability process will be followed to restore the "A" and "B" trains of the RN system no later than January 25, 2011 at noon.

4. The safety basis for the request, including an evaluation of the safety significance and potential consequences of the proposed course of action.

   a. Provide the incremental conditional core damage probability (ICCDP) and incremental conditional large early release probability (ICLERP) associated with the period of enforcement discretion.

      Response:

      Duke Energy has performed a qualitative assessment of the risk of staying in Mode 3 versus transitioning to Mode 5 while both A and B RN trains are not available when aligned to the SNSWP. The trains are available when aligned to the Low Level Intake. During the period of inoperability, the B train will be aligned to the SNSWP for some period of time. The assessment compares the defense in depth available at both modes.

      - In Mode 5, the Residual Heat Removal (RHR or "ND") system is relied upon for core cooling with limited capability to respond to system failures or other risk significant events such as a Loss of Offsite Power (LOOP) event. Shutting down to Mode 5 with a degraded RHR capability will incur significantly more risk than under normal shutdown conditions. There would be only a limited capability to recover from a loss of RHR caused by equipment failures under these conditions.
      - In Mode 3, steam generator cooling would be used to remove decay heat using the Auxiliary Feedwater (CA) System. The CA system would be capable of providing steam generator (S/G) cooling using either the Motor-Driven CA Pump (CAMDP) or the Turbine-Driven CA Pump (CATDP). Having CA available makes the plant more capable of withstanding equipment failures and LOOP events.
      - The CATDP can operate independently of the RN system and independently of the AC power system. Therefore, in the context

of equipment reliability, Mode 3 has greater defense-in-depth and better capability to respond to loss of power scenarios.

- Shutting down to Mode 5 does not alleviate the risk of an earthquake causing a loss of lake event.
- In comparing the relative risk, the probability of an RHR system failure in Mode 5 (leading to core damage) is judged to be greater than the probability of a LOCA/Steam Line Break (SLB) type event in conjunction with a train failure (ECCS, etc.) during Mode 3.
- In regard to reactor coolant pump seal cooling, McGuire has the Standby Shutdown Facility (SSF) Standby Makeup Pump (SBMUP) available to provide an alternate means of seal injection. The SSF SBMUP has an independent power supply and is not dependent on RN cooling.
- Transition risk is avoided.

b. Discuss the dominant risk contributor (cutsets/sequences) and summarize the risk insights for the plant-specific configuration the plant intends to operate in during the period of enforcement discretion.

Response:

The risk associated with staying at Mode 3 is comparable or less than the risk of transitioning to Mode 5 based on the comparison above.

In Mode 3, the risk is dominated by events that lead to a failure of RN and failure of the CATDP or SSF SBMUP.

In Mode 5, the risk is dominated by events that lead to a failure of RN.

c. Explain compensatory measures that will be taken to reduce the risk associated with the specified condition.

Response:

The following compensatory measures are being taken to reduce the risk during the NOED period:

- Two non-licensed Operators have been designated to manually backwash the 1B and 2B RN Strainers upon direction from the Control Room.

In addition, no discretionary maintenance will be performed on the following SSCs (protected equipment):

- CATDP
- SSF SBMUP
- Diesel Instrument Air (VI) Compressors (G & H)

- Protect Containment Ventilation Cooling Water (RV) Pumps and associated breakers

d. Discuss how compensatory measures are accounted for in the PRA. These modeled compensatory measures should be correlated, as applicable, to the dominant PRA sequences identified in Item 4.b above. In addition, other measures not directly related to the equipment out-of-service may also be implemented to reduce overall plant risk and, as such, should be explained. Compensatory measures that cannot be modeled in the PRA should be assessed qualitatively.

Response:

The compensatory actions have not been included in the risk assessment. The compensatory actions are expected to reduce risk by reducing the likelihood that the available RN train(s) will be rendered unavailable. The actions will keep important backup equipment, CATDP, SSF SBMUP, the Diesel VI compressors, and RV Pumps and associated breakers available.

e. Discuss the extent of condition of the failed or unavailable component(s) to other trains/divisions of equipment and what adjustments, if any, to the PRA common cause factors have been made to account for potential increases in the failure probabilities. The method to use to determine the extent of condition should be discussed. It is recognized that a formal root cause or apparent cause is not required given the limited time available in determining acceptability of a proposed NOED. However, a discussion of the likely cause should be provided with an associated discussion of the potential for common cause failure.

Response:

The condition applies to both Units' RN systems when aligned to the SNSWP. This risk exists in both Mode 3 and Mode 5. In Mode 5, there is less backup equipment to mitigate this risk compared to Mode 3.

f. Discuss external event risk for the specified plant configuration. An example of external event risk is a situation where a reactor core isolation cooling pump (RCIC) has failed and a review of the licensee's individual plant examination of external events or full-scope PRA model identifies that the RCIC pump is used to mitigate certain fire scenarios. Action may be taken to reduce fire ignition frequency in the affected areas or reduce human error associated with time critical operator actions in response to such scenarios.

Response:

Seismic events could potentially require both RN trains to be aligned to the SNSWP and potentially render the trains unavailable in either Mode 3 or Mode 5. Therefore, there is no significant risk benefit of going to Mode 5 versus staying at Mode 3 for a seismic event.

For externally induced LOOPs, there is more mitigation equipment available in Mode 3 (CATDP, SSF, etc.) compared to Mode 5.

g. Discuss forecasted weather conditions for the NOED period and any plant vulnerabilities related to weather conditions.

Response:

Based upon the forecast and the current status of the plant equipment there are no vulnerabilities expected due to weather conditions for the NOED period.

In general, winter weather is not a significant concern unless significant ice buildup on power lines is expected. The forecast does not call for significant icing.

5. The justification for the duration of the noncompliance.

Response:

The period of enforcement discretion to not comply with LCO 3.0.3 is viewed to be necessary and adequate for completing the maintenance and administrative activities necessary for returning the inoperable trains to operable status.

6. The condition and operational status of the plant (including safety-related equipment out of service or otherwise inoperable).

Response:

Duke Energy has reviewed the Technical Specifications, the plant Operating Schedule, and the Work Management System. The B Control Room Area Chiller is currently inoperable for planned maintenance and will be returned to service by Sunday January 23, 2011. Required surveillances will continue to be performed. All other work will be approved through Operations.

7. The status and potential challenges to off-site and on-site power sources.

Response:

There are no activities scheduled in the switchyard or on the plant transformers that will adversely affect risk during the proposed period of enforcement discretion. Administrative controls would require that any emergent activities relating to risk significant items related to this determination be reevaluated. As discussed in 4.f, additional LOOP mitigation equipment is available in Mode 3 versus Mode 5.

8. The basis for the licensee's conclusion that the noncompliance will not be of potential detriment to the public health and safety.

Response:

Duke Energy performed a qualitative PRA risk assessment to support this NOED request. This assessment determined that remaining at Mode 3 during the period of non-compliance, compared to transitioning to Mode 5, is comparable or favorable in regards to the radiological risk to the public. This analysis involved a comparison of risks and mitigation equipment available in Mode 3 and Mode 5. There are improvements in risk for some events (e.g., LOOP). Further, there are no activities affecting the supporting systems and equipment, including offsite and onsite power sources that will adversely affect risk during the non-compliance period. Any emergent activities relating to risk significant items would require this determination to be reevaluated.

9. The basis for the licensee's conclusion that the noncompliance will not involve adverse consequences to the environment.

Response:

The SNSWP will be treated with "Chemfish" to eradicate any fish. Chemfish contains the active ingredient "Rotenone". Rotenone is not toxic to wildlife other than fish. It works by prohibiting the uptake of oxygen through the gills of the fish.

The SNSWP level will be lowered to keep it from overflowing to the Waste Water Collection Basin (WWCB). The WWCB typically overflows to the Catawba River as one of the NPDES Permitted discharges. A barrier has been established for keeping the Rotenone from getting to the river by lowering the level of the WWCB to 3-5 feet below the overflow pipe. This configuration will be maintained until it has been determined that the Rotenone is no longer persistent in the SNSWP. Confirmation that the Rotenone is no longer persistent is obtained by placing live fish into the pond in a cage and checking them at various times to make sure they are still alive. Once they have survived four hours and are healthy, it can be concluded that the toxic effect of the Rotenone is no longer present. It is anticipated that the Rotenone will be persistent in the SNSWP for one to two months.

Discharges of water from the SNSWP will be operationally controlled.

Based on the above considerations, this request for enforcement discretion will not result in any significant changes in the types, or significant increase in the amounts, of any effluents that may be released offsite. In addition, no significant increase in individual or cumulative occupational radiation exposures will be involved as a result of the request.

Therefore, it can be concluded that the NRC's granting of this request for enforcement discretion will not involve any adverse consequences to the environment.

10. A statement that the request has been approved by the facility organization that normally reviews safety issues (Plant On-site Review Committee, or its equivalent).

Response:

This NOED request was reviewed and approved by the McGuire Plant Operations Review Committee (PORC) on January 20, 2011.

11. The request must specifically address which of the NOED criteria for appropriate conditions specified in Section B is satisfied and how it is satisfied.

Response:

Duke Energy is submitting this NOED request in accordance with NRC Inspection Manual Part 9900 Technical Guidance, "Operations – Notices of Enforcement Discretion," and is requesting discretion based on Section B.2.1, "Situations Affecting Radiological Safety – Regular NOEDs," Criterion 1.a. This criterion applies to plants in power operation desiring to avoid unnecessary transients as a result of compliance with the license condition and, thus, minimize the potential safety consequences and operational risks. The safety consequences and operational risks for McGuire were reviewed as a part of this NOED request and are documented within this submittal.

12. Unless otherwise agreed as discussed in Section B, a commitment is required from the licensee that the written NOED request will be submitted within two working days and the follow-up amendment will be submitted within four working days of verbally granting the NOED. The licensee's amendment request must describe and justify the exigent circumstances (see 10 CFR 50.91(a)(6)). The licensee should state if staff has agreed during the teleconference that a follow-up amendment is not needed. If the licensee intends to propose a temporary amendment, the licensee's amendment request shall include justification for the temporary nature of the requested amendment.

Response:

Based on the infrequency of this issue, Duke Energy does not believe a follow-up License Amendment for a permanent change to the Completion Time for the affected TSs within four days is necessary. In addition, as a result of recent changes for Risk-Informed License Amendments in accordance with Regulatory Guide 1.200, "An Approach for Determining the Technical Adequacy of

Probabilistic Risk Assessment Results for Risk-Informed Activities," Revision 2 which became effective April 1, 2010, it would take Duke Energy several months or more to develop, review, and submit a Risk-Informed permanent change to the affected TSs.

As discussed during the NOED conference call, the previously committed modifications should further reduce the potential for a need to revise the Technical Specifications. In a letter to the NRC dated October 1, 2009, Duke Energy committed to enhancing portions of the RN strainer backwash function necessary to fully conform to the current licensing basis. In a subsequent letter, dated December 7, 2009, Duke Energy responded to NRC requests for additional information and provided brief descriptions of the three modifications that will be completed to fully restore the RN backwash function.

The first modification added an assured air source to the backwash inlet valves to allow the NSWS Strainers to automatically back wash for at least eight hours into a loss of VI event. This modification eliminated time critical operator actions required to operate the back wash supply inlet valve during the potential loss of instrument air event. This modification has been completed.

The second modification will re-route the backwash return piping to provide a less restrictive flow path for RN strainer backwash return to the ground water sump system. This modification is currently in progress.

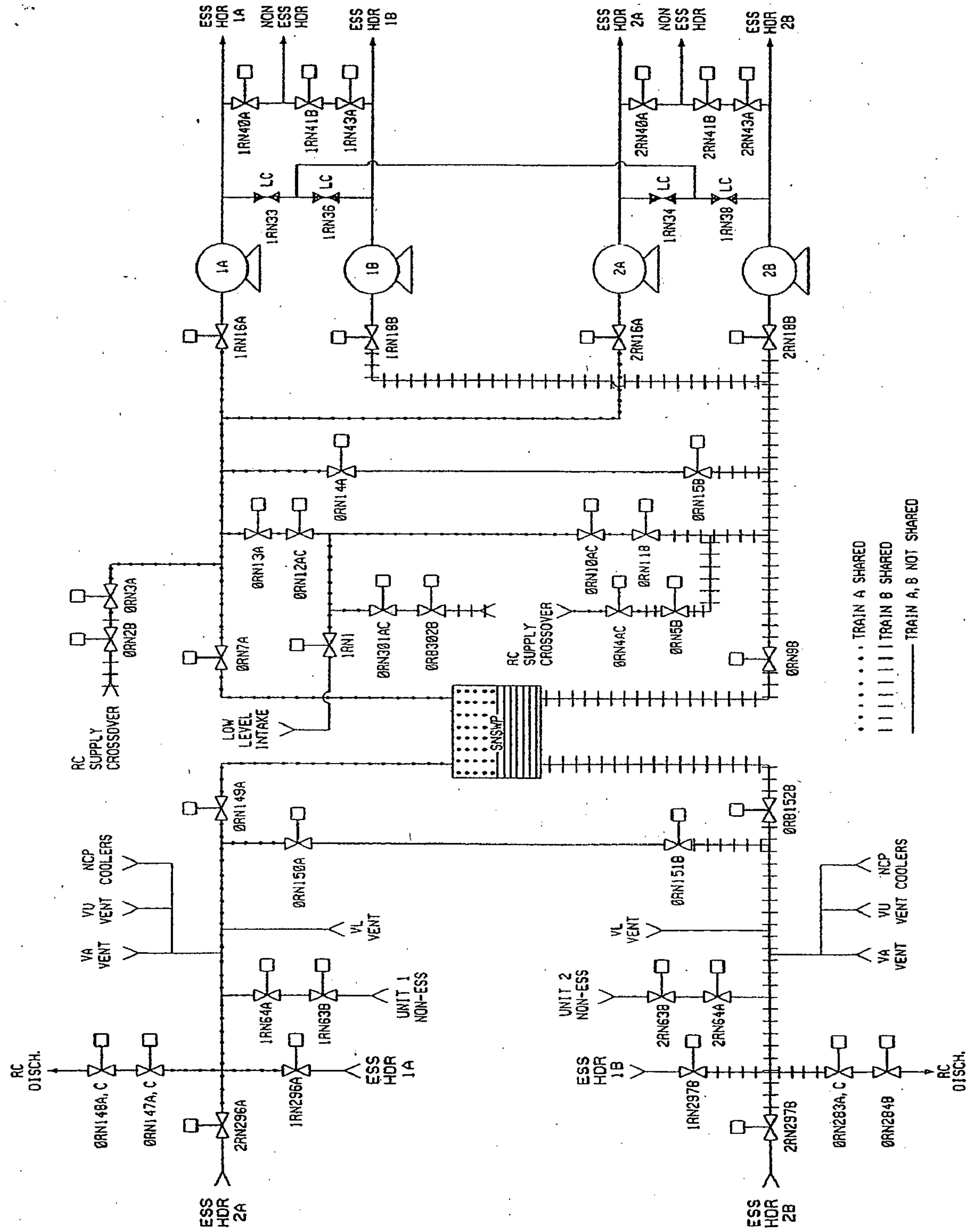
The third modification will install a new nuclear safety related back wash discharge pump to the NSWS return header for each of the four RN trains. This will restore functionality of backwash return flow and ensure there will be no depletion of the SNSWP by routing the discharge back to the backwash source of water.

13. In addition to items 1-12 above, for a severe-weather NOED request the licensee must provide additional specified information.

<u>Response:</u>

This is not a severe-weather NOED request. Weather considerations are discussed in Item 4.g.

Figure 1: Nuclear Service Water System



Note: RN is the McGuire system designation for the Nuclear Service Water System