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May 4, 2010

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

Subject: Duke Energy Carolinas, LLC
William States Lee III Nuclear Station - Docket Nos. 52-018 and 52-019
AP1000 Combined License Application for the
William States Lee III Nuclear Station Units 1 and 2
Response to Request for Additional Information (RAI No. 4507)
Ltr# WLG2010.05-01

Reference: Letter from Tanya Simms (NRC) to Peter Hastings (Duke Energy), Request for Additional Information Letter No. 089 Related to SRP Section 09.03.03 for the William States Lee III Units 1 and 2 Combined License Application, dated March 29, 2010

This letter provides the Duke Energy response to the Nuclear Regulatory Commission's request for additional information (RAI) included in the referenced letter.

The response to the NRC information request described in the referenced letter is addressed in a separate enclosure, which also identifies associated changes, when appropriate, that will be made in a future revision of the Final Safety Analysis Report for the Lee Nuclear Station.

If you have any questions or need any additional information, please contact Peter S. Hastings, Nuclear Plant Development Licensing Manager, at 980-373-7820.

Bryan J. Dolan
Vice President
Nuclear Plant Development

D093
NRO

Enclosure:

1) Duke Energy Response to Request for Additional Information Letter 089, RAI 09.03.03-001

AFFIDAVIT OF BRYAN J. DOLAN

Bryan J. Dolan, being duly sworn, states that he is Vice President, Nuclear Plant Development, Duke Energy Carolinas, LLC, that he is authorized on the part of said Company to sign and file with the U. S. Nuclear Regulatory Commission this supplement to the combined license application for the William States Lee III Nuclear Station and that all the matter and facts set forth herein are true and correct to the best of his knowledge.

Bryan J. Dolan

Subscribed and sworn to me on May 4, 2010

Notary Public

My commission expires: April 19, 2015

SEAL

xc (w/o enclosure):

Loren Plisco, Deputy Regional Administrator, Region II
Jeffrey Cruz, Branch Chief, DNRL

xc (w/ enclosure):

Brian Hughes, Senior Project Manager, DNRL

Lee Nuclear Station Response to Request for Additional Information (RAI)

RAI Letter No. 089

NRC Technical Review Branch: Balance of Plant Branch 1 (SBPA)

NRC RAI Number: 09.03.03-001

NRC RAI:

In AP1000 DCD, Revision 15, the waste water retention basin design features were included as part of the AP1000 certified design. In Revision 16, Westinghouse removed the waste water retention basin from the DCD and identified it as COL Information Item 9.2.11.2, "Waste Water Retention Basins."

In order to meet GDC 60, applicant should demonstrate suitable control of the release of radioactive materials in liquid effluent. Provide a discussion on whether all site-specific potentially radioactive effluents draining into and downstream of the water basin will be monitored prior to disposition. Provide justification for not providing water level instrumentation and radiation monitoring in the wastewater retention basin and blowdown sump.

Verify that all site-specific potentially radioactive effluents will be monitored prior to disposition. Or provide a justification for why this information is not necessary. Update FSAR accordingly.

Duke Energy Response:

The wastewater retention basin (WWRB) receives influent from the turbine building sump pumps via the associated oil separator. Radioactive contamination of this water is not expected; however, as discussed in DCD Section 9.2.9.2.1, Revision 17, a radiation monitor (described in DCD Subsection 11.5.2.3.3 as monitor WWS-JE-RE021) is located on the common discharge piping of the turbine building sump pumps. The monitor provides an alarm in the control room upon detection of radioactivity above a preset high level point in the waste water. The radiation monitor also trips the turbine building sump pumps on detection of radioactivity to isolate the contaminated waste water. Provisions are included for sampling the turbine building sumps.

There are several waste water system (WWS) lines that are within the scope of the certified design that bypass this radiation monitor. These sources of influent to the WWRB were discussed in the response to Westinghouse AP1000 RAI-SRP9.3.3-SBPA-02 (ML081760196), and are summarized below:

1. Diesel Fuel Area Sumps

   The diesel fuel area sump pumps discharge to the WWS oil separator and bypass the WWS radiation monitor. This effluent does not interact with any potentially radioactive sources

during operation, nor are there any recognized radioactive sources located in the vicinity of this portion of the WWS.

2. Service Water System (SWS) Cooling Tower Blowdown

   The SWS blowdown can be routed to the WWRB as an alternative to the circulating water system (CWS) cooling tower basin (Ref. DCD Figure 9.2.1-1). The SWS blowdown is equipped with a radiation monitor (described in DCD Subsection 11.5.2.3.1 as monitor SWS-JE-RE008). If radiation is detected, this monitor initiates an alarm in the main control room, and blowdown flow to the cooling tower can be isolated by remote manual control. Provision is also made for taking local fluid samples.

3. SWS Strainer Backflush

   The SWS strainer backflush is routed to the WWRB. The SWS radiation monitor described above (SWS-JE-RE008) will initiate an alarm in the control room, if radiation is detected. Automatic strainer backwash operation is temporarily disabled in the event of an alarm.

4. CWS Strainer Backflush

   The CWS piping to the turbine building closed cooling water system (TCS) is provided with a strainer to prevent fouling of the TCS heat exchangers. The backflush from this strainer is routed to the WWRB. Radiation monitoring of the CWS is not required, because all systems interfacing with CWS that have plausible potential for contamination are provided with radiation monitoring. Also, the CWS is operated at a higher pressure than the condenser precluding any potential contamination coming from the condenser.

For Lee Units 1 and 2 there are no additional "site specific" influent streams to the WWRB outside of those associated with the certified design. All influent streams with a potential to become radioactively contaminated are monitored as discussed above; therefore, no additional radiation monitoring is required.

Effluent from each WWRB is discharged to the common blowdown sump via the basin transfer pumps and associated piping.

At the blowdown sump the waste water stream mixes with the high volume CWS blowdown stream. As discussed in the Westinghouse response to RAI-SRP9.3.3-SBPA-02, all systems interfacing with the CWS that have plausible potential for radioactive contamination are provided with radiation monitoring. Additionally, as described in DCD Subsection 10.4.5.2.3, passage of condensate from the main condenser into the CWS through a condenser tube leak is not possible during power generation operation, because the CWS operates at a greater pressure than the condenser. There are site specific local chemical addition lines used to inject chemicals from local tanks into the CWS cooling tower basin, however, these lines do not interact with any potentially radioactive areas or sources. Therefore, no additional radiation monitoring of the CWS blowdown stream is provided.

As discussed in FSAR Subsection 9.2.11.3.5, an influent stream from the raw water supply subsystem of the raw water system (RWS) supplies an alternate source of dilution water to the WWS, via the blowdown sump, for diluting the liquid radwaste system (WLS) effluent stream when the normal dilution source, CWS blowdown, is not available. The alternate dilution flow comes directly from the Make-Up Pond A intake and does not interact with any recognized radioactive sources; therefore, no radiation monitoring of this influent stream is provided. The blowdown sump is open to atmosphere and, as shown on FSAR Figure 1.1-202, is located on the east side of the site at an elevation approximately 60 feet above the Broad River. The blowdown sump mixes CWS blowdown (and, if required, RWS) with discharge from WWS. Subsection 9.2.9.2.2 of the FSAR will be revised to include a description of the blowdown sump.

As described in Duke Energy Response to Request for Additional Information Letter 064, RAI 09.02.01-5 (Reference 1), the combined dilution flow gravity drains from the blowdown sump through an outfall pipe to the Ninety-Nine Islands dam on the Broad River. At the dam, the dilution flow is mixed with WLS (Liquid Radwaste) effluent from each unit and discharged to the environment through a diffuser mounted on the upstream side of the dam. There are no valves on the outfall piping between the blowdown sump and the dam, so the elevation difference between the sump and the river prevents WLS cross-contamination of the blowdown sump. As discussed in DCD Subsection 11.5.2.3.3, the WLS liquid releases are made in batches that are mixed thoroughly and sampled prior to discharge. The WLS line is equipped with a radiation monitor (described in DCD Subsection 11.5.2.3.3 as monitor WLS-JE-RE229). No additional radiation monitoring of the blowdown sump effluent stream is required.

Therefore, no additional monitoring of the influent streams to the WWRB, the blowdown sump or the outfall pipe is required.

The WWRB will be equipped with level instrumentation used to control the WWRB transfer pumps and to alarm when the basin level reaches a point where operator action is required. Each WWRB is located approximately 850 feet north of the associated power block. The normal WWRB water level in the basin is at or below grade. Site grading and the distance between the basins and the power block ensures that there will be no adverse impact on safety related or Regulatory Treatment of Non-Safety Systems (RTNSS) structures, systems or components in the unlikely event of an overflow of the WWRB.

The blowdown sump outfall pipe is sized with adequate capacity to gravity drain the blowdown sump at the highest anticipated influent flow rate. Therefore no level instrumentation is provided at the blowdown sump. The blowdown sump is located well away from the power block (approximately 1125 feet). Site drainage features ensure that there will be no impact on safety related or RTNSS structures, systems or components in the unlikely event of an overflow of the sump.

Subsection 9.2.9.5 of the FSAR will be revised to include information regarding WWRB level instrumentation.

Reference:

1. Letter from Bryan Dolan to the NRC, dated May 15, 2009, "Request for Additional Information (RAI No. 1922)," (ML091400207)

Associated Revisions to the Lee Nuclear Station Final Safety Analysis Report:

WLS COLA Part 2, FSAR Table 1.8-203, will be revised (following the associated revision to the DCD) to add the following new item No. 9.8:

Item No.	Interface	Interface Type	Matching Interface Item	Section or Subsection[(a)]
9.8	Requirements for location and waste water retention basins and associated plant outfall	NNS	Site implementation	9.2.9

WLS COLA Part 2, FSAR Subsection 9.2.9 will be revised as follows:

Add the following paragraph to the end of FSAR Subsection 9.2.9.2.2.

Blowdown Sump

A blowdown sump common to both Units 1 and 2 receives input from the wastewater retention basins and the circulating water system (CWS) cooling tower blowdown. The blowdown sump is located to the east of Units 1 and 2, outside of the protected area. A connection with the raw water supply subsystem of the raw water system provides an alternate dilution source to the blowdown sump. The blowdown sump outfall piping is sized to prevent sump overflow during maximum inlet flow to the sump.

9.2.9.5 Instrumentation Applications

Add the following paragraph at the end of DCD Subsection 9.2.9.5.

Level instrumentation is provided at the waste water retention basin and is used to control operation of the basin transfer pumps. High level alarms indicate the basin level where operator action is required.