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October 17, 2008

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
Ltr# WLG2008.10-08

Reference: Letter from J.M. Muir (NRC) to B.J. Dolan (Duke Energy), *Request for Additional Information Regarding the Environmental Review of the Combined License Application for William States Lee III Nuclear Station Units 1 and 2*, dated August 21, 2008

This letter provides the Duke Energy response to the Nuclear Regulatory Commission's (NRC) requests for the following additional information (RAI) items listed in the reference letter:

RAI 74, Terrestrial Ecology
RAI 76, Terrestrial Ecology
RAI 81, Terrestrial Ecology
RAI 92, Ecology
RAI 99, Ecology
RAI 102, Need For Power
RAI 103, Need For Power

A response to each NRC request is addressed in an enclosure which also identifies any associated changes that will be made in a future revision of the William States Lee III Nuclear Station application.

DO93
NRO

This letter includes, as a separate enclosure, a disk that contains a portion of the following Attachment as cited as being included with that Attachment:

- Enclosure No. 2 - Response to RAI 76, Attachment 76-1 (Bathymetric Study Data Files)

As requested by and discussed with the NRC Staff, the data files provided on the attached disk are in Excel™ and Sounder™ files. Conversion to pdf files would not meet the needs of the NRC staff, which is to allow the analysis of raw data.

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

Enclosures:

1. Response to RAI 74, Terrestrial Ecology
2. Response to RAI 76, Terrestrial Ecology
3. Response to RAI 81, Terrestrial Ecology
4. Response to RAI 92, Ecology
5. Response to RAI 99, Ecology
6. Response to RAI 102, Need For Power
7. Response to RAI 103, Need For Power

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.

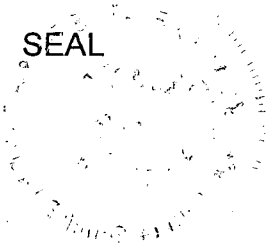
Bryan J. Dolan

Subscribed and sworn to me on October 17, 2008

Phoebe P. Elliott
Notary Public

My commission expires: June 26, 2011

SEAL



xc (wo/enclosures):

Michael Johnson, Director, Office of New Reactors
Gary Holahan, Deputy Director, Office of New Reactors
David Matthews, Director, Division of New Reactor Licensing
Scott Flanders, Director, Division of Site and Environmental Reviews
Glenn Tracy, Director, Division of Construction Inspection and Operational Programs
Luis Reyes, Regional Administrator, Region II
Loren Plisco, Deputy Regional Administrator, Region II
Thomas Bergman, Deputy Division Director, DNRL
Stephanie Coffin, Branch Chief, DNRL

xc (w/enclosures):

Linda Tello, Project Manager, DSER
Brian Hughes, Senior Project Manager, DNRL

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

RAI Letter Dated: August 21, 2008

Reference RAI Number: ER RAI-74

NRC RAI:

Provide a summary of work periods associated with construction that will minimize impacts to migratory birds during nesting season.

Duke Energy Response:

Minimizing the direct impact of heavy construction equipment on ground-nesting bird species, including those covered by the Migratory Bird Treaty Act, and the possible indirect disturbance of other nesting species would require limiting the use of such equipment during the period from spring to early summer. Accordingly, clearing and grubbing with heavy equipment would be scheduled to avoid the nesting season as much as possible. If avoidance proves infeasible, Duke Energy would expect to consult further with the U.S. Fish and Wildlife Service concerning issuance of an incidental take permit, which would allow construction activity to proceed as required by the overall construction schedule.

Associated Revisions to the Lee Nuclear Station Combined License Application:

Revise COLA Part 3, ER Chapter 4, Subsection 4.3.1.1.3, by inserting new Paragraph 22, as follows:

Construction activities could affect the productivity of nesting birds. Parent birds can desert eggs or young, but the potential for nest desertion varies among species and is more likely early in the nesting season rather than after the young have hatched. Other potential effects from disturbance include (1) damage to eggs and young by frightened adults, (2) cooling, overheating, and loss of moisture from eggs or young if adult birds remain away from nests too long,(3) missed feedings of chicks, (4) premature fledging of older nestlings, and (5) increased exposure to predators if adults leave nests unattended. As also discussed elsewhere in this subsection, these impacts are experienced at the level of the individual or small groups of individuals. The likelihood that such losses on the site would influence population levels in the general area is negligible. This is considered to be a SMALL impact on populations of common species.

Minimizing the direct impact of heavy construction equipment on ground-nesting bird species, including those covered by the Migratory Bird Treaty Act, and the possible indirect disturbance of other nesting species would require limiting the use of such equipment during the period from spring to early summer. Accordingly, clearing and grubbing with heavy equipment would be scheduled to avoid the nesting season as much as possible. If avoidance proves infeasible, Duke Energy would expect to consult further with the U.S. Fish and Wildlife Service concerning issuance of an incidental take permit, which would allow construction activity to proceed as required by the overall construction schedule.

Associated Attachments:

None

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

RAI Letter Dated: August 21, 2008

Reference NRC RAI Number: ER RAI-76

NRC RAI:

Provide the following documents:

- Summary of Bathymetry Study, prepared by Enercon, 2006. Including DVD of Lee Site files.
- Detailed Bathymetry Report, prepared by DTA, 2008.

Duke Energy Response:

The requested information is attached. The 2006 bathymetry is described in the June 2008 report (Attachment 76-1).

Following the completion of bathymetry work, the Lee Nuclear Station pond names were changed. To avoid confusion, a summary of the former pond names and corresponding current pond names used in the Environmental Report are provided below:

Low Flow Reservoir (LFR) = Make-Up Pond B

Intake Sedimentation Basin (ISB) = Make-Up Pond A

Auxiliary Holding Pond = Hold-Up Pond A

Associated Revisions to the Lee Nuclear Station Combined License Application:

None

Associated Attachments:

Attachment 76-1: Duke Lee Nuclear Station, Combined License Application Project, Bathymetry Study for the COL Application. Enercon, June 2008. Compact disc containing Lee site bathymetric files included.

Attachment 76-2: Ninety-Nine Islands Bathymetry and Velocity Study Report. Devine Tarbell & Associates, May 2008.

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

RAI Letter Dated: August 21, 2008

Reference RAI Number: ER RAI 81

NRC RAI:

Are the ponds located just south of Make-up Pond A (see Environmental Report Figure 2.4-1) connected hydrologically to Make-up Pond A (e.g., via a culvert or semi-permeable material, etc.). If so, provide a bathymetric map with surface water elevations for these ponds. This is in relation to evaluating impacts to wetlands.

Duke Energy Response:

The area south of the Spoil Dam shown in Attachment 81-1, Figure 1 (taken from Environmental Report Figure 2.4-1) is in a natural draw that splits into two drainage arms and was used to spoil material during site work conducted in the late 1970s and early 1980s prior to the cancellation of the Cherokee Nuclear Project.

A section though the Spoil Dam shows the approximate crest of the dam and the level of the spoil sloped toward the dam at 1%. The estimated final spoil level is approximately 572 ft as seen on Attachment 81-1, Figure 2. There is no internal drainage system in the Spoil Dam that would connect the spoil area to the Make-Up Pond A.

Based on 2006 high resolution aerial photographs and one-ft contour topography, there is currently approximately 29 ft difference (El 575.9- 546.7) between the ponded water south of the dam and the elevation of water in Make-up Pond A. The difference between these two levels leads to the conclusion that the spoil area is behaving as a "perched" water table with little or no connectivity between the two water levels. The spoil material is effectively acting as a liner and limiting the seepage to maintain a shallow pond fed by natural occurring inflows. Under these existing conditions, lowering the water level of Make-Up Pond A would not be expected to have any significant influence on the water level in the spoil area.

Associated Revisions to the lee Nuclear Station Combined License Application:

None

Associated Attachment:

Attachment 81-1. Figure 1 Cut from Figure 2.4-1 Ecological Type Map of the Lee Nuclear Site Rev 0

Figure 2 Section Through the Spoil Dam

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

Attachment 81-1 to RAI 81

Figure 1 Cut from Figure 2.4-1 Ecological Type Map of the Lee Nuclear Site Rev 0

Figure 2 Section Through the Spoil Dam D

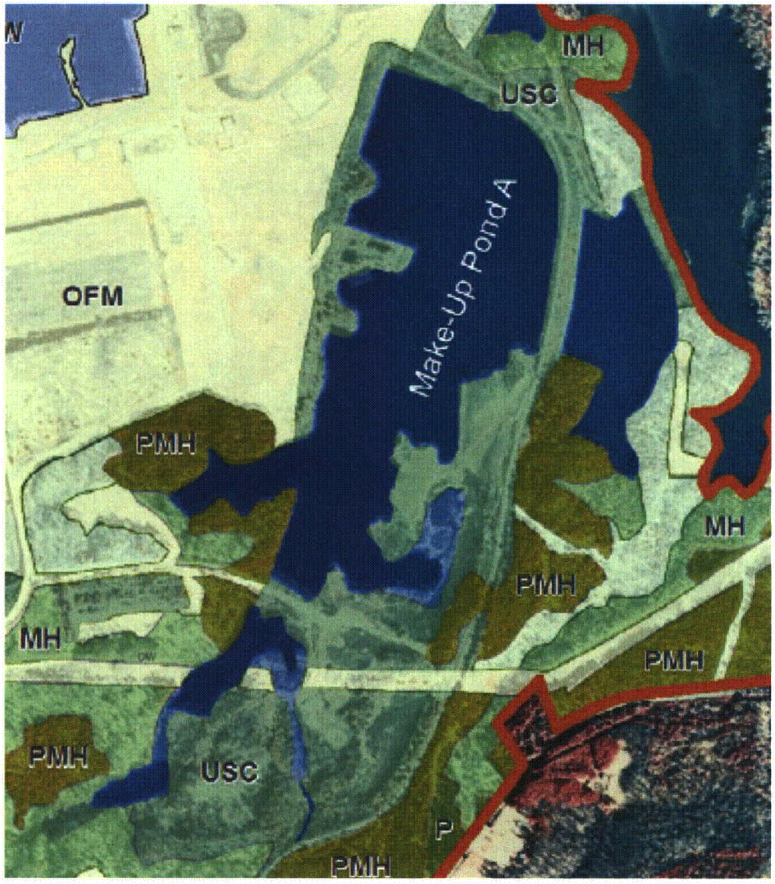


Figure 1 - Cut from Figure 2.4-1 Ecological Type Map of the Lee Nuclear Site Rev 0

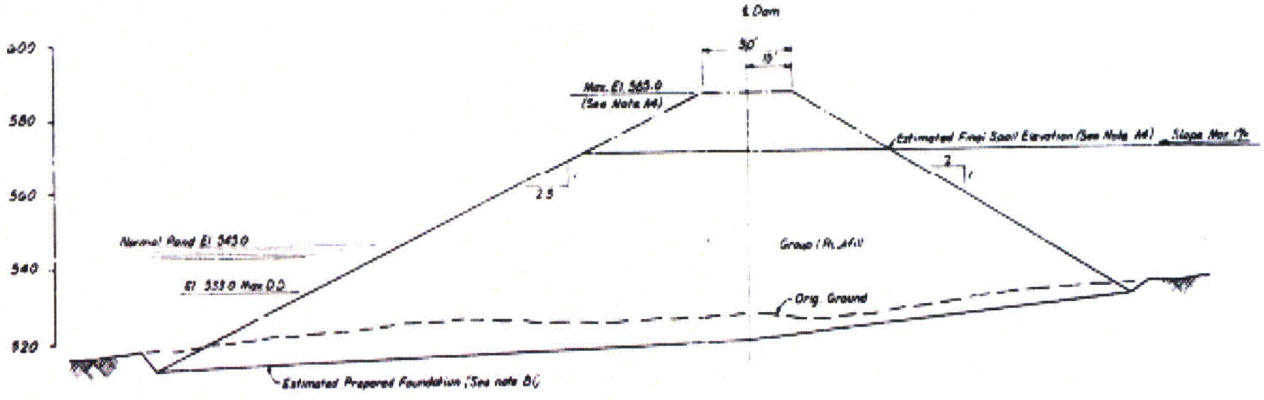


Figure 2 - Section Through the Spoil Dam

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

RAI Letter Dated: August 21, 2008

Reference NRC RAI Number: ER RAI-92

NRC RAI:

Once the plans are finalized for fish management in Make - Up Ponds A and B (fish removal and possibly fish - friendly intake screens), provide summary of these plans. If fish removal is required, provide the plans for fish management in the make up ponds. Include how deep and how often the ponds would need to be drawn down to remove fish.

Duke Energy Response:

Detailed information concerning the intake designs for Make-Up Pond A and B are provided in the response to ER RAI-55.

Duke Energy is still engaged in National Pollutant Discharge Elimination System (NPDES) permit discussions with the South Carolina Department of Health and Environmental Control (SCDHEC) concerning the use of onsite Make-Up ponds A and B and related ecological issues. Once these discussions are completed and plans for the use of the ponds have been finalized and approved by SCDHEC, the applicant will provide these plans to the NRC.

Associated Revisions to the Lee Nuclear Station Combined License Application:

None

Associated Attachments:

None

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

RAI Letter Dated: August 21, 2008

Reference RAI Number: ER RAI-99

NRC RAI:

What inputs to the PAVAN code change in going from Rev 15 to Rev 16 of the AP1000 DCD. Provide revised X/Q values (i.e., revise Table 2.7 - 79) that utilize the AP1000 Rev 16 design. Discuss what impact the revised X/Q values have on DBA doses presented in Tables 7.1 - 13 through 7.1 - 22 of the Environmental Report.

Duke Energy Response:

The PAVAN atmospheric dispersion (X/Q) analysis is based on AP1000 Design Control Document (DCD) Revision 15 and hourly meteorological data collected at the Lee Nuclear Station Site for the year beginning December 1, 2005 and ending November 30, 2006. A sensitivity study evaluated the impact of the DCD Revision 16 changes on the calculation results. The sensitivity study concluded that the impacts of the DCD Revision 16 changes on the Lee Nuclear Station accident χ/Q values are negligible; therefore, no changes to the Environmental Report are required. In addition, there is no impact to DBA doses presented in Tables 7.1 - 13 through 7.1 - 22 of the Environmental Report.

Differences between the current evaluation, based on DCD Revision 15, and the sensitivity study, based on DCD Revision 16, are described below.

Reduced Building Height

The reactor building height changed from 71.3 m in Revision 15 (Table 3.3-1, Tier 1 Material) to 69.8 m in Revision 16 (Table 3.3-1, Tier 1 Material). The reactor building height is used for two purposes in the atmospheric dispersion calculation. It is used for the height of the release, and it is used in a conservative determination of building area. Both of these parameters are used in the determination of building wake effects on atmospheric dispersion. The DCD Revision 16 inputs resulted in an approximate 2 percent difference in both the height of the release and the building area.

Distances to Receptors

Another slight change from implementation of DCD Revision 16 is in the distances to the discrete receptor locations. Figure 15A-1 of AP1000 DCD Revision 15 and the site layout for Lee Nuclear Station Units 1 and 2 given in Final Safety Analysis Report (FSAR) Figure 1.1-202 show that a circle with a radius of 168 m (550 ft.), centered on the site Base Line X and Y coordinates, conservatively encompasses all release locations for both units used in the Westinghouse accident dose analysis. The radius of the circle encompassing the release locations was used to determine conservative EAB distances for each of the 16 direction sectors.

Figure 15A-1 from Westinghouse drawing APP-0000-N5-301 replaces the fuel building rail bay door with a new release location, the Radwaste Building Truck Staging Area door, which for Unit 1 is slightly farther away from the site center. Also, the Condenser Air Removal (CAR) stack is relocated so that, for Unit 1, it is farther away from the site center. When the new release locations are considered in the determination of the radius of a circle encompassing all release locations for both units, a circle with a radius of 175 m (575 ft.) is needed. This new radius of the circle encompassing the release locations was used to determine the revised EAB distances for

each of the 16 direction sectors in the sensitivity study. This change results in approximately a 1 percent decrease in the distance from the circle encompassing all release locations to the EAB. The distances to the EAB, based on Revision 15 of the DCD, are given in ER Table 2.7-78. The distances to the EAB, based on Revision 16 of the DCD, are given below:

Exclusion Area Boundary (EAB) Distances
[From inner 175 m (575 ft.) radius circle encompassing all site release points]

Direction	Distance (ft.)	Distance (m)
S	4551	1387
SSW	4551	1387
SW	5050	1539
WSW	5386	1642
W	3939	1201
WNW	3939	1201
NW	3960	1207
NNW	2167	661
N	2088	636
NNE	2088	636
NE	2288	697
ENE	3099	945
E	4182	1275
ESE	5040	1536
SE	4368	1331
SSE	4368	1331

Results of Sensitivity Study

The 50 percent probability EAB χ/Q value, 6.64E-05 sec/m^3, is unchanged from the value presented in the FSAR, based on data from Revision 15 of the DCD. This result is the same because it is based on a conservative upper envelope of the ordered χ/Q frequency values.

The 50 percent probability LPZ χ/Q values, based on the revised DCD Revision 16 input, are given in the table below. Comparison of these results with the results based on DCD Revision 15 input shows that there are only slight changes to the LPZ values. The most significant change, which is only 0.7 percent, is in the 96 – 720-hour LPZ value.

Comparison of
50 Percent Probability-Level LPZ χ/Q Values (sec/m^3)

	0 – 8 hrs	8 – 24 hrs	24 – 96 hrs	96 – 720 hrs
LPZ (Revision 15)	8.60E-06	7.29E-06	5.10E-06	3.05E-06
LPZ (Revision 16)	8.61E-06	7.30E-06	5.11E-06	3.07E-06

Based on these results, it can be concluded that the impacts of the DCD Revision 16 changes on the Lee Nuclear Station 50 percent probability level χ/Q values are negligible.

Associated Revision to the Lee Nuclear Station Combined license Application:

None

Associated Attachments:

None

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

RAI Letter Dated: August 21, 2008

Reference RAI Number: ER RAI 102

NRC RAI:

What is the known or planned capacity and capacity additions within their service area, or in neighboring subregions where direct connection via high voltage transmission (>230 kV) would allow movement of power into the service area?

Duke Energy Response:

See Section 9.2.1 of the ER for a discussion of why Duke Energy does not believe it is appropriate to rely on purchased power for baseload capacity. However, in response to this request, a listing of existing intermediate and baseload non-regulated generation units greater than 100 MWs in Duke Energy Carolinas' Balancing Authority Area and in the PJM Interconnection (PJM), Southern, and Progress Balancing Authority Areas were reviewed. PJM, Southern, and Progress are the Balancing Authority Areas that are directly interconnected to the Duke Balancing Authority Area by high voltage transmission (>230 kV). Excluding combustion turbines, units with high capacity factors (indicating existing utilization), older units with very high heat rate and units that had firm contracts, the table below summarizes the total capacity that may be available for transport into Duke Energy Carolinas service territory.

	Coal (MW)	Combined Cycle (MW)	Total (MW)
PJM	2000	7,900	9,900
Southern	0	3,000	3,000

Duke does not have information on whether the capacity is committed or uncommitted. There could also be limited transmission access or transmission constraints that otherwise limit the opportunity to deliver this generation to the Carolinas. Therefore, no conclusions can be drawn regarding whether any of this capacity would be a viable alternative to the proposed project.

Associated Revisions to the Lee Nuclear Station Request for Additional Information:

None

Associated Attachments:

None

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

RAI Letter Dated: August 21, 2008

Reference RAI Number: ER RAI 103

NRC RAI:

How does the proposed new capacity associated with the Lee plant fit with regional power planning references?

The SERC reserve and capacity margin projections out to 2016 suggest that all margins are expected to be maintained; estimates are provided in the NERC Long Term Reliability Assessment and SERC Regional Summary (July 2007) with one reference to 1600 MW of nuclear capacity interconnected in 2015. Reconcile the discrepancy and/or account for the VACAR specific reference to the 1600 MW of capacity in 2015 (if this is the Applicant's, both the MW rating and timeline are incorrect with stated information in the Environmental Report).

Concurrently, Duke is requested to re - assess or reconcile the discrepancy between Section 8.3-3 of the ER and pages 35-36 of the IRP. Address the current and pending CPCN proceedings, the expected firm capacity from the Cliffside Station, Buck, and Dan River Combined Cycle Units, and capacity and reserve margin estimates year over year through Lee Nuclear Station commercial operation. (Example: Cliffside Station CPCN requested 1,600 MW; was issued 800 MW; and the IRP margin analysis shows 1,600 MW).

Duke Energy Response:

The RAI references SERC data. The SERC section of the NERC 2007 Long-Term Reliability Assessment includes a table that shows the "Current Status of Generation Plant Development." The table shows the following additional generation by 2016 (the last year of data):

- 27,858 MWs of "Interconnection Service Requested, Only." Of this total,
  - 17,067 MWs are Designated as Network Resource or has obtained firm PTP Transmission Service, and
  - 10,087 MWs are "uncommitted."
- 16,181 MWs of "Interconnection Agreement Signed/Filed." Of this total,
  - 8,907 MWs are Designated as Network Resource or has obtained firm PTP Transmission Service, and
  - 6,670 MWs are "uncommitted."

The text referencing the table notes that "Requests reported as 'signed/filed' are assumed to have a somewhat higher probability of being built than those listed as 'requested only.'" The generation capacity included in the table may not be built or may be committed prior to operation. For example, the list includes Duke Energy Carolinas' proposed generation additions of 3,155 MW of peaking and intermediate and 1960 MW of baseload of which only 2,040 MWs are firm projects. While the SERC section of the report includes the statement, "If the proposed generation described [above] is completed, installed generation could exceed forecast peak demand by almost 68,000 MWs in 2016...This is significantly more than the generation capability needed for

reliability/adequacy in the region....", there is no way of knowing how much of the generation will be built and how much will be committed or uncommitted. If each utility concluded from the report that it did not need to construct capacity on this basis, there would likely be a serious shortfall of generation capacity.

Duke Energy Carolinas included 1160 MW in 2016 with regard to the Lee plant for its submittal to the SERC portion of the 2007 NERC Long Term Reliability Assessment. The 1600 MWs of nuclear capacity in 2015 was not part of the Duke Energy Carolinas' submittal.

The ER page 8.3-3 is consistent with pages 46-49 of the 2007 IRP, as opposed to pages 35-36 of the 2006 IRP. (Tables 8.3-1, 2 and 3 erroneously stated that the data reflected the system configuration as of September 1, 2006, the date of the 2006 IRP. In fact, the Tables reflect the system configuration as of the filing of the 2007 IRP, November 15, 2007.) The capacity associated with Cliffside 6 is reflected on line 10 (Cumulative Future Resource Additions) on the Base Load Line. The capacity associated with Buck and Dan River Combined Cycle Units are included on the Peaking/Intermediate Line, along with other undesignated resources.

See ER Table 8.4.3 for reserve margin projections for Duke Energy Carolinas. The reserve margin calculations include the following capacity additions:

- Cliffside – 800 MWs
- Buck CC Project – 316 MW CT in 2010, converted to 620 MW CC in 2011
- Dan River CC Project – 316 MW CT in 2011, converted to 620 MW CC in 2012
- Additional CT capacity of 632 MWs in each of the following years: 2011, 2014, 2015, and 2017.

Duke has only received CPCNs for the Cliffside, Buck, and Dan River projects. All other capacity is subject to change in future IRP filings.

Associated Revisions to the Lee Nuclear Station Combined License Application:

No COLA revisions have been identified with this response.

Associated Attachments:

None