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RA-23-0146
June 20, 2023

10 CFR 50.4
10 CFR 51.41
10 CFR Part 54

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

Subject: Duke Energy Carolinas, LLC (Duke Energy)
Oconee Nuclear Station (ONS), Units 1, 2, and 3
Docket Numbers 50-269, 50-270, 50-287
Renewed License Numbers DPR-38, DPR-47, DPR-55
Subsequent License Renewal Application, Appendix E,
Responses to Requests for Additional Information (RAI), and
Request for Confirmation of Information (RCI)

References:

1. Duke Energy Letter (RA-21-0132) dated June 7, 2021, Application for Subsequent Renewed Operating Licenses, (ADAMS Accession Number ML21158A193)
2. NRC Letter dated July 22, 2021, Oconee Nuclear Station, Units 1, 2, and 3 - Determination of Acceptability and Sufficiency for Docketing, Proposed Review Schedule, and Opportunity for a Hearing Regarding Duke Energy Carolinas' Application for Subsequent License Renewal (ADAMS Accession Number ML21194A245)
3. CLI-22-02 Commission Memorandum and Order dated February 24, 2022 (ADAMS Accession Number ML22055A496)
4. CLI-22-03 Commission Memorandum and Order dated February 24, 2022 (ADAMS Accession Number ML22055A527)
5. Duke Energy Letter (RA-22-0285) dated November 7, 2022, Subsequent License Renewal - Appendix E Environmental Report Supplement 2 (ADAMS Accession Number ML22311A036)
6. NRC Letter dated April 5, 2023, Oconee Nuclear Station, Units 1, 2, and 3 – License Renewal Regulatory Audit regarding the Environmental Review of the Subsequent License Renewal Application Supplement (ADAMS Accession Numbers ML23075A073)
7. NRC Letter dated June 1, 2023, Oconee Nuclear Station, Units 1, 2 and 3 - Summary of the April 2023 Remote Environmental Audit related to the review of the Subsequent License Renewal Application (ADAMS Accession Numbers ML23132A239 and ML23156A245)

By letter dated June 7, 2021 (Reference 1), Duke Energy Carolinas, LLC (Duke Energy) submitted a subsequent license renewal (SLR) application for Oconee Nuclear Station (ONS), Units 1, 2, and 3 to the U.S. Nuclear Regulatory Commission (NRC). On July 22, 2021 (Reference 2), the NRC determined that ONS subsequent license renewal application (SLRA) was acceptable and sufficient for docketing.

Commission Orders CLI-22-02 (Reference 3) and CLI-22-03 (Reference 4) determined that additional analyses are needed to support environmental reviews in subsequent license renewal proceedings and provided applicants the option of supplementing their Environmental Report (ER) and proceeding in a site-specific manner. Hence, by a November 7, 2022, letter (Reference 5), Duke Energy submitted a Category 1 site-specific environmental review of ONS Units 1, 2 and 3 operations in support of the SLR application for ONS Units 1, 2, and 3.

By letter dated April 5, 2023 (Reference 6), the NRC issued the regulatory audit plan for the Environmental Report Supplement 2. The regulatory audit was conducted remotely on April 26 – 28, 2023. In Reference 7, NRC stated many of the answers will need to be used in the NRC site-specific Supplemental Environmental Impact Statement and will need to be submitted as a (1) supplement to the application, (2) response to requests for additional information (RAI), or (3) response to requests for confirmation of information (RCI). NRC requested that Duke Energy's response be provided by June 30, 2023.

Enclosure 1 provides the index of Duke Energy's responses. Enclosure 2 provides Duke Energy's responses to the RCI. Enclosure 3 provides Duke Energy's responses to the RAI.

Should you have any questions regarding this submittal, please contact Arun Kapur by email at arun.kapur@duke-energy.com.

I declare under penalty of perjury that the foregoing is true and correct. Executed on June 20, 2023.

Sincerely,

Steven M. Snider
Site Vice President
Oconee Nuclear Station

Enclosures:

Enclosure 1: Index of Duke Energy's Responses
Enclosure 2: Responses to NRC Requests for Confirmation of Information
Enclosure 3: Responses to NRC Requests for Additional Information:

CC: W/O Enclosures:

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ENCLOSURE 1

OCONEE NUCLEAR STATION
SUBSEQUENT LICENSE RENEWAL APPLICATION, APPENDIX E
ENVIRONMENTAL REPORT

INDEX OF DUKE ENERGY'S RESPONSES

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3	RCI	Info Need GEN-4 General New & Significant Info
4	RCI	Info Need AQN-4 Air Quality & Noise Ozone Field Tests
5	RCI	Info Need AQN-5 Air Quality & Noise Off-site Noise Studies
6	RCI	Info Need FPE-1 Federally Protected Ecological Species Tricolored Bat
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15	RAI	Info Need AQN-1 & 2 Air Quality & Noise Air Emissions and GHG
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17	RAI	Info Need FPE-1 Federally Protected Ecological Species Tricolored Bat Assessment
18	RAI	Info Need SOC-5 Socioeconomics Tax Payments
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Enclosure 3 Attachments & Associated Documents Index		
Attachment No.	**Document No.**	**Subject**
14	1	GEN-1 Table 9.1-1 Updated April 2023
15	2	AQN-1 Air Emissions Summary Table
15	3	AQN-2 Annual Greenhouse Gas Emission Inventory Summary
16	4	CI-2 Location Map ONS Projects 2022-2026
17	5	FPE-1 Tricolored Bat Impact Assessment
18	6	SOC-5 Tax follow up 2015-2022
19	7	TR-1 ONS Bird Deaths and Injury Report
END		

ENCLOSURE 2

OCONEE NUCLEAR STATION
SUBSEQUENT LICENSE RENEWAL APPLICATION, APPENDIX E
ENVIRONMENTAL REPORT

RESPONSES TO NRC REQUESTS FOR CONFIRMATION OF INFORMATION

NRC RCI Number: GEN-2

Please confirm that there have been no unplanned releases of radioactive materials (unplanned/inadvertent radioactive liquid or gaseous releases) since Duke Energy's most recent environmental request for additional information (RAI) responses dated January 7, 2022 (ML22019A137).

Duke Response

Duke Energy confirms the information is correct as stated.

References:

None

Associated Documents:

None

NRC RCI Number: GEN-3

Please confirm that there have been no reportable inadvertent releases or spills of nonradioactive contaminants since Duke Energy's Environmental Report (ER), Supplement 2 dated November 7, 2022 (Agencywide Documents Access and Management System [ADAMS] ML22311A036).

Duke Response

Duke Energy confirms the information is correct as stated.

References:

None

Associated Documents:

None

NRC RCI Number: GEN-4

Please confirm that Duke Energy has identified no significant new information since its June 2021 ER (ML21158A193) concerning the following site-specific (Category 2) environmental issues:

- Aquatic Resources – Impingement and entrainment of aquatic organisms (plants with once through cooling systems or cooling ponds)
- Aquatic Resources – Thermal impacts on aquatic organisms (plants with once-through cooling systems or cooling ponds)
- Cumulative Impacts
- Environmental Justice – Minority and low-income populations (e.g., subsistence activities)
- Groundwater– Groundwater use conflicts (plants that withdraw more than 100 gallons per minute [gpm])
- Groundwater– Radionuclides released to groundwater
- Historic and Cultural Resources – Historic and cultural resources (e.g., new cultural resource surveys, new historic properties, new correspondence with Tribes or the State Historic Preservation Officer)
- Human Health – Microbiological hazards to the public
- Human Health – Electric shock hazards
- Postulated Accidents – Severe accidents
- Terrestrial Resources – Effects terrestrial resources (non-cooling system impacts)

Duke Response

Duke Energy confirms the information is correct as stated.

References:

None

Associated Documents:

None

NRC RCI Number: AQN-4

Section 4.2.2.2 of ER Supplement 2 (ML22311A036) provides a site-specific analysis of the air quality effects of in scope transmission lines. During the April 2023 environmental audit, Air Quality and Noise breakout session, and in response to information need AQN-4, Duke Energy stated that no known field tests concerning ozone and nitrogen oxides emissions generated by Duke Energy's 230 kV and 525 kV in-scope transmission lines have been conducted. Please confirm that no field tests concerning ozone and nitrogen oxides emissions generated by Oconee Nuclear Station's 230 kV and 525 kV in-scope transmission lines have been conducted.

Duke Response

Duke Energy confirms the information is correct as stated.

References:

None

Associated Documents:

None

NRC RCI Number: AQN-5

Section 4.3.2 of ER Supplement 2 (ML22311A036) provides a site-specific analysis of noise impacts from subsequent license renewal. During the April 2023 environmental audit, Air Quality and Noise breakout session, and in response to information need AQN-5, Duke stated that no off-site noise studies have been conducted by Duke Energy in the vicinity of Oconee Nuclear Station. Please confirm that off-site noise studies have not been conducted in the vicinity of Oconee Nuclear Station.

Duke Response

Duke Energy confirms the information is correct as stated.

References:

None

Associated Documents:

None

NRC RCI Number: FPE-1

During the April 2023 environmental audit, the NRC staff reviewed Duke Energy's corporate Endangered Species Procedure. This procedure applies to all Duke Energy business units, including the Oconee site. The procedure summarizes the requirements of the Endangered Species Act (ESA) and how these requirements apply to Duke Energy's sites and activities. It includes checklists and protocols to ensure that Duke Energy employees and contractors adequately consider listed species before undertaking an activity that has the potential to affect such species. The procedure details how incidents should be logged and reported if a listed species is harmed. Duke Energy personnel must gather detailed information about the incident and report it to the Duke Energy wildlife team, the U.S. Fish and Wildlife Service (FWS), National Marine Fisheries Service, and the appropriate State natural resource agency, as appropriate. Such reporting would also trigger a report to the NRC under 10 CFR 50.72(b)(2)(xi), as described in Section 3.2.12 of NUREG-1022, Rev. 3, "Event Report Guidelines 10 CFR 50.72 and 50.73."

Duke Energy requires that employees and contractors complete training if they could encounter listed species or have incidents during their everyday work activities. Such trainings must be conducted by a qualified subject matter expert and should be project- or species-specific. For instance, Duke Energy has recently conducted trainings for employees and contractors on protected bats, including current and likely-to-be-listed species, such as the tricolored bat, and how Duke Energy is addressing potential impacts of its projects and activities on these species. The trainings have addressed bat life history, seasonal distributions, habitat preferences, and how to identify suitable versus non-suitable roosting trees, among other topics.

In discussions among NRC staff and Duke Energy personnel, Duke Energy shared that it is preparing a Habitat Conservation Plan (HCP) that will include the Oconee site. The HCP will address all federally protected bats, including the Indiana bat (Myotis sodalis), northern long-eared bat (M. septentrionalis), gray bat (M. grisescens), Florida bonneted bat (Eumops floridanus), and likely-to-be-listed bats, including the tricolored bat and little brown bat (M. lucifugus). The HCP will address potential impacts to include tree trimming and cutting, grounds maintenance, and other routine operational activities at facilities such as the Oconee site. Duke Energy is also developing facility-based bat management plans as part of this effort, which would be implemented at Oconee, among other sites. Duke Energy is coordinating with the FWS in its development of the HCP. Once drafted, Duke Energy will submit the HCP, along with an Incidental Take Permit application, to the FWS for approval in accordance with ESA Section 10. Duke Energy estimates that it will receive approval by roughly 2027.

Please confirm the above information concerning Duke Energy's actions to address potential impacts on federally listed species on the Oconee site.

Duke Response

Duke Energy confirms the information is correct as stated.

References:

None

Associated Documents:

None

NRC RCI Number: ALT-1

Please confirm that the technical bases presented in Duke Energy's June 2021 ER (ML21158A193) and Duke Energy's response to NRC's November 23, 2021, RCI ALT-1 (ML22007A015) remain valid with respect to the identification of reasonable replacement power alternatives.

Duke Response

Duke Energy confirms the information is correct as stated.

References:

None

Associated Documents:

None

NRC RCI Number: SOC-1

In the 2021 ER (ML21158A193) and response to request for confirmation of information SOC-4 (ML22019A137), Duke Energy reported a permanent workforce of 698 workers and 548 contingent non-outage workers for Oconee Nuclear Station. During the April 2023 environmental audit, Socioeconomics breakout session, and in response to information need SOC-1, Duke Energy stated that the workforce at Oconee Nuclear Station consists of 622 permanent full-time workers and 495 contingent non-outage workers as of March 2023. Please confirm that as of March 2023, the workforce at Oconee Nuclear Station consists of 622 permanent full-time workers and 495 contingent non-outage workers.

Duke Response

Duke Energy confirms the information is correct as stated.

References:

None

Associated Documents:

None

NRC RCI Number: SOC-2

Table 2.5-1 of the 2021 ER (ML21158A193) provides Oconee full-time employee residence information. During the April 2023 environmental audit, Socioeconomics breakout session, and in response to information need SOC-2, Duke provided an updated version of table 2.5-1 of the 201 ER that included full-time employee residence information as of March 2023. The updated table identified that of the 622 workers, 272 live in Oconee County, 203 live in Pickens County, and 92 live in Anderson County. Please confirm that of the 622 permanent full-time workers at Oconee Nuclear Station, 272 live in Oconee County, 203 live in Pickens County, and 92 live in Anderson County.

Duke Response

Duke Energy confirms the information is correct as stated.

References:

None

Associated Documents:

None

NRC RCI Number: SOC-3

Section 3.11.1 of the 2021 ER (ML21158A193) provides population numbers and population density within both 20-and 50-mile radius of Oconee Nuclear Station based on the 2010 census data. During the April 2023 environmental audit, Socioeconomics breakout session, and in response to information need SOC-3, Duke Energy provided updated population numbers and population density within both the 20- and 50- mile radius of Oconee Nuclear Station using the 2020 U.S. Census data. In the response, Duke Energy stated that based on the U.S. Census 2020 block data, the 2020 50-mi population was 1,549,634, which has a population density of 197 person per square mile and the 20-mile population for 2020 was 226,363, which has a population density of 180 person per square mile. Please confirm that the 2020 50-mile population was 1,549,634 and the 20-mile population for 2020 was 226,363.

Duke Response

Duke Energy confirms the information is correct as stated.

References:

None

Associated Documents:

None

NRC RCI Number: SOC-6

In the 2021 ER (ML21158A193) and in response to RAI SOC-1 (ML22019A137), Duke Energy discussed that on December 21, 2020, the South Carolina Administrative Law Court issued a decision and held that Duke Energy is a manufacturer for South Carolina property tax purposes and therefore the property qualifies for a partial manufacturing property tax exemption in South Carolina. Furthermore, the Court ruled that Duke Energy is entitled to the exemption for all of the property used in manufacturing, but property not used in manufacturing is not eligible for the exemption. However, a determination had not been made as to what portion of the property is eligible for the property tax exemption and on October 7, 2021, the Court issued a decision concluding that more evidence is needed to determine what portion of the property qualifies for the exemption and parties are conducting discovery. During the April 2023 environmental audit, Socioeconomics breakout session, and in response to information need SOC-6, Duke Energy provided an update regarding this matter and stated that: 1. Duke Energy resolved the exemption determination for tax years 2018 through 2020; 2. it was determined that Duke Energy received a reduction due to the exemption; and 3. and that there will be no reduction going forward because the state changed the law to exclude electric companies from the property tax exemption. Please confirm that Duke Energy resolved the exemption determination for tax years 2018 through 2020 and that Duke Energy received a tax reduction due to the exemption and that there will be no reduction going forward because the State of South Carolina changed the law to exclude electric companies from the property tax exemption.

Duke Response

Duke Energy confirms the information is correct as stated.

References:

None

Associated Documents:

None

NRC RCI Number: SW-1

Please confirm that based on 2019-2021 measurements, monthly average intake and discharge temperatures at Oconee Station have remained within the year-to-year variation shown in the June 2021 ER figures 3.6-4 and 3.6-5.

Duke Response

Duke Energy confirms the information is correct as stated.

References:

None

Associated Documents:

None

NRC RCI Number: SW-2

Please confirm that the following corrective actions were taken in response to four spills described in the November 2022 ER Supplement 2, section 4.6.18.2.

- On August 15, 2022, sewage air ejectors failed, causing a 50-gallon sewage spill into the Keowee River. A janitorial contractor cleaned and disinfected the areas where the spill occurred. The sewage air ejectors were repaired, and Duke Energy notified South Carolina Department of Health and Environmental Control (SCDHEC) of the incident via ePermitting and a courtesy call to the Anderson regional office.

- On November 21, 2021, a Polyvinyl chloride (PVC) pipe cracked, spraying approximately 3-5 gallons of sewage from an air ejector into the Unit 1 and 2 Turbine Building Sump. The PVC pipe was repaired. A janitorial contractors cleaned and disinfected equipment and the floor area where the spill occurred. The spill was reported to SCDHEC.

- On February 8, 2018, approximately 4 oz of hydraulic oil leaked while testing a submersible hydraulic pump adjacent to the Keowee Hydro Station spillway. Boom and absorbent sheets were placed in the lake to contain and remove the approximately 1 ft by 2 ft oil sheen. The National Response Center and the SCDHEC were notified of the release. The pump was removed from service. The oil sheen was removed from the lake.

- On July 20, 2014, a lubricating oil spill of approximately 5 gallons was released at the Keowee Hydro Station to the Keowee tailrace. The source of the oil was stopped. The spill reached the station sump. Two temporary booms were deployed below the station in the Keowee River. Oil was removed from the sumps, and the station sumps were cleaned of oil residue. SCDHEC was notified of the release.

Duke Response

Duke Energy confirms the information is correct as stated.

References:

None

Associated Documents:

None

ENCLOSURE 3

OCONEE NUCLEAR STATION
SUBSEQUENT LICENSE RENEWAL APPLICATION, APPENDIX E
ENVIRONMENTAL REPORT

RESPONSES TO NRC REQUESTS FOR
ADDITIONAL INFORMATION

NRC RAI Number: GEN-1

REQUIREMENT: Title 10 of the *Code of Federal Regulations* (10 CFR) part 51.53(c)(iv) requires that environmental reports contain any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware.

ISSUE: The NRC staff is preparing a site-specific environmental impact statement (EIS) in accordance with Commission Legal Issuance (CLI)-22-02 and CLI-22-03, both dated February 24, 2022, that considers the site-specific environmental impacts of subsequent license renewal (SLR) of Oconee. Table B-2 of the draft Supplemental Environmental Impact Statement, "Operating Permits and Other Requirements," will list the permits and licenses issued by Federal, State, and local authorities for activities at Oconee, as identified in table 9.1-1 in chapter 9.0 of the Oconee Nuclear Station Subsequent License Renewal Application, appendix E, Environmental Report (ER), dated June 22, 2021 (ML21158A193). As part of preparing the site-specific EIS, the staff must consider whether there have been any changes to operating permits or other requirements.

REQUEST: Please provide any relevant updates to table 9.1-1 that have transpired since the ER dated June 22, 2021. If any permits have expired since submitting the SLR application to the U.S. Nuclear Regulatory Commission, please provide the status of those permits and/or renewals.

Duke Response

The updated Table 9.1-1 is provided as Document 1. Revision bars are provided to indicate changes to the table

References:

None

Associated Documents:

Document 1 Updated Table 9.1-1

ENCLOSURE 3

ATTACHMENT 14: GEN-1

DOCUMENT 1:
Table 9.1-1 (6 pages)
Updated April 2023

Table 9.1-1 Environmental Permits for Current Operations at ONS (Sheet 1 of 6)

Agency	Authority	Requirement	Number	Expiration Date	Authorized Activity
NRC	Atomic Energy Act, 10 CFR 50	ONS license to operate Unit 1	DPR-38	2/6/2033	Operation of ONS Unit 1
NRC	Atomic Energy Act, 10 CFR 50	ONS license to operate Unit 2	DPR-47	10/6/2033	Operation of ONS Unit 2
NRC	Atomic Energy Act, 10 CFR 50	ONS license to operate Unit 3	DPR-55	7/19/2034	Operation of ONS Unit 3
NRC	10 CFR Part 72, Subpart B	Site-specific ISFSI	SNM-2503	1/31/2050	Operation of a dry storage ISFSI under a site- specific license.
NRC	10 CFR Part 50 10 CFR Part 72, Subpart K	ISFSI	N/A	7/19/2034	Operation of a dry storage ISFSI under the ONS units' licenses.
Atlantic Compact Commission	Omnibus Low-Level Radioactive Waste Interstate Compact Consent Act (1980 and amended in 1985)	Compacts have the authority to limit the export or import of LLRW out of or into the compact region.	N/A	N/A	Atlantic Interstate LLRW Management Compact does not require import or export permits.
FERC	Federal Power Act, 18 CFR 5.1	Keowee-Toxaway Hydroelectric Project license	2503-154	August 31, 2046	Operate and maintain the Keowee-Toxaway Hydroelectric Project (the project provides backup power for ONS and includes the ONS intake dike).

Table 9.1-1 Environmental Permits for Current Operations at ONS (Sheet 2 of 6)

Agency	Authority	Requirement	Number	Expiration Date	Authorized Activity
USACE	Article 403 of Keowee-Toxaway Hydroelectric Project license	Operating agreement for Duke Energy projects and downstream federal projects	None	August 31, 2046	Agrees to a new critical reservoir elevation for Lake Keowee of 790 feet above msl.
USFWS	Migratory Bird Treaty Act 50 CFR Part 13 50 CFR 21.27	Migratory bird SPUT	MB000257 Version 1	3/31/2025	Authorized to collect, transport, and temporarily possess carcasses and partial remains of migratory birds and emergency relocation of nests of migratory birds other than eagles or threatened or endangered species.
USDOT	49 CFR 107 Subpart G	Registration	Reg. No: 051922550025E	6/30/2023	Hazardous materials shipments.
EPA	40 CFR 261	Small quantity hazardous waste generator	SCD043979822	12/31/2023	Hazardous waste generator registration.

Table 9.1-1 Environmental Permits for Current Operations at ONS (Sheet 3 of 6)

Agency	Authority	Requirement	Number	Expiration Date	Authorized Activity
SCDHEC	Coastal Zone Management Act Section 307(c)(3)(A)	Consistency determination with the SC Coastal Management Program	NA	NA	ONS is not located in the SC coastal zone.
SCDHEC	SC R. 61-119	Surface water withdrawal permit	37PN001	10/29/2043	Surface water withdrawal from Lake Keowee.
SCDHEC	South Carolina Groundwater Use and Reporting Act	Coastal plain groundwater withdrawals	NA	NA	ONS is not located in the coastal plain and is not required to permit and report groundwater withdrawals.
SCDHEC	SC R.61-62	Conditional major operating permit, air sources	CM-1820-0041	12/31/2027	Operation of auxiliary boiler.
SCDHEC	SC R.61-79.262.13	SQG annual declaration	SCDHEC uses EPA 8700-12 form	Annual submittal current through 2023	Annual SQG declaration.
SCDHEC	SC 61-107.19	Class 2 landfill post-closure permit	373303-1601	1/11/2038	Post-closure permit for closed and capped onsite landfill.
SCDHEC	40 CFR 280; SC R. 61-92	UST registration for SC regulated tanks	Registration numbers: 11174 and 11843	7/31/2023	Operation of seven USTs under registration number 11843 and one UST under registration 11174.

Table 9.1-1 Environmental Permits for Current Operations at ONS (Sheet 4 of 6)

Agency	Authority	Requirement	Number	Expiration Date	Authorized Activity
SCDHEC	Clean Water Act, Section 402; SC R. 61-9	NPDES permit	SC0000515	9/30/2013 (due to submittal of a timely renewal application the permit is administratively extended and remains in effect until a final permit decision is made on the renewal)	Discharges of wastewater to surface water.
SCDHEC	SC R. 61-9	NPDES general permit for discharges from pesticide application	SCG160000 Facility Coverage No. SCG16006	3/31/2021	Discharges to surface waters from pesticide application.
SCDHEC	40 CFR122.26; SC R. 61-9	General NPDES permit for construction activities	SCR100000	12/31/2017 (this general permit continues in effect until the subsequent general permit becomes effective)	Discharge of stormwater; ONS files notices of intent for construction activities under the general construction stormwater permit.
SCDHEC	SC R. 61-9	General NPDES permit for industrial activities	SCR000000 Facility Coverage No. SCR000074	6/30/2027	Discharge of industrial stormwater permit.
SCDHEC	SC R. 61-9.610	Operation of a satellite sewer system	Permit Coverage No. SSS000909	1/4/2017 (this general permit continues in effect until the subsequent general permit becomes effective)	Notification of satellite sewer owner.

Table 9.1-1 Environmental Permits for Current Operations at ONS (Sheet 5 of 6)

Agency	Authority	Requirement	Number	Expiration Date	Authorized Activity
SCDNR	Migratory Bird Treaty Act	Migratory bird depredation permit	MB-04-23	12/31/2023	State authorization associated with the USFWS MB000257-0 permit.
SCDHEC	SC R. 61-81	Environmental laboratory certification	Certification No. 37756001	3/5/2024	Certifies testing for pH, residual chlorine, and temperature.
SCDHEC	SC R. 61-81	Environmental laboratory certification	Certification No. 37761001	3/5/2024	Certifies testing for pH.
SCDHEC	SC R. 61-105	Infectious waste registration	Registration No. SC37-0051G	3/31/2026	Registers ONS as a generator of infectious waste.
SCDHEC	SC R. 61-86.1	Group license for asbestos abatement activities	Group License No. 8045	1/12/2024	Licenses individuals for asbestos abatement activities onsite.
SCDHEC	SC Radioactive Waste Transportation and Disposal Act, SC R. 61-83	SC radioactive waste transport permit	0020-39-23-X	12/31/2023	Transport of radioactive waste within South Carolina.
Tennessee Department of Environmental Control (TDEC)	TDEC Rule Chapter 0400-20-10-.31 & .32	Radioactive waste license-for-delivery	T-SC007-L23	12/31/2023	Shipment of radioactive material to a licensed disposal/processing facility within Tennessee.

Table 9.1-1 Environmental Permits for Current Operations at ONS (Sheet 6 of 6)

Agency	Authority	Requirement	Number	Expiration Date	Authorized Activity
OJRSA	SC R. 61-9	Significant industrial wastewater discharge permit	IW-000003	3/31/2024	Discharge of industrial wastewater into the Coneross Creek wastewater treatment facility.

NRC RAI Number: AQN-1 & 2

REQUIREMENT: 10 CFR 51.53(c)(iv) requires that environmental reports contain any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware.

ISSUE: The NRC staff is preparing a site-specific EIS in accordance with CLI-22-02 and CLI-22-03, both dated February 24, 2022, that considers the site-specific environmental impacts of SLR of Oconee Nuclear Station. Tables 3.3-11 and table 3.3-12 of the 2021 ER (ML21158A193), presents reported annual air emissions (2015-2019) and annual greenhouse gas emissions (2015-2019) associated with operations of Oconee Nuclear Station, respectively. As part of the preparing the site-specific EIS, the staff must consider whether there has been any new information related to air emissions.

REQUEST:
a. Provide updated estimated air pollutant emissions (2020-present) from operation of permitted sources at Oconee Nuclear Station (i.e., SOx, NOx, CO, PM10, and VOCs).

b. Provide updated (2020-present) estimated greenhouse gas emissions (GHG) from operation at Oconee Nuclear Station, as provided in response to information need AQN-2. As part of the response, include:
1. a brief discussion of the sources of greenhouse gas emissions,
2.explanation why GHG emissions from combustion sources provided during the April 2023 environmental audit information need AQN-2 response were lower from what was presented in table 3.3-12 of the 2021 ER; and
3. if Duke Energy anticipates additional GHG emission sources and emissions during the SLR term.

Duke Response

a. Updated estimated air pollutant emissions for ONS is listed in the Air Emissions Summary Table provided as Document 2. The state only requires monitoring NO_X emissions.

b. The Annual Greenhouse Gas Summary Table is provided as Document 3.

    1. The sources of greenhouse gasses associated with the ONS facility include a 5,375 horsepower (hp) diesel generator, four 762 hp FLEX diesel generators, three 560 hp diesel generator, four diesel generators rated between 350 hp and 429.1 hp, seven generators rated between 37 hp and 135 hp, 14 diesel generators rated under 16.3 hp, one 158 hp propane generator, and two 12 hp propane generators. The Auxiliary Boiler has not been used since 2020.

    2. The reason for the variance between the value reported in ONS SLR ER Table 3.3-12 and the data presented in Audit Need AQN-2 is due to conservative assumptions within the original calculation. By comparison, the information provided in Audit Need AQN-2 was calculated based on the actual diesel usage and 40 CFR Part 98 emission factors.

3. Equipment (like for like) may be replaced during the subsequent period of extended operation, but no addition to the emissions inventory is expected during the SLR term.

References:

None

Associated Documents:

Document 2: Air Emissions Summary Table

Document 3: Annual Greenhouse Gas Summary Table

ENCLOSURE 3

ATTACHMENT 15: AQN-1 & 2

DOCUMENT 2:
Air Emissions Summary Table (1 page)

Duke Energy
Oconee Nuclear Station

REPORTED ANNUAL AIR EMISSIONS SUMMARY 2020-2022	
Annual Emissions (tons/year)	
YEAR	**NO_x**
2020	11.68
2021	4.73
2022	5.45

ENCLOSURE 3

ATTACHMENT 15: AQN-1 & 2

DOCUMENT 3:
Annual Greenhouse Gas Summary Table (1 page)

Duke Energy
Oconee Nuclear Station

ANNUAL GREENHOUSE GAS EMISSIONS INVENTORY SUMMARY, 2020-2022[1]			
Carbon Dioxide Equivalent (CO_2e) Emissions, Metric Tons			
Emission Source	**2020**	**2021**	**2022**
Combustion Sources [a]	541	193	241
Workforce Commuting [b]	4,799	4,799	4,799
TOTAL	5,340	4,992	5,040

[1] GHG calculated emissions are based on the following:

[a] Gallons of diesel fuel consumed.

[b] Workforce commuting calculations are based on:

i. Statistical information from U.S. Census Bureau indicates that 4.4 percent of South Carolina workers in the Transportation and Warehouse and Utilities Industry carpool to work (USCB 2023). Number of ONS employees as listed in SOC-1 was 1,117. Utilizing the 4.4 percent USCB carpool statistic, a value of "1068" passenger vehicles per day was utilized.

ii. Carbon dioxide equivalent or CO_2e means the number of units of another greenhouse gas that has the same global warming effect as a single unit of carbon dioxide.

iii. As an example, 25 metric tons of carbon dioxide emissions has the equivalent global warming effect as a single metric ton of methane emissions. (Based on Table A-1 to Subpart A of 40 CFR Part 98).

NRC RAI Number: CI-1 & 2

REQUIREMENT: Title 10 CFR part 51.71(d) requires draft environmental impact statements include, in part, a preliminary analysis of environmental effects, including any cumulative effects, of the proposed action.

ISSUE: The NRC staff is preparing a site-specific EIS consistent with the NRC's regulations and in accordance with CLI-22-02 and CLI-22-03, both dated February 24, 2022, that considers the site-specific environmental impacts of SLR of Oconee Station.

REQUEST: Please formally provide the new information provided during the audit related to responses to CI-1 and CI-2, so they can be referenced and used as the basis for the reasonably foreseeable future actions discussion in the site-specific EIS.

Duke Response

CI-1

1. Below is a list of additional projects identified by Duke Energy:
    a. CMD-South UST Abandonment (Complex UST) that is no longer in use. Estimated date of completion: June 2023.
    b. MTF Storm Drain Replacement Project. Replace degraded storm drainpipe that extends from 230kV Parking Lot to gravel parking lot between the MTF & Garage. Estimated date of completion: December 2023.
    c. Plant Drinking Water Upgrade Project: relocate and upgrade piping on the southeastern area of the site. Project will move the pipe from the right side of the entrance road to the left. Piping will upgrade from HDPE to C-900. It will also add backflow preventers and provide the ability to back feed the plant area of the site. Estimated Date of Completion: December 2023.
    d. Build new communications tower. Project to provide a new Paging Base for the site and location for Security IAC and SC Highway Patrol Repeater. Estimated Date of Completion February 2024.
    e. 230kV Relay House Upgrade by adding EFM Building and additional capacity for the 230 kV Switchyard. This project will also add additional trench and cable within the switchyard. Estimated date of completion: December 2024.
    f. ISFSI Phase X will add more spent fuel storage for the site. Estimated date of completion: March 2026.
    g. Outdoor Employee Recreation Area Project. This project will disturb 0.12 acres of existing gravel parking lot and will be used only by employees. Estimated date of completion: August 2023.
    h. Liner upgrade of CTP 1 & 2. Project to add two additional liners with an interstitial space for leak detection to each Chemical Treatment Pond. Estimated date of completion: October 2023.

2. See updates below to onsite projects identified in ER Section 3.1.4.

a. The ONS thermal margin recapture project for all units is expected to be completed in 2024. The measurement uncertainty recapture (MUR) power uprate will increase core thermal power (CTP) by 1.67 percent. This results in an increase of CTP from 2,568 MWt (mega-watts thermal) to 2,610 MWT, which produces approximately 15 MWe (mega-watts electrical) per unit.

b. The installation of five new security towers was completed in December 2020.

c. The installation of a watercraft barrier below Keowee Hydro Dam was completed in December 2020.

d. See the update provided in 1f above.

e. See updates below to offsite projects identified in ER Section 3.1.4.

f. FERC-approved project updates:

i. The Bad Creek upgrade project is expected to be completed in March 2024. The upgrade will provide 280 MWe in generation and 236 MWe in pumping storage.

ii. The water intake installation on Lake Keowee for the city of Walhalla is complete, and the plant has been operational since February/March of 2021.

g. The Lake Keowee Fall Creek Landing project was completed in 2019.

h. Horton Holding opened the engine cooling manufacturing plant in spring of 2020.

i. US Waffle opened the frozen food processing facility in February 2021.

j. An update on the RBC Aerostructures expansion is not available.

3. **2**

The location map for the planned projects is provided as Document 4.

References:

None

Associated Documents:

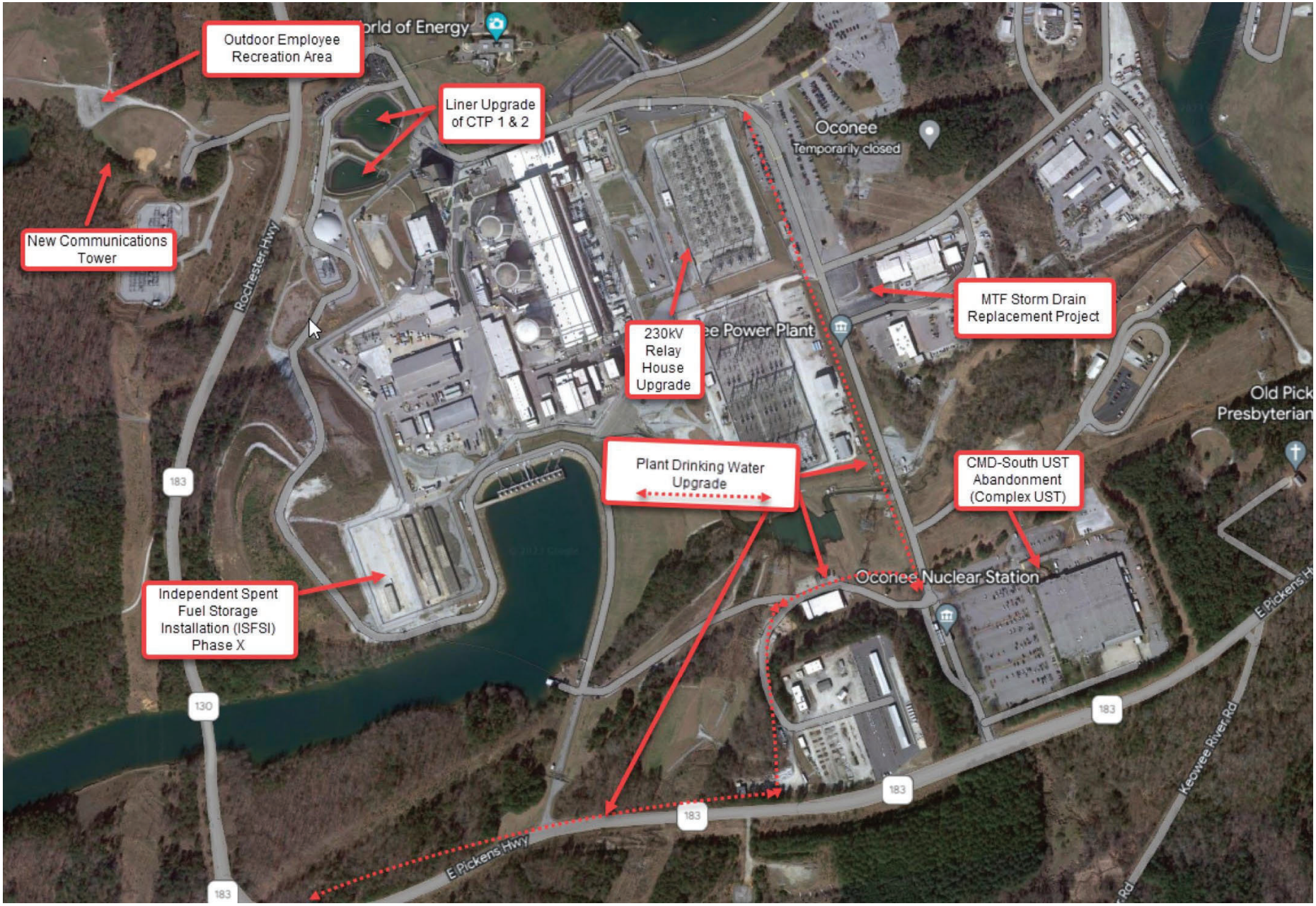
Document 4: Location Map ONS Projects 2022-2026

ENCLOSURE 3

ATTACHMENT 16: CI-2

DOCUMENT 4:
Location Map ONS Projects 2022-2026 (1 page)

Duke Energy
Oconee Nuclear Station



NRC RAI Number: FPE-1

REQUIREMENT: Licensees are required by 10 CFR part 51.53(c)(3)(ii)(E) to assess the impact of refurbishment, continued operations, and other license renewal-related construction activities on important plant and animal habitats. Additionally, the applicant shall assess the impact of the proposed action on threatened or endangered species in accordance with Federal laws protecting wildlife, including but not limited to, the Endangered Species Act (ESA). Additionally, the ESA regulations at 10 CFR 402.10 require Federal agencies to confer with the U.S. Fish and Wildlife Service (FWS) concerning species proposed for Federal listing under ESA Section 7.

ISSUE: The FWS published a proposed rule to list the tricolored bat (Perimyotis subflavus) as endangered under the ESA on September 14, 2022 (87 FR 56381). In Section 3.7.7.3 of its Environmental Report dated June 22, 2021, Duke Energy describes acoustic bat surveys conducted in 2012 and 2015 that detected the presence of the tricolored bat on the Oconee site in both survey years.

REQUEST: Please provide an analysis of the potential impacts of the proposed Oconee subsequent license renewal on the tricolored bat.

Duke Response

An analysis of the potential impacts of the proposed subsequent license renewal on the tricolored bat is provided as Document 5, Tricolored Bat Impact Assessment

References:

None

Associated Documents:

Document 5: Tricolored Bat Impact Assessment

ENCLOSURE 3

ATTACHMENT 17: FPE-1

DOCUMENT 5:
Tricolored Bat impact Assessment (2 pages)

Duke Energy
Oconee Nuclear Station

Impact Assessment for the Tricolored Bat (*Perimyotis subflavus*)

The U.S. Fish and Wildlife Service (USFWS) published a proposed rule to list the tricolored bat (*Perimyotis subflavus*) as endangered under the Endangered Species Act (ESA) in September 2022. The current known range for the tricolored bat overlaps with the ONS site (USFWS 2023).

During the spring, summer and fall - collectively referred to as the non-hibernating seasons - tricolored bats primarily roost among live and dead leaf clusters of live or recently dead deciduous hardwood trees. In the southern and northern portions of the range, tricolored bats will also roost in Spanish moss (*Tillandsia usneoides*) and *Usnea trichodea* lichen, respectively. In addition, tricolored bats have been observed roosting during summer among pine needles, eastern red cedar (*Juniperus virginiana*), within artificial roosts like barns, beneath porch roofs, bridges, concrete bunkers, and rarely within caves. Female tricolored bats exhibit high site fidelity, returning year after year to the same summer roosting locations. Female tricolored bats form maternity colonies and switch roost trees regularly. Males roost singly. During the winter, tricolored bats hibernate which means that they reduce their metabolic rates, body temperatures and heart rate in caves and mines; although, in the southern United States, where caves are sparse, tricolored bats often hibernate in road-associated culverts, as well as sometimes in tree cavities and abandoned water wells. Tricolored bats exhibit high site fidelity with many individuals returning year after year to the same hibernaculum. (USFWS 2023)

Tricolored bats were identified in bat acoustic surveys conducted at the ONS site and around Lake Keowee in 2012 and 2015 (Duke 2021a). Building structures on the ONS site and forested areas surrounding the plant potentially provide suitable roosting and maternity habitat for this species. No specific assessment has been made of the extent or quality of tricolored bat habitat at the ONS site. However, given the general habitat requirements of this species, it can be conservatively assumed that suitable habitat to varying degrees is present within the large amount of forested area in the vicinity of the site as well as man-made structures at the site.

Duke Energy has implemented an environmental project review process for bats that includes desktop analysis of the activity, field assessment to identify potential habitat, acoustic surveys, application of specific avoidance measures (i.e., tree clearing/cutting outside of certain important bat life-cycle periods), and agency coordination. Duke Energy is also preparing a programmatic Habitat Conservation Plan and Incidental Take Permit application for bats that will cover the ONS site. The Incidental Take Permit is anticipated to be authorized by USFWS by 2027.

Potential impacts to the tricolored bat from the operations of ONS are discussed below:

- Mortality or injury from collisions with plant structures: Bat collisions with plant structures at nuclear power plants are not well documented but are likely to be rare. There have been no bat-related incidents documented at the ONS site or adjacent Duke Energy properties.
- Loss, degradation, or disturbance of habitat: Continued operations and any refurbishment activities that entail individual tree cutting, larger scale tree clearing, tree trimming, and any percussive activities (e.g., blasting, demolition, pile driving) during the SLR term may affect the tricolored bat. Factors that may affect and result in impacts to the species include loss of maternity roosting habitat (e.g., tree cutting and clearing, construction of laydown areas, new access roads), noise impacts, and specific incidental take of the species (e.g., harass, harm, pursue, kill). Impacts to hibernaculum sites (i.e., caves and mines) are not expected since these wintering habitats do not occur on the ONS site or immediately adjacent. Tree or vegetation clearing, and repair/construction activities that would potentially impact other hibernaculum sites (road-associated culverts, tree cavities and abandoned water wells) or maternity/roosting habitat for the tricolored bat would be reviewed in accordance with the environmental project review process for bats and avoidance or mitigation measures implemented, as appropriate.
- Behavioral changes from refurbishment and/or construction activities: Tricolored bats have likely already acclimated to the noise, vibration, and general human disturbances associated with site maintenance, infrastructure repairs, and other site activities. Moreover, the forested areas surrounding the ONS site likely provide more suitable habitat; hence, it is unlikely that tricolored bats would establish a colony in the man-made structures at ONS. As such, behavioral changes from refurbishment and/or construction activities to tricolored bats during the SLR term is unlikely.

Duke Energy's environmental project review procedures and implementation of bat specific BMPs will greatly reduce impacts to the tricolored bat. As such, the continued operation of the ONS site for the proposed operating term MAY AFFECT BUT IS NOT LIKELY TO ADVERSLY AFFECT the tricolored bat.

References:

USFWS. 2023. Tricolored bat. Retrieved from <https://ecos.fws.gov/ecp/species/10515> (access date April 4, 2023).

NRC RAI Number: SOC-5

REQUIREMENT: 10 CFR 51.53(c)(iv) requires that environmental reports contain any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware.

ISSUE: The NRC staff is preparing a site-specific EIS in accordance with CLI-22-02 and CLI-22-03, both dated February 24, 2022, that considers the site-specific environmental impacts of SLR of Oconee Nuclear Station. As part of the preparing the site-specific EIS, the staff must consider whether there has been any new information related to tax payment information to local tax authorities (i.e., county, public school district) directly affected by plant operations.

Table 3.9-1 of 2021 ER (ML21158A193) and Table 4.8-1 of the ER Supplement 2 (ML22311A036) present property tax payments paid by Duke Energy to Oconee County. During the April 2023 environmental audit, Socioeconomics breakout session, and in response to information need SOC-5, Duke Energy provided property tax payments paid to Oconee County for 2022 and clarified that property tax payments presented in the ER's were total property taxes paid to Oconee County for all property since Duke Energy is assessed by the state as a whole system, with Oconee Nuclear Station being the largest single property in the county. Therefore, property tax payments presented in the ER are not specific to just Oconee Nuclear Station.

REQUEST: Please provide property tax payments Duke Energy pays to Oconee County exclusively for Oconee Nuclear Station for 2015-2022.

Duke Response

ONS taxes exclusively paid for the plant to Oconee County for the period 2015-2022 are provided as Document 6.

References:

None

Associated Documents:

Document 6: ONS ER S2 Audit SOC-5 tax follow up 2015-2022

ENCLOSURE 3

ATTACHMENT 18: SOC-5

DOCUMENT 6:
ONS ER S2 Audit SOC-5 Tax follow up 2015-2022
(1 page)

Duke Energy
Oconee Nuclear Station

Oconee County Taxes Paid for ONS
2015 - 2022

Tax Year	ONS Taxes Paid
2015	$18,886,610
2016	$18,749,886
2017	$20,909,549
2018	$19,892,944
2019	$18,235,040
2020	$20,365,583
2021	$24,398,227
2022	$23,892,267
Total	$165,330,105

NRC RAI Number: TR-1

REQUIREMENT: 10 CFR 51.53(c)(3)(iv) requires that environmental reports contain any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware.

ISSUE: The NRC staff is preparing a site-specific EIS consistent with the NRC's regulations and in accordance with CLI-22-02 and CLI-22-03, both dated February 24, 2022, that considers the site-specific environmental impacts of SLR of Oconee Station. As part of preparing the site-specific EIS, the staff must consider whether there has been any new information related to terrestrial resources. During the April 2023 environmental audit, terrestrial ecology breakout session, and in response to information need TR-1, Duke Energy provided a bird deaths and injury report.

REQUEST: Please provide the Oconee Station Bird Deaths and Injury Report for 2014-2022.

Duke Response

The ONS Station Bird Deaths and Injury Report is provided as Document 7.

References:

None

Associated Documents:

Document 7: ONS Bird Deaths and Injury Reports

ENCLOSURE 3

ATTACHMENT 19: TR-1

DOCUMENT 7:
ONS Bird Deaths and Injury Reports (2 pages)

Duke Energy
Oconee Nuclear Station

Bird Deaths and Injury Reports (2014-2022)

SPECIES	DATE	CAUSE	# TAKEN	DISPOSITION	DECIMAL DEGREES	WEATHER
American Robin	4/29/2014	collision	1	Buried	34.798502, -82.899538	clear
Great Blue Heron	6/16/2014	fell out of nest	1	Buried	34.800607, -82.886202	clear
Unidentified Bird	7/7/2014	entrapment	1	Not Accessible	34.792983, -82.900137	N/A
Song Sparrow	7/14/2015	entrapment	1	buried	34.794263, -82.898088	clear
Canada Goose	12/8/2015	unknown	1	buried	34.790825, -82.894284	clear
Blue Jay	12/8/2015	window collision	1	buried	34.789158, -82.889908	clear
Black Vulture	12/21/2015	collision	1	buried	34.796275, -82.898207	clear
Black Vulture	1/11/2016	collision	1	buried	34.796343, -82.898096	fog
Coopers Hawk	8/21/2016	trapped	1	released	34.795790, -82.898207	clear
Ruby-throated Hummingbird	10/4/2016	trapped	1	buried	34.795436, -82.897908	clear
White-throated sparrow	1/10/2017	collision	1	buried	34.790469, -82.890554	cloudy
American Robin	3/1/2017	collision	1	buried	34.797114, -82.898788	clear
Canada Goose	7/13/2017	unknown	1	buried	34.797285, -82.896843	clear
Chipping Sparrow	7/18/2017	collision	1	buried	34.790118, -82.890387	clear
Black Vulture	2/5/2018	collision	1	buried	34.793112, -82.886169	clear
Barn Swallow	6/27/2018	collision	1	buried	34.795371, -82.898553	clear
Mourning Dove	7/2/2018	collision	1	buried	34.794626, -82.899902	clear
Red-tailed Hawk	9/4/2018	collision	1	Rehab	34.796929, -82.898847	clear
Crow	9/13/2018	unknown	1	buried	34.793379, -82.900262	clear
Veery	9/24/2018	collision	1	buried	34.789781, -82.890424	clear
Black Vulture	4/6/2019	electrocution	1	buried	34.795252, -82.895821	clear
Tree Swallow	5/13/2019	unknown	1 immature	buried	34.789348, -82.889224	clear
N. Rough-winged Swallow	6/5/2019	unknown	1	buried	34.789354, -82.889029	clear

SPECIES	DATE	CAUSE	# TAKEN	DISPOSITION	DECIMAL DEGREES	WEATHER
Black Vulture	9/17/2019	electrocution	1	buried	34.791430, -82.894894	clear
N. Rough-winged Swallow	5/8/2020	entrapped	1	buried	34.792514, -82.897866	clear
Canada Goose	8/26/2020	collision	1	buried	34.795042, -82.896470	clear
Black Vulture	1/26/2021	unknown	1	buried	34.798840, -82.885942	clear
American Robin	2/8/2021	collision	2	buried	34.796938, -82.898856	clear
Ruby-throated Hummingbird	9/8/2021	entrapped	1 immature	buried	34.789858, -82.893871	clear
Herring Gull	1/20/2022	collision	1 immature	buried	34.784736, -82.912444	clear
Black Vulture	7/17/2022	collision	1	buried	34.794019, -82.897041	clear
Osprey	8/18/2022	collision	1 immature	buried	34.798086, -82.888052	clear
Swainson's Thrush	10/5/2022	collision	1	buried	34.796937, -82.898892	clear
Black-throated Blue	10/5/2022	collision	1	buried	34.796937, -82.898892	clear