UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200
ATLANTA, GEORGIA 30303-1200

August 5, 2024

Chris Nolan
Vice President, Strategy & Regulatory Engagement
New Nuclear Generation
Duke Energy Business Services, LLC
526 South Church Street Ec-03t
Charlotte, NC 28202

SUBJECT: NRC AUDIT OF SUBSURFACE INVESTIGATION ACTIVITIES AT THE BELEWS CREEK, NORTH CAROLINA (NC) NUCLEAR PROJECT SITE

Dear Chris Nolan:

This letter provides a summary of an U.S. Nuclear Regulatory Commission (NRC) audit of subsurface investigation work performed for the Belews Creek, NC project site from June 25-26, 2024. This audit was conducted in accordance with Inspection Procedure (IP) 45052, "Review of Geotechnical and Site Characterization Activities."[1]

As described in the audit summary (Enclosure 1), NRC staff examined the quality assurance (QA) programs of the applicant, and their contractors, agents, and consultants, as applied to geotechnical activities, to verify if the programs are being implemented in accordance with the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants."

Based on the results of this audit, the NRC staff determined that QA program requirements were being adequately implemented as required by the applicant and their contractors, agents, or consultants. This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at http://www.nrc.gov/reading-rm/adams.html and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Should you have any questions concerning this letter, please contact me at 404-997-4510.

Sincerely,

Signed by Coovert, Nicole
on 08/05/24

Nicole Coovert,
Director (Acting)
Division of Construction Oversight

Docket No.: 99902121

Enclosure:
NRC Audit Report w/attachment: Supplemental Information

[1] Agencywide Documents Access and Management System (ADAMS) Accession Number ML22019A083.

SUBJECT: NRC AUDIT OF SUBSURFACE INVESTIGATION ACTIVITIES AT THE BELEWS CREEK NORTH CAROLINA (NC) NUCLEAR PROJECT SITE DATED AUGUST 5, 2024

**DISTRIBUTION**:
N. Coovert, RII
B. Gleaves, NRR
R2 EICS

x **ADAMS ACCESSION NUMBER: ML24214A206**

| x SUNSI Review | | x Non-Sensitive<br>☐ Sensitive | | | x Publicly Available<br>☐ Non-Publicly Available | |
|---|---|---|---|---|---|---|
| OFFICE | RII/DCO | RII/DCO | RII/DCO | | | |
| NAME | L. Colon-Fuentes | A. Ponko | N. Coovert | | | |
| DATE | 8/1/24 | 8/1/24 | 8/5/24 | | | |

**OFFICIAL RECORD COPY**

**U.S. NUCLEAR REGULATORY COMMISSION (NRC)**
**Region II**

| | |
|---|---|
| Docket Number: | 99902121 |
| Applicant: | Duke Energy |
| Facility: | Proposed Nuclear Project adjacent to the existing Belews Creek Steam Station |
| Location: | Belews Creek, North Carolina (NC) |
| Inspection Dates: | June 25 through June 26, 2024 |
| NRC Auditors: | A. Ponko, Senior Construction Inspector, Region II, Division of Construction Oversight (DCO)<br>L. Colon Fuentes, Construction Inspector, Region II, DCO |
| NRC Accompanying Personnel: | None |
| Approved by: | Nicole Coovert,<br>Director (Acting)<br>Division of Construction Oversight |

Audit Summary
Belews Creek Subsurface Investigation Activities
June 25-26, 2024

INSPECTION PROCEDURE 45052, "REVIEW OF GEOTECHNICAL AND SITE CHARACTERIZATION ACTIVITIES"

Project geotechnical sampling and data collection field activities were being performed by WSP in accordance with a project specification prepared by Sargent & Lundy, LLC (S&L) for Duke Energy. These activities were being performed under a Quality Assurance Project Document (QAPD) prepared by WSP and approved by S&L. Oversight of WSP field activities was being performed by S&L and Duke Energy.

The staff reviewed documents prepared by Duke Energy, S&L, and WSP describing the quality assurance (QA) measures applicable to geotechnical and site characterization activities being performed to support development of the Early Site Permit (ESP) application. These documents included the Duke Energy policy document for Early Site Permit Application QA Controls (PD-AD-ALL-001, Revision 000), the S&L project specification for subsurface exploration (Specification No.: D-7651, Revision 0), and the WSP QAPD (Quality Assurance Project Document, Revision 1). The staff also reviewed WSP QA procedures, work plans, and work instructions applicable to geotechnical and site characterization activities being performed. The staff reviewed if adequate measures for performing field exploration and data collection activities had been established and were being implemented in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." Specifically, the staff verified that procedures and instructions prescribing site exploration and testing activities had been established and were being adequately implemented for geotechnical drilling and sampling, well drilling and sampling, calibration of measuring and test equipment (M&TE), handling and storage of core samples, personnel training and qualifications, corrective actions, and contractor oversight.

The staff observed in process core boring at boreholes B-8 and B-13 to verify that geotechnical drilling and sampling was being conducted in accordance with the S&L project specification, WSP QAPD, and implementing work plans, procedures, and instructions. The staff also observed the handling and care of newly completed rock core samples and performed a walk down of the core storage facility to verify that the handling, care, and storage of completed rock core samples was in accordance with project requirements. Additionally, the staff observed in process installation of a groundwater monitoring well to verify if work was being performed in accordance with the WSP project specification and applicable WSP plans, procedures, and instructions.

The staff verified that qualification records exist for personnel performing activities affecting quality and reviewed a sample of qualification records to verify that measures were being adequately implemented for the training of personnel to ensure that suitable proficiency was achieved and maintained.

The staff reviewed procedures associated with the control of M&TE and verified that measures were established to ensure that M&TE used in site characterization activities are of the proper range, type, and accuracy and provide for inspection, calibration, adjustment, and maintenance of M&TE at prescribed intervals, using national standards as a basis for calibration. The staff

also reviewed the M&TE log and sampled M&TE issued for use to determine that controls for calibration were being adequately implemented and to verify that in-use M&TE was in good working order, properly calibrated, and uniquely identifiable.

The staff reviewed the audit report that Duke Energy relied upon to qualify S&L as an approved supplier and three project surveillances conducted by Duke Energy to verify that work being performed by S&L and WSP in support of the Belews Creek, NC ESP application conformed to the procurement specification and applicable QA program requirements. The staff also reviewed a surveillance report and three daily surveillances completed by S&L of geotechnical drilling and sampling activities performed by WSP to verify work conformed to the procurement documents, project specification, and quality assurance requirements. The staff verified that Duke Energy was performing adequate oversight of S&L and WSP in accordance with the requirements of 10 CFR Part 50, Appendix B.

The staff reviewed the Belews Creek ESP application condition report (CR) log and a sample of eight open CRs to verify that measures were being adequately implemented to promptly identify, classify, and resolve deficiencies, nonconformances, and conditions adverse to quality in a timely manner. The staff also reviewed a sample of three deviation requests to verify that proposed deviations from the project specification were reviewed and approved by the responsible organization.

The staff also verified that project quality records were being stored in accordance with applicable requirements.

Based on the results of this audit, the staff determined that QA program requirements, as applicable to ESP geotechnical activities, were being adequately implemented in accordance with the requirements of Appendix B to 10 CFR Part 50.

On June 26, 2024, the NRC staff discussed the results of this audit with Mr. Chris Nolan, Vice President, Vice President, Strategy & Regulatory Engagement, New Nuclear Generation, Duke Energy Business Services, LLC and other members of your staff. Proprietary and copyright information was reviewed during the audit period but was not included in the audit report.

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

Applicant and Contractor Personnel
Chris Nolan, Duke Energy, Vice President, Strategy & Regulatory Engagement, New Nuclear Generation
Lee Grzeck, Duke Energy, Licensing Manager, New Nuclear Generation
Art Zaremba, Duke Energy, Licensing Engineer
Paul Finch, Duke Energy, Project Manager
Joe Zmuda, S&L, Senior Manager
Jianhua (Lee) LI, S&L, Geotechnical Engineer
Alfredo Garcia, S&L, QA Lead
Brandt Modlin, WSP, Project Manager
Jeff Smith, WSP, Nuclear Chief Technical Lead
Will Grimes, WSP, Nuclear QA Manager

### LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

| Item Number | Type | Status | Description |
|---|---|---|---|
| None | | | |

### LIST OF DOCUMENTS REVIEWED

Plans, Procedures, and Instructions
Duke Energy Early Site Permit Application QA Controls, PD-AD-ALL-0001, Revision 000
S&L Specification No.: D-7651, Belews Creek Early Site Permit (ESP) Subsurface Exploration, Revision 0
WSP Quality Assurance Project Document, Belews Creek ESP, Revision 1
WSP Nuclear Quality Assurance Procedure (NQAP) 1-01, Safey Conscious Work Environment, Revision 0
WSP Nuclear Quality Assurance Procedure (NQAP) 5-01, Preparation of a Quality Assurance Project Document, Revision 0
WSP Nuclear Quality Assurance Procedure (NQAP) 5-02, Preparation of Work Plans, Revision 0
WSP Nuclear Quality Assurance Procedure (NQAP) 5-03, Preparation of Work Instructions, Revision 0
WSP Nuclear Quality Assurance Procedure (NQAP) 6-01, Approval of Deviations, Revision 0
WSP Nuclear Quality Assurance Procedure (NQAP) 12-01, Calibration of Materials & Test Equipment, Revision 1
WSP Nuclear Quality Assurance Procedure (NQAP) 16-01, Procedure for Conforming to Federal Regulations 10CFR21 and 10CFR50.55(e), Revision 0
WSP Nuclear Quality Assurance Procedure (NQAP) 16-02, Corrective Action and Performance Improvement, Revision 0
WSP Nuclear Quality Assurance Procedure (NQAP) 17-01, Quality Assurance Records, Revision 1
WSP Nuclear Quality Assurance Procedure (NQAP) 20-01, Personnel Training and Qualifications, Revision 1

WSP Nuclear Quality Assurance Procedure (NQAP) 20-02, Project Indoctrination and Training, Revision 0
WSP Nuclear Work and Test Procedure 8-01, Control of Samples during Transfer using Chains of Custody, Revision 0
WSP Nuclear Work and Test Procedure 12-01, Calibration and Verification of Automatic Hammers for Standard Penetration Testing of Soils, Revision 0
WSP Nuclear Work and Test Procedure SPT-01, Calibration of Standard Penetration Test Energy Measuring Equipment, Revision 0
WSP Work Plan (Geotechnical Drilling and Testing), Belews Creek ESP, Revision 0
WSP Work Plan (Well Installation), Belews Creek ESP, Revision 0
WSP Work Instruction No. 3, Lead Geologist and Deputy Lead Geologist, Revision 0
WSP Work Instruction No. 4, Rig Geologist and Rig Geologist – Hydrogeology, Revision 0
WSP Work Instruction No. 5, Geotechnical Drilling and Sampling, Revision 0
WSP Work Instruction No. 6, Well Drilling and Sampling, Revision 0
WSP Work Instruction No. 7, Drill Rig and Equipment Qualification, Revision 0
WSP Work Instruction No.8, Well Installation, Revision 1

Audits & Surveillance Reports
Nuclear Procurement Issues Corporation (NUPIC) Audit 25110, March 7-11, 2022
Duke Energy, Supplier Surveillance Report, VS240009, May 21-22, 2024
Duke Energy, Supplier Surveillance Report, VS240016, May 14-15, 2024
Duke Energy, Supplier Surveillance Report, VS240018, May 20-21, 2024
S&L Surveillance Report No. 2024-067**,** June 4, 2024
S&L Belews Creek Geotechnical Field Surveillance Daily Report, April 5, 2024
S&L Belews Creek Geotechnical Field Surveillance Daily Report, April 9, 2024
S&L Belews Creek Geotechnical Field Surveillance Daily Report, April 10, 2024

Condition Reports
NUK-2024-17
NUK-2024-20
NUK-2024-21
NUK-2024-22
NUK-2024-23
NUK-2024-24
NUK-2024-25
NUK-2024-26

Calibration Records
BEL-0044.0 2024-03-28 Calibrations - Caliper Data Loggers Load Cells, Revision 0
BEL-0112.0 2024-04-17 MTE Checklist - Premier Drilling Split Spoons, Revision 0
BEL-0162.0 2024-05-27 Calibrations - SPT Energy Measurement Testing Equipment, Revision 0

Qualification Records
BEL-0007.0 2024-01-16 Personnel Qualification, Revision 0
BEL-0030.0 2024-03-20 Personnel Qualification, Revision 0
BEL-0031.0 2024-03-20 Personnel Qualification, Revision 0
BEL-0033.0 2024-03-20 Personnel Qualification, Revision 0
BEL-0035.0 2024-03-20 Personnel Qualification, Revision 0
BEL-0087.0 2024-04-16 Personnel Qualification, Revision 0
BEL-0088.0 2024-04-16 Personnel Qualification, Revision 0

BEL-0160.0 2024-05-23 Personnel Qualification, Revision 0

Miscellaneous
BEL-0073.1 2024-04-16 Deviation Request No 01
BEL-0125.2 2024-05-03 Deviation Request No 04
BEL-0205.1 2024-06-13 Deviation Request No 10