



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVE., NE., SUITE 1200
ATLANTA, GEORGIA 30303-1257

September 28, 2016

Mr. B. H. Whitley, Director Regulatory Affairs
Southern Nuclear Company
42 Inverness Center Parkway
Birmingham, AL 35242

SUBJECT: NRC VISIT TO STEWART COUNTY SITE TO OBSERVE COMBINED LICENSE
PRE-APPLICATION SUBSURFACE INVESTIGATION ACTIVITIES
(PROJECT NO. 0820)

Dear Mr. Whitley:

On August 23-24, 2016, an NRC Region II inspector accompanied by 2 staff members of the Office of New Reactors (NRO) staff, conducted a site visit at the Stewart County site, located near Omaha, Georgia. The purpose of the site visit was to observe in-process combined license (COL) pre-application subsurface investigation activities being conducted to obtain geologic, geotechnical, and geophysical data to support a potential COL application (COLA) for two new nuclear power plant units. These observations will provide background information to assist the NRC's future review of the expected COL application for the Stewart County Site.

Enclosed is a summary report on the site visit that includes a list of NRC participants and persons with whom discussion were held. In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection through NRC's Document Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov>.

Should you have any questions concerning this report, please contact me at 404-997-4451.

Sincerely,

/RA/

Jamie Heisserer, Chief
Construction Inspection Branch 2
Division of Construction Inspection

Project No. 0820

Enclosure: As stated



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PUBLICLY AVAILABLE NON-PUBLICLY AVAILABLE SENSITIVE NONSENSITIVE
ADAMS: No. ACCESSION NUMBER: **ML16274A213** SUNSI REVIEW COMPLETE FORM 665 ATTACHED

OFFICE	RII:DCI	HQ:NRO	HQ: NRO	RII: DCI
SIGNATURE	/RA/	/RA via email/	/RA via email/	/RA/

COL Stewart County

NAME	B. Davis	G. Stirewalt	R. Rodriquez	J. Heisserer
DATE	9/ /2016	9/28/2016	9/ /2016	9/ /2016
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY

DOCUMENT NAME: G:\CCI\Inspection Reports\New Reactors\Stewart County

Letter to Mr. B. Whitley from Jamie Heisserer dated

SUBJECT: NRC VISIT TO STEWART COUNTY SITE TO OBSERVE COMBINED LICENSE
PRE-APPLICATION SUBSURFACE INVESTIGATION ACTIVITIES
(PROJECT NO. 0820)

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PUBLIC

OBSERVATION OF COMBINED LICENSE PRE-APPLICATION
SUBSURFACE INVESTIGATION ACTIVITIES AT THE PROPOSED STEWART COUNTY SITE
PROJECT NUMBER 0820

Purpose of Site visit:

The Nuclear Regulatory Commission (NRC) Region II and Office of New Reactors (NRO) staff conducted a site visit on August 23 & 24, 2016, at the proposed Stewart County site near Omaha, GA, about 30 miles south of Columbus. The purpose of the site visit was to observe in-progress combined license (COL) pre-application subsurface investigation activities being conducted to obtain geologic, geotechnical, and geophysical data to support a potential COL application (COLA) for two new nuclear power plants at this site location. These observations will provide background information to assist NRC staff with future review of the potential COLA for the site. Although this visit was not an official NRC inspection, the site visit team used the following documents for guidance:

- NRC Inspection Manual Chapter 2502, Construction Inspection Program: Pre-Combined License (PRE-COL) Phase
- NRC Inspection Procedure 45051, Geotechnical/Foundation Activities Procedure Review
- NRC Inspection Procedure 45052, Review of Geotechnical and Site Characterization Activities
- NRC Inspection Procedure 35007, Quality Assurance Program Implementation During Construction and Pre-Construction Activities

This site visit was conducted to ascertain whether adequate quality assurance (QA) controls, as applicable to elements of pre-COL geotechnical exploration activities, had been established and were being implemented. In addition, the team assessed whether the technical requirements for geotechnical/foundation exploration for a COLA were adequately addressed through specifications, drawings, and work procedures.

Principal Persons Contacted:

T. Hicks, Southern Company
H. Mahan, Southern Company
B. Thach, Southern Company
J. Cunliffe, Bechtel Power
J. Damm, Bechtel Power
M. Reimnitz, Bechtel Power
R. Yelamanchi, Bechtel Power
W. Lettis, Lettis Consultants Int.
F. Syms, Lettis Consultants Int.
E. Evans, S&ME
T. Dobras, S&ME
B. Camp, S&ME
M. Cooke, S&ME

NRC Inspectors:

B. Davis, Senior Construction Inspector, RII

NRC Accompanying Personnel:

G. Stirewalt, Senior Geologist, NRO

R. Rodriguez, Geotechnical Engineer, NRO

Background:

By copy of the letter from B.H. Whitley, Director of Regulatory Affairs for Southern Nuclear Operating Company, Inc. (SNC), to J. Uhle dated March 23, 2016, SNC informed the NRC regarding its intention to research and assess the viability for construction of a potential new nuclear power reactor in Stewart County, Georgia. That letter apprised the NRC of the possible submission of a combined operating license application (COLA) for a site in Stewart County located on the western border of Georgia along the Chattahoochee River, approximately 30 miles south of Columbus, Georgia. SNC stated that preliminary site characterization investigations had been performed to evaluate several sites, and that those investigations had resulted in identification of the Stewart County site as the preferred location. In addition, SNC used this letter to request a meeting with NRC staff to discuss the actions required to support a COLA and the schedule to ensure completeness and timely submittal of the COLA.

Overview of Subsurface Investigation Activities Discussed and/or Observed:

The NRC team visited the SNC proposed COL site located in Stewart County to observe subsurface geotechnical and geophysical investigations being performed at the site. A meeting was held off-site to discuss the purpose of the site visit and to facilitate an understanding of the subsurface investigation activities/methods performed. Southern Nuclear Company, in collaboration with Bechtel and S&ME staff, provided a presentation outlining the geologic and geophysical testing methods employed for the subsurface investigation activities. The discussion included information on the COL application timeframe; current or planned geotechnical, geologic, geophysical, and seismic activities at the proposed site; and some preliminary field data. The preliminary field data included information on the following geologic and geotechnical site characteristics: (a) general stratigraphy at the proposed site; (b) borehole data showing shear wave velocity measurements at the proposed site that suggest a continuous hard stratigraphic layer in the Blufftown Formation, which is the proposed foundation unit; (c) a seismic reflection profile showing that the Andersonville fault exists east of the site location; and (d) a plan view of the site showing the locations of current or planned bore holes and field tests. Information was also provided regarding a seismic network consisting of 1 broadband instrument and 4 short-period instruments which were already operational and will be used to obtain data for developing site-specific parameters for the ground motion model. The applicant summarized the site characterization activities performed to date, as well as planned future characterization activities, the results of which will be used to support the COL application. In addition, an overview of the quality assurance and corrective actions programs used by each supplier in implementing the geotechnical investigations was provided.

Quality Assurance:

Field exploratory activities were being performed by S&ME through their quality assurance manual. An S&ME quality assurance representative performed surveillances and monitored the project for compliance. Periodic surveillances were performed by Bechtel and SNC quality assurance personnel. A sample of drilling activities were observed by the inspectors to determine whether appropriate quality control and technical site characterization process were being implemented. The inspectors also observed field exploration activities to verify the

following attribute were adequate:

- Approved and documented instructions, procedures, and drawings were established, and were in use for site characterization activities.
- Measures were implemented for test control and engineering direction was readily available to rig geologist and drill rig technicians in the field.
- Measures existed to identify and resolve non-conformances and conditions adverse to quality.
- Coring samples were adequately stored and handled in the field in accordance with procedures.
- Controls for calibration of equipment were adequately implemented.
- For site characterization activities performed by vendors, appropriate oversight and procurement controls were implemented.

The site visit team reviewed the following QA documents, technical procedures, and engineering specifications:

- S&ME Field Instruction No. SCP-FI-005, Rig Geologist/Engineer Assigned to SPT/Soil Core Borings,” Rev. 3
- S&ME Planning Document No. SCP-SIWP-16-02, Subsurface Investigation Work Plan SNC – Stewart County Project, Rev. 1
- S&ME Document No. SCP-16-0412-00, Soil Classification Reference Sheet, Rev. 1
- Bechtel Engineering Specification 25938-000-3PS-CY05-G0002, Subsurface Investigation and Laboratory Testing for SNC Stewart County Project Site, Rev. 5
- S&ME Document No. SCP-SIFP-08-00, Subsurface Investigation Field Procedures Stewart County Project, Rev. 0
- S&ME Document No. SCP-QAPD-16-03, Quality Assurance Project Document Stewart County Project, Rev. 0
- S&ME Procedure SCP-GLTP-16-02, Geotechnical Laboratory Testing Plan Stewart County Project, Rev. 1
- S&ME Procedure QAP-16.1, Corrective Action Program, Rev. 7
- S&ME Surveillance QA-SCP-SR-16-023, Source Verification Surveillance Report, Calibration of ConeTec CPT Measuring & Test Equipment, Rev. 0
- S&ME Surveillance QA-SCP-SR-16-021, Surveillance Report of Geophysical Logging (GEO Vision) Borings B-1023A and EB-1104A, Rev. 0
- S&ME SPT Automatic Hammer Calibration and Verification Form, Drill Rig CME 550X 356573, Hammer Assembly ID # 573
- Bechtel Stewart County Project Quality Assurance Program Plan, 25938-000-GQP-GAQ-00001, Rev. 1
- Bechtel Stewart County Project Site Subsurface Investigation Oversight Plan, 25938-001-GGO-GAQ-00001, Rev. 0
- Bechtel Stewart County Project Corrective Action Management, 25938-000-GPP-GAM-00002, Rev. 0
- Bechtel Quality Assurance Surveillance Report, 25938-000-QSSS-16-004, Rev. 0
- Bechtel Audit of S&ME Louisville TN, 50158-100-YAA-2015-0004, June 9-11, 2015

The inspectors reviewed corrective action reports generated to date on the project to determine whether conditions adverse to quality were addressed in an adequate and timely manner. The condition reports identified issues with: 1) procedure adherence for the logging of boring

material and 2) commercial grade procurement. The documented corrective actions appeared appropriate and timely.

Drilling and Sampling Observed:

NRC staff examined core and jar samples of soil materials from Borehole B-2001 that were previously collected, all of which were carefully and systematically labeled, catalogued, and stored in a well-organized climate-controlled storage facility in accordance with applicable ASTM standards and project procedures. The inspectors observed drilling activities and the collection of split spoon samples for Borehole B-2009 and B-2104 located within the footprints of the proposed Unit 1 & 2 locations. The activities observed included the preparation of records by the rig geologist to document drilling progress and sample descriptions. The sample descriptions prepared by the rig geologist included borehole location, sample name, depth interval, length, color, and soil classification. The rig geologist for each borehole location had a set of project procedures and technical requirements describing the requirements for collecting, cataloguing, and storing the samples obtained. The initiation of Borehole B-1923-B, located between the two proposed units, was also observed by the inspectors. This borehole will penetrate Coastal Plain sedimentary units and continuously core down to pre-Mesozoic (i.e., > 252 million years in age) crystalline basement at a depth of about 1700 feet below the existing ground surface. The staff also examined natural outcrops of the Blufftown Formation along the Chattahoochee River.

Observation of work in progress included drilling, obtaining core samples, generation of logging records, and review of geophysical measurements. The NRC site visit team verified that the work was being performed in accordance with appropriate procedures.

Conclusion:

Geotechnical subsurface investigation activities were observed to be adequately controlled with an appropriate level of supervisory and quality assurance oversight and in accordance with procedural requirements and industry standards. No issues were identified.