



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
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THRU: Charles A. Casto, Director /RA/ H. CHRISTENSEN
Division of Reactor Safety FOR: 1/24/03

FROM: Jerome J. Blake, Senior Project Manager /RA/
Division of Reactor Safety J. BLAKE 1/24/03

SUBJECT: PRE-APPLICATION SITE VISIT TO NORTH ANNA NUCLEAR STATION
TO OBSERVE EARLY SITE PERMIT (ESP) PRE-APPLICATION
SUBSURFACE INVESTIGATION ACTIVITIES (PROJECT NO. 719)

On December 11 and 12, 2002, I conducted a site visit at the North Anna Nuclear Station with Mr. Steve Koenick and Mr. Mike Scott, Project Managers, New Reactor Licensing Project Office and Dr. Yong Kim, Structural Engineer, Division of Engineering.

The purpose of this visit was to observe early site permit (ESP) pre-application subsurface investigation activities conducted to obtain geotechnical/seismic data. These observations will provide background information for NRC's future review of the ESP application.

A summary of the site visit is attached. A list of persons with whom discussions were held is provided in the attachment.

Attachment: As stated

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PRE-APPLICATION SITE VISIT TO NORTH ANNA NUCLEAR STATION TO OBSERVE
EARLY SITE PERMIT (ESP) PRE-APPLICATION SUBSURFACE INVESTIGATION
ACTIVITIES (PROJECT NO. 719)

Purpose of Visit:

The information gathering visit was conducted by staff of the Nuclear Regulatory Commission (NRC), Region II and the Office of Nuclear Reactor Regulation (NRR), to observe early site permit (ESP) pre-application subsurface investigation activities conducted to obtain geotechnical and seismic data.

Persons Contacted:

D. Batalo, Lead Engineer, Early Site Permitting Project, Dominion Resources Services. Inc.
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T. Dobras, Principal Engineer, Quality Assurance Manager, MACTEC Engineering and Consulting, Inc.
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M. Smith, Project Manager, Early Site Permitting Project, Dominion Resources Services. Inc.
J. Tice, Senior Principal Engineer, Assistant Vice President, MACTEC Engineering and Consulting, Inc.

Background:

During the public meeting between NRC and the Nuclear Energy Institute (NEI), regarding new reactor licensing on April 1, 2002, Dominion informed the staff that it had selected the North Anna site for an ESP application, with the intent of submitting the application in September 2003. An ESP provides for resolution of site safety, environmental protection, and emergency preparedness issues, independent of a specific nuclear plant review. Dominion has contracted Bechtel to conduct the site studies required for the ESP application.

Overview of subsurface investigation activities discussed and/or observed:

Dominion plans to use the subsurface investigations described below, in conjunction with the data from the canceled North Anna Units 3 and 4 (Docket Nos. 404 and 405 which had been partially completed under Construction Permits CPPR-114 and CPPR-115), to provide data to determine site suitability for an ESP. Dominion's current subsurface investigation activities included areas which would be the site of cooling towers, if needed to support any future power plants. Dominion recognizes that additional subsurface investigation would be necessary at the combined license stage after a specific reactor type has been identified.

Drilling and sampling - On December 11 and 12, 2002, members of NRR (EMEB and NRLPO) and Region II toured the locations where nine observation wells and seven boreholes were drilled within the ESP boundary. Potential locations for cone penetration tests (CPTs) were also noted during the tour.

ATTACHMENT

The wells and boreholes were drilled by MACTEC using rotary drill rig equipment mounted on all-terrain carriers, the CPTs were conducted by a subcontractor, Applied Research Associates, under the supervision of the MACTEC Site Supervisor, using a truck mounted electric cone penetrometer probe.

Boreholes were drilled to a depth of 50 to 90 ft. (with one being drilled to ~170 ft.) and observation wells were drilled to a depth of 40 to 60 ft. Bedrock was encountered at a depth of between 10 and 30 ft. in the wells, boreholes, and during conduct of the CPTs. In the boreholes, soil samples were collected at 2 ½ ft. intervals for the first 15 ft. and at 5 ft. intervals thereafter using split-spoon sampling. Rock coring was conducted in accordance with ASTM D 2113, "Standard Practice for Rock Core Drilling and Sampling of Rock for Site Investigations," to complete the boreholes. Two sets of three parallel holes were drilled for seismic testing in accordance with ASTM D 4428/D4428M-00, "Standard Test Methods for Crosshole Seismic Testing"; one set of holes was for determining the horizontally traveling compression and shear seismic waves in the soils covering the bedrock, and one set was for similar testing of the bedrock. CPTs were conducted in accordance with ASTM D 5778-95, "Standard Test Method for Performing Electronic Friction Cone and Piezocone Penetration Testing of Soils."

The staff observed one of the CPT tests conducted on December 11, 2002, and a portion of the crosshole seismic testing of the soils covering the bedrock on December 12, 2002. The staff also obtained applicable procedures for review, discussed technical aspects of the testing with the Dominion and contractor staff performing the testing, and inspected the sample storage facility that had been established in the North Anna Class A warehouse.

All testing activities appeared to be controlled by adequate procedures and standards, with an appropriate level of supervisory and Quality Assurance oversight.