



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

October 4, 2006

Mr. Eugene S. Grecheck
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SUBJECT: PRE-APPLICATION SITE VISIT TO NORTH ANNA SITE TO OBSERVE
COMBINED LICENSE PRE-APPLICATION SUBSURFACE
INVESTIGATION ACTIVITIES (PROJECT NO. 741)

Dear Mr. Grecheck:

On September 13 and 14, 2006, Region II Inspectors conducted a site visit to the North Anna site accompanied by members of the Nuclear Reactor Regulation (NRR) staff. The purpose of the visit was to observe combined license (COL) pre-application subsurface investigation activities being conducted to obtain geotechnical/seismic data to support a COL application for a new nuclear power plant. These observations will provide background information for NRC's future review of the expected COL application for the North Anna site.

A summary of the site visit is enclosed, that includes a list of NRC participants and persons with whom discussions were held.

Sincerely,

/RA/

Mark S. Lesser, Branch Chief
Division of Construction Inspection

Enclosure: Pre-application Site Visit to North Anna

cc w/encl: (See next page)

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PUBLICLY AVAILABLE NON-PUBLICLY AVAILABLE SENSITIVE NON-SENSITIVE

ADAMS: Yes ACCESSION NUMBER: _____

OFFICE	RII:DCI	RII:DCI	RII:DRP	NRR		
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DATE	10/3/06	10/3/06	10/4/06	10/3/06		
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME: E:\Filenet\ML062770189.wpd

North Anna Early Site Permit
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PRE-APPLICATION SITE VISIT TO NORTH ANNA SITE TO OBSERVE
COMBINED OPERATING LICENSE (COL) PRE-APPLICATION
SUBSURFACE INVESTIGATION ACTIVITIES
PROJECT NUMBER 741

Purpose of Visit:

The information gathering visit was conducted on September 13 and 14, 2006, by staff of the Nuclear Regulatory Commission (NRC), Region II and the Office of Nuclear Reactor Regulation (NRR). Region II inspectors observed combined license (COL) pre-application subsurface investigation activities conducted to obtain geotechnical and seismic data at the proposed location of a new nuclear power plant at the North Anna site. This visit was an on-site observation and information gathering trip in which the staff used the following inspection manual chapter and procedures as guidance:

NRC Inspection Manual Chapter 2502, Construction Inspection Program: Pre-Combined License (pre-COL) Phase

NRC Inspection Procedure 35005, Pre-Docketing Combined License Quality Assurance Controls Inspection

NRC Inspection Procedure 45051, Geotechnical/Foundation Activities Procedure Review

10 CFR 50, Appendix B, for Applicant's QA Measures for On-going Design and Procurement Activities

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Background:

By letter of July 17, 2006, Dominion informed the NRC staff that the North Anna site would be the subject for a COL application, with the intent of submitting the application in November 2007. A COL is a combined construction permit and operating license with conditions for a nuclear power facility pursuant to 10 CFR Part 52 Subpart C. Dominion has contracted Bechtel as a nuclear services provider, with MACTEC Engineering and Consulting, along with William Lettis and Associates (WLA), to conduct the geotechnical site studies required for the COL application.

Overview of subsurface investigation activities discussed and/or observed:

Dominion plans to use the subsurface investigations described below to provide geotechnical data to determine suitability of the North Anna site for a COL for an Economic Simplified Boiling Water Reactor (ESBWR) facility. Dominion's current subsurface investigation activities included areas which would be the site of the proposed reactor and power block sites as well as associated yard structures.

The scope of the planned site characterization activities includes various field and geotechnical laboratory tests. Field exploration methods addressed in the Dominion site characterization plan include standard penetration tests, ground water observation wells, seismic downhole velocity measurements (P-S logging), cone penetration tests, and test pit excavation. Proposed geotechnical laboratory tests on soil samples include soil classification, moisture content, direct shear tests, triaxial shear tests, consolidation tests, and dynamic tests. Planned testing of rock samples include unconfined compression, with stress-strain measurements.

Drilling and Sampling Observations

Drilling and sampling observations by team members during the site trip included locations to be drilled within the site characterization boundary. The team verified that NRC Regulatory Guide (RG) 1.132, "Site Investigations for Foundations of Nuclear Power Plants," was being used as guidance for site investigation activities. The boreholes were being drilled under direction of Bechtel, and its geotechnical engineering subcontractor, MACTEC using rotary drill rig equipment. The boreholes are planned to be drilled to a depths varying from 75 feet to 300 feet.

The team visited several boring locations and observed performance of geophysical testing and rock coring at some of these locations. The team also examined the site topography and reviewed characterization of geological features indentified during preliminary site exploration work.

Soil sampling operations were witnessed. Field logs, boring assignment records, and work instructions, including drilling and sampling procedures and field records and sampling control procedures were reviewed. In addition, the team verified that the disturbed and undisturbed samples collected prior to the team's arrival were properly stored and sealed in accordance with ASTM D4220, Standard Practice for Preserving and Transporting Soil Samples. The team examined the core boring for location OW-901 (the center of the reactor), which was drilled prior to the team's arrival, to a depth of 300 feet. The team also examined disturbed soil samples collected from a split spoon sampler from other locations. MACTEC is currently in the process of updating the geologic, geophysical, and seismic data base for the North Anna site.

The team noted that drilling operations are being overseen by MACTEC geotechnical personnel. The team interviewed three of the rig geologists who provide technical oversight of drilling operations. These individuals classify soil samples, record data on boring logs, and provide assurance that subsurface drilling activities are performed in accordance with applicable procedure requirements and standard geotechnical engineering practices. The team concluded that these individuals were knowledgeable in drilling operations and site geotechnical procedural requirements. The team also reviewed the qualification and training records for selected MACTEC geotechnical personnel and noted that several had advanced degrees and professional registrations.

The team reviewed the procedures listed below and discussed technical aspects of the drilling and testing with the MACTEC geotechnical engineers supervising the site investigation. The potential applicant stated that site exploration program will be adjusted as necessary to obtain additional information as the site investigation proceeds. Discussions with the potential applicant disclosed that ground water elevation in the observation wells will be monitored periodically. The team reviewed the MACTEC quality assurance measures being applied to the work. The team verified that the drilling equipment was in good condition and proper working order. The team reviewed the calibration records for the weights (automatic hammers) used for the standard penetration tests. The team also reviewed the ten nonconformance reports which had been written prior to the NRC visit and reviewed quality assurance surveillance reports.

All drilling and field testing activities appeared to be controlled by adequate procedures and standards with an appropriate level of supervisory and quality assurance oversight. The team concluded that all of the work was being done in an appropriately controlled manner.

Documents Examined

Dominion Nuclear Facility QA Program Description (Topical Report DOM-QA-1, Revision 1)

Dominion Vendor Programs Audit of MACTEC, Audit DA 2006-63, dated 6/7-9/2006

MACTEC Quality Assurance Manual, Revision 1, dated 6/17/05

MACTEC Quality Assurance Project Document for North Anna Nuclear Plant COL, MACTEC Project Number 6468-06-1472, dated 8/7/06, Revision 1

MACTEC Non-Conformance Report Log, North Anna COL Project, MACTEC Project Number 6468-06-1472

QAP 11-2, Procedure for Control of Software and Hardware, Revision 0, dated 7/27/06

QAP 18-1, Audit Procedure, Revision 1, dated 8/7/06

QAP 18-2, Procedure for Qualification of Lead Auditor and Other Audit or Surveillance Personnel, Revision 1, dated 8/7/06

QAP 20-1, Procedure for Qualification of Personnel, dated 7/27/06

QAP 23-1, Procedure for Preparation of a Work Plan, dated 7/27/06

QAP 24-1, Procedure for Preparation of Work Instructions, Revision 1, dated 8/7/06

QAP 25-1, Procedure for Document Control, Revision 1, dated 8/7/06

North Anna COL Geotechnical Work Plan, Revision 1, dated 8/8/06, plus Attachments listed below:

- Attachment 1, Survey Data Reports
- Attachment 2, Drilling and Sampling Procedures
- Attachment 3, Cone Penetration Tests Procedures
- Attachment 4, Downhole Test Procedures
- Attachment 5, Electrical Resistivity Test
- Attachment 6, Field Records and Sample Control Procedures
- Attachment 7, Laboratory Control and Procedures

Audit Plan 06-16, North Anna COL Application Site Activities (Note: This was in draft as the audit was in progress at the time of the site visit.)

Selected MACTEC Personnel Qualifications

Selected MACTEC Equipment Calibrations