



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET SW SUITE 23T85
ATLANTA, GEORGIA 30303-8931

MEMORANDUM TO: James E. Lyons, Director
New Reactor Licensing Project Office
Office of Nuclear Reactor Regulation

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

cc w/Attachment:

Mr. David A. Christian
Senior Vice President
and Chief Nuclear Officer
Dominion Energy, Inc.
5000 Dominion Blvd.
Glen Allen, VA 23060

Mr. C. Lee Lintecum
County Administrator
Louisa County
P. O. Box 160
Louisa, Virginia 23093

Mr. Joseph D. Hegner
Lead Engineer - Licensing
Dominion Generation
Early Site Permitting Project
5000 Dominion Boulevard
Glen Allen, VA 23060

Ms. Lillian M. Cuoco, Esq.
Senior Nuclear Counsel
Dominion Nuclear Connecticut, Inc.
Millstone Power Station
Building 475, 5th floor
Rope Ferry Road
Rt. 156
Waterford, Connecticut 06385

(cc w/attachment cont'd - See page 2)

(cc w/attachment cont'd)

Dr. W. T. Lough
Virginia State Corporation
Commission
Division of Energy Regulation
P. O. Box 1197
Richmond, Virginia 23209

Director
Nuclear Licensing & Operations Support
Virginia Electric Power Company
Innsbrook Technical Center
5000 Dominion Blvd.
Glen Allen, Virginia 23060-6711

Office of the Attorney General
Commonwealth of Virginia
900 East Main Street
Richmond, Virginia 23219

Senior Resident Inspector
North Anna Power Station
U. S. Nuclear Regulatory Commission
1024 Haley Drive
Mineral, Virginia 23117

Mr. David A. Heacock
Site Vice President
North Anna Power Station
P. O. Box 402
Mineral, Virginia 23117-0402

Mr. Robert B. Strobe, M.D., M.P.H.
State Health Commissioner
Office of the Commissioner
Virginia Department of Health
P. O. Box 2448
Richmond, Virginia 23218

Mr. Marvin L. Smith
Project Manager
North Anna Early Site Permit Project
Dominion Energy, Inc.
5000 Dominion Blvd.
Glen Allen, VA 23060

Mr. Eugene S Grecheck
Vice President - Nuclear Support Services
Dominion Energy, Inc.
5000 Dominion Boulevard
Glen Allen, Virginia 23060

Mr. David Lochbaum
Union of Concerned Scientists
1707 H Street, NW
Suite 600
Washington, DC 20006-3919

Mr. Paul Gunter
Director of the Reactor Watchdog Project
Nuclear Information & Resource Service
1424 16th Street, NW, Suite 404
Washington, DC 20036

Mr. Ron Simard
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Mr. Russell Bell
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Mr. Thomas P. Miller
U.S. Department of Energy
Headquarters - Germantown
19901 Germantown Road
Germantown, MD 20874-1290

Mr. James Riccio
Greenpeace
702 H Street, NW, Suite 300
Washington, DC 20001

Ms. Patricia Campbell
Winston & Strawn
1400 L Street, NW
Washington, DC 20005

(cc w/attachment cont'd - See page 3)

(cc w/attachment cont'd)

Mr. James F. Mallay, Director
Regulatory Affairs
FRAMATOME, ANP
3315 Old Forest Road
Lynchburg, VA 24501

Mr. Ernie H. Kennedy
Vice President New Plants
Nuclear Plant Projects
Westinghouse Electric Company
2000 Day Hill Road
Windsor, CT 06095-0500

Dr. Regis A. Matzie
Senior Vice President and
Chief Technology Officer
Westinghouse Electric Company
2000 Day Hill Road
Windsor, CT 06095-0500

Mr. Gary Wright, Manager
Office of Nuclear Facility Safety
Illinois Department of Nuclear Safety
1035 Outer Park Drive
Springfield, IL 62704

Mr. Vince Langman
Licensing Manager
Atomic Energy of Canada Limited
2251 Speakman Drive
Mississauga, Ontario
Canada L5K 1B2

Mr. David Ritter
Research Associate on Nuclear Energy
Public Citizens Critical Mass Energy
and Environmental Program
215 Pennsylvania Avenue, SE
Washington, DC 20003

Mr. Tom Clements
6703 Guide Avenue
Takoma Park, MD 20912
Mr. Edwin Lyman
Nuclear Control Institute
1000 Connecticut Avenue, NW
Suite 410
Washington, DC 20036

Mr. Jack W. Roe
SCIENTECH, INC.
910 Clopper Road
Gaithersburg, MD 20878

Dr. Gail H. Marcus
U.S. Department of Energy
Room 5A-143
1000 Independence Ave., SW
Washington, DC 20585

Mr. Charles Brinkman
Westinghouse Electric Co.
Washington Operations
12300 Twinbrook Pkwy., Suite 330
Rockville, MD 20852

Mr. Ralph Beedle
Senior Vice President
and Chief Nuclear Officer
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Dr. Glenn R. George
PA Consulting Group
130 Potter Street
Haddonfield, NJ 08033

Mr. Arthur R. Woods
Enercon Services, Inc.
500 TownPark Lane
Kennesaw, GA 30144

Distribution w/attachment: See page 4

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 M. Scott

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NAME	JBLAKE	SKOENICK	MSCOTT	YKIM	MLESSER	CCASTO	
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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.
J. Davie, Senior Principal Engineer, Geotechnical & Hydraulic Engineering Services, Bechtel Power Corporation
T. Dobras, Principal Engineer, Quality Assurance Manager, MACTEC Engineering and Consulting, Inc.
S. Routh, Manager of Regulatory Affairs, Project Manager, Bechtel Power Corporation
H. Senapathy, Senior Geotechnical Engineer, Geotechnical & Hydraulic Engineering Services, Bechtel Power Corporation
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.