



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005**

July 24, 2006

Marilyn C. Kray, President
NuStart Energy Development, LLC
M/S KSA 3-N
200 Exelon Way
Kennett Square, PA 19348

**SUBJECT: PRE-APPLICATION SITE VISIT TO THE GRAND GULF SITE TO OBSERVE
COMBINED LICENSE PRE-APPLICATION SUBSURFACE INVESTIGATION
ACTIVITIES (PROJECT NO. 744)**

Dear Mrs. Kray:

On June 19-20, 2006, US Nuclear Regulatory Commission (NRC) inspectors from Regions IV and II conducted a visit to the Grand Gulf site accompanied by members of the NRC's 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 Grand Gulf 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/

Dwight D. Chamberlain, Director
Division of Reactor Safety

Enclosure: As stated

cc w/enclosure:
Mr. Charles Brinkman
Westinghouse Electric Co.
Washington Operations
12300 Twinbrook Pkwy., Suite 330
Rockville, MD 20852

NuStart, Energy Development, LLC

-2-

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

Mr. Paul Gunter
Nuclear Information & Resource Service
1424 16th Street, NW, Suite 404
Washington, DC 20036

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

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

Mr. George Alan Zinke
Project Manager
Nuclear Business Development
Entergy Nuclear
M-ECH-683
1340 Echelon Parkway
Jackson, MS 39213

Ms. Marilyn Kray
Vice President, Special Projects
Exelon Generation
200 Exelon Way, KSA3-E
Kennett Square, PA 19348

Mr. Laurence Parme
Manager, GT-MHR Safety & Licensing
General Atomics Company
P.O. Box 85608
San Diego, CA 92186-5608

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

NuStart, Energy Development, LLC

-3-

Mr. Edward L. Quinn
Longenecker and Associates
Utility Operations Division
23292 Pompeii Drive
Dana Point, CA 92629

Mr. Paul Leventhal
Nuclear Control Institute
1000 Connecticut Avenue, NW
Suite 410
Washington, DC 20036

Mr. Jay M. Gutierrez
Morgan, Lewis & Bockius, LLP
1111 Pennsylvania Avenue, NW
Washington, DC 20004

Mr. W. Edward Cummins
AP600 and AP1000 Projects
Westinghouse Electric Company
P.O. Box 355
Pittsburgh, PA 15230-0355

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

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

Mr. Lionel Batty
Nuclear Business Team
Graftech
12300 Snow Road
Parma, Ohio 44130

Mr. Ian M. Grant
Canadian Nuclear Safety Commission
280 Slater Street, Station B
P.O. Box 1046
Ottawa, Ontario
K1P 5S9

NuStart, Energy Development, LLC

-4-

Mr. Glenn H. Archinoff
AECL Technologies
481 North Frederick Avenue
Suite 405
Gaithersburg, MD. 20877

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

Mr. Ed Wallace, General Manager
Projects
PBMR Pty LTD
PO Box 9396
Centurion 0046
Republic of South Africa

Mr. Dobie McArthur
Director, Washington Operations
General Atomics
1899 Pennsylvania Avenue, NW, Suite 300
Washington, DC 20006

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

Ms. Vanessa E. Quinn, Chief
Radiological Emergency Preparedness Branch
Nuclear and Chemical Preparedness and Protection Division
Department of Homeland Security
1800 South Bell Street, Room 837
Crystal City-Arlington, VA 22202-3546

Mr. Ron Simard
6170 Masters Club Drive
Suwanee, GA 30024

Ms. Sandra Sloan
Areva NP, Inc.
3315 Old Forest Road
P.O. Box 10935
Lynchburg, VA 24506-0935

NuStart, Energy Development, LLC

-5-

Ms. Anne W. Cottingham
Assistant General Counsel
Nuclear Energy Institute
1776 I Street, NW, Suite 400
Washington, DC 20006

Mr. David Repka
Winston & Strawn LLP
1700 K Street, NW
Washington, DC 20006-3817

Mr. Robert E. Sweeney
IBEX ESI
4641 Montgomery Avenue
Suite 350
Bethesda, MD. 20814

Mr. Eugene S. Grecheck
Vice President, Nuclear Support Services
Dominion Energy, Inc.
5000 Dominion Blvd.
Glen Allen, VA 23060

Electronic distribution w/enclosure:

tom.miller@hq.doe.gov or
tom.miller@nuclear.energy.gov
sfrantz@morganlewis.com
ksutton@morganlewis.com
jgutierrez@morganlewis.com
sandra.sloan@areva.com
mwetterhahn@winston.com
gcesare@enercon.com
whorin@winston.com
eddie.grant@exeloncorp.com
louis.quintana@ge.com
steven.hucik@ge.com
david.hinds@ge.com
chris.maslak@ge.com
mgiles@entergy.com
jim@ncwarn.org
pshastings@duke-energy.com
ronald.hagen@eia.doe.gov
murawski@newsobserver.com
Cary.Fleming@constellation.com
james1.beard@ge.com

Electronic distribution w/enclosure by RIV:

- BSMallett, Regional Administrator, RIV (**BSM1**)
- TPGwynn, Deputy Regional Administrator, RIV (**TPG**)
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- BHolian, DRP Director, Region I (**BEH**)
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- GGrant, Deputy Regional Administrator, Region III (**CEG**)
- CPederson, DRS Director, RIII (**CDP1**)
- MSatorius, DRP Director, RIII (**MAS**)
- GBMiller, Senior Resident Inspector (**GBM**)
- KMKennedy, Branch Chief, DRP/C (**KMK**)
- WCWalker, Project Engineer, DRP/C (**WCW**)
- RLNease, Team Leader, DRP/TSS (**RLN1**)
- KEGardin, RITS Coordinator (**KEG**)
- DAPowers, DRS STA (**DAP**)
- JGLamb, OEDO RIV Coordinator (**JGL1**)
- NASpivey, GG Site Secretary (**NAS2**)

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ENCLOSURE

PRE-APPLICATION SITE VISIT TO THE GRAND GULF SITE TO OBSERVE COMBINED LICENSE PRE-APPLICATION SUBSURFACE INVESTIGATION ACTIVITIES PROJECT NO. 744

Purpose of Visit:

The site visit was conducted on June 19-20, 2006, by Nuclear Regulatory Commission (NRC) Regional and Office of Nuclear Reactor Regulation (NRR) staff. NRC 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 Grand Gulf site. This visit was an on-site observation and information gathering trip in which the staff used the following inspection manual chapters and procedures as guidance:

- NRC Inspection Manual Chapter 2502, "Construction Inspection Program: Pre-Combined License (PRE-COL) Phase"
- NRC Inspection Procedure 35004, "Pre-Docketing Early Site Permit Quality Assurance Controls Inspection"
- NRC Inspection Procedure 45051, "Geotechnical/Foundation Activities Procedure Review"

Principal Persons Contacted:

M. Bennett, ESBWR Licensing Lead, Enercon
D. Blair, Quality Assurance, MACTEC
M. Bourgeois, Manager-Project Management, Entergy
K. Clahan, Principal Geologist, William Lettis & Associates, Inc. (WLA)
B. Cox, University of Texas
M. David, Project Consultant, Enercon
L. Evans, Geologist-Hydrology Lead, Enercon
J. Hengesh, Project Manager, WLA
J. Lynch, QA Manager, MACTEC
J. Poston, Nuclear QA Specialist, Enercon
J. Schott, Site Coordinator, Enercon
K. Stokoe, University of Texas
A. Tice, Project Principal, MACTEC
J. Wright, Project Manager, Enercon
G. Young, Project Manager, Entergy
G. Zinke, Project Manager-Licensing, NuStart

Enclosure

NRC Inspectors:

J. Tapia, P.E., Senior Reactor Inspector, Region IV
J. Lenahan, Senior Reactor Inspector, Region II

NRC Accompanying Personnel:

J. Starefos, Senior Project Manager, NRR
J. Gaslevic, Project Manager, NRR
S. Dennis, Engineer, NRR
C. Munson, Geophysicist, NRR
Z. Cruz, Civil Engineer, NRR
M. Plaza-Toledo, Geologist, NRR

Background:

By letters dated December 7, 2004, and November 17, 2005, NuStart Energy informed the NRC staff that it had selected the Grand Gulf site for a COL application with the intent of submitting the application in late 2007 or early 2008. 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. NuStart Energy has contracted Enercon Services, Inc., as a nuclear services provider, with MACTEC Engineering and Consulting and William Lettis & Associates (WLA) to conduct the geotechnical site studies required for the COL application.

Overview of subsurface investigation activities discussed and/or observed:

NuStart Energy plans to use the subsurface investigations described below to provide geotechnical data to determine suitability of the Grand Gulf site for a COL. NuStart's current subsurface investigation activities included areas that would be the site of cooling towers, yard structures, and the proposed reactor and power block sites.

The scope of the planned site characterization activities includes various field and geotechnical laboratory tests. Field exploration methods addressed in the NuStart site characterization plan include standard penetration tests, ground water observation wells, seismic downhole velocity measurements (P-S logging), spectral analysis of surface waves (SASW), cone penetration tests, borehole pressure meter tests, borehole acoustic logging, and test pit excavation. Proposed geotechnical laboratory tests include soil classification, moisture content, direct shear tests, triaxial shear tests, consolidation tests, and dynamic tests.

Drilling and Sampling Observations

Drilling and sampling observations by the NRC team during the June 19-20, 2006, 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 NuStart, and their geotechnical engineering subcontractors, MACTEC and WLA, using rotary drill rig equipment.

The team visited the locations of several borings. The team observed performance of pressure meter testing in Boring 1103 from an approximate depth of 75 to 80 feet. The team also observed initial SASW testing performed on June 20, 2006.

Soil sampling operations were not witnessed; however, 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 reviewed the boring log for Boring B-1012, which was completed prior to the team's arrival. Boring B-1012 was drilled to a depth of 226 feet. The team also examined disturbed soil samples collected from a split spoon sampler from Boring B-1012.

The team noted that drilling operations are being overseen by qualified MACTEC and WLA geotechnical personnel. The team interviewed two 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 discussed the methods used to accurately locate the drill holes with the applicant's personnel. A series of surveying monuments has been established on the site that were used to locate and determine the elevation of the borings. Following completion of the exploration activities, the applicant stated that locations and elevations of the completed borings and observation wells will be verified by surveyors. The geotechnical procedures require the survey work to be performed under the supervision of a licensed land surveyor. Survey accuracy is specified at Third Order accuracy, (1:5000) horizontal, and to the nearest 0.1 feet vertical control.

The team reviewed the procedures listed below and discussed technical aspects of the drilling and testing with the MACTEC and WLA geotechnical engineers supervising the site investigation. The applicant stated that site exploration program will be adjusted as necessary to obtain additional information as the site investigation proceeds. Discussions with the 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 nonconformance reports that had been identified prior to the NRC visit.

All drilling and field testing activities observed were being controlled with adequate procedures and standards, and with an appropriate level of supervisory and quality assurance oversight.

ATTACHMENT

DOCUMENTS EXAMINED

Enercon Services, Inc. QA Project Planning Document for the NuStart Combined License Application Development Project, Revision 0

MACTEC Geotechnical Data Collection Plan for the Grand Gulf Combined Operating License Application, April 17, 2006

MACTEC Quality Assurance Manual, Revision 1

MACTEC Quality Assurance Project Document for NuStart Grand Gulf COL Project, Rev. 0

MACTEC Nustart Grand Gulf Combined Operating License Project Geotechnical Work Plan, Revision 0

ASME NQA-1-2004, Sub Part 2.20, Quality Assurance Requirements for Subsurface Investigations for Nuclear Power Plant Sites.