



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

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

November 2, 2007

Mr. George Wrobel  
Director of Licensing  
UniStar Nuclear  
750 E. Pratt St., 14th Floor  
Baltimore, MD 21202-3106

SUBJECT: SITE VISIT TO OBSERVE COMBINED LICENSE PRE-APPLICATION  
SUBSURFACE INVESTIGATION AT NINE MILE POINT (PROJECT NO. 759)

Dear Mr. Wrobel:

On October 10 -11, 2007, Region II inspectors conducted a visit to the Nine Mile Point site accompanied by members of the Office of New Reactors (NRO) staff. The purpose of the site 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 the NRC's future review of the expected COL application for the Nine Mile Point site.

Enclosure 1 is a summary of the site visit and includes a list of NRC participants and persons with whom discussions were held. Enclosure 2 is the handout provided to the NRC team, NMP3 USEPR Subsurface Investigation and Site Characterization.

Sincerely,

//RA/

Mark S. Lesser, Chief  
Construction Inspection Branch 1  
Division of Construction Inspection

Project No. 759

Enclosures: As stated

cc w/encls: (See next page)

cc w/encls:

Mr. Richard L. Baker  
Bechtel Power Corporation  
5275 Westview Drive  
Frederick, MD 21703-8306

Mr. Michael Balboni  
Deputy Secretary for Public Safety  
State Capitol, Room 229  
Albany, NY 12224

Ms. Michele Boyd  
Legislative Director  
Energy Program  
Public Citizens Critical Mass Energy  
and Environmental Program  
215 Pennsylvania Avenue, SE  
Washington, DC 20003

Ms. Kristen A. Burger  
Maryland People's Counsel  
6 St. Paul Centre, Suite 2102  
Baltimore, MD 21202-1631.

Lois Chalmers  
Institute for Energy &  
Environmental Research (IEER)  
6935 Laurel Ave., Suite 201  
Tokoma Park, MD 20912

Mr. Charles Donaldson, Esquire  
Assistant Attorney General  
New York Department of Law  
120 Broadway  
New York, NY 10271

Mr. Paul D. Eddy  
Electric Division  
NYS Department of Public Service  
Agency Building 3  
Empire State Plaza  
Albany, NY 12223

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

Mr. Carey Fleming, Esquire  
Senior Counsel - Nuclear Generation  
Constellation Generation Group, LLC  
750 East Pratt Street, 17<sup>th</sup> Floor  
Baltimore, MD 21202

Mr. Ray Ganthner  
AREVA, Framatome ANP, Inc  
3315 Old Forest Road  
P.O. Box 10935  
Lynchburg, VA 24506-0935

Mr. Brian Hastings  
Public Utility Commission  
William B. Travis Building  
P. O. Box 13326  
1701 North Congress Avenue  
Austin, TX 78701-3326

Mr. Roy Hickok  
NRC Technical Training Center  
5700 Brainerd Road  
Chattanooga, TN 37411-4017

Arjun Makhijani  
IEER  
6935 Laurel Ave., Suite 201  
Takoma Park, MD 20912

Charles Peterson  
Pillsbury, Winthrop, Shaw & Pittman, LLP  
2300 "N" Street, NW  
Washington, DC 20037

Regional Administrator  
Region I  
U. S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Resident Inspector  
U. S. Nuclear Regulatory Commission  
Nine Mile Point  
Oswego, NY 13126

Mr. John P. Spath  
New York State Energy Research  
and Development Authority  
17 Columbia Circle  
Albany, NY 12203-6399

Supervisor  
Town of Scriba  
Route 8, Box 382  
Oswego, NY 13126

cc w/encls:

Mr. Richard L. Baker  
Bechtel Power Corporation  
5275 Westview Drive  
Frederick, MD 21703-8306

Mr. Michael Balboni  
Deputy Secretary for Public Safety  
State Capitol, Room 229  
Albany, NY 12224

Ms. Michele Boyd  
Legislative Director  
Energy Program  
Public Citizens Critical Mass Energy  
and Environmental Program  
215 Pennsylvania Avenue, SE  
Washington, DC 20003

Ms. Kristen A. Burger  
Maryland People's Counsel  
6 St. Paul Centre, Suite 2102  
Baltimore, MD 21202-1631.

Lois Chalmers  
Institute for Energy &  
Environmental Research (IEER)  
6935 Laurel Ave., Suite 201  
Takoma Park, MD 20912

Mr. Charles Donaldson, Esquire  
Assistant Attorney General  
New York Department of Law  
120 Broadway  
New York, NY 10271

Mr. Paul D. Eddy  
Electric Division  
NYS Department of Public Service  
Agency Building 3  
Empire State Plaza  
Albany, NY 12223

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

Mr. Carey Fleming, Esquire  
Senior Counsel - Nuclear Generation  
Constellation Generation Group, LLC  
750 East Pratt Street, 17<sup>th</sup> Floor  
Baltimore, MD 21202

Mr. Ray Ganthner  
AREVA, Framatome ANP, Inc  
3315 Old Forest Road  
P.O. Box 10935  
Lynchburg, VA 24506-0935

Mr. Brian Hastings  
Public Utility Commission  
William B. Travis Building  
P. O. Box 13326  
1701 North Congress Avenue  
Austin, TX 78701-3326

Mr. Roy Hickok  
NRC Technical Training Center  
5700 Brainerd Road  
Chattanooga, TN 37411-4017

Arjun Makhijani  
IEER  
6935 Laurel Ave., Suite 201  
Takoma Park, MD 20912

Charles Peterson  
Pillsbury, Winthrop, Shaw & Pittman, LLP  
2300 "N" Street, NW  
Washington, DC 20037

Regional Administrator  
Region I  
U. S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Resident Inspector  
U. S. Nuclear Regulatory Commission  
Nine Mile Point  
Oswego, NY 13126

Mr. John P. Spath  
New York State Energy Research  
and Development Authority  
17 Columbia Circle  
Albany, NY 12203-6399

Supervisor  
Town of Scriba  
Route 8, Box 382  
Oswego, NY 13126

Distribution w/ encls: (See next page)

PUBLICLY AVAILABLE       NON-PUBLICLY AVAILABLE       SENSITIVE       NON-SENSITIVE

ADAMS:  Yes      ACCESSION NUMBER: ML073060590

OFFICE	RII:DPC	HQ:NRO										
SIGNATURE	LSM	LSM FOR										
NAME	LMellen	LBurkhard										
DATE	11/01/07	11/01/07										
E-MAIL COPY?	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO

Letter to George Wrobel from Mark S. Lesser dated November 2, 2007

SUBJECT: SITE VISIT TO OBSERVE COMBINED LICENSE PRE-APPLICATION  
SUBSURFACE INVESTIGATION AT NINE MILE POINT (PROJECT NO. 759)

DISTRIBUTION w/encls:

M. Notich (hard copy)  
C. Guerrero (hard copy)  
A. Johnson, NRO  
G. Stirewalt, NRO  
N. Tiruneh, NRO  
L. Bauer, RGS2  
Z. Cruz-Perez, NRO  
D. Tift, RI  
J. Lyons, NRO  
N. Chokshi, NRO  
L. Burkhart, NRO  
K. Naidu, NRO  
J. Thompson, NRO  
W. Wang, NRO  
RidsNrrDnriNapb (SCoffin)  
RidsNroDser  
RidsNrrDnriNepb  
A. Blamey, RII  
M. Lesser, RII  
L. Mellen, RII  
R. Lanksbury, RII  
R. Jackson, RII  
Public

COMBINED LICENSE (COL) PRE-APPLICATION  
SUBSURFACE INVESTIGATION AT NINE MILE POINT  
PROJECT NUMBER 759

Purpose of Visit:

The visit was conducted on October 10-11, 2007, by a team from the Nuclear Regulatory Commission (NRC) Region II office and the Office of New Reactors (NRO). The team consisted of construction inspection personnel; and specialists in geology, engineering geology, and geotechnical engineering. The team attended a presentation on regional and site geology, current site characterization efforts (consisting primarily of a drilling program at this stage), and future site characterization plans. The team also observed in-progress 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 Nine Mile Point site. This visit was an on-site observation and information gathering trip in which the team 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 35004, Pre-Docketing Early Site Permit Quality Assurance Controls Inspection  
NRC Inspection Procedure 45051, Geotechnical/Foundation Activities Procedure Review

Background:

On May 31, 2007, UniStar Nuclear - Constellation Generation Group provided NRC with response to Regulatory Issue Summary 2007-08. This was a combined response for members of the US EPR Design-Centered Working Group (DCWG). This response informed NRC that DCWG had selected the site of Nine Mile Point Nuclear Plant as a potential subject for a COL application. 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. UniStar Nuclear - Constellation Generation Group has begun to conduct activities necessary to submit a COL application to the NRC, including the geotechnical site studies required for that application. Unistar has contracted with several companies, for drilling; laboratory testing services; and seismic characterization to gather the information necessary for the COL application.

Overview of Subsurface Investigation Activities Discussed and/or Observed:

The scope of the planned site characterization activities includes various field and geotechnical laboratory tests. Field exploration methods addressed in the site characterization plan include standard penetration tests, ground water observation wells, seismic downhole velocity measurements (P-S logging), cone penetration tests, and borehole pressuremeter tests. Preliminary geotechnical laboratory tests on soil samples include soil classification, moisture content, direct shear tests, triaxial shear tests, consolidation tests and dynamic tests.

Drilling and Sampling Observations

Drilling and sampling operations were witnessed by team members during the visit. Field logs; boring assignment records; and work instructions, including drilling and sampling procedures and field records and sampling control procedures, were reviewed for procedural compliance. Also, the team reviewed the boring hole plan and 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 team held discussions with the site geotechnical engineer about the current geotechnical engineering properties investigation plan, the distribution and depth of the borings, the type of tests to be conducted and the number of samples to be tested.

Field operations were witnessed at three field locations. Field logs, boring assignment records, work instructions, drilling and sampling procedures, and sampling control procedures were

reviewed for program adequacy. In addition, the team interviewed three of the geologists who were responsible for providing technical oversight of drilling operations, including classifying soil samples, recording data on boring logs, and providing assurance that subsurface drilling activities were performed in accordance with applicable procedure requirements and standard geotechnical engineering practices. The team concluded that the individuals were knowledgeable in drilling operations and site geotechnical procedural requirements. The team also reviewed the qualification and training records for 22 geotechnical personnel and noted that many had advanced degrees and/or professional registrations.

The team reviewed the sample storage facilities. A temporary field facility had been established in a building near the borehole site. The permanent storage facility had been proposed at the Nine Mile Point Warehouse complex. The permanent storage facility will have both temperature and humidity control. The team also reviewed sample identification information on the sample packaging and examined warehouse storage location sample logs and found them to be adequate. The team concluded that the samples were adequately stored.

The team reviewed the documents listed below and discussed technical aspects of the drilling and testing with the geotechnical engineers supervising the site investigation. The team reviewed the quality assurance measures being applied to the work. The team reviewed the calibration records for the weights (automatic hammers) used for the standard penetration tests. The team also reviewed surveillance reports and audits conducted for COL project site activities relative to the installation and data collection processes for geotechnical activities in accordance with specifications for compliance with the Quality Assurance program.

Drilling and field testing activities were controlled by adequate procedures and standards with an appropriate level of supervisory and quality assurance oversight. The team concluded that the work was being done in an appropriately controlled manner. The team did not note any QA related issue either on field activities or related documentation.

The geophysical testing staff appeared very knowledgeable of the tests methods. The team directly observed physical characteristics of the foundation unit by viewing the lakeshore outcrops (bedding, cross-bedding, shale partings, and other sedimentary features) and soils and till deposits overlying this unit. The team also directly observed joint patterns in the foundation unit which may be encountered during coring and which could result in core loss. The team noted that some fractures may be open enough to appear on certain borehole geophysical logs. The potential significance is that joints and other physical characteristics of the "geologic materials" at the site will influence their engineering properties.

#### Hydrogeology/Groundwater Hydrology

The hydrologic/hydrogeologic site characterization activities that were observed and/or discussed included drilling boreholes, core sampling, using borehole geophysics techniques, and packer test to determine aquifer characteristics. Currently 33 monitoring wells are planned to be completed to monitor the groundwater level. This will provide information to understand groundwater flow and radionuclide transport mechanisms at and near the proposed site.

The hydrogeologic data gathering involved installing 12 boreholes and conducting multiple permeability tests. The major formations include unconsolidated glacial tills, the Oswego Sandstone, the Pulaski Formation, and the Whetstone Gulf Formation. Pressure testing has been performed to estimate the probable yield from the Oswego unconfined aquifer, Pulaski confined aquifer, and Whetstone confined aquifer.

#### Surface Water Hydrology

The major surface water body in the area is Lake Ontario. The primary inlet to Lake Ontario is the Niagara River (from Lake Erie) and its primary outlet is the St. Lawrence River. Other major rivers which flow into Lake Ontario include the Don River, Humber River, Trent River, the Cataraqui River, the Genesee River, the Oswego River, the Black River, and the Salmon River. There is a network of intermittent surface drainage with extensive wetlands to the north. Surface

water hydrology data gathering efforts involve monitoring of the lake level. Due to the relatively long time it has been taking for the piezometric level to stabilize after well development and testing the first complete set of groundwater level data is anticipated by the end of October or November 2007.

#### Discussions

The discussions and presentations were focused on developing a better understanding of the general hydrology and hydrogeology of the site, general data gathering efforts, site and safety related hydrologic and hydrogeologic topics that included:

1. Properly understanding the significance of the wetlands in flood analysis and the interaction between surface water and groundwater.
2. Sufficiency of length of record for the groundwater level monitoring program.
3. The need for properly identifying alternate pathways and transport mechanisms for radionuclides in view of the existing plant and the fact that Lake Ontario is also partially outside of the U.S. territory in Canada.
4. The need for increasing the spatial and temporal coverage of the data.
5. The need for the development of alternate conceptual models to develop a framework that properly identifies the physical, hydrologic, hydrogeologic, and geochemical processes that have safety related implications.
6. The need to analyze impacts from the previous developments in the area that have the potential to alter the hydrology of the site.

The visit concluded with the NRC team understanding the general hydrology and hydrogeology of the site, and the Unistar Nuclear Staff understanding the type of information that should be submitted to support the COL.

#### Principal Persons Contacted:

S. Geier, UniStar Project Manager, Nine Mile Point  
 F. Bellini, AREVA Site Project Engineer  
 R. Bonisoli, AREVA Project Manager, NMP Site Characterization  
 K. Conti, AREVA QA manager  
 R. Lambe, GEI Project Manager  
 G. Wrobel, UniStar Licensing Director  
 T. Solazzo, UniStar Site Manager  
 L. Peterson, AREVA Site QA  
 S. Eckhard, NMP, LLC Site Sponsor  
 J. Traynor, UniStar QA Director  
 T. Kahl, GEI Senior Vice President, Regional Manager

#### NRC Team:

L. Mellen, Sr. Project Inspector, RII (Team Leader)  
 G. Stirewalt (NRO/DSER/RGS2) (Geo)  
 W. Wang (NRO/DSER/RGS1) (Geo)  
 Z. Cruz-Perez (NRO/DSER/RGS2) (Geo)  
 N. Tiruneh (NRO/DSER/RHEB) (Hydro)  
 L. Burkhart (NRO/DNRL/NARP) (PM)  
 R. Jackson, Construction Inspector, RII

#### NRC Observers:

R. Lanksbury, NRC Inspector, RII  
 D. Tiff, Reactor Inspector, RI

## Records Examined

Areva Calibration Record Analog Pressure Gauge Control Number 6871  
Areva Calibration Record Chatillon Digital Force Gauge S/N 9851  
Areva Calibration Record VH-10762  
Areva Calibration Record VH-10722  
Areva Calibration Record VH-10730  
Areva Calibration Record 10730  
Areva Calibration Record 10722  
Areva Calibration Record Frequency Counter VH-7529  
Areva Calibration Record 3D Instruments Model 25545-22B54 Pressure Gauge  
Areva Calibration Record Crystal Oscillator Model XOSC-1 VH-10738  
Areva Calibration Record Digital Force Gauge Model DFG Control Number 10843  
GEI Procedure No. 127, Boring Advancement, Split Spoon Sampling, and Logging in Soil  
GEI Procedure No. 122, Packing and Labeling of Rock Core Samples  
GEI Work Instruction No. 3 - Surveying  
GEI Work Plan 2 - Geophysical Testing - Nine Mile Point Site Characterization  
GEI Procedure No. 136, Rock Coring  
IS-07-001, Observation of Work Activities at NMP  
IS-07-002, Observation of Work Activities at NMP  
Surveillance Report 9060694  
Surveillance Report 9058123  
Surveillance Report 9061550  
WGE Procedure P2, Surface Seismic Refraction Surveys