

September 9, 2002

MEMORANDUM TO: James E. Lyons, Director
New Reactor Licensing Project Office
Office of Nuclear Reactor Regulation
/RA by Roy Caniano Acting For/

THRU: Cynthia D. Pederson, Director
Division of Reactor Safety

FROM: Ronald N. Gardner, Senior Project Manager ***/RA/***
Division of Reactor Safety

SUBJECT: PRE-APPLICATION SITE VISIT TO CLINTON NUCLEAR
STATION TO OBSERVE EARLY SITE PERMIT (ESP)
PRE-APPLICATION SUBSURFACE INVESTIGATION
ACTIVITIES (PROJECT NO. 718)

Attached is the summary of the site visit that I conducted with Mr. Steve Koenick, Project Manager, New Reactor Licensing Project Office and Mr. Yong Kim, Structural Engineer, at the Clinton Nuclear Station on August 7-8, 2002. The purpose of this visit was to observe early site permit (ESP) pre-application subsurface investigation activities that were conducted to obtain geotechnical/seismic soil data. These observations will provide background information for NRC's future review of the ESP application. A list of persons with whom discussions were held is provided in the attachment.

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Purpose of Visit:

The information gathering visit was conducted by the Nuclear Regulatory Commission (NRC) Region III and Office of Nuclear Reactor Regulation (NRR) staff to observe early site permit (ESP) pre-application subsurface investigation activities conducted to obtain geotechnical/seismic soil data. The NRC is assessing its technical, licensing, and inspection capabilities to identify any enhancements necessary to ensure that the agency can effectively carry out its responsibilities associated with an ESP application.

Persons Contacted:

Kathy Ann Baker, Design Engineering Manager, AmerGen
Bill Maher, Environmental/Site Interface, Exelon Generation
Amy Lientz, Contractor Project Manager, CH2M HILL
Don Anderson (PhD), Seismic Hazards Analysis, CH2M HILL
Matt Gavin, Field Team Leader/Calibration Coordinator, CH2M HILL
John Anderson, Principle Geotechnical Engineer, CH2M HILL

Background:

In a letter dated March 1, 2002, Exelon Generation (Exelon) informed the staff that it would submit an ESP application by June 2003. Subsequent to the March 1, 2002, letter, Exelon announced that Clinton would be the site for which they would request an ESP. An ESP provides for resolution of site safety, environmental protection, and emergency preparedness issues, independent of a specific nuclear plant review. Exelon has contracted CH2M HILL to prepare the ESP application.

Overview of subsurface investigation activities discussed and/or observed:

Exelon plans to use the subsurface investigation described below to reaffirm the geotechnic/seismic soil data from the currently operating unit, Clinton Nuclear Power Station, to provide sufficient data to determine site suitability for an ESP. Exelon recognizes that additional subsurface investigation may be necessary at the combined license stage after a specific reactor type has been identified.

Drilling and sampling - NRC staff toured the locations where four boreholes were drilled within the ESP boundary; two shallow boreholes (~ 100 ft.) and two deep boreholes (~280-300 ft.). The holes were drilled using truck mounted drill rig equipment. Soils samples were collected at ~5 ft. intervals down to 100 ft. increasing to ~10 ft. intervals below 100 ft. Soil sampling was conducted using split-spoon sampling alternating with Shelby Tube and Pitcher sampling. Rock coring was conducted to a depth of 20-30 ft. below the top of rock in the deep boreholes.

Suspension Geophysical Logging - NRC staff observed site personnel performing suspension logging activities. Suspension logging was conducted within one of the deep boreholes. This consisted of lowering a seismic source and receiver suspension tool into the borehole and recording soil seismic response properties at 0.5 meter depth intervals. This process involves the generation of a seismic wave for measurement of soil shear wave velocities.

Groundwater Piezometers - NRC staff toured the areas where three piezometers were installed within the proposed site boundary. Two piezometers were installed at about 40 ft. in new boreholes located near the deep boreholes. The third piezometer was installed at about 90 ft. in one of the 100 ft. boreholes.

Cone Penetrometer Testing (CPT) - CPT testing was in the process of being completed when the NRC team arrived onsite. CPT involves pushing an instrumented rod into the soil (advanced to refusal) to determine subsurface soil properties. Four CPT soundings were performed. Seismic cone testing was also conducted in two of the CPT soundings to determine the dynamic properties of the soil.

Surveying - Each of the boreholes and CPT sounding locations were surveyed using differential geospatial positioning (DGPS) technology.

The NRC team notes the following observations. Work was performed according to procedures by qualified personnel; however, the field copy of the work procedure was not signed by an approving official. This issue had been identified by CH2M HILL prior to the NRC site visit. CH2M HILL representatives stated that this self-identified issue was in the process of being corrected. The soil shear wave velocity measurements were accomplished using a suspension geophysical logging method. The measurements were performed by GeoVision of California using OYO equipment. These are proprietary tools that the NRC staff has little familiarity with.

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