April 12, 2005

MEMORANDUM TO: File

FROM: John P. Segala, Senior Project Manager ***/RA/***
New, Research and Test Reactors Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF MARCH 10, 2005, TELEPHONE CONFERENCE CALL WITH EXELON GENERATION COMPANY, LLC REGARDING HYDROLOGY

This memorandum documents the results of a telephone conference between the NRC staff and Exelon Generation Company, LLC (Exelon) on March 10, 2005.

Attachment 1 contains a summary of the call; Attachment 2 contains a summary of the hydrology-related open items.

Attachments: As stated

Docket No. 52-007

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OFFICE	RNRP/PM	EMEB	OGC
NAME	JSegala	GBagchi	AHodgdon
DATE	03/29/05	03/29/05	04/8/05

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Telephone Call Summary

Subject: Exelon Early Site Permit Draft Safety Evaluation Report Open Items Regarding Hydrology

Date of Call: March 10, 2005

Participants

Nuclear Regulatory Commission	Applicant
J. Segala	E. Grant
C. Araguas	
B. Harvey	
G. Bagchi	
L. Vail, PNNL	
R. Presod, PNNL	
C. Cook, PNNL	

Discussion

The purpose of the conference call, which was held at the request of Exelon, was for Exelon to gain a better understanding of the hydrology-related open items in the Exelon early site permit (ESP) draft safety evaluation report (DSER). Specifically, the staff and Exelon discussed all of the open items in Section 2.4, "Hydrologic Engineering," of the DSER. In addition, the staff and Exelon had further discussions regarding some of the meteorology-related issues previously discussed during a conference call on March 9, 2005. The following is a list of the open items discussed and the proposed actions to be taken:

Open Item	Action
2.3-2	Exelon indicated that they plan to use the same approach Dominion is using to address this issue. Exelon agreed to discuss this approach in response to this open item.
2.4-1	Exelon agreed to discuss the nominal details of flood levels on the intake structure in response to this open item.
2.4-2	Exelon agreed to add the blowdown to the ultimate heat sink (UHS) schematic, discuss the 555 gpm makeup, and discuss the amount of available water (considering the water used by the current Clinton Power Station (CPS) units, evaporative losses, and consumption) in response to this open item.
2.4-3	Exelon agreed to review the related responses to the environmental requests for additional information (RAIs) and provide a response to this open item.

Open Item	Action
2.4-4	Exelon agreed to provide justification for its position in response to this open item.
2.4-5	Exelon understands this open item and agreed to provide a response.
2.4-6	Exelon agreed to provide justification for its position in response to this open item.
2.4-7	Exelon agreed to review the environmental report and provide a response to this open item.
2.4-8	Exelon agreed to look at the differences.
2.4-9	Exelon agreed to provide more details regarding the revised calculation in response to this open item.
2.4-10	Exelon agreed to discuss operation of the UHS to account for icing in response to this open item.
2.4-11	Exelon agreed to discuss the amount of available water depending on which units are operating in response to this open item.
2.4-12	Exelon agreed to clarify that the makeup value includes blowdown in response to this open item.
2.4-13	The NRC staff agreed to review the maximum heat rejection plant parameters envelope (PPE) values.
2.4-14	Exelon agreed to review this open item and provide a response.
2.4-15	Exelon agreed to retrieve one-year average flow data from report and provide in response to this open item.
2.4-16	Exelon agreed to discuss the UHS available water in response to this open item.
2.4-17	The NRC staff agreed to review how monitoring and dredging should be treated (Permit Condition, Combined License (COL) Action Item, etc.).
2.4-18	Exelon understands this open item and agreed to provide a response.
2.4-19	Exelon agreed to review this open item and provide a response.
2.4-20	Exelon agreed to discuss that there will be no ground level releases below the ground water level and that all leakage will be routed to the basemat which will be below the piezometric gradient of the facility in response to this open item.
2.4-21	Exelon understands this open item and agreed to provide a response.

DSER Question	Action
1. In Section 2.3.1.2, Exelon identified that it would be more appropriate to refer to GDC 2, instead of GDC 4, when referring to the generation of missiles from tornadoes.	The staff will review this comment.
2. In Section 2.3.5.2, Exelon stated that they do not believe that they needed to identify RG 1.112. The staff stated that Exelon indirectly used RG 1.112 by using bounding values.	Exelon agreed to review this comment.

Summary of Open Items

Open Item No.	DSER Section	Subject
2.3-2	2.3.1.3	Identify an additional UHS design basis site characteristic for use in evaluating the potential for water freezing in the UHS water storage facility.
2.4-1	2.4.1.3	Define the extent of the vertical disturbance and the bounding elevations of all structures, systems, and components (SSCs). Additionally, Supplemental Safety Analysis Report (SSAR) Figure 1.2-4 does not identify either the elevations or the areal locations of the safety-related piping corridors. Since the intake pumps for the early site permit (ESP) facility ultimate heat sink (UHS) makeup water are safety-related structures, the applicant must state whether it covers these through the site grade specified in the plant parameters envelope (PPE) or proposes separate criteria for these structures.
2.4-2	2.4.1.3	(a) Provide a schematic representation of the complete UHS system for a future facility on the ESP site, including the intake, piping, any potential storage basins, the UHS cooling loop, and the cooling tower(s), clearly showing all components and water flow including discharges through these components. (b) Demonstrate that PPE make-up flow rate, an average of 555 gpm and a maximum of 1400 gpm, at the maximum inlet temperature of 95EF, is sufficient to remove all waste heat from the UHS cooling tower(s) and that there are no limits on plant operation due to limited water supply or due to elevated water temperatures at the UHS intake for any facility constructed on the ESP site.
2.4-3	2.4.1.3	Provide an authoritative source that may include State or County planning officials that can either provide details of a development plan in Clinton Lake's watershed or verify the absence of such a plan.
2.4-4	2.4.1.3	Provide additional justification for why an increase in impervious area will not increase soil erosion.
2.4-5	2.4.2.3	Provide a revised probable maximum precipitation (PMP) estimate using the current criteria of HMR 51.

Open Item No.	DSER Section	Subject
2.4-6	2.4.2.3	Provide additional justification for why an increase in area with impervious surface will decrease the duration of low-flow events.
2.4-7	2.4.2.3	Provide references to projections from State or local authorities responsible for development plans in the area of concern to substantiate any prediction of future development.
2.4-8	2.4.2.3	Address the differences between the applicant's and the staff's estimates of local intense precipitation at the ESP site for a 1-hour duration and for a 5-minute duration.
2.4-9	2.4.7.3	Provide more details regarding the method and air temperature data set used in estimating the thickness of an ice sheet that may form on the surface of Clinton Lake and demonstrate that the ice thickness estimate is adequate.
2.4-10	2.4.7.3	Provide a schematic diagram clearly showing the bounding dimensions and critical elevations of the ESP facility intake structure, including its conceptual plan and cross section, clearly indicating elevation of the basemat, elevation of the screen house opening, elevation of the normal plant heat sink makeup water intake pipe, elevation of the UHS makeup water intake pipe, and their relationship to the existing lake bed.
2.4-11	2.4.7.3	Quantify the reduction in water storage capacity of the submerged UHS pond in the event of a complete loss of Clinton Dam coincident with the presence of surface ice.
2.4-12	2.4.8.3	Address the difference between the applicant's and the staff's estimates of the 30-day makeup water needed for the ESP facility UHS system.
2.4-13	2.4.8.3	Provide a commitment to specific ESP facility normal and UHS systems for the staff to conclude this review.
2.4-14	2.4.8.3	Provide the volume requirements of the UHS for the CPS taking into consideration the latest power uprate.
2.4-15	2.4.8.3	Address the staff's conclusion that the applicant has not adequately established the rationale for using the 5-year drought duration as opposed to a shorter duration drought with a significantly lower inflow estimate.
2.4-16	2.4.8.3	Establish that the submerged UHS pond has adequate capacity to provide makeup water to the ESP facility UHS.

Open Item No.	DSER Section	Subject
2.4-17	2.4.8.3	Establish the monitoring and dredging needs for the UHS pond for the combined operation of the CPS facility and a future facility consistent with the PPE parameter for maximum thermal discharge.
2.4-18	2.4.12.3	Provide the potential impact of future construction for the ESP facility on the piezometric gradient for the ESP site.
2.4-19	2.4.12.3	Explain why the limited data used to estimate the three values required to calculate the average ground water velocity represents a basis for a velocity estimate. Provide values for the hydraulic gradient, saturated hydraulic conductivity, and effective porosity measured at the ESP site.
2.4-20	2.4.13.3	Specify the maximum elevation at which any liquid radioactive waste releases can occur in the proposed ESP facility.
2.4-21	2.4.13.3	Provide a thorough description of the local hydrologic setting, both that which exists currently and that which is expected after the disruption associated with the ESP construction activities, to ensure that an inward gradient will be maintained.

Exelon ESP

cc:

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. Adrian Heymer
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

Mr. Rod Krich
Vice President, Licensing Projects
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

Ms. Patricia Campbell
Morgan Lewis
1111 Pennsylvania Avenue
Washington, DC 20004

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

Ms. Marilyn Kray
Vice President, Project Development
Exelon Generation
200 Exelon Way, KSA3-N
Kennett Square, PA 19348

Mr. Thomas Mundy
Director, Project Development
Exelon Generation
200 Exelon Way, KSA3-N
Kennett Square, PA 19348

Mr. William Maher
Exelon Generation
200 Exelon Way, KSA2-N
Kennett Square, PA 19348

Mr. Thomas S. O'Neill
Associate General Counsel
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

Mr. John Loaniddi
Parsons Energy and Chemicals
2675 Morgantown Road
Reading, PA 19607

Ms. Amy Lientz
CH2MHILL
151 N. Ridge Ave. Ste 150
Idaho Falls, Idaho 83402-4039

Mr. Steven P. Frantz Esq.
Morgan Lewis and Bockius LLP
1111 Pennsylvania Avenue, NW
Washington, DC 20004

Mr. Gary Wright, Director
Division of Nuclear Safety
Illinois Emergency Management Agency
1035 Outer Park Drive
Springfield, IL 62704

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

Dr. Jack W. Roe
Vice President
Advanced Technologies & Laboratories
International, Inc.
20010 Century Boulevard, Suite 500
Germantown, MD 20874

Mr. Tom Clements
6703 Guide Avenue
Takoma Park, MD 20912

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

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

Prairie Group
Attn: Mr. George Gore
702 West Washington Street
Urbana, IL 61801

Mr. Arthur L. Brighton
RR1, Box 22
Weldon, IL 61882

Mr. Dale Holtzscher
RR 1, Box 72A
Weldon, IL 61882

Mr. John Stolfa
P.O. Box 589
Mansfield, IL 61854-0589

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

Ms. Vanessa E. Quinn, Chief
Radiological Emergency Preparedness
Section
Department of Homeland Security/FEMA
500 C Street, SW
Washington, DC 20472

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

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

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

Mr. Marvin Fertel
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

Mr. Tom Rudasill
The Vespasian Warner Public Library
District
310 N. Quincy Street
Clinton, IL 61727

Mr. Jerald S. Holm
Framatome ANP, Inc.
3315 Old Forest Road
P.O. Box 10935
Lynchburg, VA 24506-0935

Ms. Kathryn Sutton, Esq.
Morgan, Lewis & Bocklus, LLP
1111 Pennsylvania Avenue, NW
Washington, DC 20004

Framatome ANP, Inc.
ATTN Sherry McFaden
3315 Old Forest Road, OF-16
Lynchburg, VA 24501

Mr. Eddie Grant
ESP Project Team
Exelon Generation
200 Exelon Way, KSA3-N
Kennett Square, PA 19348

External E-mail
eddie.grant@exeloncorp.com

jerald.holm@framatome-anp.com
mwetterhahn@winston.com
gcesare@enercon.com
whorin@winston.com