Exelon
Generation

NP-08-0017
October 16, 2008

10 CFR 52.75

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Exelon Nuclear Texas Holdings, LLC
Victoria County Station, Units 1 and 2
Submittal of Additional Geological Data and Environmental Monitoring Status Update in Support of Combined License Application
NRC Project Number 761

Reference: Exelon Nuclear Texas Holdings, LLC letter to USNRC, Application for Combined Licenses for Victoria County Station, Units 1 and 2, dated September 2, 2008

Exelon Nuclear Texas Holdings, LLC (Exelon) submitted an application for a combined license (COL) in the referenced letter for Victoria County Station (VCS) Units 1 and 2. That submittal consisted of eleven parts as described in the referenced letter and a separate part containing Safeguards Information provided under separate cover.

In addition to the contents of the application, Exelon is also providing the enclosed supplemental information in support of the review of the VCS Units 1 and 2 COL application (COLA). This supplemental information provides: (1) additional geological data supporting conclusions on growth faults in the site vicinity, (2) a description of the assessment of paleoliquefaction features near the site, (3) a description of the characterization of the Gulf of Mexico area seismic source, (4) a description of the evaluation of salt diapirs in the site vicinity, and (5) a schedule for the conceptual dewatering plan for safety-related structures during construction. These items are addressed individually in Enclosure 1.

The additional information provided in Attachment 1 (CD-R Labeled "Seismic Reflection Data") to Enclosure 1 contains proprietary information as defined in 10 CFR 2.390, "Public inspections, exemptions, requests for withholding," paragraphs (a)(4) and (a)(9). Accordingly, it is requested that Attachment 1 to Enclosure 1 be withheld from public disclosure. An affidavit certifying the basis for this application for withholding as required by 10 CFR 2.390(b)(1) is also enclosed with this letter (Enclosure 3). Enclosure 2 provides a non-proprietary version of Enclosure 1.

The referenced letter also indicated that Exelon will submit the results of an early fall terrestrial ecology survey by November 14, 2008. Concurrently with that submittal, Exelon will provide the results of groundwater elevation monitoring conducted during July, August, and September 2008, completing the data set for one full year of groundwater elevation monitoring at 20 onsite

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wells. Additionally, Exelon will provide the results of onsite and offsite aquatic ecology sampling conducted during the same three-month period.

The twelfth month of groundwater elevation monitoring for the remaining wells in the sampling program will be completed in January 2009, and the data will be provided to the NRC in monthly increments following the November 14, 2008 submittal described above, with the final update provided in April 2009. As stated in the referenced letter, one year of aquatic ecology sampling will be complete in December 2008, the results of which will be submitted to the NRC on or before February 13, 2009.

If any additional information is needed, please contact David J. Distel at (610) 765-5517.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 16th day of October, 2008.

Respectfully,

Kenneth A. Ainger
Director – New Plant Licensing

Enclosures: 1. Additional Geological Data; Proprietary Version
2. Additional Geological Data; Non-Proprietary Version
3. Affidavit for Withholding Proprietary Information from Public Disclosure

cc: USNRC, Project Manager, VCS, Division of New Reactor Licensing (w/enclosures & 2 CD-ROM disks)
USNRC Region IV, Regional Administrator (w/enclosures)

ENCLOSURE 2

Additional Geological Data

Non-Proprietary Version

Geologic data supporting conclusions on growth faults in the site vicinity

The accompanying CD-ROM (Attachment 1- Proprietary) is provided in response to the NRC request to review the seismic reflection data that was incorporated into the VCS COLA. Final Safety Analysis Report (FSAR) Subsection 2.5.1.2.4.2.1.5 describes the reflection data in detail, and FSAR Subsection 2.5.1.2.4.2.3 describes the use of the data in evaluating growth faults within the site area. FSAR Figures 2.5.1-245 through 2.5.1-248, and the conclusions presented in FSAR Section 2.5.1.2.4.2.3 based on those figures, were derived directly from the interpreted time- and depth- migrated seismic reflection lines presented on the accompanying CD-ROM. These interpretations were themselves derived from the "not interpreted" time- and depth-migrated lines also presented on the accompanying CD-ROM. The specific contents of the CD-ROM were agreed to during a conference call between the NRC and Exelon on October 9, 2008. The files included on the CD-ROM were chosen to allow the NRC to fully evaluate the use of the seismic reflection data as described within the VCS COLA. The included files are:

README.txt: A text file briefly summarizing the contents of the CD-ROM.

MapOfReflectionLines.pdf: A topographic hillshade map in Adobe Portable Document Format (PDF) file format that shows the location of VCS Units 1 and 2 relative to the seismic reflection lines.

AcquisitionSummary.pdf: A table in a PDF file format providing a summary of the original acquisition parameters for each of the four seismic reflection lines including the type of energy source used, geophone spacing, source spacing, line fold, and line length.

ObservesNotes: A folder containing PDF files of observer's notes and elevation records from the original acquisition of the seismic lines. Observer's notes were not recorded at the time of the acquisition of line GSI, so no notes are provided in the folder for that line.

ProcessingFlows: A folder containing PDF files of processing flows for the reprocessing of the seismic reflection data as described in FSAR Subsection 2.5.1.2.4.2.1.5. The processing flows are directly output from the ProMAX software suite described in that section.

UninterpretedReflectionLines: A folder containing PDF files of the time- and depth-migrated seismic reflection profiles used for the VCS COLA without geologic interpretations.

InterpretedReflectionLines: A folder containing PDF files of the time- and depth-migrated seismic reflection profiles overlain by the geologic interpretations developed for the VCS COLA. The interpretations are the basis for FSAR Figures 2.5.1-245 through 2.5.1-248. However, as described in FSAR Section 2.5.1.2.4.2.3.1.1, interpretations of line PLJ were not included in the COLA because the line is sub-parallel to the major geologic structures and was used as a tie-line to correlate marker horizons between the other lines.

Assessment of paleoliquefaction features near the site

As part of the site-specific investigation, the site area and site vicinity were investigated for evidence of prehistoric earthquakes in the form of paleoliquefaction and other anomalous geomorphic features. These investigations included aerial and ground reconnaissance within the site vicinity, analysis of stereo-paired aerial photos within the greater site area, analysis of LiDAR derived topography within the site vicinity, and reviews of published literature. These investigations focused on identifying any anomalous geomorphic feature that may be related to strong ground shaking, including sand blows and boils, lateral spreading, and ground cracks. During this investigation particular emphasis was placed on areas with younger, Holocene deposits (i.e., valley fill deposits along the San Antonio and Guadalupe rivers) (FSAR Figures 2.5.1-204 and 2.5.1-223), but other Pleistocene deposits were examined as well. No evidence of prehistoric earthquakes or paleoliquefaction was observed within the site area or site vicinity during this investigation.

Characterization of the Gulf of Mexico area seismic source

The updates to the Mmax distributions for the Gulf Coastal Source Zones (GCSZs) of the Electric Power Research Institute-Seismicity Owners Group (EPRI-SOG) teams described in FSAR Subsection 2.5.2.4.3.1 followed a Senior Seismic Hazard Analysis Committee (SSHAC) level 2 process (Budnitz et al., 1997). The various levels of SSHAC studies are described in detail in NUREG/CR-6372 (Budnitz et al., 1997). The essential components of a level 2 study with respect to the Mmax update described in FSAR Subsection 2.5.2.4.3.1 are:

- Technical integrators (TIs) responsible for developing the updated Mmax distributions through discussions with experts and review of published information and data.
- Resource and proponent experts who are interviewed in an effort to gain expert insight that aids in forming the basis for the updated Mmax distributions.
- A participatory peer review panel that provides unbiased feedback, critical review, and guidance throughout the development of the updated Mmax distributions.

The TIs for this study were from William Lettis & Associates, Inc. Experts queried for this update included academics and commercial geoscientists with expertise in tectonics and seismicity within the Gulf of Mexico and members of the original EPRI-SOG Earth Science Teams (ESTs). The peer review panel consisted of seismic Technical Advisory Group (TAG) members.

As discussed in detail in Subsection 2.5.2.2, development of the probabilistic seismic hazard analysis (PSHA) for the VCS site followed the guidelines of Regulatory Guide (RG) 1.208. The EPRI-SOG PSHA model, an acceptable base model per RG 1.208, was used as the starting base model. Following the guidance of RG 1.208, this base model was evaluated in light of new data developed since the EPRI-SOG study to determine whether modifications needed to be made to the model so that the model adequately represents the new data. The guidance from RG 1.208 describing this process includes language such as the following:

> "The results of these [site-specific] investigations will also be used to assess whether new data and their interpretation are consistent with the information used in recent probabilistic seismic hazard studies accepted by NRC staff" (RG 1.208, page C-1).

> ". . . determine whether there are any new data or interpretations that are not adequately incorporated into the existing PSHA databases" (RG 1.208, page 11).

The key issue identified within the RG 1.208 guidance is that new data should be evaluated as to whether or not the EPRI-SOG model "adequately" describes, or is "consistent" with, the new data.

The need to update the Mmax distributions arose from an extensive review by the TIs of information and data published since the EPRI-SOG study, as recommended in Regulatory Guide 1.208 (see FSAR Subsections 2.5.1 and 2.5.2). Based on this review, the TI's concluded that one component of the source model characterization for some of the GCSZs needed to be updated. PSHA source models commonly have several components that include: (1) the geometry of the source; (2) the earthquake recurrence model for the source (including rates and relative frequency of different earthquake magnitudes); and (3) the Mmax for the source. Through the evaluation described in FSAR Section 2.5.2, it was determined that only the Mmax values for the affected GCSZs were not adequately described by and were not consistent with the existing EPRI-SOG source characterizations. As summarized in FSAR Tables 2.5.2-207 through 2.5.2-212, there was no new information to suggest that the GCSZs source geometry or recurrence rates were inconsistent with data developed after the EPRI-SOG study.

The EPRI-SOG source model was developed using an expert elicitation process that involved six independent earth science teams comprised of scientists recognized as experts in the fields of seismology, geology, and geophysics. One goal of the study was to capture and represent the range of uncertainty about the occurrence of future earthquakes and seismic sources within the central and eastern US (CEUS). The resulting seismic source model for the CEUS is commonly viewed as representing the state of knowledge of the informed expert community at the time of the study with respect to the seismogenic potential of the CEUS crust, including the crust throughout the VCS site region.

Because of the similarity of the EPRI-SOG study to a high-level SSHAC study, and because only the Mmax values of the GCSZs were determined to be inconsistent with modern data, it was decided by the TIs, through consultation with the peer review panel, that the updated Mmax values should be developed using the original methodology of the EPRI-SOG ESTs. Following the original methodology of the EPRI-SOG teams was intended to preserve the high-level SSHAC heritage of the study and was deemed justified as there was no new information or data developed following the EPRI-SOG study to suggest that these methodologies were invalid. The TIs believe that performing the updates in this fashion ensures that the updated EPRI-SOG model used for the VCS site can be viewed as representing the state of knowledge of the informed technical community, as represented by the EPRI-SOG teams, with respect to the seismogenic potential of the CEUS crust given modern data and information presented within the VCS COLA.

Because of the focus on updating just the Mmax values of the effected GCSZs using the original EPRI-SOG methodology, the SSHAC level 2 methodology, which was used to develop the updates, was designed to focus only on this specific process. The SSHAC methodology used in developing the updated Mmax distributions followed the guidelines presented in NUREG/CR-6372 (Budnitz et al., 1997). Peer reviewers were defined at the onset of the project as members of the TAG for the VCS COLA effort. The TIs' initial efforts consisted of compiling available data from published literature and by interviewing experts, with a focus on identifying information developed since publication of the EPRI-SOG study bearing on the seismic potential of the Gulf of Mexico region, including the VCS site region. The goal of this task was to develop an up-to-date understanding of the seismic and structural characteristics of the Gulf of Mexico region and, in particular, the areas surrounding the earthquakes that motivated the Mmax update. Based on their review of the compiled structural and seismic characteristics of the region, the TIs recognized that only the Mmax distributions of the affected source zones

required updating, and they developed a preliminary methodology for updating the Mmax distributions. These characteristics of the region and the preliminary update methodology were presented to the TAG peer review panel. The comments from the panel reflected their position that modifications to the EPRI-SOG model, if required to incorporate new information (e.g., the occurrence of the earthquakes motivating the Mmax updates), should endeavor to preserve the heritage of the high-level, SSHAC-equivalent process originally used to develop the EPRI-SOG model, as reflected in the characterization of seismic sources therein. Consistent with this view, the TIs decided to follow the specific methodologies used by the original EPRI-SOG ESTs to update Mmax distributions for the large areal source zones in the Gulf of Mexico.

Based on the peer review comments, the update methodology was refined and further expert interviews were conducted. These efforts focused on: (1) evaluating whether or not the occurrence of these earthquakes identified previously unobserved seismogenic structures within the Gulf of Mexico, and (2) interviewing experts involved in the EPRI-SOG study to evaluate their opinions of how these earthquakes impact their original Mmax distributions. All of this information was integrated by the TIs into a final methodology and updated Mmax distributions, which were then presented to the peer review panel for further comment. The panel endorsed the updated Mmax distributions and methodology. The final methodology and Mmax distributions are those presented in Subsection 2.5.2.4.3.1, and the background information developed from the literature review, interviews with experts, and endorsed by the seismic TAG is incorporated within FSAR Subsections 2.5.1 and 2.5.2.

References:

Budnitz, R.J., Apostolakis, G., Boore, D.M., Cluff, L.S., Coppersmith, K.J., Cornell, C.A., and Morris, P.A., 1997, Recommendations for Probabilistic Seismic Hazard Analysis: Guidance on Uncertainty and Use of Experts: Washington, D.C., US Nuclear Regulatory Commission, NUREG/CR-6372, p. 278.

Evaluation of salt diapirs in the site vicinity

FSAR Subsection 2.5.1.1.4.3.4.1 describes the Tertiary salt structures of the site region. As discussed in this section, the site lies within the San Marcos arch, a regional geologic structure that is generally devoid of salt deposits. Although regional in scale, FSAR Figure 2.5.1-212 demonstrates this absence of salt and suggests that there are no salt structures within the site vicinity and site area. As part of the site-specific investigation documented in FSAR Subsection 2.5.1, additional effort was placed on determining whether or not there was evidence of salt diapirism within the site vicinity. This effort included an extensive literature review for any documentation of salt structures within the greater site vicinity (e.g., see references within FSAR Subsection 2.5.1), analysis of aerial photos and LiDAR-derived topography for any surficial evidence of shallow salt domes (e.g., circular depressions or uplifts), analysis of Geomap subsurface structural contour maps, and analysis of seismic reflection data.

As discussed in FSAR Subsection 2.5.1.1.4.3.4.1, the literature review demonstrated that the closest mapped salt dome is over 50 miles from the site. Also as discussed in that section, the Geomap data show no evidence for salt diapirism within the site vicinity above the deepest horizon mapped by Geomap. This lowest horizon varies between approximately 4000 and 10,000 feet depth within the site vicinity. The Geomap data are considered to be a good resource for identifying salt diapirs and other salt structures because the mapping is based on structural horizons defined within well logs from petroleum exploration or production wells. Salt is impermeable to fluid flow and thus commonly acts as a hydrocarbon trap, so salt structures are common targets of petroleum production and exploration. It is expected that any salt

structure would have numerous wells surrounding it and would be well defined within the Geomap data.

This pattern is observed in Geomap data from other regions of the Gulf of Mexico. Analysis of aerial photos and the LiDAR-derived topography also revealed no evidence of anomalous geomorphic features that may be related to shallow salt structures.

As described in FSAR Subsection 2.5.1.2.4.2, seismic reflection data were licensed and analyzed to investigate the geologic structure within the site area. This investigation focused on growth faults, but all geologic structures, including salt diapirs, were investigated and mapped within the cross sections developed from the seismic reflection data (see FSAR Figures 2.5.1-245 through 2.5.1-248). The seismic reflection data used to develop these cross sections extends to over 18,000 feet depth and is well suited to identify salt diapirs within this depth range. The presence of salt diapirs within the data would be apparent as a diapiric shape with incoherent reflectors that would consistently truncate continuous and discontinuous reflectors at its edges. No such relationships were observed within the reflection data, and thus it was concluded that there is no evidence of salt diapirs within the seismic reflection data.

In summary, a diverse set of data were used to evaluate the potential existence of salt diapirs within the site vicinity. No evidence of salt diapirism was discovered in these data thus supporting the regional inference that salt diapirs are unlikely within the site and the site vicinity.

Conceptual dewatering plan for safety-related structures during construction

A conceptual dewatering plan for the temporary dewatering system to be utilized during plant construction will be provided by October 31, 2008.

Attachment 1

PROPRIETARY

CD-R labeled:

"Victoria County Station, Units 1 and 2
Seismic Reflection Data"
(Two copies)
October 2008

[Withheld]

ENCLOSURE 3

Affidavit for Withholding Proprietary Information from Public Disclosure

AFFIDAVIT

I, Julie Kay Hardie, Vice President - Legal, Seismic Exchange, Inc., do hereby affirm and state:

1. I am authorized to execute this affidavit on behalf of Seismic Exchange, Inc. (Seismic Exchange) and have knowledge of the subject matter described herein.
2. Seismic Exchange has provided certain proprietary geophysical data and information (Proprietary Information) to Exelon Generation Company, LLC (Exelon) for use in developing its Combined Operating and Construction License Application (COLA). This Proprietary Information concerns Data and Derivatives of seismic reflection data, which should be held in confidence by the NRC and exempt from public disclosure pursuant to the policy reflected in 10 CFR 2.390(a)(4) & (9) because:
    a. This Proprietary Information: (i) constitutes highly valuable confidential information and trade secrets of Seismic Exchange; (ii) is owned and held in confidence by Seismic Exchange; and (iii) is licensed to Exelon pursuant to that Master Geophysical Data-Use License dated February 29, 2008, which contains strict confidentiality and non-disclosure obligations on the part of Exelon with regard to the Proprietary Information that is the subject matter of this Affidavit and the COLA.
    b. It is the ordinary course of business and the customary practice and procedure of Seismic Exchange to maintain and require confidentiality and non-disclosure of its proprietary geophysical data, including the Proprietary Information described herein.
    c. Seismic Exchange understands that this Proprietary Information is being transmitted to the NRC voluntarily and in confidence.
    d. This Proprietary Information is neither in the public domain nor available in public sources and could not be gathered readily from other publicly-available information.
    e. Public disclosure of this Proprietary Information would create substantial and irreparable harm to Seismic Exchange, including its competitive position, as this Proprietary Information contains Seismic Exchange's highly valuable trade secrets and proprietary and confidential information. Furthermore, Seismic Exchange incurred significant costs to acquire the Proprietary Information.
3. Accordingly, Seismic Exchange requests that the designated Proprietary Information be withheld from public disclosure pursuant to 10 CFR 2.390(a)(4) & (9) .

Julie Kay Hardie

State of Texas)
) SS
County of Harris)

Sworn and prescribed to before me this 3RD day of October, 2008.

Notary Public

My Commission Expires: 11-21-2010

KRYSTAL LEIGH MARTIN
NOTARY PUBLIC
STATE OF TEXAS
EXPIRES
11-21-2010

SEAL