Exelon Generation

Victoria County Station

Early Site Permit Application Pre-Submittal Meeting

March 2, 2010

Agenda

- ✓ Victoria County Station (VCS) Early Site Permit Application (ESPA) History, Benefits, and Overview
- ✓ VCS ESPA Description
- ✓ Summary

VCS ESPA History

- ✓ C-1 pre-application site visit and C-2 / C-3 readiness assessment conducted in February 2008 and July 2008, respectively
- ✓ VCS COLA based on two unit ESBWR design submitted to NRC on September 2, 2008 and accepted for docketing on October 30, 2008
- ✓ NRC COLA review suspended on December 18, 2008 based on Exelon notification that an alternate reactor technology would be designated for the VCS COLA
- ✓ Exelon subsequently notified the NRC on July 1, 2009 that an ESP would be pursued for the VCS site
- ✓ Exelon notified NRC on October 13, 2009 that ESP application would be submitted on or before March 31, 2010
- ✓ FEMA review of off-site emergency planning has continued
- ✓ ESP application submittal letter will formally withdraw the VCS COLA

VCS ESPA Benefits

- ESP Process is consistent with the 10 CFR Part 52 licensing process
- The basic purpose underlying Subpart A is to resolve site suitability issues in licensing proceedings as early as possible
- Issues are resolved well in advance of a decision to build a nuclear power facility and before substantial capital is invested
- A pre-approved site can shorten project completion time when the ESP is referenced along with a certified design in a combined license (COL) application
- Allows external stakeholders to get involved early in the process of siting a nuclear reactor

VCS ESPA Overview

- ✓ ESPA submittal to NRC no later than March 31, 2010
- ✓ The VCS ESPA utilizes the VCS COLA site engineering and environmental evaluations to the maximum extent possible – essentially converting COLA to ESPA
- ✓ Updated to address other applicant RAIs and COLA acceptance review issues
- ✓ PPE Approach
  - Establishes a set of Site Characteristics and Site Related Design Parameters that are expected to envelope the design of a reactor or reactors that might be later deployed at the site
  - Provides applicants with the essential flexibility to defer technology selection until the decision to build is made and the applicant submits the COL, while maintaining finality on site safety and environmental issues
- ✓ SSAR and ER follow RG 1.206/NUREG-0800 and NUREG-1555 format/content guidance
- ✓ Actions deferred to the COL stage are identified and will be entered into Commitment Tracking System

VCS ESPA Overview

- ✓ Part 1: Administrative Information
- ✓ Part 2: Site Safety Analysis Report (SSAR)
- ✓ Part 3: Environmental Report (ER)
- ✓ Part 4: Emergency Plan
- ✓ Part 5: Enclosures
- ✓ Part 6: Proprietary/SUNSI Information

- ✓ No LWA planned

VCS ESPA Description

✓ Part 1 – Administrative Information

- Provides purpose of application, general format and content description
- Provides general corporate information required by 10 CFR 50.33(a) through (d) and (j) addressing corporate identity, foreign ownership and control, and restricted data
- Applicant is Exelon Nuclear Texas Holdings, LLC, a subsidiary of Exelon Generation

VCS ESPA Description

- ✓ Part 2 – Site Safety Analysis Report (SSAR)
- ✓ Chapter 1 – Introduction and General Description of Plant

  - Outlines PPE approach and reactor technologies considered
  - Designs limited to advanced LWR technologies and include ESBWR, ABWR, AP1000, APWR, and mPower modular reactors
  - Proposed site to accommodate one or two large LWR units, or up to 12 modular units within the designated power block area footprint

VCS ESPA Description

- ✓ Part 2 – SSAR
- ✓ Chapter 2 – Site Characteristics
  - Plant Parameters Envelope - Section 2.0
    - Provides Table of VCS Site Characteristics and Site-Related Design Parameters (site specific values and definitions) intended to support development of a Table of Site Characteristics and Plant Design Parameters for the Early Site Permit
  - Nearby Hazards Analysis – Section 2.2
    - Updated natural gas pipeline hazard analysis based on PPE power block
    - Updated transportation hazard analysis based on PPE power block
    - Toxic gas analysis deferred to COL stage as allowed by SRP
    - Updated DOE Aircraft Hazards calculation using bounding value for building area
  - Meteorology – Section 2.3
    - Updated site dispersion values (chi/q) based on two years of meteorological data
  - Hydrology – Section 2.4
    - Groundwater model refined, and updated based on additional site well monitoring data and other applicant RAIs

VCS ESPA Description

- ✓ Part 2 – SSAR
- ✓ Chapter 2 – Site Characteristics
  - Geology – Section 2.5
    - Incorporates assessment of paleoliquefaction features near the site previously submitted during COLA acceptance review
    - Incorporates evaluation of salt diapirs in the site vicinity previously submitted during COLA acceptance review
  - Seismology – Section 2.5
    - Incorporates discussion on characterization of the Gulf of Mexico area seismic source previously submitted during COLA acceptance review
  - Geotechnical Engineering – Section 2.5
    - Soil analysis approach – Original 2008 subsurface investigation contained sufficient soil borings to bound PPE power block area and cooling basin area
    - Additional 2009 subsurface investigation, intended to support COLA Rev. 1, used in ESP application as a sensitivity check on the original 2008 subsurface profiles and design properties
    - Comparison showed no significant change in the 2008 subsurface profiles and design properties used in the original soil column analysis

VCS ESPA Description

- ✓ Part 2 – SSAR
- ✓ Chapter 11 – Radioactive Waste Management
  - Radiological impacts of liquid and gaseous effluent releases during normal operations evaluated and estimates of the maximum doses to the public are compared to regulatory limits
  - One analysis is performed for each type of release based on a composite bounding set of source terms developed by selecting the highest value for each radionuclide for each of the reactor technologies considered in the PPE
    - The sum of the fractions of the Effluent Concentration Limits (ECL) for the composite gaseous source terms is slightly above 10CFR20 Appendix B limit of 1.0
    - Technology specific analysis at COL stage will confirm value below limit
    - Individual reactor technology DCD evaluations do not exceed ECL of 1.0
  - Total site doses due to liquid and gaseous effluents from the proposed units would be well within 40 CFR 190 and 10 CFR 20.1301

VCS ESPA Description

- ✓ Part 2 – SSAR
- ✓ Chapter 13 – Conduct of Operations
  - Describes emergency planning for the proposed reactor units at the VCS site
  - Proposed emergency plan is designed to comply with 10 CFR 50.47 and 10 CFR 50 Appendix E
  - Proposed complete and integrated plans being re-submitted in accordance with 10 CFR 52.17(b)(2)(ii) – VCS Standard Radiological Emergency Plan, State and County Plans and Certification Letters, Evacuation Time Estimate Study, EPZ Siren Acoustic Study
  - Plans updated to reflect latest versions reviewed by FEMA as part of COLA

VCS ESPA Description

- ✓ Part 2 – SSAR
- ✓ Chapter 15 – Accident Analysis
  - SSAR approach uses the DCD Chapter 15 design basis accident (DBA) analysis radiological dose consequences ratioed by the site specific X/Q values focused on the four LWR designs considered in the PPE: AP1000, APWR, ABWR, and ESBWR technologies
  - The mPower design is assumed to remain bounded based on lower MWt design
  - DCD source terms used have been updated based on latest DCD information
  - Evaluated DBA dose consequences are within recommended limits of RG 1.183 and NUREG-0800, and meet site acceptance criteria provided in 10 CFR 50.34 and 10 CFR 100

VCS ESPA Description

- ✓ Part 2 – SSAR
- ✓ Chapter 17 – Quality Assurance
  - Quality Assurance applied to safety-related ESP activities performed prior to start of construction are in accordance with the approved Exelon Nuclear Quality Assurance Topical Report for the Exelon operating nuclear plants
  - VCS ESP Quality Assurance Program Description in accordance with 10 CFR 52.17(a)(1)(xi) provided based on the approved NEI 06-14, Revision 7 template. Applies to site-related activities for the future design, fabrication, construction and testing of a facility or facilities that may be constructed on the VCS site.

VCS ESPA Description

✓ Part 3 – Environmental Report

- ✓ ER format and content follow Environmental Standard Review Plan including 2007 revisions
  - Section 3.9 – Construction Activities
  - Section 3.10 – Workforce Characterization
- ✓ Per 10 CFR 51.50(b)(2), sections would be provided with a COL application
  - Chapter 8 – Need For Power
  - Section 9.2 – Energy Alternatives
  - Section 10.4 – Benefit-Cost Balance
- ✓ Radiological analyses
  - Sections 5.7.2 and 7.4 transportation evaluations consider the four large LWRs
  - Section 7.2 - Severe Accidents evaluated using the ESBWR and ABWR as representative cases
  - Section 7.3 – Severe Accident Mitigation Alternatives would be provided with a COL application due to reactor technology specificity

VCS ESPA Description

✓ Part 3 – Environmental Report

- ✓ ER Chapter 3 provides Table of Site Characteristics and Design Parameters used for assessing the environmental impacts of constructing/operating nuclear plants at the VCS site

- ✓ Site-specific data
  - Two years of onsite meteorological data and analysis
  - One year of terrestrial and aquatic ecology survey data covering seasonal variations
  - Over one year of groundwater elevation monitoring
  - Surface water and groundwater quality data
  - Bathymetric surveys
  - Wetland delineation - supplemental survey conducted in May ‘09
  - Cultural resource investigations – submitted to the Texas Historical Commission

VCS ESPA Description

- ✓ Part 3 – Environmental Report

- ✓ Additions / revisions relative to the 2008 COL application
  - Preconstruction / construction breakdown (COL/ESP-ISG-4)
  - Greenhouse gas emissions – construction / operation / fuel cycle
  - Raw water intake structure relocated
    - Preferred location adjacent to the Guadalupe River
    - GBRA Calhoun Canal evaluated as alternate location
  - VCND Transportation Corridor Project
    - Independent project to link US 77 with the Port of Victoria
    - Cooling basin blowdown pipeline and discharge diffuser relocated to parallel transportation corridor and minimize impacts
  - Additional 200 residents in NE and ENE sectors
    - Included in demography and radiological analyses
- ✓ GBRA Storage Reservoir removed from project

VCS ESPA Description

- ✓ Part 4 – Emergency Plan
- ✓ Complete and integrated plans updated to incorporate FEMA review issues intended to provide seamless transition from COLA to ESP:
  - Exelon Nuclear Standard Emergency Plan
  - Victoria County Station Emergency Plan
  - State of Texas – Fixed Nuclear Facility Response for Victoria County Station
  - Victoria, Goliad, and Refugio County Emergency Plans
  - State and County Certifications Letters
  - Evacuation Time Estimate Study
  - Alert Notification System Study

FEMA review of COLA off-site Emergency Plan documents essentially complete

VCS ESPA Description

✓ Part 5 – Enclosures

- MACTEC Geotechnical Data Reports for the power block and cooling basin (subsurface investigation reports and supplemental report)

- Consistent with the COLA approach

VCS ESPA Description

✓ Part 6 – Proprietary/SUNSI Information

- Incorporates seismic reflection data previously submitted during COLA acceptance review

VCS ESPA Description

VCS ESPA Description

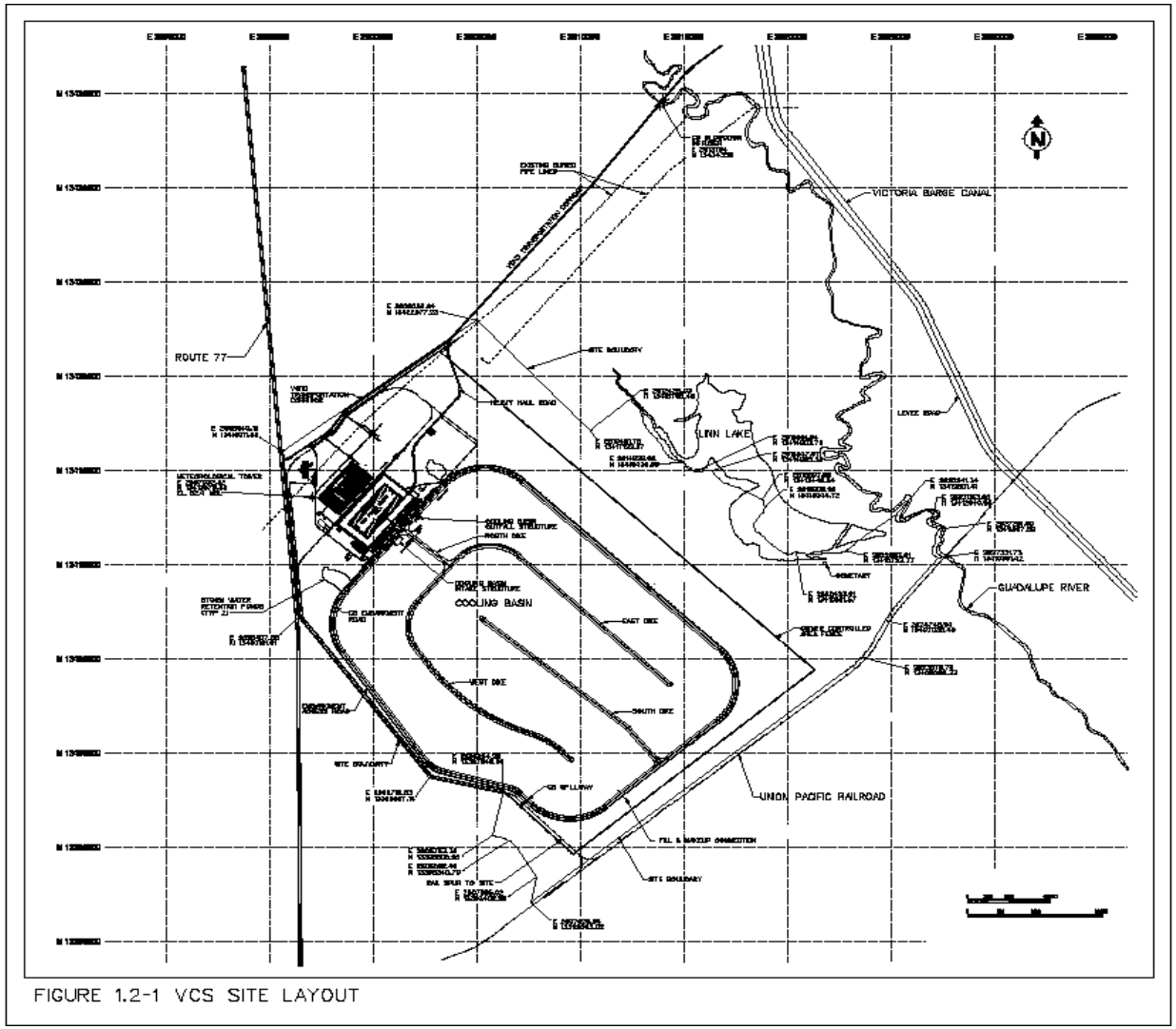

FIGURE 1.2-1 VCS SITE LAYOUT

VCS ESPA Description

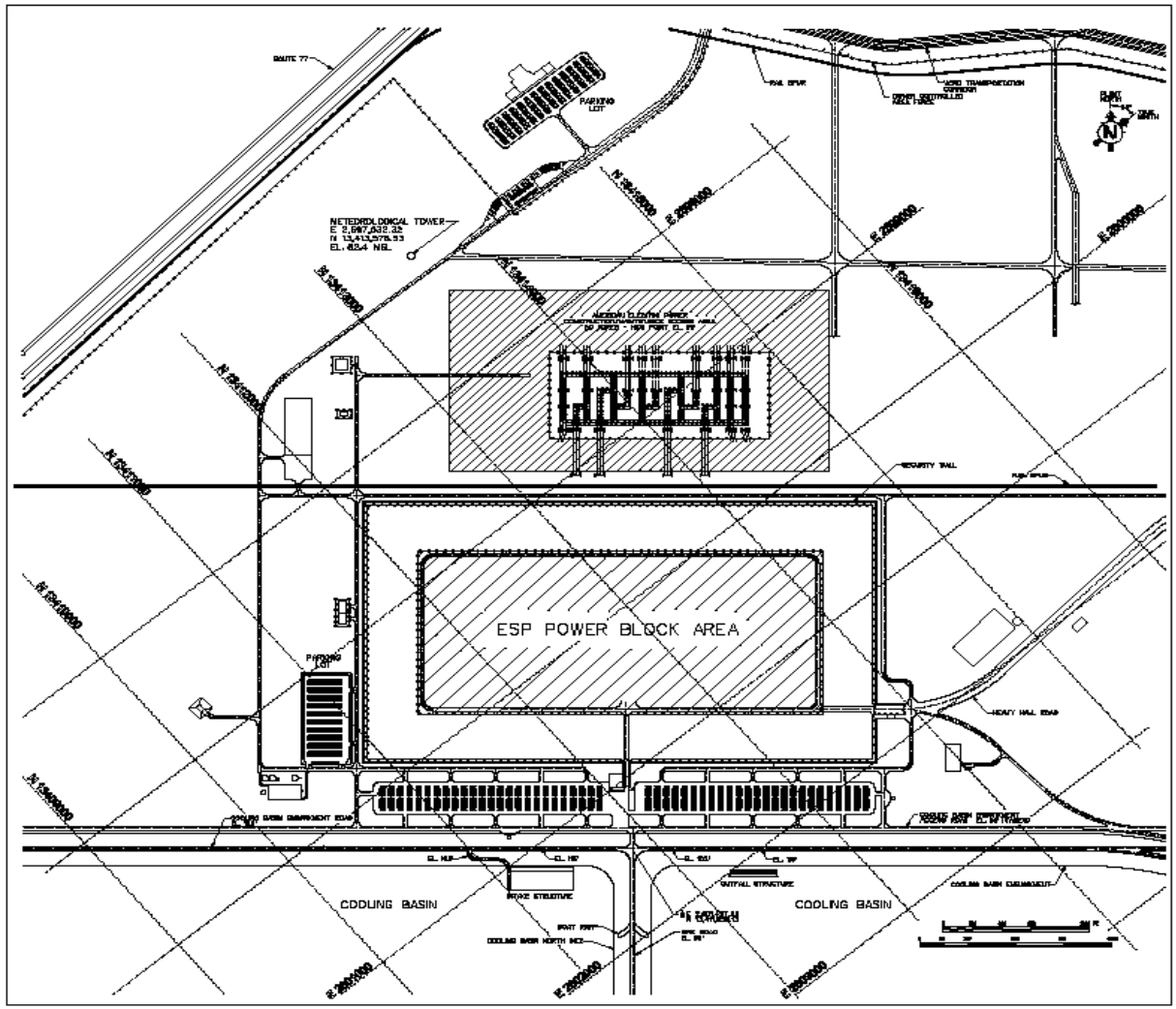

FIGURE 1.2-2 VCS POWER BLOCK AREA

Summary

- ✓ ESP provides value and is consistent with 10 CFR Part 52 process
- ✓ Resolves key site environmental, safety, and emergency planning issues prior to decision to build and the expenditure of substantial capital investment
- ✓ VCS ESP Application to be submitted by March 31, 2010
- ✓ Utilizes Plant Parameter Envelope Approach as endorsed by NRC to establish a bounding set of Site Characteristics and Site Related Design Parameters
- ✓ Site safety and environmental evaluations are based on data and analyses used for the VCS COLA and updated where necessary to include COLA acceptance review information and updated site studies
- ✓ Includes complete and integrated Emergency Plans based on COLA E-Plan documents reviewed by FEMA
- ✓ Exelon prepared to support NRC acceptance review and detailed site safety and environmental reviews