Part 01

Exelon Generation
Victoria County Station
ESP Application

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Victoria County Station

ESP Application

Part 1

Administrative Information

Revision 1

PART 1: ADMINISTRATIVE INFORMATION

1.1 Introduction

In accordance with 10 CFR 52, Subpart A, *Early Site Permits*, Exelon Nuclear Texas Holdings, LLC (Exelon), a wholly owned subsidiary of Exelon Generation Company, LLC (ExGen), hereby applies to the NRC for an Early Site Permit (ESP) for two or more reactors at the Victoria County Station (VCS) site. Exelon requests that the NRC issue an ESP for the VCS site described in this application for a period of 20 years from the date of issuance. The information presented in this application supports issuance of this permit.

The VCS site is located in Victoria County, Texas, approximately 13.3 miles south of the city of Victoria, Texas. ESP application, Part 2, Chapter 1 provides a more detailed description of the VCS site. The proposed VCS site layout and power block area layout are illustrated in Figures 1.1-1 and 1.1-2, respectively.

This ESP application has been divided into parts as follows:

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 Information

1.2 Purpose of an Early Site Permit Application

Obtaining a license for a nuclear power plant in the United States has traditionally been a two-step process as set forth in Title 10 of the Code of Federal Regulations, Part 50 (10 CFR 50), *Domestic licensing of production and utilization facilities*, which requires the NRC to first issue a construction permit, and later, an operating license. In 1989, the NRC established an alternative licensing process that combines the construction permit and operating license, with certain conditions, into a single combined license (or “COL”). This new process is set forth in 10 CFR 52. Other provisions of 10 CFR 52 include the ESP, which allows an applicant to obtain approval for a site for a nuclear power plant, before a decision to construct, and “bank” it for future use, and the certified standard plant design, which can be used by an applicant as an “off-the-shelf” power plant design preapproved by the NRC.

Under 10 CFR 52, an ESP application can be approved separately from any other NRC licensing action. Such permits are valid for a period of 10 to 20 years with provisions for renewal.

Site safety issues, environmental issues, and certain aspects of emergency preparedness are addressed as part of the ESP process. ESP licensing issues are resolved with finality during the ESP review process and are not reexamined in any subsequent licensing action involving the permitted site, absent any information meeting certain standards established by the NRC.

1.3 Early Site Permit Application Format and Content

1.3.1 Format and Content

This application contains the information required by 10 CFR 52.17, *Contents of applications; technical information*, for an ESP, and is submitted in accordance with NRC guidance on electronic submittals (Reference 1.3.3-1).

The application is organized as follows:

Part 1 — Administrative Information. This part contains an overview of the ESP application and general corporate information, including ownership, management, and boards of directors, as required by 10 CFR 50.33(a) through (d).

Part 2 — Site Safety Analysis Report (SSAR). This part contains information about site safety, emergency preparedness, and quality assurance. The site safety section includes a description of the VCS site and proposed facilities, as required by 10 CFR 52.17(a)(1)(i) through (viii), an assessment of the site features affecting the facility design, and meteorological, hydrologic, geologic, and seismic characteristics of the site. The described seismic characteristics demonstrate site compliance with the earthquake engineering criteria of 10 CFR 50, Appendix S, as required by 10 CFR 50.34(a)(12) and (b)(10), and 10 CFR 52.79(a)(19). Also included is a demonstration of site compliance with 10 CFR 20, *Standards for Protection Against Radiation*, and 10 CFR 100, *Reactor Site Criteria*, requirements for site suitability.

Regarding the description of the facilities for which the proposed site may be used, Exelon has not selected a particular reactor design to be constructed at the VCS site. Thus, in order to provide sufficient design information to enable the NRC to determine that the proposed site is suitable for new reactor units, a surrogate design has been provided as part of the application. The surrogate plant is in the form of a set of bounding plant parameters termed the “plant parameters envelope (PPE).” The PPE approach has been accepted by the NRC (Reference 1.3.3-2). The combination of PPE values and site characteristics that would form the licensing basis for NRC’s issuance of an ESP is identified in the application.

This part also describes the capability of the facilities to withstand the natural and man-made environmental hazards of the site. The emergency preparedness information includes an assessment of any impediments to implementing an emergency plan at the ESP site, as required by 10 CFR 52.17(b)(1), and includes a complete and integrated emergency plan, as required by 10 CFR 52.17(b)(2), with inspections, tests, and acceptance criteria (ITAAC) required by 10 CFR 52.17(b)(3), and a description of contacts and arrangements made with federal, state, and local governmental agencies with emergency planning responsibilities and certifications obtained as required by 10 CFR 52.17(b)(4). The emergency plan and supporting information provided in this ESP application has already received significant NRC and Federal Emergency Management Agency (FEMA) review as part of the previously submitted VCS COL application. The quality assurance program under which ESP-related activities have been performed is also provided.

Where possible, the SSAR section numbers correspond to the section numbers identified in Reference 1.3.3-3. Consistent with that guidance, there are some gaps in the numbering sequence. This is intentional. Also, in a few instances, information has been located elsewhere in the application because it was deemed more appropriate for ESP purposes. However, to the extent practical, the numbering sequence in this ESP application has been maintained consistent with NRC guidance. This approach is intended to facilitate any subsequent integration of the information in this ESP application with a design certification and/or COL activity in which the complete numbering sequence would be used.

The regulatory bases for the SSAR include consideration of the following:

- NRC Regulations — 10 CFR 20, 10 CFR 50, 10 CFR 52, and 10 CFR 100.
- NRC Regulatory Guide 1.206, *Combined License Applications For Nuclear Power Plants (LWR Edition)*.
- NUREG-0800, *Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants*.
- NRC Review Standard (RS)-002, *Processing Applications For Early Site Permits*.

The following briefly describes the individual chapters of the SSAR:

- Chapter 1, *Introduction and General Description of Plant*, includes an overview of the site and a description of development of the VCS site characteristics and reactor design technologies considered.
- Chapter 2, *Site Characteristics*, includes a discussion of the PPE approach; geography and demography; nearby industrial, transportation, and military facilities; meteorology; hydrology engineering; and geology, seismology and geotechnical engineering.

- Chapter 3, *Design of Structures, Components, Equipment, and Systems*, contains a pointer to information on aircraft hazards located in Chapter 2.
- Chapter 11, *Radioactive Waste Management*, includes information on liquid and gaseous radioactive releases.
- Chapter 13, *Conduct of Operations*, includes an overview of emergency planning for the site and surrounding area in case of plant accidents, and the physical security to be provided for the site and plant sensitive areas.
- Chapter 15, *Accident Analysis*, includes a description of radiological consequences of plant accidents, and conformance with applicable 10 CFR 100 siting criteria.
- Chapter 17, *Quality Assurance*, includes a description of the quality assurance program (QAP) under which the ESP application has been prepared and provides a proposed Quality Assurance Program Description (QAPD) to address the requirements of 10 CFR 52.17(a)(1)(xi).

Part 3 — Environmental Report (ER). This part contains information about site environmental issues, as required by 10 CFR 51.45 and 10 CFR 51.50. This part also satisfies the application content requirement of 10 CFR 52.17(a)(2). It focuses on the environmental impacts to the ESP site from the construction and operation of two or more reactors having characteristics and parameters that are representative of the technologies considered.

The ER describes the existing environment surrounding the VCS site and in the vicinity of the site; postulates environmental impacts of construction and operation, and considers appropriate mitigation measures; reviews the impacts of design basis and severe accidents; and reviews similar alternative sites. The ER does not consider the need for power, energy alternatives, or benefit-cost analyses, as these evaluations are excluded by 10 CFR 52.17 and NUREG-1555 for the ESP ER.

For evaluation purposes, the following categories of information regarding interfaces of the proposed site and facilities are reviewed:

- Comparison of the functional operational needs of the facility as they relate to the site's natural and environmental resources.
- Impact of the facility on the site's natural and environmental resources.

Input to the ER includes:

- National Environmental Policy Act.
- NRC Regulations — 10 CFR 51 and 10 CFR 52.
- NRC Regulatory Guide 4.2, *Preparation of Environmental Reports for Nuclear Power Stations*.

- NUREG-1555, *Standard Review Plans for Environmental Reviews of Nuclear Power Plants*.
- Federal and state environmental statutes, as applicable.

The following briefly describes the sections of the ER:

Chapter 1, *Introduction to the Environmental Report*, includes a description of the proposed project and Exelon's purpose for the permit.

Chapter 2, *Environmental Description*, examines the current site and surrounding area, physical and ecological environment, and provides current socioeconomic, demographic, historic, and community characteristics.

Chapter 3, *Plant Description*, describes the characteristics and parameters of the technologies considered that could impact the site, as well as the related construction activities.

Chapter 4, *Environmental Impacts of Construction*, describes the potential impacts on the surrounding environment for construction of the proposed facilities.

Chapter 5, *Environmental Impacts of Station Operation*, describes the potential impacts of operating the proposed facilities at the site.

Chapter 6, *Environmental Measurements and Monitoring Programs*, describes the surveys and programs that were implemented in support of the ESP application, as well as those that will be used to monitor the environmental impacts of the construction and operation of the proposed facility.

Chapter 7, *Environmental Impacts of Postulated Accidents Involving Radioactive Materials*, describes the potential radiological consequences associated with operating the proposed facilities at the VCS site, as a result of design basis accidents, severe accidents, and transportation accidents.

Chapter 8, *Need for Power*, notes that an assessment of the power needs is not relevant to an ESP.

Chapter 9, *Alternatives to the Proposed Action*, reviews potential alternatives including alternative sites.

Chapter 10, *Environmental Consequences of the Proposed Action*, analyzes unavoidable adverse environmental impacts, irreversible commitments of environmental resources, and cumulative impacts associated with construction and operation of the proposed units at the VCS site.

Part 4 — Emergency Plan. This part contains the VCS emergency plan. The VCS emergency plan is designed to be compliant with 10 CFR 50.47, *Emergency Plans*, and 10 CFR 50 Appendix E, *Emergency Planning and Preparedness for Production and Utilization Facilities*. It is based on the

guidance contained in NUREG-0654, Revision 1, *Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants*, with the exception of emergency action levels which are further addressed in SSAR Section 13.3. In addition, the VCS emergency plan is designed to be compliant with 10 CFR 52.17(b)(1), 10 CFR 52.17(b)(2)(ii), 10 CFR 52.17(b)(3), and 10 CFR 52.17(b)(4). NUREG-0654, Supplement 2 is also used as guidance for the development of the VCS emergency plan. This part also includes the VCS site evacuation time estimate, supporting a conclusion that no physical characteristics unique to the site that could pose a significant impediment to the development of emergency plans for the proposed facility exists.

Part 4 also includes the state and county emergency plans submitted in support of the VCS COL application, and incorporates the revisions made in response to requests for additional information resulting from the FEMA review of the offsite emergency plan documents. The VCS offsite emergency plan documents provided as part of this ESP application have received significant FEMA review as part of the previously submitted VCS COL application. It is noted that these Emergency Plan documents may describe the reactor technology used in the previously submitted COL application. These documents will be revised at the COL stage, if required, based on the selected technology.

Part 5 — Enclosures. This part contains the power block and cooling basin geotechnical exploration and testing data reports for the VCS site. These reports are identified in SSAR Subsection 2.5.4 as References 2.5.4-1, 2.5.4-2, and 2.5.4-3.

The applicant at the time of this submittal has no plans for activities at the site, after grant of the ESP, as allowed by 10 CFR 50.10(e)(1); therefore, a site redress plan as required by 10 CFR 52.17(c) for these type of activities is not provided.

In summary, each part of the application is intended to stand alone to the extent practical. That is, information appearing within one part may be referenced elsewhere within the same part to minimize duplication. However, if the same information is used in more than one part, that information may be replicated so that each part may be used without reliance on another part.

Part 6 — Proprietary Information. This part contains proprietary seismic reflection data referenced in SSAR 2.5.1.

1.3.2 Labeling Conventions

Each page of the application, except pages in the application title sheet, individual Part title sheets, overall application Table of Contents, and application Appendices, has a header and footer that identifies the Part of this application to which it belongs and the current revision. Other content

identity is established as described in the following sections. However, documents provided as application section appendices (Part 2 — Sections 2.5, 13.3, and 17.1) and the Emergency Plan (Part 4) are independent documents issued separately from the application. Therefore, these portions of the application do not fully adhere to the following content requirements.

1.3.2.1 Pagination

Pages are numbered sequentially within each chapter, section, or subsection. For example, Page 3-2 is the second page in Chapter 3, Page 1.1-4 is the fourth page in Section 1.1, and Page 2.5.4-3 is the third page in the Subsection 2.5.4.

1.3.2.2 Paragraph Numbering

Within each Part, chapters are numbered sequentially. Sub-tier content is numbered based on the chapter number. For example, Chapter 2, Section 2.1, Section 2.1.1, etc. References to sections are within a Part unless otherwise specified.

1.3.2.3 References

Reference lists appear at the end of each section or subsection, as appropriate. For example, the References list for Part 3, Section 2.5 appears at the end of Section 2.5 and the References list for Part 2, Subsection 2.5.4 appears at the end of Subsection 2.5.4.

1.3.2.4 Tables and Figures

Table and figure numbers consist of the section or subsection number (as appropriate), and a sequential number. For example, Figure 2.3-10 is the tenth figure for Section 2.3 and Figure 2.5.4-1 is the first figure for Subsection 2.5.4. Tables (generally) and figures are located at the end of the associated section or subsection. However, small tables less than one-third of a page may be placed within the text portion of the section.

1.3.2.5 Change Notation

In accordance with the NRC guidance for electronic submissions (Reference 1.3.3-1), this application is considered a living document. Accordingly, updates are submitted as total replacements, a list of changed pages is provided (Changed Pages), and the location of changed content is denoted with a bold line in the right margin. All pages display the current revision number and issue date.

1.3.3 References

1.3.3-1 USNRC, *Guidance for Electronic Submissions to the NRC*, Revision 5, dated June 25, 2009.

1.3.3-2 NRC letter to NEI, J. E. Lyons to R. L. Simard, titled *Resolution of Early Site Permit Topic 6 (ESP-6), Use of Plant Parameter Envelope (PPE) Approach*, February 5, 2003.

1.3.3-3 USNRC Regulatory Guide 1.206, *Combined License Applications For Nuclear Power Plants (LWR Edition)*, June 2007.

1.4 General Corporate Information

The following information is provided in accordance with 10 CFR 52.16, *Contents of applications; general information*. This information addresses the requirements of 10 CFR 50.33(a) through (d) and (j).

Corporate Information for Exelon

Name of Applicant: Exelon Nuclear Texas Holdings, LLC

Address: 4300 Winfield Road, Warrenville, IL 60555

State of Incorporation: Delaware

Principal Business Location: 4300 Winfield Road, Warrenville, IL 60555

Description of Business: Exelon Nuclear Texas Holdings, LLC (Exelon) is a limited liability company formed in 2007 under the laws of the state of Delaware. It is a member-managed LLC and has one member, Exelon Generation Company, LLC (ExGen). Exelon will exclusively operate in the state of Texas. In the Texas deregulated market, Exelon will sell the electrical energy produced at VCS to the general Electric Reliability Council of Texas (ERCOT) market.

Exelon is a wholly owned subsidiary of ExGen. ExGen is a limited liability company formed to own, operate, and acquire nuclear and other electric generating stations, to engage in the sale of electrical energy, and to perform other business activities. Exelon Nuclear, a business unit within ExGen, is responsible for the operation of ExGen's fleet of nuclear power stations. ExGen is a wholly owned subsidiary of Exelon Ventures. Nonregulated activities, such as power generation and marketing, are conducted through entities owned by Exelon Ventures. Exelon Ventures is wholly owned by Exelon Corporation, a corporation formed under the laws of the Commonwealth of Pennsylvania. Exelon Corporation, the ultimate parent company of ExGen, is a utility services holding company that operates through its principal subsidiaries ExGen, Commonwealth Edison Company (ComEd) and PECO Energy Company (PECO), each of which is treated as an operating segment by Exelon Corporation.

ComEd's energy delivery business consists of the purchase and regulated retail and wholesale sale of electricity and the provision of distribution and transmission services to retail customers in northern Illinois, including the city of Chicago.

PECO's energy delivery business consists of the purchase and regulated retail sale of electricity and the provision of transmission and distribution services to retail customers in southeastern Pennsylvania, including the city of Philadelphia, as well as the purchase and regulated retail sale of natural gas and the provision of distribution services to retail customers in the Pennsylvania counties surrounding the city of Philadelphia.

ExGen is one of the largest competitive electric generation companies in the United States, as measured by owned and controlled megawatts (MWs). As of December 31, 2009, ExGen owned generation assets with an aggregate net capacity of 24,850 MWs, including 17,009 MWs of nuclear capacity and 7841 MWs of fossil and hydroelectric/renewable capacity. In addition, ExGen controlled another 6153 MWs of capacity through long-term contracts.

ExGen has ownership interests in eleven nuclear generating stations, consisting of 19 units with 17,009 MWs of capacity. ExGen's nuclear fleet plus its ownership interest in two generating units at the Salem Generating Station, which are operated by PSEG Nuclear, LLC, generated 139,670 gigawatt hours (GWh), or approximately 81 percent of ExGen's total output, for the year ending December 31, 2009.

ExGen's nuclear generating stations are operated by Exelon Nuclear (a business unit within ExGen), with the exception of the two units at Salem, which are operated by PSEG Nuclear, LLC, an indirect, wholly owned subsidiary of Public Service Enterprise Group Incorporated.

Exelon Corporation and its predecessor companies (ComEd and PECO) have a long history of constructing and operating nuclear power plants, starting with construction of the nation's first commercial nuclear plant at Dresden Nuclear Power Station in Illinois in 1956. Today, ExGen is the largest nuclear operator in the U.S. During 2009 and 2008, the nuclear generating facilities operated by ExGen achieved a 93.6 percent and 93.9 percent capacity factor, respectively.

ExGen combines its large generation fleet with an experienced wholesale energy marketing operation and a competitive retail sales operation. ExGen's wholesale marketing unit, Power Team, a major wholesale marketer of energy, draws upon ExGen's energy generation portfolio and logistical expertise to ensure delivery of energy to ExGen's wholesale customers under long-term and short-term contracts. ExGen's retail business provides retail electric and gas services as an unregulated retail energy supplier in Illinois, Michigan, and Ohio.

Names, addresses, and citizenship of Exelon directors and principal officers

Exelon is a member-managed limited liability company and has no directors or officers. The sole member of Exelon is ExGen. The following table lists officers of ExGen who act on behalf of Exelon. ExGen has no directors.

Name	Title	Address	Citizenship
Christopher M. Crane	President, Exelon Nuclear Texas Holdings, LLC	4300 Winfield Road Warrenville, IL 60555	USA
Amir Shahkarami	Senior Vice President, Engineering & Technical Services, Exelon Nuclear Texas Holdings, LLC	4300 Winfield Road Warrenville, IL 60555	USA
Thomas R. Miller	Treasurer, Exelon Nuclear Texas Holdings, LLC	10 S. Dearborn St. Chicago, IL 60603	USA
Bruce G. Wilson	Secretary, Exelon Nuclear Texas Holdings, LLC	10 S. Dearborn St. Chicago, IL 60603	USA

No Foreign Ownership, Control, or Influence

Exelon Corporation is a publicly traded corporation whose shares are traded on the New York Stock Exchange. Exelon Ventures Company, LLC (Exelon Ventures) is a wholly owned subsidiary of Exelon Corporation. The directors and principal officers of ExGen, Exelon Ventures, and Exelon Corporation are U.S. citizens. Neither ExGen nor its parent, Exelon Ventures, are owned, controlled, or dominated by an alien, a foreign corporation, or a foreign government.

Section 13(d) of the Securities Exchange Act of 1934, as amended, 15 U.S.C. 78m(d), requires that a person or entity that owns or controls more than 5 percent of the securities of a company file notice with the Securities and Exchange Commission (SEC). Based on filings with the SEC, Exelon Corporation is not aware of any alien, foreign corporation, or foreign government that holds or may hold more than 5 percent of the securities of Exelon Corporation.

Restricted Data Agreement

This application does not contain restricted data or other national defense information, nor is it expected that subsequent amendments to the license application will contain such information. However, pursuant to 10 CFR 50.37, Exelon, as a part of the application for an ESP, hereby agrees that it will not permit any individual to have access to, or any facility to possess, restricted data or classified national security information until the individual and/or facility has been approved for such access under the provisions of 10 CFR 25 and/or 10 CFR 95.

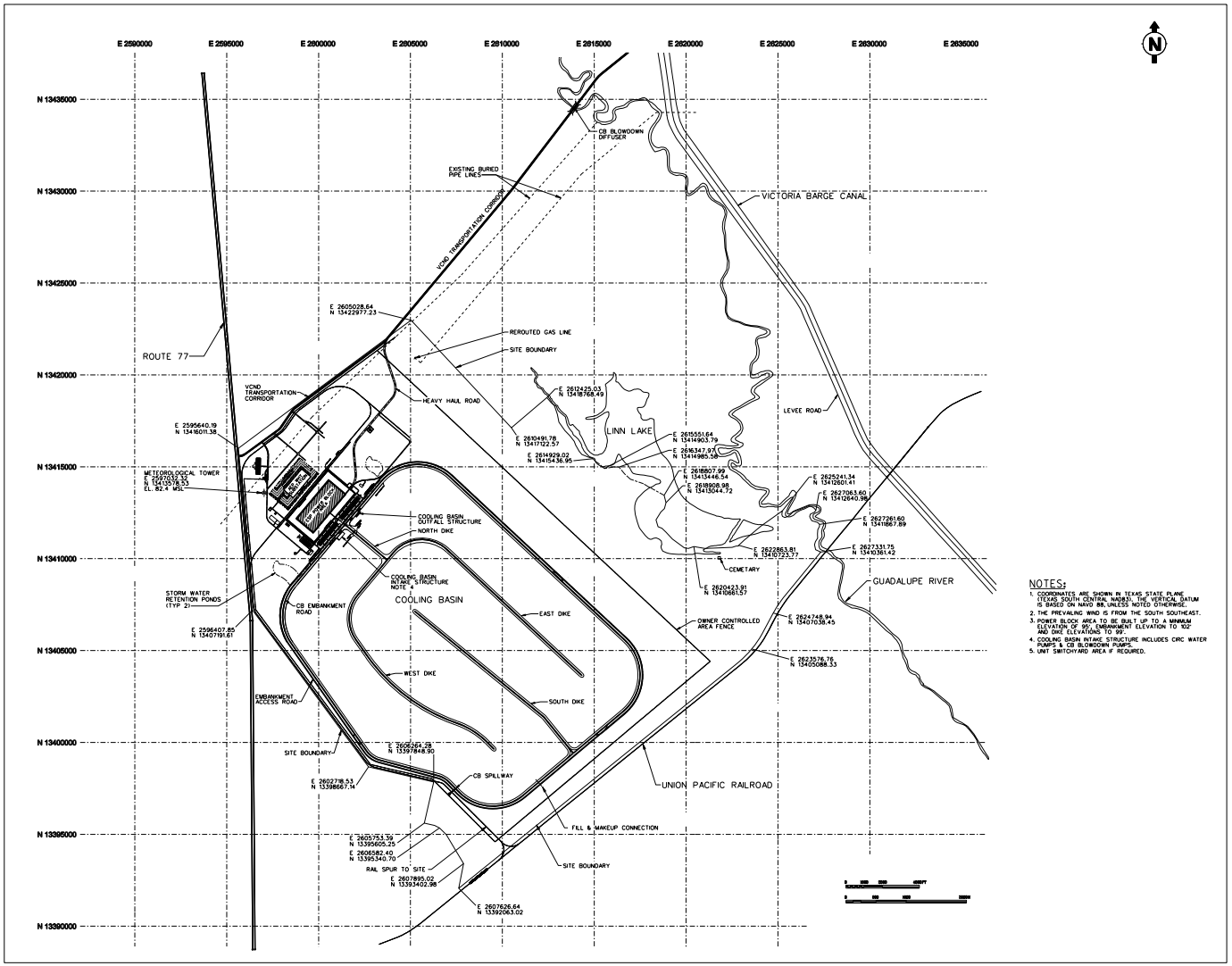

Figure 1.1-1 VCS Site Layout

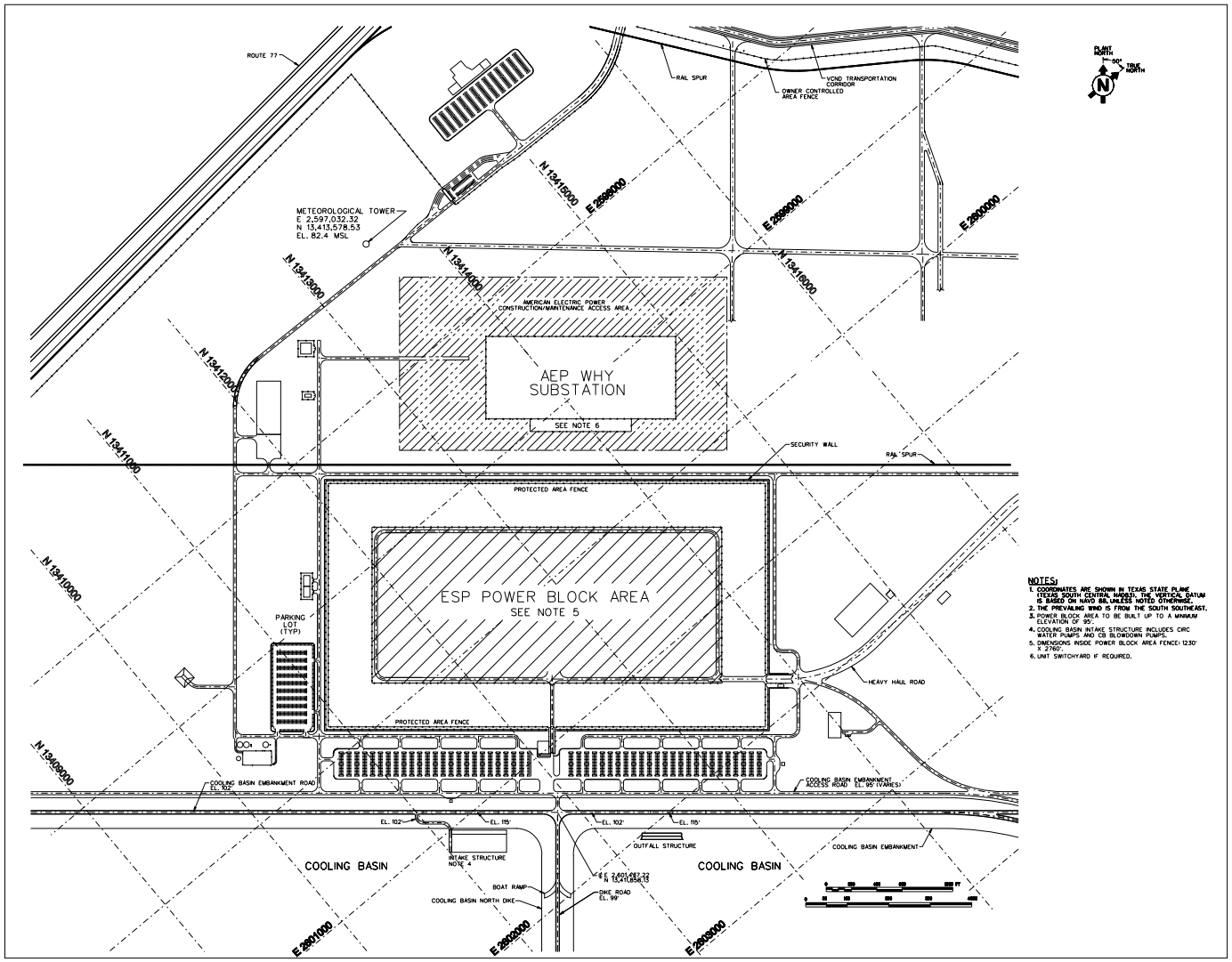

Figure 1.1-2 VCS Power Block Area