

Enclosure 10

Non-Proprietary Version of Blue Energy's BE-POV-LCNRG-LIC-5006,
"Exemption Request to Allow Installation of Permanent In-Ground Support
Structures Required for Safe Reactor Building Shaft Excavation", Revision 0

36 pages follow



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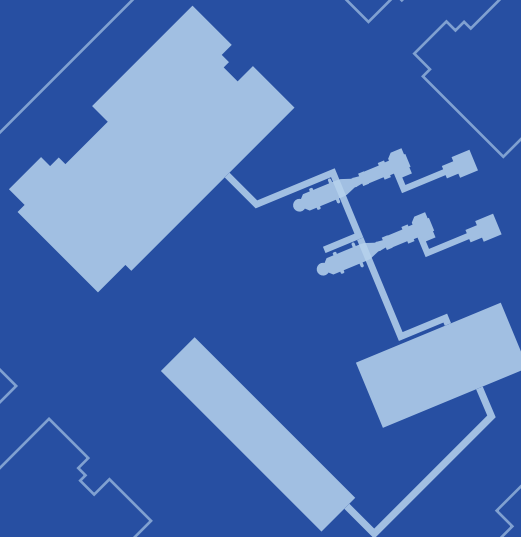


**Exemption Request to Allow Installation of Permanent
In-Ground Support Structures Required for Safe Reactor
Building Shaft Excavation**

Non-Proprietary Version

BE-POV-LCNRG-LIC-5006-NP

Revision 0





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Information Notice

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Table of Contents

List of Figures	iv
List of Acronyms	v
1 Introduction and Proposed Exemption	1
2 Background	2
2.1 Relevant Regulations	2
2.2 Regulatory Guidance	3
2.3 Other Relevant Guidance or Topical Reports	3
2.4 Proposed rulemaking	3
2.5 Other Regulations	4
2.6 Need for proposed exemption	4
3 Detailed Description	6
3.1 Reactor Building Location and Site Characterization	6
3.2 In-ground Support Structure (Diaphragm wall)	16
4 Justification for Exemption	19
4.1 Criteria of 10 CFR 50.12(a)(1)	19
4.1.1 The Exemption is Authorized by Law	19
4.1.2 The Exemption Will Not Present an Undue Risk to Public Health and Safety	19
4.1.3 The Exemption is Consistent with the Common Defense and Security	19
4.2 Special Circumstances	19
4.2.1 10 CFR 50.12(a)(2)(iii) – Compliance Would Result in Undue Hardship	19
4.2.2 10 CFR 50.12(a)(2)(vi) – Material Circumstances Not Considered When the Regulation Was Adopted	21
4.3 Criteria of 10 CFR 50.12(b)	22
4.3.1 Whether conduct of the proposed activities will give rise to a significant adverse impact on the environment and the nature and extent of such impact, if any	22
4.3.2 Whether redress of any adverse environmental impact from conduct of the proposed activities can reasonably be effected should such redress be necessary	22
4.3.3 Whether conduct of the proposed activities would foreclose subsequent adoption of alternatives	23
4.3.4 The effect of delay in conducting such activities on the public interest, including the power needs to be used by the proposed facility, the availability of alternative sources, if any, to meet those needs on a timely basis and delay costs to the applicant and to consumers	23
4.3.5 Conclusions	23
5 Precedent	25
5.1 Clinch River Nuclear Site	25



5.2 Pioneer Units 1 & 2	25
6 Environmental Assessment	26
6.1 Land Use	26
6.2 Water Resources	26
6.3 Ecological Resources	27
6.4 Socioeconomics	27
6.5 Historic and Cultural Resources	27
6.6 Air Resources	27
6.7 Nonradiological Health	27
6.8 Nonradiological Waste Management	28
6.9 Environmental Impacts Conclusion	28
7 Conclusion	29
References	30

List of Figures

1 Blue Energy Center – Port of Victoria Site Diagram.	7
2 Preliminary Diagram for LWA ER scope activities including RB shaft construction	8
3 Plant grade along N01 RB centerline from plant south to plant north	10
4 Plant grade along N01 RB centerline from plant west to plant east	11
5 Borehole and well locations	12
6 Conceptual diagram for diaphragm wall and dewatering of material to be excavated	13
7 Conceptual diagram of excavated shaft	14
8 Conceptual diagram with RB structures.	15
9 Conceptual design for diaphragm wall	17
10 Baseline Commercial Operation Dates and Alternate Regulatory Approval Timelines (assuming exemption requests are not granted)	21



List of Acronyms

10 CFR	Title 10 of the Code of Federal Regulations
BECPV-N01	Blue Energy Center - Port of Victoria, Nuclear Unit 1
BMP	best management practice
BOP	balance of plant
CCGT	combined-cycle gas turbine
COD	commercial operation date
CPA	Construction Permit Application
DOE	U.S. Department of Energy
EIA	U.S. Energy Information Administration
EO	Executive Order
ER	Environmental Report
ERCOT	Electric Reliability Council of Texas
FID	Final Investment Decision
G2N	Gas2Nuclear
GVH	GE-Hitachi Vernova Nuclear Energy Americas LLC
LTR	Licensing Topical Report
LWA	Limited Work Authorization
NRC	Nuclear Regulatory Commission
NR GEIS	Generic Environmental Impact Statement for Licensing of New Nuclear Reactors
OLA	Operating License Application
PSAR	Preliminary Safety Analysis Report
QC	Quality Control
RB	Reactor Building
RG	Regulatory Guide
SC1	Safety Class 1
SMR	Small Modular Reactor
SOE	support of excavation
SRP	Standard Review Plan
SSC	Structures, Systems, and Components
TAC	Texas Administrative Code
TPWD	Texas Park and Wildlife Department
USFWS	U. S. Fish and Wildlife Service



1 Introduction and Proposed Exemption

In accordance with the provisions of Title 10 of the Code of Federal Regulations (10 CFR) Section 50.12, “Specific exemptions,” Blue Energy Global Inc. (Blue Energy, the Applicant) on behalf of itself, as the controlling applicant, and Sister 1 LLC (Sister 1), as owner of the project, hereby requests an exemption for Blue Energy Center – Port of Victoria Nuclear Unit 1 (BECPV-N01, the “Project”) from 10 CFR 50.10(c), “Requirement for construction permit, early site permit authorizing limited work authorization activities, combined license, or limited work authorization,” to allow the installation of permanent in-ground support structures that are required temporarily for safe excavation of the reactor building shaft prior to issuance of a construction permit for BECPV-N01, entirely at the Applicant’s risk. The scope of the exemption includes the support of excavation (SOE) wall (i.e., a diaphragm wall), the potential use of a “temporary plug” or “mudmat,” and any subsurface preparation or backfill associated with these activities. This proposed exemption allows the performance of activities that are necessary to meet the schedule for the Project.

Per 10 CFR 50.10(a)(2)(v), excavation on its own is not considered to meet the definition of “construction.” SOE walls are structures required for excavation to ensure worker safety and facilitate subsequent construction activities associated with a BWRX-300 small modular reactor (SMR) design. Removal of the excavation supports, such that the supports are considered temporary and would no longer meet the definition of construction in 50.10(a)(1), is not practical.

To support this request, the Applicant has provided the relevant section of the Preliminary Safety Analysis Report (PSAR) as part of Enclosure 2 to this Construction Permit Application (CPA) Part 1 submittal. Specifically, PSAR Subsection 3.7.2.9.2, “Excavation Support, Backfill and Friction Effects,” is provided to confirm that excavation support and backfill effects will be addressed, including the appropriate sensitivities, in accordance with the applicable guidance in NEDO-33914-A, Revision 2, “BWRX-300 Advanced Civil Construction and Design Approach” [1].

The SOE wall would not be considered a structure, system, or component (SSC) of the plant and would not be credited in any analysis where the strength and/or stiffness of the shaft and annular fill material would contribute to the structural capacity of the safety-related reactor building structure. In other words, the SOE wall and/or other potential in-ground support structures would typically be considered preconstruction activities because: the structures only serve a temporary purpose, are not safety-related, do not form part of the reactor building structure or foundation, and are excluded from any structural or seismic credit in the analysis of the reactor building. Therefore, the Applicant is not requesting the NRC to approve the design of the excavation supports. However, the Applicant recognizes that, in accordance with Limitation and Condition (L&C) No. 2, Stable Excavation, for NEDO-33914-A:

A self-supported (even with some temporary reinforcement) excavation would be needed to place the [Reactor Building (RB)] and to estimate the earth pressure loads to be considered in the generic design of the RB structure. The NRC staff review of a site-specific application with the BWRX-300 SMR will focus on the method(s) used to identify the unstable rock blocks in the area surrounding the RB shaft and to assess the earth pressure imparted on the RB shaft for determining whether the subgrade is acceptable for siting the reactor. In addition, any temporary reinforcement or mitigation measures used to stabilize the surrounding materials would be reviewed by the staff [1].



2 Background

2.1 Relevant Regulations

The regulation in 10 CFR 50.10(a)(1), states, in part:

Activities constituting construction are the driving of piles, subsurface preparation, placement of backfill, concrete, or permanent retaining walls within an excavation, installation of foundations, or in-place assembly, erection, fabrication, or testing, which are for: . . .

- (i) Safety-related structures, systems, or components (SSCs) of a facility, as defined in 10 CFR 50.2;
- (ii) SSCs relied upon to mitigate accidents or transients or used in plant emergency operating procedures;
- (iii) SSCs whose failure could prevent safety-related SSCs from fulfilling their safety-related function;

The regulation in 10 CFR 50.10(c), states:

No person may begin the construction of a production or utilization facility on a site on which the facility is to be operated until that person has been issued either a construction permit under this part, a combined license under part 52 of this chapter, an early site permit authorizing the activities under paragraph (d) of this section, or a limited work authorization under paragraph (d) of this section.

The regulation in 10 CFR 50.12(a) states, in part:

The Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of the regulations of this part, which are—

- (1) Authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security.
- (2) The Commission will not consider granting an exemption unless special circumstances are present.

And, 10 CFR 50.12(b) states, in part

Any person may request an exemption permitting the conduct of activities prior to the issuance of a construction permit prohibited by § 50.10. The Commission may grant such an exemption upon considering and balancing the following factors:

- (1) Whether conduct of the proposed activities will give rise to a significant adverse impact on the environment and the nature and extent of such impact, if any;
- (2) Whether redress of any adverse environmental impact from conduct of the proposed activities can reasonably be effected should such redress be necessary;
- (3) Whether conduct of the proposed activities would foreclose subsequent adoption of alternatives; and
- (4) The effect of delay in conducting such activities on the public interest, including the power needs to be used by the proposed facility, the availability of alternative sources, if any, to meet those needs on a timely basis and delay costs to the applicant and to consumers. . . .

During the period of any exemption granted pursuant to this paragraph (b), any activities conducted shall be carried out in such a manner as will minimize or reduce their environmental impact.



2.2 Regulatory Guidance

NUREG-0800, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition,” (SRP) Section 2.5.4, “Stability of Subsurface Materials and Foundations,” Revision 5 [11] provides guidance for the NRC staff on how to perform its review of site characterization information, as well as information on excavation and permanent retaining walls, that could affect the safe design and siting of the plant.

The proposed exemption would only allow installation of in-ground support structures required to enable safe excavation of the reactor building shaft. It would not allow for construction or installation of any safety-related (or BWRX-300 Safety Class 1 (SC1)) SSCs (e.g., the Reactor Building). Shaft excavation would be performed entirely at the Applicant's risk. The applicant will evaluate subsurface material stability as it affects SC1 structures (including potential impact of the excavation), and provide necessary site characterization data, in CPA Part 2.

2.3 Other Relevant Guidance or Topical Reports

GE Vernova Hitachi Nuclear Energy Americas, LLC (GVH) Licensing Topical Report (LTR) NEDC-34403P/NEDO-34403, “BWRX-300 Expedited Construction of Certain Structures, Systems, and Components Licensing Topical Report,” Revision 0 [2], supports the determination that construction of certain BWRX-300 SSCs qualify as preconstruction activities in accordance with 10 CFR 50.10. GVH submitted the report for NRC review in June 2026.

2.4 Proposed rulemaking

On July 14, 2026, the NRC published a proposed rule, “Modernizing Reactor Licensing, Safety Oversight, and Siting Practices” [3] that would refocus the definition of “construction” in 10 CFR 50.10 and 51.4 to SSCs whose construction affect their capability to perform a safety significant function. Specifically, the rule proposes to amend 50.10(a) to:

- (a) *Definitions.* As used in this section, *construction* means the activities in paragraph (a)(1) of this section.
- (1) Activities constituting construction are the driving of piles, subsurface preparation, placement of backfill, concrete, or permanent retaining walls within an excavation, installation of foundations, or in-place assembly, erection, fabrication, or testing, which may impact the required functions of:
 - (i) Safety-related structures, systems, or components (SSCs) of a facility, as defined in § 50.2;
 - (ii) SSCs that perform safety-significant functions; and
 - (iii) SSCs necessary to comply with part 73 of this chapter.
- (2) With respect to production or utilization facilities, other than testing facilities and nuclear power plants, required to be licensed under section 104a. or section 104c. of the Act, construction does not include the erection of buildings which will be used for activities other than operation of a facility and which may also be used to house a facility (e.g., the construction of a college laboratory building with space for installation of a training reactor).
- (3) Any activities that are determined to be outside the scope of those defined in § 50.10(a)(1) and that are undertaken by an applicant or on its behalf are entirely at the risk of the applicant and has no bearing on the issuance of a license with respect to the requirements of the Act, and rules, regulations, or orders issued under the Act.

The frontmatter of the proposed rule also states, in part:

[T]he SSC could be commercial grade but also subject to specified operational performance requirements. Such an SSC could be constructed without a license. The rationale for the approach



rests on the fact that if no NRC QA requirement for design, fabrication, erection, and testing applies to an SSC, then there is nothing uniquely related to nuclear safety for the NRC to approve with respect to construction of the SSC. Further, design limits on the *operation* of the SSCs that do perform safety functions would prevent or mitigate the safety effects of the failure of SSCs not subject to NRC QA requirements applicable to construction. Accordingly, construction of such SSCs would not have a reasonable nexus to nuclear safety, even if operation of the SSC did have a reasonable nexus to nuclear safety.

The failure of an SSC that has an effect on the safety of operation could warrant operational requirements with respect to SSCs that perform safety functions in response to such failures and possibly operational requirements with respect to the SSCs themselves.

An applicant's designation of an SSC as something that does not meet the definition of construction would not restrict the NRC from imposing such operational requirements to address radiological health and safety.

The proposed rule notice explains that the NRC is considering an effective date of 30 days after the publication of the final rule.

2.5 Other Regulations

The regulations in 10 CFR Part 53 establish a risk-informed, performance-based, and technology-inclusive regulatory framework as an alternative for the licensing and regulation of commercial nuclear plants. The final rule was published in the Federal Register on March 30, 2026 (91 FR 15794). Although this rule is not applicable to this proposed licensing action, it may provide context for the Commission's recent consideration of a new definition of construction in Part 50. The definition of construction in 10 CFR 53.020, states, in part:

Construction means the activities in paragraph (1) of this definition and does not mean the activities in paragraph (2) of this definition.

- (1) Activities constituting construction are those activities that are conducted on-site to build the commercial nuclear plant, including the driving of piles; subsurface preparation; placement of backfill, concrete, or permanent retaining walls within an excavation; installation of foundations; or in-place assembly, erection, fabrication, or testing, which are for—
 - (i) Safety-related (SR) SSCs and those non-safety-related but safety-significant (NSRSS) SSCs of a facility for which special treatment includes requirements on design or installation, including associated quality assurance measures;
 - (ii) SSCs necessary to comply with 10 CFR part 73; or
 - (iii) Onsite emergency facilities necessary to comply with § 53.855.

The Applicant notes that the definition of construction in Part 53 is similar to the revised definition proposed for Part 50, which is discussed in the previous section of this exemption request.

2.6 Need for proposed exemption

In accordance with 50.10(a)(1), “subsurface preparation, placement of backfill, concrete, or permanent retaining walls within an excavation” are activities which may be considered construction under Part 50. Furthermore, analyses (e.g., seismic analyses) to confirm that the SOE wall cannot adversely affect the response of the reactor building (i.e., a safety-related structure) are not yet available.

GVH LTR NEDC-34403P/NEDO-34403 is not yet approved by the NRC; therefore, the Applicant is requesting the proposed exemption. The Applicant notes that this exemption request is not based on the GVH LTR, but the basis for this exemption request is not inconsistent with the GVH LTR.



Finally, the Applicant acknowledges that if the proposed rulemaking for Modernizing Reactor Licensing, Safety Oversight, and Siting Practices goes into effect prior to completion of the review of this exemption request, that the request may no longer be needed. The Applicant is not requesting the NRC staff to comment on or provide any information with respect to rulemaking activities.



3 Detailed Description

The proposed exemption would allow the installation of permanent in-ground support structures that are required temporarily for safe excavation of the reactor building shaft prior to issuance of a construction permit for BECPV-N01, entirely at the Applicant's risk. The scope of the exemption includes the SOE wall, the potential use of a "temporary plug" or "mudmat," and any subsurface preparation or backfill associated with these activities. As discussed in NEDO-33914-A [1], in-ground support structures are required to support the excavation required to enable bottom-up assembly of the deeply embedded reactor building. Although the initial in-ground support structures (also known as an excavation support system or ground support system) serve no function for the completed BWRX-300 SMR, the identified structures are infeasible to remove and will remain in place (also referred to as "abandoned in place") [4]. The primary subject of this exemption request is the SOE wall (i.e., diaphragm wall or "D-wall"). The BWRX-300 SMR design will not rely on the resistance provided by the SOE wall or the material used to fill the annular gap, which is not within the scope of this request, between the SOE wall and the reactor building. The effects of the SOE wall and any other in-ground support (e.g., a temporary concrete plug) will be considered through the seismic sensitivity analyses performed in accordance with NEDO-33914-A.

3.1 Reactor Building Location and Site Characterization

See [Figure 1](#) for the site layout and [Figure 2](#) for more details on the location of the proposed activities. [Figures 3](#) and [4](#) provide cross-sections through the reactor building centerlines (viewing plant north-to-south and plant east-to-west) that show the natural grade, proposed grading, and location of the reactor building shaft. Over the area of the planned reactor building shaft, natural grade ranges from approximately 55 feet (ft) to 59 ft (above mean sea level). The intent is to minimize the amount of cut material for site grading, but at least 2 ft to 6 ft is estimated to be required to be removed. A stable working surface / working platform for the construction plant and machinery to operate on is required. (This is typically made with compacted engineered fill and finished with a stone surface that would be temporary.) The Applicant has selected 50 ft above mean sea level as the minimum plant grade for the reactor building location. The rough grading and drainage plans for the site are in progress, and additional information for the site and the layout will be provided in CPA Part 2. Details for final site grading and drainage systems will be provided as part of the operating license application (OLA). Final site grading and drainage will be designed such that the design-basis local intense precipitation event does not adversely affect safety-related SSCs.

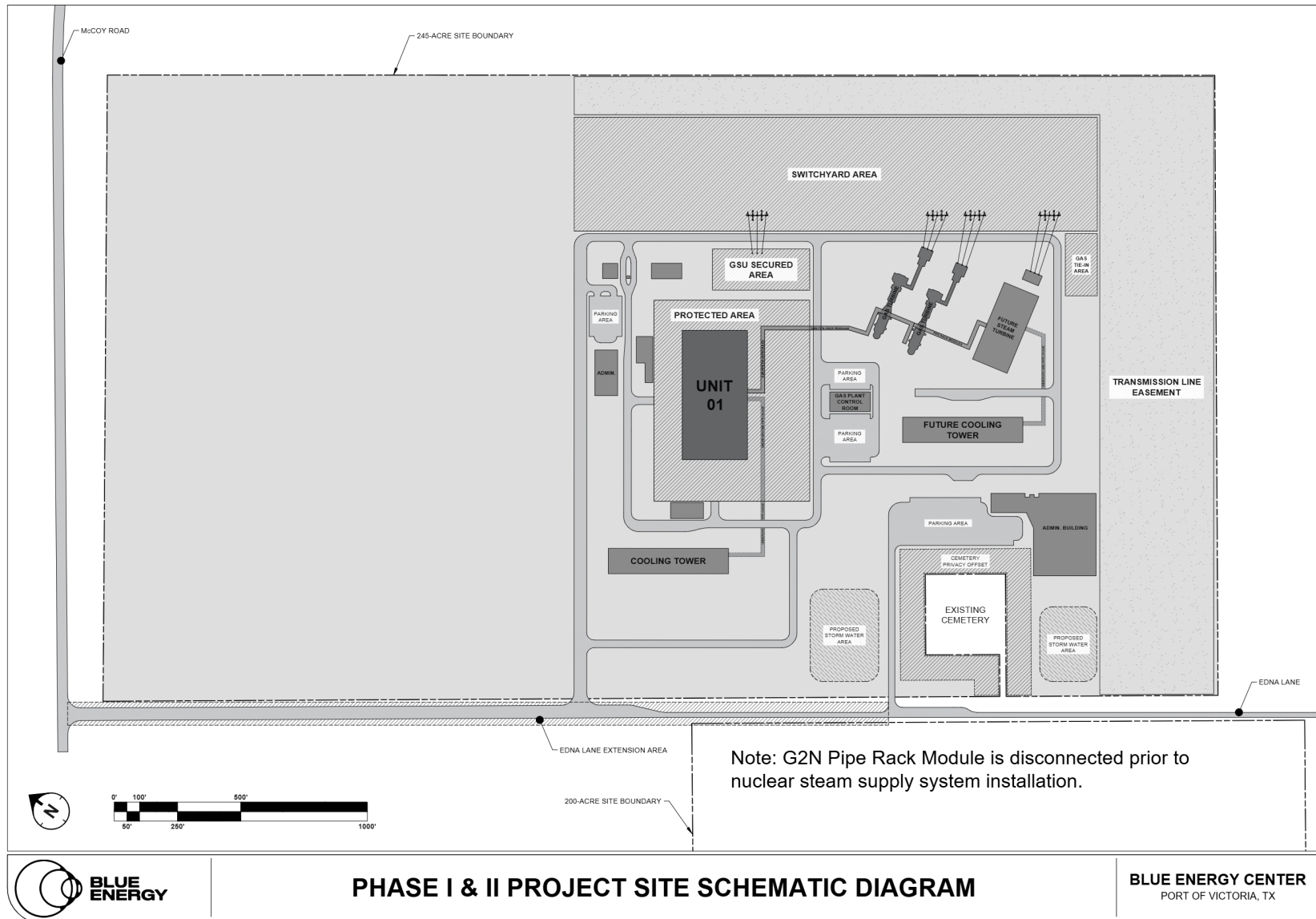


Figure 1: Blue Energy Center – Port of Victoria Site Diagram.



PORT OF VICTORIA

LWA ER Scope | Detail Diagram

GENERAL NOTES:

1. CRANE PAD MAY BE A TEMPORARY STRUCTURE AND WILL ALSO SUPPORT TURBINE BUILDING ACTIVITIES.
2. LWA AREA OF DISTURBANCE LIMIT IS INCLUSIVE OF SPACE REQUIRED FOR SUPPORTING CONSTRUCTION EQUIPMENT, POWER SUPPLIES, AND LAYDOWN OF MATERIALS.
 - 2.1. EQUIPMENT, POWER SUPPLY, AND MATERIALS SPACE WILL BE COMMENSURATE WITH THE PHASING OF CIVIL ACTIVITIES WITHIN THE LWA AREA.
3. LWA AREA OF DISTURBANCE LIMIT IS INCLUSIVE OF WORKER SUPPORT FACILITIES (INCLUDES LAVATORIES, PARKING, AND OTHER WELFARE FACILITIES).
 - 3.1. PARKING INCLUDED IN THE LWA AREA OF DISTURBANCE LIMIT WILL BE COMMENSURATE WITH THE PHASING OF CIVIL ACTIVITIES WITHIN THE LWA AREA.
4. SPOILS EXCAVATED DUE TO CIVIL ACTIVITIES WILL BE TEMPORARILY HELD IN LWA AREA OF DISTURBANCE AND RELOCATED AS NEEDED WITHIN THE 245 ACRE AND 200 ACRE PARCELS.

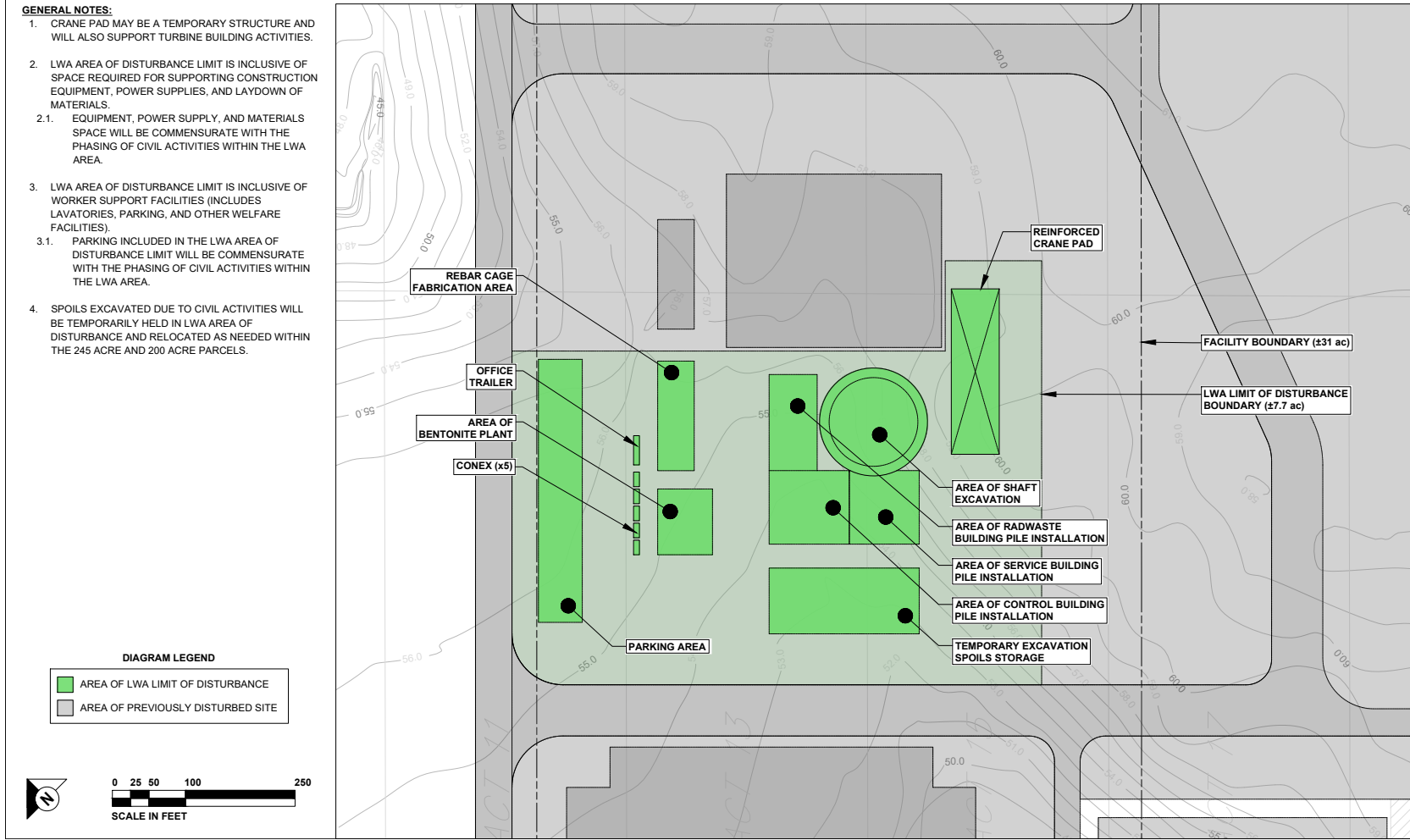


Figure 2: Preliminary Diagram for LWA ER scope activities including RB shaft construction



[[

]]^d Site characterization inputs will be made available for audit by the NRC, and PSAR Chapter 2 information will be provided as part of CPA Part 2. Borehole and well locations are shown in [Figure 5](#). Some preliminary stratigraphy information is shown in [Figures 6, 7, and 8](#), which provide conceptual layouts and sequencing for shaft construction. [Figure 8](#) shows the reactor building and fill for the annular gap for illustration purposes only, these activities are not within the scope of this exemption request.

The conceptual design for the reactor building shaft is based on information from at least three boreholes within 70 ft of the shaft center and one well within the perimeter of the shaft. Rotary borings extend up to a maximum of 590 ft and at least 10 meters below the bottom of the shaft. This is consistent with guidance in Appendix D to NRC Regulatory Guide (RG) 1.132 [\[8\]](#). However, the final design will be based on the minimum number of boring and wells required for the reactor building per NEDO-33914-A. The Applicant commits to performing further site characterization to obtain this necessary information to complete the design and ensure safe, efficient and predictable outcomes during construction. The resulting information will also be made available for audit by the NRC.

Consistent with the feedback provided by the NRC on Blue Energy's white paper on exemptions to 10 CFR 50.10 [\[7\]](#), and those in existing precedents (see [Section 5](#)), the Applicant also commits to the following:

- All necessary site characterization and external hazard information will be obtained prior to construction of structures/facilities that would make future data collection challenging or unfeasible.
- If/when using site characterization data from nearby sites for design, the representativeness of the existing data to the BECPV site will be established beforehand, including consideration of spatial continuity.
- Subsurface conditions will be adequately captured prior to any construction induced modification.
- Early activities will not limit the ability to characterize foundation level geologic units or confirm in situ groundwater and stress conditions.
- Geologic mapping of the excavation will be performed, as necessary, consistent with NEDO-33914-A. Any mapping will be performed with appropriate oversight and Quality Control (QC) practices and coordinated with the investigation, testing, inspection, and monitoring programs described in NEDO-33914-A. Geologic mapping would also include photographic documentation of the temporary surfaces exposed during excavation and the bottom of the shaft, consistent with the guidance in RG 1.132. Survey (elevation) measurements would be performed when key stratigraphic horizons are exposed during excavation and be used to compare the exposures against the subsurface model produced from the geotechnical exploration program. Any unexpected lateral variability or conditions would also be documented and assessed against the model.
- The NRC will be notified, in writing, when the excavation is open for inspection.

The Applicant notes that the above activities would be required in order to support CPA Part 2 or as part of normal construction/inspection activities.

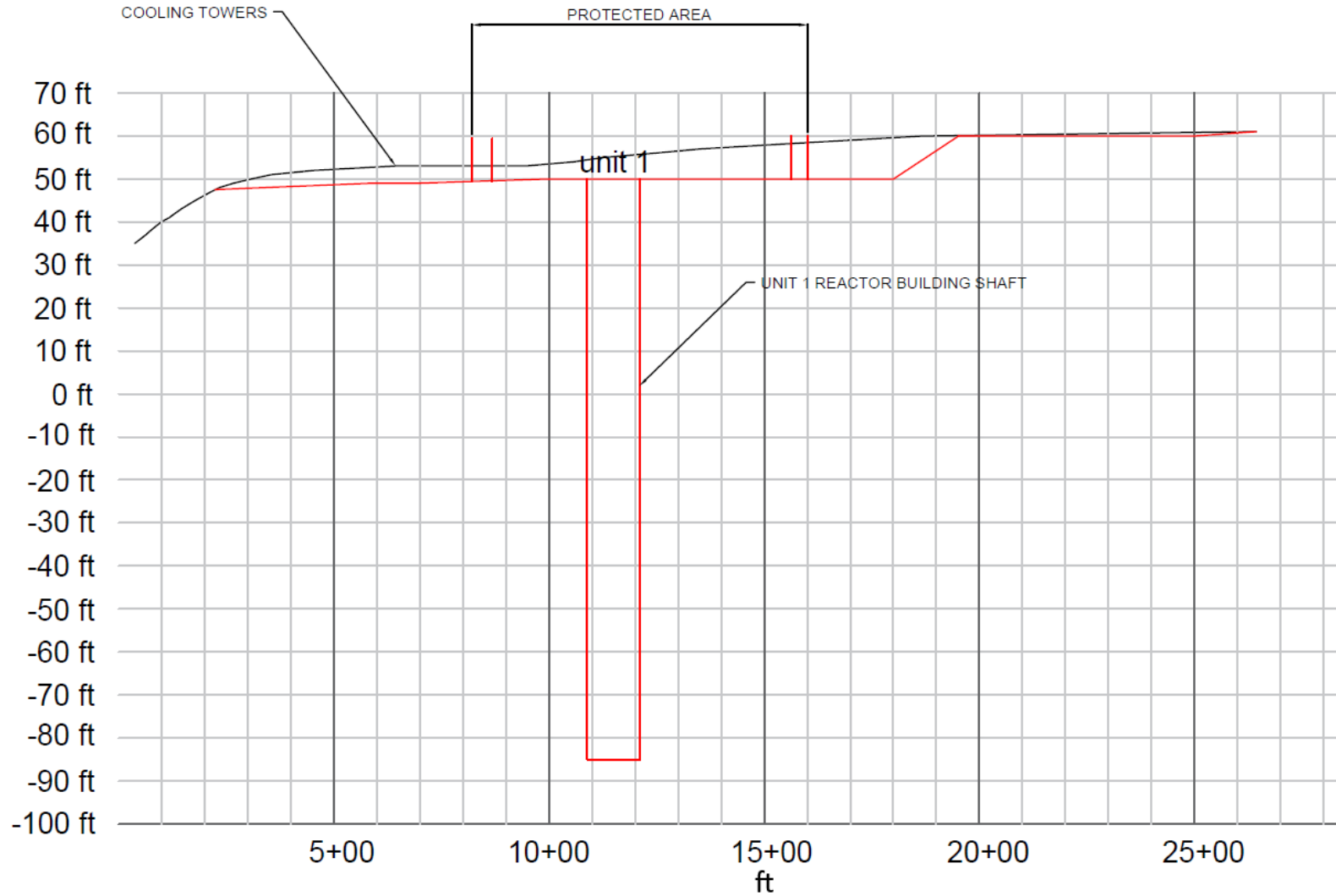


Figure 3: Plant grade along N01 RB centerline from plant south to plant north

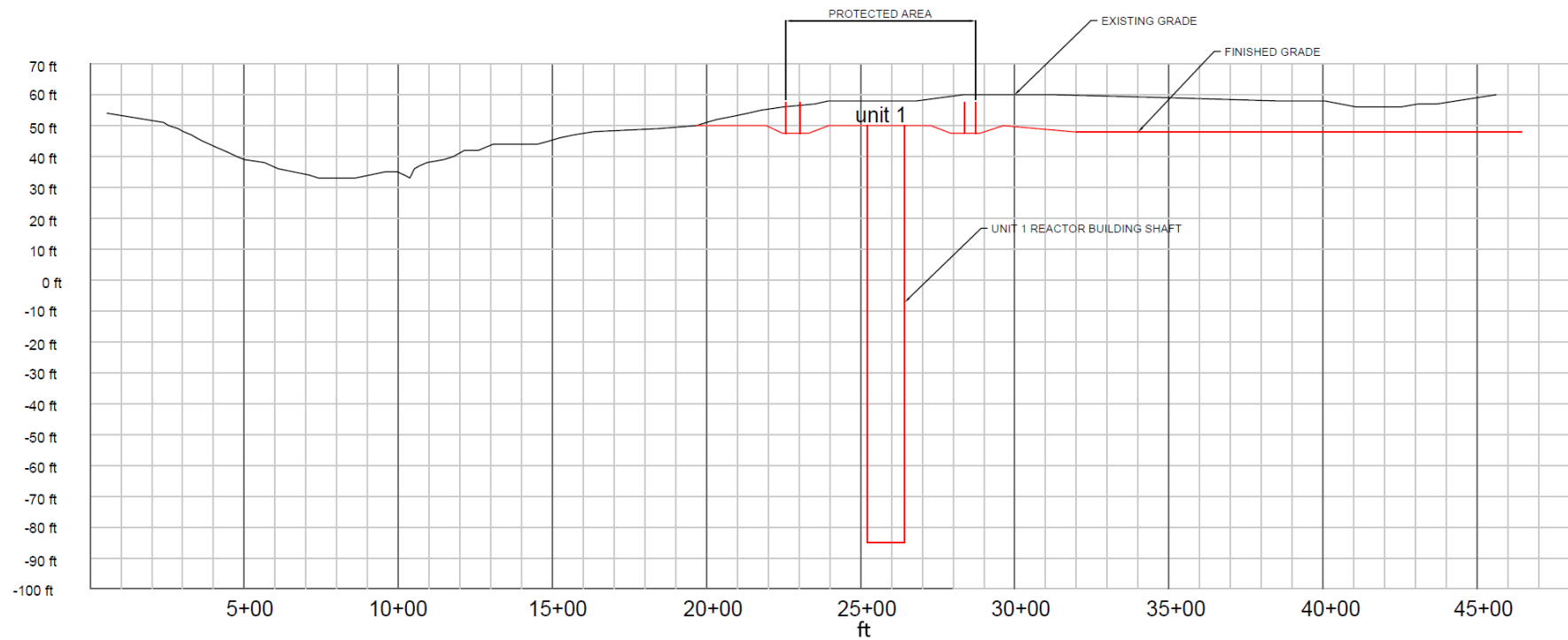


Figure 4: Plant grade along N01 RB centerline from plant west to plant east

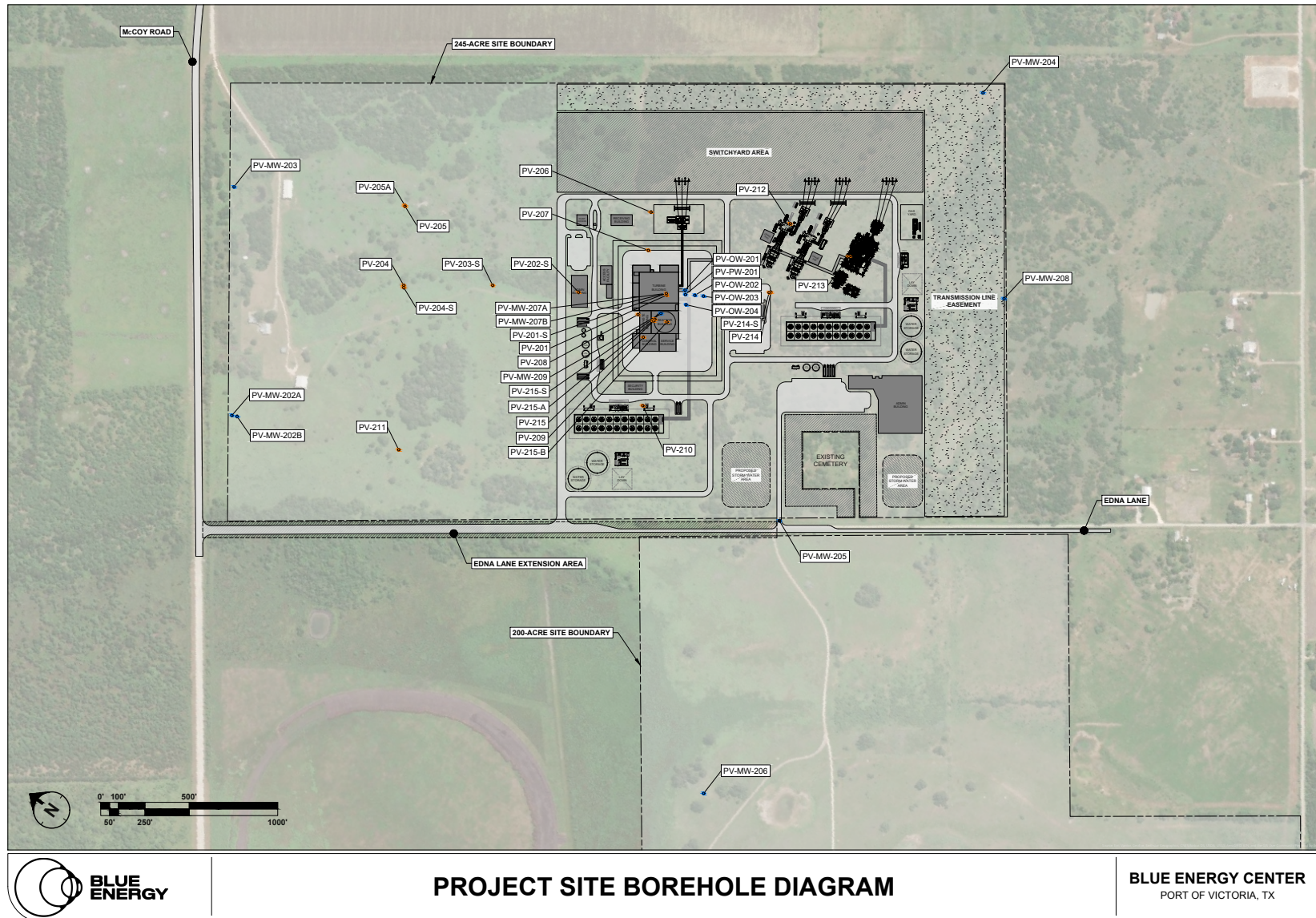


Figure 5: Borehole and well locations

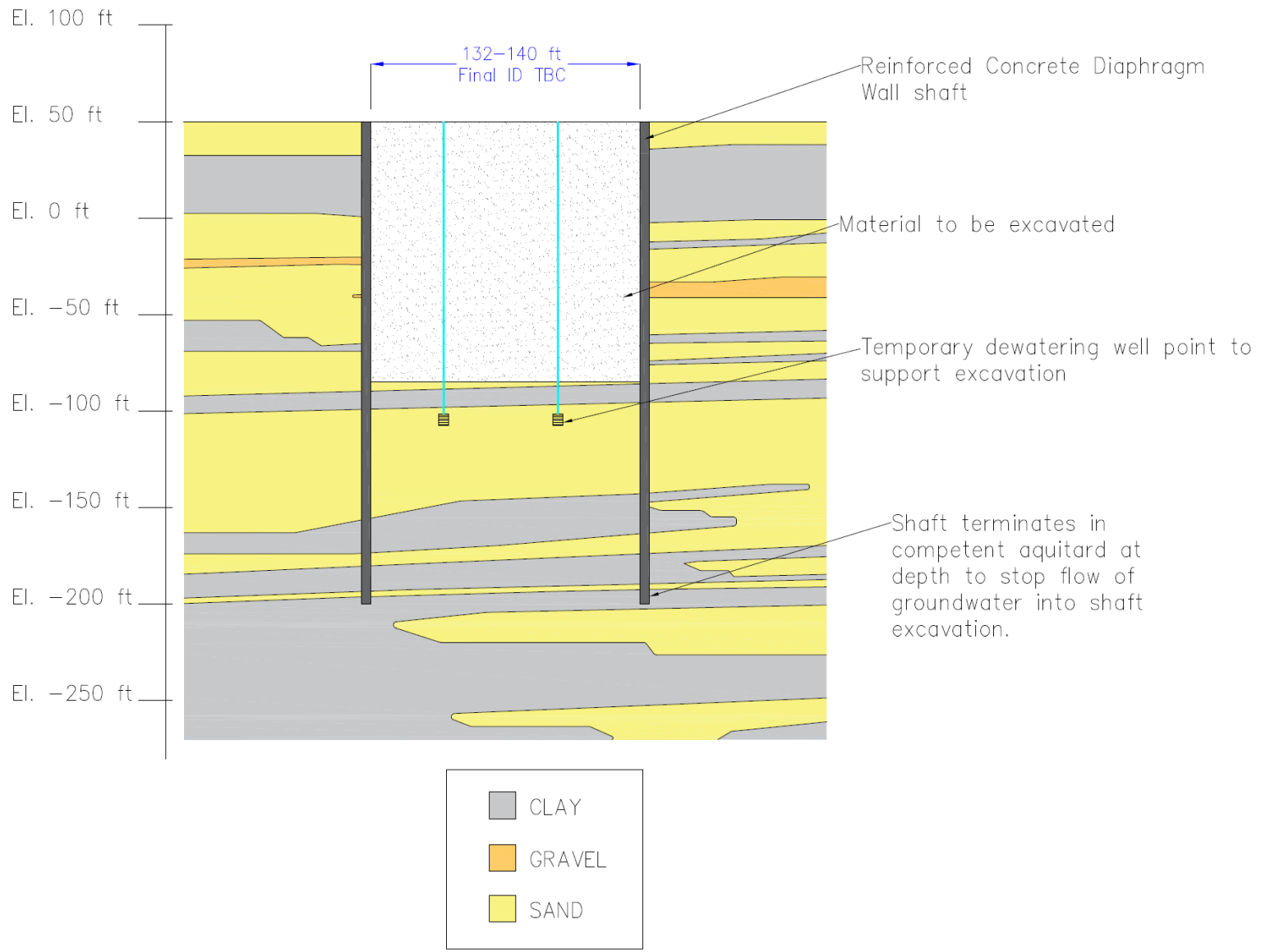


Figure 6: Conceptual diagram for diaphragm wall and dewatering of material to be excavated

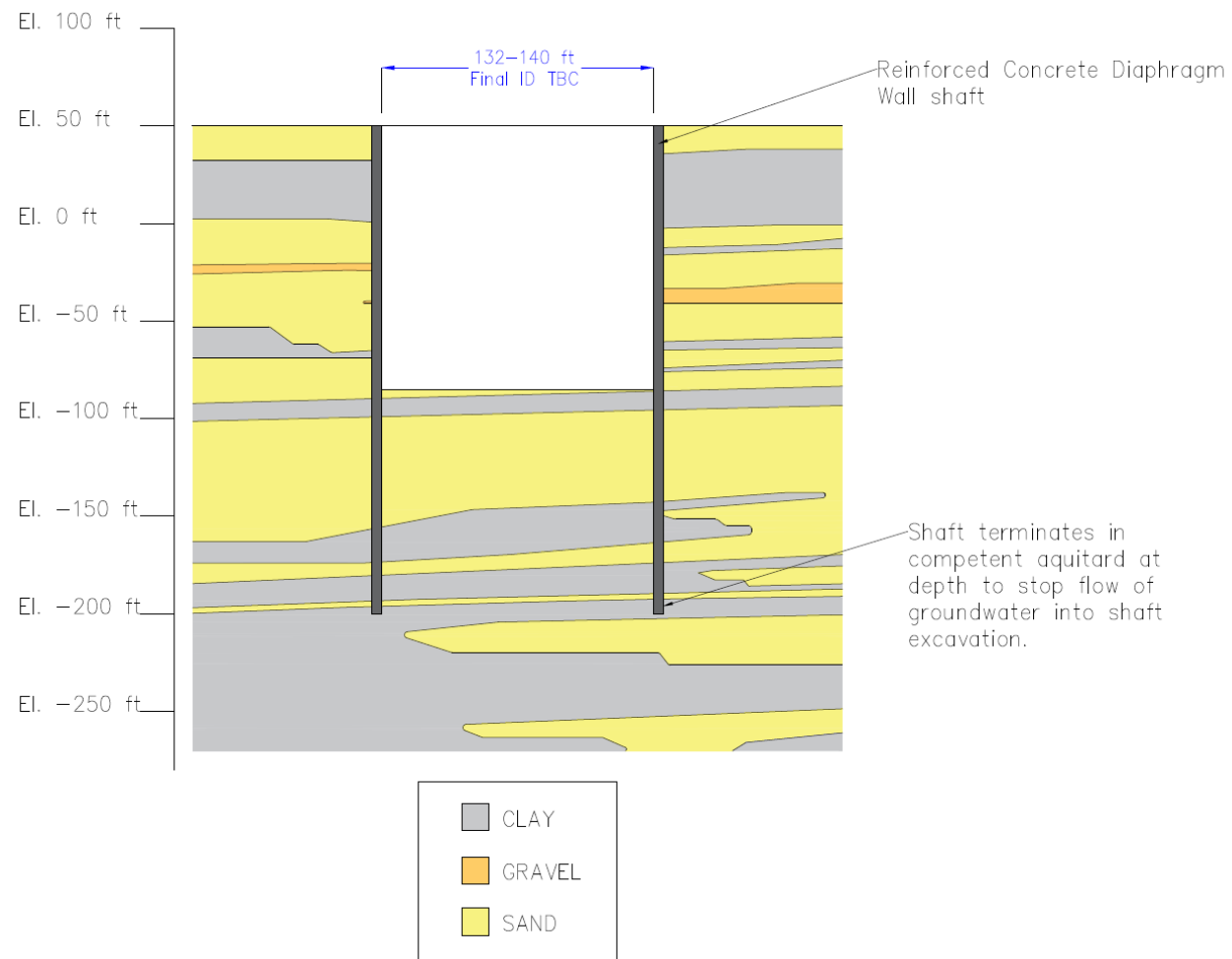


Figure 7: Conceptual diagram of excavated shaft

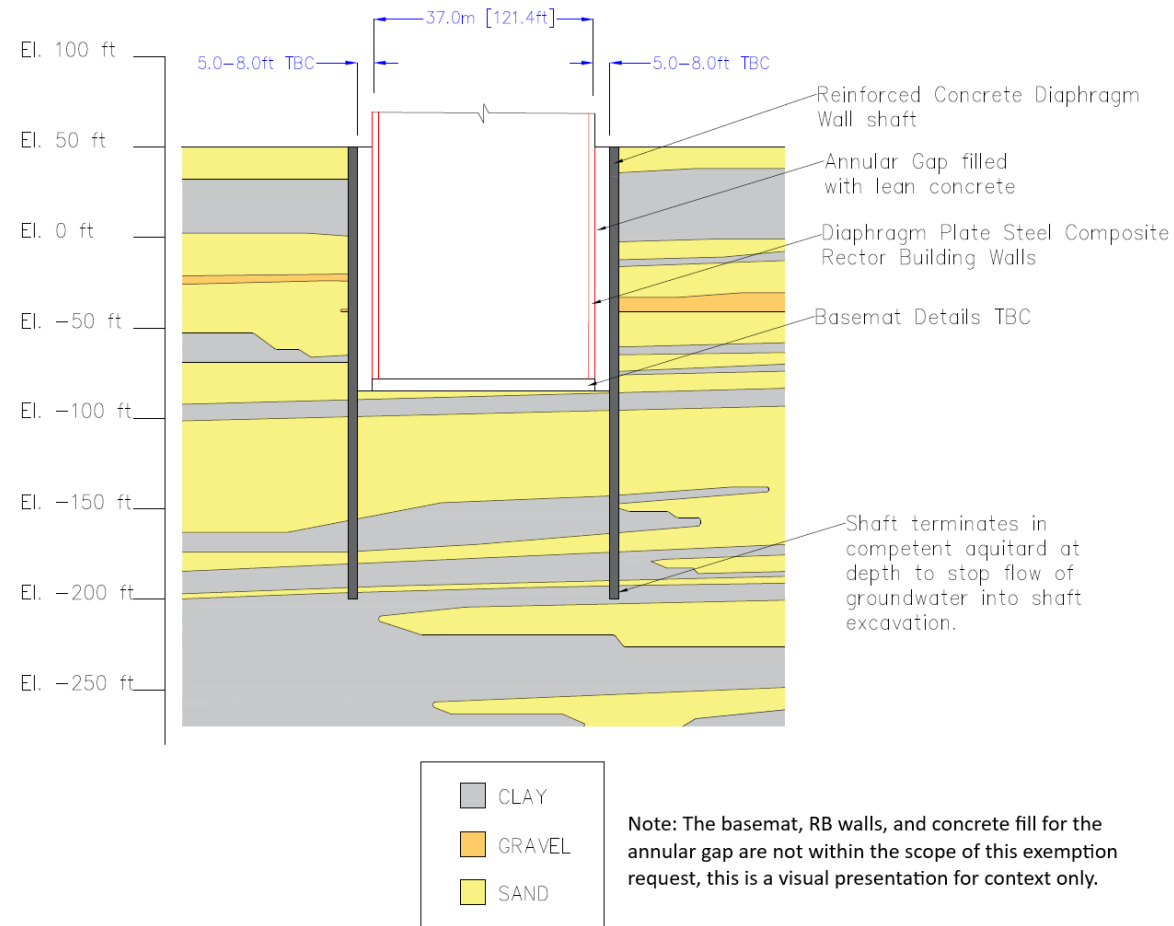


Figure 8: Conceptual diagram with RB structures.



3.2 In-ground Support Structure (Diaphragm wall)

Cylindrical diaphragm wall shafts constructed using “slurry” techniques are mature, well-established methods that have been used safely and successfully for decades on major infrastructure projects worldwide, including deep basements, tunnel launch shafts, water and sewer and major transport infrastructure. Their design, construction, and performance characteristics are well understood, with extensive industry experience, proven construction methodologies, and robust quality assurance processes supporting their use. As a result, diaphragm and slurry wall systems represent low-risk, highly reliable solutions for deep excavation support and groundwater control.

The design of the SOE wall (i.e., a diaphragm wall) for the shaft is in progress. Based on the current conceptual design, the reactor building shaft inner diameter is expected to be up to 140 ft, and the diaphragm walls will either be 48 inches (in) or 60 in thick, and approximately 245 ft deep, terminating in a thick clay layer in order to minimize water intrusion and eliminate the need for continuous dewatering of the open excavation. The shaft itself could be [[]]^{a,h} deep. Temporary guide walls will be used to install the diaphragm wall. The diaphragm wall is constructed using slurry-supported panel excavation, with steel reinforcement cages [[]]^{a,h}, and tremie-placed concrete. (See [Figure 9](#) for more information on the conceptual design.)



Figure 9: Conceptual design for diaphragm wall



The diaphragm walls will be designed to withstand the exterior (earth and hydrostatic) pressure loads and construction surcharges. These loads will be determined and then provided to the NRC for review in CPA Part 2. Specifically, this will be input for PSAR Section 2.5.4, “Stability of Subsurface Materials and Foundations,” so that the NRC may perform its review of the impact of the excavation on the surrounding soil properties, and the static and dynamic stability analyses that provide reasonable assurance that there would be no adverse effect on the Reactor Building (i.e., the only SC1 structure).

This design was also selected to minimize the environmental impacts, the need for a temporary concrete base “plug,” and the need for dewatering. (See [Figure 6](#) for illustration.) Initial dewatering at a pump rate greater than 50 gallons per minute (gpm) is only needed to enable excavation by draining the soil in the interior of the cylinder formed by the deep diaphragm walls (i.e., to remove some of the water from the soil located beneath the bottom of the shaft but above the thick clay layer that forms an aquitard). Periodic or continuous dewatering is not expected to be required for the open excavation as seepage through the diaphragm walls and the aquitard is not anticipated, based on current site characterization data. If long-term dewatering is required, it is estimated to be less than 50 gpm based on a sensitivity study. (Permanent dewatering is not anticipated.) The conceptual design does not include a requirement for a temporary concrete plug at the bottom of the shaft, nor is any soil-mixing or jet grouting expected to be required. If excessive seepage were to occur, the need for a plug or different waterproofing systems would be reevaluated and the shaft would be modified, as necessary. The current conceptual design does not require any horizontal gravity drains or weep holes. The waterproofing for the bottom of the shaft has not been determined yet. A mudmat could also be placed at the bottom of the shaft to provide a level, stable surface for construction workers, but this is not currently part of the shaft excavation work scope. All instrumentation required by NEDO-33914-A will be installed during construction and excavation of the shaft.



4 Justification for Exemption

In accordance with 10 CFR 50.12(a), the NRC may grant exemptions from the requirements of the regulations in Part 50 that are authorized by law, will not present an undue risk to public health and safety, and are consistent with the common defense and security, provided that special circumstances are present.

4.1 Criteria of 10 CFR 50.12(a)(1)

This section addresses each of the criteria in 10 CFR 50.12(a).

4.1.1 The Exemption is Authorized by Law

The proposed exemption to 10 CFR 50.10(c) is not inconsistent with, nor does it conflict with any provisions of, the Atomic Energy Act of 1954, as amended. The NRC has given itself the authority under 10 CFR 50.12 to grant exemptions from the requirements of the regulations in 10 CFR Part 50, and specifically the requirements in 10 CFR 50.10, as recognized by the requirements in 10 CFR 50.12(b). Therefore, this exemption is authorized by law.

4.1.2 The Exemption Will Not Present an Undue Risk to Public Health and Safety

This exemption does not affect NRC safety requirements that apply to the design, construction, or operation of the BWRX-300 SMR. The permanent in-ground structures, including any subsurface preparation or backfill, will not perform or support a function of the reactor building, and are not credited in any analyses. Furthermore, excavation support and backfill effects will be addressed, including the appropriate sensitivities, in accordance with the applicable guidance in NEDO-33914-A, Revision 2, to ensure there is no impact to safety. The in-ground support structures are for temporary use, as an excavation and construction aid only, and would not affect the performance or reliability of any SSCs in the plant and would not impact the consequences of a design basis event. Therefore, there is no nexus to radiological safety, and this exemption does not present an undue risk to public health and safety.

4.1.3 The Exemption is Consistent with the Common Defense and Security

The proposed exemption does not affect the design, function, or operation of structures or plant equipment that are necessary to maintain the secure status of the plant. The proposed exemption has no direct impact on plant security or safeguards procedures and does not authorize the possession of licensed material or affect NRC security requirements that will apply to the BECPV-N01 site. Therefore, this exemption is consistent with the common defense and security.

4.2 Special Circumstances

Per 10 CFR 50.12(a)(2), special circumstances, as defined in 10 CFR 50.12(a)(2)(i) through (vi), must be present for the NRC to grant an exemption to the regulations under Part 50. The special circumstances applicable to the Applicant's request are discussed below.

4.2.1 10 CFR 50.12(a)(2)(iii) – Compliance Would Result in Undue Hardship

In accordance with 10 CFR 50.12(a)(2)(iii), special circumstances are present when “[c]ompliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated.”



The Applicant is developing the Project in two financial phases. Phase 1, covering the combined-cycle gas turbine (CCGT) portion of the BECPV, [[]]^{c,d} Phase 2 FID is tied to issuance of the construction permit for BECPV-N01, [[

]]^{c,d}

When the regulation in 10 CFR 50.10(a) was amended (72 FR 57416; October 9, 2007), in part, to change the definition of construction, a phased financing and construction strategy was not considered. However, the regulation did state that construction does not include excavation, per 10 CFR 50.10(a)(2)(v).

Without this proposed exemption, the initial excavation support system will not be authorized prior to issuance of a construction permit, and because of the nature of the BECPV site and BWRX-300 SMR design, excavation and construction of the reactor building will not be possible without the excavation support system. Delaying shaft construction until after the construction permit is issued will not serve the underlying purpose of the rule because the excavation support system does not have a reasonable nexus to nuclear safety or security. Removal of the in-ground support structures, such that the supports are temporary and not considered construction under 10 CFR 50.10, is infeasible because of the extremely large cost associated with removal that would be added to the project. Therefore, removing the SOE wall after the reactor building construction is complete is unnecessary and would represent an undue hardship.

Furthermore, the Applicant has determined that it is necessary to construct the reactor building shaft concurrently with or prior to the construction of the Balance-of-Plant (BOP) for the CCGT (due to its location within the site layout and impact on construction sequencing and feasibility). Delaying construction of the shaft would therefore delay construction of the BOP SSCs and thus CCGT operations. [[

]]^{c,d} Figure 10 [[

]]^{c,d}

[[

]]^{c,d} Therefore, delaying shaft construction and/or an equivalent delay to BOP resequencing would result in an undue hardship for the Applicant and place the financing and execution of the Project as currently contemplated at risk.

In summary, the Applicant proposes that delaying or not granting this exemption could potentially delay the Project or increase costs [[



Figure 10: Baseline Commercial Operation Dates and Alternate Regulatory Approval Timelines (assuming exemption requests are not granted)

]]^{c,d} These added costs and the cost of delaying the commercial operation of the CCGT plant and BECPV-N01 have not been calculated in detail, and depend on a number of uncertain factors, but are expected to be substantial and would present an undue hardship for the Applicant significantly in excess of those contemplated when the regulation was adopted.

Based on the above discussion, the special circumstances described in 10 CFR 50.12(a)(2)(iii) are present. The potential added costs and construction delays associated with not granting the exemption request are unique to the Project, are significantly in excess of those contemplated when the regulation was adopted, and would also not be in the public interest.

4.2.2 10 CFR 50.12(a)(2)(vi) – Material Circumstances Not Considered When the Regulation Was Adopted

In accordance with 10 CFR 50.12(a)(2)(vi), special circumstances are present when “[t]here is present any other material circumstance not considered when the regulation was adopted for which it would be in the public interest to grant an exemption.” The regulation further states that if such condition is relied on exclusively, the exemption may not be granted until the Executive Director for Operations has consulted with the Commission.

The material circumstances present here are the Applicant’s unique project financing structure and the staged development of the BECPV site, in which gas generation is financed and constructed before the initial nuclear phase, which is then financed and constructed in turn. Capital is committed for these phases through successive FIDs rather than in a single commitment at the outset. This structure ties each financing decision to a distinct phase of the Project, reducing risk by testing feasibility phase by phase rather than wholesale. A staged financing structure was not considered, nor was the concept of transferring an existing BOP for a CCGT to a nuclear plant considered when defining construction in Part 50. Granting the exemption is in the public interest because it allows the NRC to review the application (i.e., CPA Part 1 and Part 2) on its merits, on the Applicant’s phased schedule, without relaxing any safety requirements, while any construction performed prior to issuance of a construction permit to meet the project schedule would be done so at the Applicant’s risk. If the Applicant’s unique project financing and phased gas generation and nuclear generation strategy is successful, it will prove a new means for expediting the funding and deployment of scalable nuclear power.

In terms of serving the public interest for the region located near the BECPV site, providing additional power to the Victoria, TX region sooner will help protect American households and small businesses and is consistent with the goals of the Ratepayer Protection Pledge that was announced by the White House on March 4, 2026.



The need for new sources of reliable baseload electricity in the region is driven in large part by the growth of power-intensive industry and data centers and is consistent with projections from the U.S. Department of Energy (DOE) and the U.S. Energy Information Administration (EIA) indicating increasing electricity demand in the coming decades. That demand growth reflects population growth, the electrification of industry and transportation, and the continued expansion of advanced manufacturing and data center infrastructure. Meeting this demand within the Electric Reliability Council of Texas (ERCOT) South load zone, where variable renewable resources are heavily concentrated, calls for dispatchable baseload generation that also contributes to grid stability. The BWRX-300 is designed to provide such a dependable source of baseload electricity while supporting continued regional economic development and enhancing grid resilience.

The proposed action is also consistent with national goals for the deployment of advanced nuclear technology, as articulated in the Accelerating Deployment of Versatile, Advanced Nuclear for Clean Energy Act of 2024 (ADVANCE Act). Relative to a traditional large light water reactor, the SMR requires a smaller regional footprint and allows generation to be added incrementally, providing a deployment pathway that can be scaled to match regional power needs over time. Accelerating the deployment of advanced nuclear technology is also consistent with the intent of Executive Orders (EOs) associated with nuclear power, like those signed on May 23, 2025, and may also allow the regional grid to support data centers associated with artificial intelligence infrastructure, consistent with EO 14318 signed July 23, 2025. Finally, the Applicant proposes that granting the exemption would support the NRC's mission of advancing the common defense and security by enabling the safe and secure use and deployment of civilian nuclear energy technologies through efficient and reliable licensing.

Accordingly, the special circumstances described in 10 CFR 50.12(a)(2)(vi) are present and unique to the Project, and this is not the sole condition relied on to demonstrate that special circumstances are present.

4.3 Criteria of 10 CFR 50.12(b)

The Applicant has provided discussion below to support NRC's consideration of the four factors identified in 10 CFR 50.12(b)(1) through (4).

4.3.1 Whether conduct of the proposed activities will give rise to a significant adverse impact on the environment and the nature and extent of such impact, if any

The LWA ER, in Enclosure 3 of this CPA Part 1, assessed the potential environmental impacts of activities associated with this exemption request for installation of a permanent SOE wall as well as the potential impacts of LWA activities and relevant cumulative impacts. The LWA ER determined the impact would be no more than SMALL for all applicable potential environmental impacts for the LWA and permanent in-ground support structures exemption. (See Chapter 7 of the LWA ER for further discussion of cumulative impacts.) Furthermore, the full ER that will be included in CPA Part 2 will address all potential environmental impacts for preconstruction and construction activities. Therefore, this activity will not give rise to an adverse environmental impact.

4.3.2 Whether redress of any adverse environmental impact from conduct of the proposed activities can reasonably be effected should such redress be necessary

The site redress plan provided in Enclosure 7 of this CPA Part 1 was written specifically for the LWA ER construction activities (i.e., the LWA activities and the activities associated with this exemption request to allow permanent in-ground support structures).

As discussed in the redress plan, if redress is required for the activities proposed in this exemption request, the necessary engineering and construction deliverables (e.g., drawings, specifications, procedures) will be developed prior to implementation. A schedule will also be developed to facilitate completion of redress within 18 months of the Applicant's decision to abandon the project. Unused structures will be demolished below plant grade, consistent with typical construction/decommissioning practices. As necessary, below-grade structures will be abandoned in



place, in accordance with the requirements in 30 Texas Administrative Code (TAC) Chapter 335, including the applicable notification and/or deed recordation requirements, and the requirements of the land lease from the Port of Victoria. Structures or features that enhance the value of the site will be retained provided that the retention is consistent with classification as an environmentally acceptable condition and does not foreclose future site adoption alternatives. The reactor building shaft would be backfilled with the surface graded and stabilized to match surrounding contours. [[

]]^a

Therefore, based on minimal potential environmental impacts, and the discussion above, the Applicant proposes that redress can reasonably be effected should such redress be necessary.

4.3.3 Whether conduct of the proposed activities would foreclose subsequent adoption of alternatives

The discussion of alternatives in Chapter 9 of the LWA ER is also applicable to the activities that the proposed exemption would allow, in addition to the LWA activities discussed in the LWA ER. The alternative to performing the activities identified in the LWA ER is currently taking no-action. Similarly, the current alternative to construction of a CCGT plant and BWRX-300 SMR at the BECPV site would also be taking no-action. Installation of a permanent SOE wall and excavation of the reactor building shaft, and subsequent redress would not foreclose subsequent adoption of alternatives, including the no-action alternative. As discussed in the site redress plan in Enclosure 7, the reactor building shaft would be backfilled with the surface graded and stabilized to match surrounding contours.

4.3.4 The effect of delay in conducting such activities on the public interest, including the power needs to be used by the proposed facility, the availability of alternative sources, if any, to meet those needs on a timely basis and delay costs to the applicant and to consumers

As discussed in [Section 4.2](#) of this exemption request, delaying or not granting this exemption could potentially delay the Project or increase costs [[

]]^{c,d} Delaying construction at the BECPV site could potentially delay the addition of up to 1.1 gigawatts electric of gas generation and 300 megawatts electric of nuclear generation [[

]]^d The purpose and need for the Project include the following:

- Provide firm, dependable baseload electricity to meet growing regional demand.
- Serve the intended customer and support the expanding industrial and data center load in the region, minimizing industrial impact on the regional grid, further bolstering the socioeconomics of the region.
- Provide grid-forming and reliability services, including inertia, to the ERCOT South load zone.

Additionally, granting the proposed exemption is in the public interest because, if the Applicant's unique project financing and phased gas generation and nuclear generation strategy is successful, it will prove a new means for expediting the funding and deployment of scalable nuclear power. Providing additional power to the Victoria, TX region sooner will also help protect American households and small businesses and is consistent with the goals of the Ratepayer Protection Pledge that was announced by the White House on March 4, 2026.

4.3.5 Conclusions

Based on the above discussion, the Applicant proposes that the balance of factors supports granting the exemption request. Additionally, the Applicant asserts that any activities allowed by the proposed exemption conducted prior



to issuance of the construction permit shall be carried out in such a manner as will minimize or reduce their environmental impact.



5 Precedent

5.1 Clinch River Nuclear Site

The Tennessee Valley Authority (TVA) requested an exemption from 10 CFR 50.10(c) to allow excavation at the Clinch River Nuclear (CRN) site to construct the reactor building shaft for a BWRX-300 SMR [4] that was later granted by the NRC [5]. The Applicant notes that while this request was also for a BWRX-300 SMR, the CRN is a geologically complex hard rock site and that TVA also had an Early Site Permit for the site. The BECPV site is a deep soil site.

5.2 Pioneer Units 1 & 2

In its CPA Part 1 (Limited Work Authorization (LWA)), for the Pioneer Units 1 & 2 SMRs at the Palisades Energy Center, SMR, LLC requested an exemption [6] from 10 CFR 50.10(c) to allow installation of permanent SOE walls prior to issuance of its requested LWA. This request was granted on August 26, 2026 [10]. The SMR LCC CPA Part 1 included a full Environmental Report (ER) whereas the Applicant's CPA Part 1 for BECPV-N01 contains a focused-scope LWA ER that addresses LWA activities as well as the activities associated with this exemption request.



6 Environmental Assessment

Per 10 CFR 51.21, an exemption is a licensing action that typically requires an environmental assessment. The proposed exemption would allow the installation of in-ground support structures (SOE wall, and a temporary plug or mudmat, if needed) to support the deep shaft excavation for the reactor building, and any associated subsurface preparation and backfilling needed for this activity. As discussed previously, the SOE wall is needed for worker safety and designed to withstand earth and groundwater pressures. This is considered a temporary need, as the in-ground support structures serve no function and provide no structural or seismic credit once the plant is built. The structures are then considered to be retired or abandoned in place. If redress activities were required, the SOE wall would also be abandoned in place, and the shaft backfilled, such that the environmental impacts would be similar to or less than the impacts of its construction.

The LWA ER, in Enclosure 3 of this CPA Part 1, assessed the environmental impacts resulting from the proposed exemption as well as the impacts from the requested LWA to install piles for structures other than the reactor building and turbine building, and the adjacent crane pad for reactor building construction, including any subsurface preparation and/or backfill needed for these activities. For cumulative impacts, the LWA ER assessed the impacts of construction activities associated with the CCGT plant and BOP and fire protection SSCs (i.e., Phase 1) for BECPV during the LWA and shaft construction time period. The full ER in CPA Part 2 will address all preconstruction and construction activities for BECPV-N01, including activities required to transition the BOP to nuclear plant operations, as needed, as well as subsequent operation of the nuclear plant, including fuel cycle and decommissioning impacts. The following subsections briefly summarize the assessment of potential environmental impacts discussed in the LWA ER.

6.1 Land Use

Section 4.1 of the LWA ER discusses the environmental impacts associated with land use. Per the LWA ER, the construction footprint for piling, crane pad installation, and shaft excavation is approximately 1.4 ac with another 6.3 ac assumed for construction support and laydown for a minimum total area of 7.7 ac of disturbed area for the Project, which has been rounded to an estimated 10 ac, with an additional approximate 5 ac reserved for storage of excavated material. The environmental impact of LWA activities and shaft excavation would not be noticeable and would not destabilize the availability of prime farmland. Additionally, mitigation measures would be enacted to minimize impacts. However, due to the permanent conversion of agricultural land soils, overall impacts to land use from construction activities are categorized as SMALL. As all construction staging, laydown, earthwork, and building activities would occur entirely within the site boundary, offsite land use impacts from construction activities would also be SMALL.

6.2 Water Resources

Section 4.2 of the LWA ER discusses the environmental impacts associated with water resources. Per the LWA ER, the physical footprint for the LWA activities and shaft excavation alters natural surface hydraulics via subsurface soil compaction, which suppresses localized infiltration capacity; the expansion of temporary and permanent impervious surfaces across laydown areas, staging yards, concrete batch plants, and access routes; and the implementation of structural drainage alterations. However, no direct surface water withdrawals are planned for the LWA. Water demand and water use for the activities fall below the NUREG-2249, "Generic Environmental Impact Statement for Licensing of New Nuclear Reactors" (NR GEIS) [9], Category 1 bounding criteria, as do dewatering requirements. Some impacts may fall outside the bounding criteria related to water resources; however, mitigation and minimization measures would compensate for these impacts. Therefore, overall, impacts to surface water, hydraulics, groundwater, water use, and water quality would be SMALL.



6.3 Ecological Resources

Section 4.3 of the LWA ER discusses the environmental impacts associated with ecological resources. Per the LWA ER, there are no designated critical habitats, state or federally managed natural areas, or sensitive ecological communities within the Project area. Given best management practices (BMPs), coordination with the Texas Park and Wildlife Department (TPWD) and the U. S. Fish and Wildlife Service (USFWS), impacts to terrestrial species would be minimized so as not to affect regional populations. There are no important aquatic habitats or listed aquatic species present within the Project area. Therefore, overall impacts to terrestrial and aquatic wildlife are consistent with the NR GEIS Category 1 designation and the impacts from the LWA would be SMALL.

6.4 Socioeconomics

Section 4.4 of the LWA ER discusses socioeconomics, including visual impacts, associated with the proposed action. Per the LWA ER, community services, infrastructure, traffic, and taxes are not likely to change due to the actions outlined in the LWA ER, aside from possible beneficial impacts as they relate to income and job opportunities. Therefore, the socioeconomic impacts are consistent with the NR GEIS Category 1 designation and the impacts from the requested LWA and proposed exemption would be SMALL or beneficial.

6.5 Historic and Cultural Resources

Section 4.5 of the LWA ER discusses the potential impacts associated with historic properties and other cultural resources. Based on the results of AECOM's cultural resources survey, referenced in the LWA ER, and the description of ground disturbing activities, the Project should have No Effect, direct or indirect, on historic properties or cultural resources that merit special designations so long as identified sites are avoided during the design and subsequent construction of the Project.

6.6 Air Resources

Section 4.6 of the LWA ER discusses the environmental impacts associated with air resources, including greenhouse gas emissions. As discussed in the LWA ER, the BECPV site is in an area designated attainment/unclassifiable for all criteria pollutants, the site is not located near a Mandatory Federal Class I Area, the construction disturbance is limited, and BMPs for dust control would be implemented. Compliance with applicable federal, state, and local air permitting requirements, combined with the relatively small emissions expected from proposed activities, supports a conclusion that impacts to air quality, including criteria pollutants, hazardous air pollutants, fugitive dust, and greenhouse gases are consistent with the NR GEIS Category 1 designation and the impacts from the LWA would be SMALL.

6.7 Nonradiological Health

Section 4.7 of the LWA ER discusses the impacts associated with nonradiological health issues, including chemical hazards and construction noise. (There are no radiological impacts as a result of the proposed action.) Per the LWA ER, given adherence to applicable federal and state regulations and implementation of the mitigation measures, nonradiological occupational health and safety impacts associated with the requested LWA and proposed exemption scope would be SMALL. Activities supported under the Project would result in temporary increases and fluctuations in ambient noise levels in and around the Project site. However, the magnitude of these changes are consistent with NR GEIS Category 1 designation, and therefore, impacts related to noise are anticipated to be SMALL. The increased number of vehicles on surrounding roadways during the LWA activities at the Project site would not increase road capacity that exceeds current levels of service and would result in minor increases in



crash rates relative to total vehicle miles traveled. Therefore, the impacts of increased traffic associated with the LWA activities are anticipated to be SMALL.

6.8 Nonradiological Waste Management

The LWA ER discusses the environmental impacts that could result from generation, handling, and disposal of nonradioactive waste during the installation of the reactor building shaft and the LWA construction activities. Project-generated nonradioactive waste volumes would be managed through existing permitted waste management facilities and programs. Impacts from nonradioactive solid wastes generated during building activities is anticipated to be SMALL, and mitigation does not appear to be warranted. Mitigation measures will be performed to the extent practicable, such as recycling, process improvements, or the use of less hazardous substances.

6.9 Environmental Impacts Conclusion

Based on the above discussion, the impacts are anticipated to be no more than SMALL and consistent with those evaluated in the LWA ER.



7 Conclusion

Pursuant to 10 CFR 50.12(a) and (b), the Applicant requests an exemption from 10 CFR 50.10(c) to allow installation of permanent in-ground support structures that are required for safe excavation of the reactor building shaft prior to issuance of a construction permit for BECPV-N01, entirely at the Applicant's risk. The scope of the exemption includes the SOE wall (i.e., a diaphragm wall), the potential use of a "temporary plug" or "mudmat," and any subsurface preparation or backfill associated with these activities.

The Applicant proposes that the requested exemption is authorized by law, will not present an undue risk to public health and safety, is consistent with the common defense and security, and that special circumstances are present under 10 CFR 50.12(a)(2)(iii) and (vi).

Additionally, the Applicant proposes that the requested exemption does not give rise to a significant adverse impact on the environment, will allow redress to be reasonably effected for any adverse environment impacts, will not foreclose subsequent adoption of alternatives, and delaying construction is not in the best interest of the public, as set forth in 10 CFR 50.12(b).



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