

GGNS
EARLY SITE PERMIT APPLICATION
PART 1 – ADMINISTRATIVE INFORMATION

1.0 INTRODUCTION

The Early Site Permit (ESP) process, offered under Title 10 Code of Federal Regulations (CFR) Part 52, Subpart A, was promulgated by the United States Nuclear Regulatory Commission (USNRC) in 1989 to address industry concerns with the former licensing process under 10 CFR 50. Previously, the licensing process required large expenditures of time and money by utilities well before key environmental and safety issues regarding site suitability could be resolved. As envisioned, the ESP process is meant to resolve these key site suitability issues well in advance of when a decision is made to build a nuclear power facility.

The ESP enables companies to obtain approval from the USNRC for a nuclear power plant site before deciding to build a plant. Site suitability with regards to 10 CFR 50.34(a)(1) and 10 CFR 100 and environmental impacts are resolved, and any impediments to implementing an emergency plan are identified and resolved before substantial capital is invested in licensing a new facility. When the decision is made to proceed, having a pre-approved site can dramatically shorten the time to bring a new plant to market. Given greater certainty in final plant capital costs and the ability to be more responsive to market demand, an Early Site Permit holder would be in a better position to obtain the necessary financial support from investment and lending institutions. Otherwise, the financial community would see long-term, higher risks in the previous licensing process. When used with the USNRC's combined construction and operating license (COL), the time required to build and start up a new plant can be shortened further. The USNRC introduced ESPs and the combined operating license as part of a more effective licensing process (10 CFR 52) for new nuclear power plants. Congress affirmed and strengthened the new licensing process in the 1992 Energy Policy Act.

An ESP process that encompasses a range of reactor designs enables companies to select the best design when the decision is made to proceed with a new plant. Through the use of the plant parameters envelope (PPE) concept, the USNRC can assess the suitability of a site based on a generalized plant description that encompasses the characteristics of several designs. Under this concept, the USNRC has the information it needs to assess site suitability, and companies can choose the best technology when they proceed with a new plant. Once issued, the ESP may be valid for not less than 10 nor more than 20 years, and may be renewed for up to 20 additional years.

Reference in this document to a "proposed" facility, site, or project should not be construed to be restricted to the reactor types discussed, but rather encompasses any design within the Plant Parameters Envelope against which site suitability is evaluated.

1.1 Purpose of Early Site Permit Submittal

The purpose of an application for an ESP is to set aside a proposed site for future energy generation and sale on the wholesale and/or retail energy market. This site will be reserved for a nuclear facility to be operated as a utility or merchant (non-utility) generator plant.

System Energy Resources, Inc. (SERI) is the Applicant for this ESP, and will hereinafter be referred to as SERI or Applicant.

The Applicant has selected a site located approximately 1200 feet (ft) west and 1000 ft north of the center of the containment of the existing Grand Gulf Nuclear Station (GGNS) Unit 1 facility for the proposed location of the ESP facility. The specific reactor type to be constructed has not been identified. Technical information from various reactor designs has been used to develop bounding parameters that are intended to envelop the proposed facility characterization

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necessary to evaluate the suitability of the site for future construction and operation of a nuclear power plant or plants.

The Grand Gulf Nuclear Station site is located in Claiborne County in southwestern Mississippi. The plant site is on the east side of the Mississippi River about 25 miles south of Vicksburg, Mississippi, 6 miles northwest of Port Gibson, Mississippi and 37 miles north-northeast of Natchez, Mississippi. The Grand Gulf Military Park borders a portion of the north side of the property, and the community of Grand Gulf is approximately 1-1/2 miles to the north. The Universal Transverse Mercator (UTM) Grid Coordinates for the approximate center of the location of the power block area of the proposed new facility are N3,543,261 meters, and E684,018 meters.

GGNS Unit 1 is a single unit nuclear generating plant capable of producing 3898 MWt (approximately 1,353 MWe gross). The boiling-water reactor (BWR), designed by General Electric (GE), has been producing electricity for customers since 1985.

This co-location strategy (i.e., placing the proposed ESP facility on the GGNS site) will be beneficial because this existing nuclear site is already developed to a large extent, and is dedicated to nuclear power plant use. The key advantages of co-location are described below.

- Existing GGNS related documents were utilized for development of the various parts of this Application for the ESP; e.g., Updated Final Safety Analysis Report (UFSAR), Final Environmental Report (FER), NRC Safety Evaluation Report (NUREG-0831), NRC Final Environmental Statement (FES) (NUREG-0777), and the GGNS Unit 1 Emergency Plan that includes processes and agreements with local and regional entities.
- The existing GGNS site and its exclusion area previously underwent a screening and evaluation process establishing its suitability, including a National Environmental Policy Act (NEPA) evaluation of alternatives. The proposed ESP facility is located within the GGNS Unit 1 exclusion area, and the proposed ESP facility exclusion area boundary is wholly within the GGNS site property boundary.
- The resources needed to prepare this ESP Application have been significantly lessened through the application of existing GGNS Unit 1 documents in the development of the SSAR, the ER, and the Emergency Planning Information. Actual resources needed to ultimately develop the site as contemplated by the ESP Application may be reduced through utilization and sharing of existing infrastructure and site services, if and when the ESP Facility becomes operational.
- Programs, procedures, and arrangements have been established and are in place, for the GGNS Unit 1 facility, with State and local governmental agencies, covering emergency planning, discharge permits, etc.
- Liaisons with the local community are established.

This application for an ESP does not consider the need for power, as the “need for power” argument is excluded by 10 CFR 52.17 and NUREG-1555 for the ESP Environmental Report (ER).

In furtherance of the submittal of this application for an ESP for the GGNS site, the Applicant seeks the following from the USNRC:

- An ESP issued for a duration of 20 years;