



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

July 14, 2005

Chief, Rules Review and Directives Branch  
U.S. Nuclear Regulatory Commission  
Mail Stop T6-D59  
Washington, D.C. 20555-0001

4/28/25  
70 FR 22155  
(H)

RECEIVED

2005 JUL 22 PM 4: 11

RULES AND DIRECTIVES  
BRANCH  
USNRC

**RE: EPA Review and Comments on NUREG-1817  
Early Site Permit (ESP) at the Grand Gulf ESP Site  
Draft Environmental Impact Statement (DEIS)  
CEQ No. 20050173**

Dear Sir:

The U.S. Environmental Protection Agency (EPA) reviewed the subject *Draft Environmental Impact Statement (DEIS)* Pursuant to Section 102(2)(C) of the National Environmental Policy Act (NEPA), and Section 309 of the Clean Air Act. The document provides information to educate the public regarding general and project-specific environmental impacts and analysis procedures, and follows the public review and disclosure aspects of the NEPA process. The purpose of this letter is to inform you of the results of our review.

System Energy Resources, Inc. applied for an early site permit for the Grand Gulf ESP site, co-located with the existing Grand Gulf Nuclear Station. The proposed action is to approve a site within the existing Grand Gulf Nuclear Station boundaries as suitable for the construction and operation of a new nuclear power generating facility, and to issue an ESP for the proposed site. During this time, the site would be "banked" for up to 20 years, during which time a reactor type could be chosen, and a construction and operating license could be applied for.

The DEIS discusses the proposed action and alternatives. Based on EPA's review of the DEIS, the document received an EC-2 rating, meaning that environmental concerns exist regarding aspects of the proposed project, and additional information needs to be provided in the Final EIS. Specifically, the DEIS notes that in the high-level waste and spent fuel disposal component of the fuel cycle, there is some uncertainty with respect to regulatory limits for offsite releases of radionuclides for the current candidate repository site. EPA also requests additional information regarding: public health assessments, Environmental Justice, wetlands and aquifer impacts, and clarification of purpose and need.

In the Waste Confidence Rule (10 CFR 51.23), the Commission generically determined that the spent fuel generated by any reactor can be safely stored onsite for at least 30 years beyond

SESP Review Complete

E-DEIS = ADM-03  
Call = J. Wilson (JNW)

Internet Address (URL) • <http://www.epa.gov>

Recycled/Recyclable • Printed with Vegetable Oil Based Inks on Recycled Paper (Minimum 30% Postconsumer)

Template - ADM-013

C. Ioverro (CXES)

the licensed operating life of the reactor. Ultimately, long-term radioactive waste disposition will require transportation of wastes to a permitted repository site. We are aware of ongoing efforts to license a geological repository for long-term disposition within the first quarter of the twenty-first century.

Protecting the environment involves the need for appropriate storage and ultimate disposition of radioactive wastes generated on-site. The OL will require radiological monitoring of all plant effluents. Appropriate storage of spent fuel assemblies and radioactive wastes on-site is required, in order to prevent impacts.

Thank you for the opportunity to comment on this DEIS. Also, based on the number of comments and issues raised in our letter, we believe it would be beneficial to discuss the comments and your proposed responses prior to the finalization of the FEIS. Please contact Ramona McConney of my staff at (404) 562-9615, to coordinate a meeting or conference call.

Sincerely,

A handwritten signature in cursive script that reads "Heinz J. Mueller".

Heinz J. Mueller, Chief  
NEPA Program Office

Enclosed: EPA Review and Comments  
Summary of Rating Definitions

**EPA Review and Comments on NUREG-1817  
Early Site Permit (ESP) at the Grand Gulf ESP Site  
Draft Environmental Impact Statement (DEIS)  
CEQ No. 20050173**

**Purpose & Need:** The DEIS does not include an assessment of the energy needs for the addition of one or two nuclear power units at the Grand Gulf facility. NRC's streamlining permitting process would require an energy needs analysis which would include energy alternatives assessment in a second EIS, in accordance with 10 CFR Part 50.

EPA has concerns with this approach since it does not address the justification for the power plant addition in the early stage of project development, as well as skews the subsequent energy alternative analysis toward nuclear power under the second EIS, since the NRC would have approved the suitability under the ESP.

**Radiation Concerns regarding Contingency for Storing Spent Nuclear Fuel Onsite:**

Given the uncertainty of licensing the Yucca Mountain Nevada facility for the storage of spent nuclear fuel, all utilities planning on constructing additional nuclear units on current sites should plan on the contingency of having to store waste onsite for an extended period of time.

From the radiological perspective, scenario(s) should be added to section 5.10, Environmental Impacts of Postulated Accidents, table 5.11, Design Basis Accident Doses for an Advanced Boiling Water Reactor and table 5.12, Design Basis Accident for a Surrogate AP1000 Reactor, that addresses the impact of an attack on a spent fuel storage cask using artillery shells at Grand Gulf and the resulting implications of a dose to plant personnel and the public. The total effective dose equivalent at the exclusion area boundary, and in the low population zone, should be calculated.

**Future planning:** The 20-year horizon under the proposed ESP does not take into consideration unforeseen population growth and/or additional stressors on air or water resources. Typically, an action which has not occurred within five years of an EIS requires a re-evaluation to determine whether significant changes have occurred, and whether a supplemental EIS is required prior to the action proceeding.

**Environmental Justice:** Based on the DEIS, the EJ evaluation was conducted based on guidance from the NRC Office of Nuclear Reactor Regulation Office. The document also states that conducting an EJ assessment is not a requirement for the NRC, but a voluntary undertaking. As part of the EJ assessment, the DEIS examines low-income and minority populations within a 50-mile (80 km) radius of the Grand Gulf Site, encompassing 16 counties in Mississippi and nine parishes in Louisiana. Both Mississippi and Louisiana have high minority and low-income populations within the potentially effected area. However, Claiborne, Jefferson and Hinds counties have the heaviest concentration of exceptionally high minority populations, while Claiborne, Copiah, Jefferson County, Concorda Parish and Tensas Parish have the heaviest

concentrations of low-income populations. The Grand Gulf Site is located in a Claiborne County which has both the highest minority and low-income populations.

The DEIS includes a GIS map of the counties and parishes with EJ considerations. While it is important to map all of the potential EJ areas in a 50-mile radius of the site, it would also be helpful to show in more detail the EJ areas that could face the most significant risk. For example, provision of GIS or aerial maps of EJ populations within close proximity to the Grand Gulf site (i.e., 0-5 miles) would be useful. The map(s) should indicate the distance of the closest residents to the current facility and the proposed expansion. Information regarding residential distribution and location is beneficial for community and regulatory assessment.

*EJ Assessment:* Page 5-40, 5.7.1, states that “*The staff found no unusual resource dependencies or practices, such as subsistence agriculture, hunting, or fishing, through which the populations could be disproportionately affected.*” This statement needs clarification. Does it mean that there is no subsistence resource dependence at all, or that the resource dependency is not unusual?

Given that there are significant EJ populations in an area rich in fishing and hunting resources, one would assume that subsistence practices do exist. Low-income populations with economic limitations are likely to conduct some subsistence practices to feed their families. Consequently, the FEIS should incorporate information and analysis that support the findings in the document.

Please clarify the type of analysis that was performed to reach these findings. Were independent organizations, (e.g., a university experienced with this specialized capability of researching subsistence), utilized in this analysis, and were there public meetings held with subsistence living as a topic of discussion with potentially impacted EJ populations? This type of information should be incorporated into the document. Please summarize the basis for the information in these statements.

*EJ Benefits and Burdens:* EJ evaluations should consider both the benefits and burdens and risks associated with the project, as it relates to EJ populations and the population at large. The DEIS discusses some of the potential risks and benefits of the project such as State Tax Revenue to the Claiborne County. Because of a Mississippi State Tax Code legislatively enacted in 1988, Claiborne County property tax revenue from the nuclear station was re-appropriated to more than 40 other Mississippi counties in Entergy’s electricity distribution area.

It is unclear how much of this revenue is paid per year to the State, relative to the amount that is then sent to Claiborne County for general use. In addition, it appears that some local, municipal infrastructure and emergency services within Claiborne County may not be adequately prepared for potential accidents, additional influx of workers, etc.

The DEIS also does not address the impact on real estate values, particularly regarding residential property impacts to the environmental justice population, nor does the DEIS assess the impact on commercial real estate values in close proximity. Many of the residents within the immediate project area are low-income, and may not have much capacity to easily move away from their local community if they consider the additional nuclear power facilities unacceptable neighboring property. Research on existing real estate appreciation and depreciation since the original facility was constructed would be helpful, and projected appreciation/depreciation of real estate values

would be important to include in the FEIS.

The FEIS should incorporate a matrix that outlines potential environmental, economic and social risks, burdens and benefits, and their associated magnitude.

*EJ & Public Involvement:* Based on the DEIS, it is unclear to what extent the public is involved in the proposed project, particularly the EJ populations that reside in close proximity to the site, in addition to the populations that are within the area of potential affect.

The DEIS does not discuss the relationship between local EJ populations and the existing nuclear reactor. For example, the document does not give information regarding: types of efforts made to incorporate the EJ populations throughout the decision-making process; evaluating whether the EJ populations that currently reside both in close proximity and within the sphere of potential effect have a good relationship with the existing facility; whether the existing facility has been a good neighbor; whether there been any problems with current facility which have generated public concern; whether residents in close proximity are employed by the nuclear facility; and whether local residents are supportive of the proposed expansion? If the residents have concerns, how are they being addressed? For example, the DEIS does not mention the legal challenge filed by a coalition of citizens groups objecting to the project, nor does the document mention any efforts to communicate with potentially impacted EJ communities to address their concerns. This information should be incorporated into the FEIS.

*EJ & Nuclear Waste Storage:* Based on the DEIS, it is unclear where the radioactive waste from the Grand Gulf Reactors will reside. Yucca Mountain and on-site storage were the two alternatives discussed in the DEIS. The first alternative is currently closed and the second alternative does not have the capacity for long-term storage (2007 for the current nuclear reactor). In addition, the second alternative poses potential long term environmental, public health and economic issues for nearby EJ populations. Nuclear waste storage issues may be a relatively important issue for residents within the immediate surrounding areas.

**Public Health Impacts:** On page 5-40, there is no reference to pre-existing studies on radiological and other contaminant findings in local fish and game. These studies probably exist for the Grand Gulf facilities, and should be incorporated into the FEIS. For example, Oak Ridge, TN and the Savannah River DOE facilities research findings on this subject matter, (and have restrictions placed on hunting deer, etc.)

The DEIS does not address the vicinity in radius miles that would be affected by a worst case accident scenario and a credible case accident scenario, either in the sections on Affected Environment or on Operation Impacts. It selects what appears to be arbitrary 10 km and 80 km boundaries for its discussion related to persons that would be affected by the siting of one or more additional nuclear power facilities.

The DEIS also does not address the following issues: a description of what kinds of accidents are potentially possible; the computer models used to ascertain potential release scenarios; the environmental health effects of an aftermath; the detailed capacity of the local, state and federal communities to react to such accidents (e.g., Local Emergency Planning Councils, fire

departments, federal agencies) in explicit terms; and what track record the facility currently has as to accident prevention (e.g., results of chemical safety audits, emergency exercises, etc.).

A thorough evaluation needs to be conducted and incorporated in the FEIS related to: vulnerability zones; assessing the proximity of resident and local workers, (e.g., chemical facilities, etc.); and generate possible design alternatives for the proposed action. If such vulnerability zones overlap the population with unacceptable levels of concern, causing adverse health effects, primary and secondary prevention systems can be advocated.

**Population:** The DEIS does not address the population of workers in the selected 10km or 80 km radius. In addition, it does not define: a quantitative or qualitative description of the chemical plant facilities in this proximity, or even a wider radius that may be more realistically affected; types of chemicals that are produced and released to the environment by these facilities; and specifics of the nuclear-related accident scenarios that may be potentially generate adverse radiological and non-radiological health effects, and have potential adverse productivity on these worker neighbors. A GIS map of all the regulated facilities within the project area of concern (80 km radius) should be incorporated in the FEIS.

Page 2-63 of the DEIS uses a 16 km (10 mile) reference for discussion on population numbers. It is unknown where this 16 km figure arises from. The population figure is apparently limited to residents, and does not include workers affected, which may be significant. The only reference to workers is a table discussing residential locations of workers.

On page 2-75, the discussion should be expanded on the Police, Fire and Medical capabilities in more detail. It is clear that there are already serious deficiencies in response capacity.

Page 2-78 discusses compliance with the National Historic Preservation Act (NHPA). Although no responses to letters were received from the Advisory Council on Historic Preservation (ACHP), Mississippi Department of Archives and History, and three tribal governments, there was not any discussion on further plans for coordination.

**Surface Water:** Section 4.4.2 of the DEIS discusses the addition of a new surface water intake to provide water to the proposed facility. As noted in the DEIS, discharges to surface water would require an NPDES permit.

**Sole Source Aquifer:** The GGNS uses wells in the Catahoula formation, part of the Southern Hills Aquifer which has been designated by EPA as a sole source aquifer, as a source of water. The DEIS states that the field investigation was unable to reliably assess the impact of a significant increase in the groundwater withdrawal at the site (page 4-6). The final EIS should clarify the water source, i.e. Mississippi River or Catahoula formation, that will be used for withdrawals such as drinking water, construction, operation, etc.

Hydrological Monitoring, (pg 2-24), states that *“many of the construction impacts of an ESP facility at the site are likely to be similar to the impacts that occurred during construction of the existing plant.”* The final EIS should include specific details of the expected “similar impacts” that were experienced and monitored due to the groundwater drawdowns caused by dewatering

wells during the construction of the existing GGNS facility.

Adequate hydraulic conductivity information from the Catahoula formation should be collected to properly determine or estimate the groundwater drawdowns associated with withdrawals from the formation, and this information should be included with the FEIS. In addition, a subsurface characterization along with a groundwater monitoring program, consistent with the detailed site design, should be submitted prior to issuance of the COL.

An assessment of the impacts associated with significant increases in groundwater withdrawal at the site should be included based on a reliable number of borings, adequate hydraulic conductivity measurements, and pump test in the Catahoula formation.

The Final EIS should include updated groundwater and surface water withdrawal use data, (agricultural, drinking water, mining, hydroelectric, thermoelectric, industrial, commercial, etc), in Claiborne County. The data should be used to determine if the estimated need for this project would exceed or adversely impact the estimated needs of the community, in quality or quantity.

**Wetlands:** The DEIS does not provide information on the acreage, delineation, and type of wetlands impacted by the construction and operation of the proposed facility, nor does it include mitigation plans for wetlands impacts.

**Cumulative Impacts:** The DEIS should incorporate more information on environmental and health-related cumulative effects. It should identify federal and non-federal commercial businesses and facilities which have environmental releases, and clearly define these releases to the air, water, and land.

There is no discussion about the cumulative environmental impacts from chemical facilities, together with these existing and proposed additional nuclear power facilities. Existing regulated facilities within the project area should be discussed, and their potential impacts to communities within the surrounding areas if an accident occurs at the nuclear site.

## SUMMARY OF RATING DEFINITIONS AND FOLLOW UP ACTION\*

### Environmental Impact of the Action

#### LO-Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

#### EC-Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impacts. EPA would like to work with the lead agency to reduce these impacts.

#### EO-Environmental Objections

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

#### EU-Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS date, this proposal will be recommended for referral to the CEQ.

### Adequacy of the Impact Statement

#### Category 1-Adequate

The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collecting is necessary, but the reviewer may suggest the addition of clarifying language or information.

#### Category 2-Insufficient Information

The draft EIS does not contain sufficient information for the EPA to fully assess the environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

#### Category 3-Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

\*From EPA Manual 1640 Policy and Procedures for the Review of the Federal Actions Impacting the Environment