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To whom it may concern:

Attached please find a copy of the comments of Nuclear Information and Resource Service regarding the NRC Draft Environmental Impact Statement for the Grand Gulf ESP.

Paul Gunter, NIRS

4/28/05

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# **Nuclear Information and Resource Service**

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**July 14, 2005**

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

**By Email: [GrandGulfEIS@nrc.gov](mailto:GrandGulfEIS@nrc.gov)**

**To Whom It May Concern:**

**On behalf of Nuclear Information and Resource Service (NIRS) I am submitting comments on the Draft Report for the Environmental Impact Statement for an Early Site Permit at the Grand Gulf ESP Site (NUREG-1817) as submitted by Entergy's wholly owned subsidiary Systems Energy Resource Incorporated (SERI).**

**1) Applicant SERI Environmental Assessment is incomplete as identified by NUREG-1817 and therefore the permit application is unacceptable and should be rejected.**

**Appendix J of the DEIS identifies an extensive list of assumptions made by applicant SERI in its environmental assessment report to the NRC. Applicant SERI has indicated that it will further address these assumptions in a Combined Operation License application.**

**For example, SERI states "Road improvement and construction projects.. .planned... will help ameliorate traffic problems associated with the proposed facility."**

**The DEIS fails to recognize that this assumption is baseless considering that current road infrastructure (bridges and pavement) around Grand Gulf nuclear power station, including designated Emergency Evacuation Routes such as the Bald Hill Road which south of the site, have fallen into disrepair from Mississippi River flooding and remained impassible for as much as three to four consecutive years.**

**The DEIS states that the "staff assumed the plant would be taxed as an ordinary taxable business asset" and therefore taxable by Claiborne County. Under the current State tax code this is a baseless assumption.**

**NIRS contends that it is inappropriate and unacceptable to base the environmental assessment of the ESP EIS with so many open item assumptions. NIRS contends that it is therefore unacceptable for NRC to blindly approve the ESP application with the intent to carry these assumptions forward into the Combined Operation License application at some future and unidentified date. Such action makes the process of doing a comprehensive environmental assessment pointless.**

NIRS believes that application should be rejected.

2) The environmental impacts from the proliferation of nuclear waste has been trivialized and ignored.

The DEIS identifies the environmental risk from the additional high-level nuclear waste generated at the site as "small." The Commission staff acknowledges in the DEIS that for the high-level nuclear waste disposal component of the nuclear fuel cycle, there is "uncertainty" with respect to offsite releases of radiation from a federal repository potentially sited at Yucca Mountain, Nevada. Yucca Mountain is the only site under characterization and before an Atomic Safety and Licensing Board. The DEIS states that staff is relying upon the NRC "Waste Confidence Decision" that a nuclear waste repository can and likely will be developed at some site that will comply with standards and limits for peak radiation exposures to U.S. populations.

However, NRC DEIS has failed to quantify the acknowledged "uncertainty." In fact, the uncertainty is considerably greater than even the NRC is willing to acknowledge.

Total commercial high-level radioactive waste generated at the Grand Gulf nuclear power station Unit 1 will surpass the currently established technological limits for modeling the environmental capacity of the proposed Yucca Mountain repository.

In the year 2011, the current US reactors will have generated more than 63,000 metric tons of commercial high-level radioactive waste, enough to fill Yucca Mountain even if it should successfully be licensed, constructed and opened. All waste generated after 2011 will be in excess to Yucca Mountain. Any additional high-level nuclear waste (HLRW) generated in Mississippi at the Grand Gulf unit 1 site will be in excess to Yucca Mountain. To date, Grand Gulf has generated 664 metric tons of HLRW. By 2011, Unit 1 will have generated 856 metric tons of HLRW. Should Grand Gulf Unit 1 receive a twenty-year license extension by 2045 it will have generated 1074 metric tons in excess to Yucca Mountain.

If Grand Gulf is operated for 60 years and two additional reactors are built and operated for 60 years, the total amount of HLRW in excess to Yucca Mountain at Grand Gulf site would then be approximately 4,900 metric tons or more that seven times what is currently stored there.

Given that the acknowledged "uncertainty" includes the fact that NRC and the nuclear industry have failed to provide a scientifically accepted long-term HLRW management plan with a scientifically accepted site for the first cupful of radioactive waste generated more than a half century ago, NRC should reject the SERI application which would potentially exacerbate the environmental damage from an incomplete and unanalyzed high-level nuclear waste management plan for the additional and excess HLRW generated by the new units.

### 3) Environmental Justice Issues Adversely Impact Claiborne County's Radiological Emergency and Security Response Capabilities

The DEIS states "It is not clear how the new nuclear facility would be treated for property tax purposes, so it is not clear whether Claiborne County would receive property taxes, sales, and use taxes and public monies commensurate with the cost of its additional emergency management and public service obligations. The net financial burden may fall on local residents and taxpayers, most of whom are minority and low-income persons."

NIRS contends that the NRC finding that a predominantly African American community (84%) with a significant portion living at or below the poverty line (32%) could be disproportionately and adversely impacted by the siting of a new nuclear power station in context of a peculiar Mississippi State Tax Code which discriminates against the population of Claiborne County by distributing 70% of the property tax assessment of any nuclear power generating facility to 44 other Mississippi counties in Entergy's distribution system.

This staff finding underscores the NIRS prior finding that Entergy's Environmental Report fails to evaluate the economic impacts on Claiborne County by imposing additional and undue financial burdens on the County for emergency preparedness affecting effective public notification, sheltering and evacuation, local law enforcement response capabilities to both a radiological accident or intentional act of sabotage and/or attack and the consequential radiological emergency response by local and county medical authorities.

This burden to the public health, safety and security would be exacerbated by an additional commercial nuclear power state under the State of Mississippi's discriminatory state tax code policy as acknowledged by the DEIS. Rather than discount this burden, NRC should reject the SERI application.

The resulting economic burden is just as likely to translate into dysfunctional and inoperable emergency response and unavailable local law enforcement services or at best significantly inadequate in support increased security needs of the expansion of the Grand Gulf nuclear power station site.

The SERI application should therefore be rejected.

4) The Commission has unduly trivialized and dismissed the increased risks to public health from radiation induced cancers and other radiation induced diseases from increased ionizing radiation emitted in the routine operational releases of liquid effluents and radioactive gases and particulate from new reactors at Grand Gulf. The DEIS ignores and is dated by the recent findings of the Biological Effects of Ionizing Radiation VII (BEIR VII) and National Academy of Sciences study.

The DEIS states "Although radiation may cause cancers at high doses and high dose rates, currently there are no data that unequivocally establish the occurrence of cancer

following exposure to low doses and dose rates, below about 100 mSv (10,000 mrem). However, radiation protection experts conservatively assume that any amount of radiation may pose some risk of causing cancer or a severe hereditary effect and that the risk is higher for higher radiation exposures. Therefore, a linear, no-threshold dose response relationship is used to describe the relationship between radiation dose and detriments such as cancer induction. Simply stated, any increase in dose, no matter how small, results in an incremental increase in health risk. This theory is accepted by the NRC as a conservative model for estimating health risks from radiation exposure, recognizing that the model probably overestimates those risks. Based on this model, the staff estimated the risk to the public from radiation exposure using the nominal probability coefficient for total detriment (730 fatal cancers, nonfatal cancers, and severe hereditary effects per 10,000 person-Sv [1,000,000 person-rem]) from International Commission on Radiation Protection (ICRP) Publication 60 (ICRP 1990). This coefficient was multiplied by the estimated collective whole body population dose of 0.0543 person-Sv/yr (5.43 person-rem/yr) to calculate that the population living within 80 km (50 mi) of the Grand Gulf ESP site would incur a total of approximately 0.004 fatal cancers, nonfatal cancers, and severe hereditary effects annually. The risks from the cumulative radiation exposure from GGNS and the proposed ESP units would be only slightly higher. This risk is very small.”

NIRS contends that new information provided by independent analysis in BEIR VII contradicts this NRC staff assertion.

On June 29, 2005, the National Academies of Science released an over 700-page report on the risks from ionizing radiation. The BEIR VII or seventh Biological Effects of Ionizing Radiation report on "Health Risks from Exposure to Low Levels of Ionizing Radiation" reconfirms previous knowledge that there is no safe level of exposure to radiation—that even very low doses can cause cancer. Risks from low dose radiation are equal or greater than previously thought. The committee reviewed some additional ways that radiation causes damage to cells.

Among the report’s conclusions are:

There is no safe level or threshold of ionizing radiation exposure.

Even exposure to background radiation causes some cancers. Additional exposures cause additional risks.

Radiation causes other health effects such as heart disease and stroke, and further study is needed to predict the doses that result in these non-cancer health effects.

It is possible that children born to parents that have been exposed to radiation could be affected by those exposures.

The "bystander effect" is an additional, newly recognized method by which radiation injures cells that were not directly hit but are in the vicinity of those that were. "Genomic

instability" can be caused by exposure to low doses of radiation and according to the report "might contribute significantly to radiation cancer risk." These new mechanisms for radiation damage were not included in the risk estimates reported by the BEIR VII report, but were recommended for further study.

The Linear-No-Threshold model (LNT) for predicting health effects from radiation (dose-response) is retained, meaning that every exposure causes some risk and that risks are generally proportional to dose. The Dose and Dose-Rate Effectiveness Factor or DDREF which had been suggested in the 1990 BEIR V report to be applied at low doses, has been reduced from 2 to 1.5. That means the projected number of health effects at low doses are greater than previously thought. Radiation exposures, even at low dose are riskier than previously thought with increased risk to the public and nuclear workers.

The BEIR VII risk numbers indicate that about 1 in 100 members of the public would get cancer if exposed to 100 millirads (1milliGray) per year for a 70-year lifetime. This is essentially the US Nuclear Regulatory Commission's allowable radiation dose for members of the public.

In addition, 1 in about 5 workers would get cancer if exposed to the legally allowable occupational doses over their 50 years in the workforce. These risks are much higher than permitted for other carcinogens.

Specifically, the US Nuclear Regulatory Commission allows members of the public to get 100 millirems or mr (1 milliSievert or mSv) per year of radiation in addition to background. The BEIR VII report (page 500, Table 12-9) estimates that this level will result in approximately 1 (1.142) cancer in every 100 people exposed at 100 mr/yr which includes 1 fatal cancer in every 175 people so exposed (5.7 in 1000). This rate of cancer induction is significantly greater than projected by the DEIS.

BEIR VII purports that the risk of getting cancer from radiation is increased by about a third from current government risk figures. BEIR VII estimates that 11.42 people will get cancer if 10,000 are each exposed to a rem (1,000 millirems or 10 mSv). The US Environmental Protection Agency Federal Guidance Report 13 estimates that 8.46 people will get cancer if 10,000 are each exposed to a rem.

NIRS interprets this as further evidence that unnecessary radiation exposures to the public and nuclear workers should be avoided.

Therefore, NIRS requests that the SERI application be rejected.

Sincerely,

Paul Gunter,  
Reactor Watchdog Project