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May 19, 2004

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

DOCKET: 52-009

SUBJECT: Followup to Early Site Permit Application Environmental Audit - Response 2

CNRO-2004-00032

During the week of April 12, 2004, the NRC Staff conducted a visit of the Grand Gulf Nuclear Station Early Site Permit (ESP) site and environs as part of its review of the Grand Gulf ESP application, submitted on October 16, 2004. During the visit, the NRC staff discussed with Entergy representatives the need for followup information. This letter transmits information as outlined in Attachment 1 to this letter.

CONTACT:

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DOCUMENT COMPONENTS:

One (1) CD-ROM is included in this submission. The CD-ROM contains the following twenty one (21) files:

- 001 Computer Run Description.pdf, 63 KB
- 002 EAB Iodine and Particulate 1.pdf, 46 KB
- 003 EAB Iodine and Particulate 2.pdf, 51 KB
- 004 EAB Noble Gas.pdf, 38 KB
- 005 Run 1 Output.pdf, 113 KB
- 006 Run 2 Output.pdf, 137 KB
- 007 EAB_Noble_Only.dat, 1 KB
- 008 Iodines_Part particulate_1.dat, 2 KB

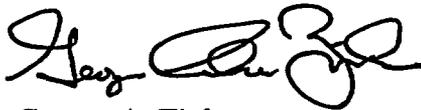
D069

009 Iodines_Part particulate_2.dat, 2 KB
010 Run 1 Input.dat, 16 KB
011 Run 2 Input.dat, 16 KB
012 GGENSEP1bout.DAT, 171KB
013 GGENSEP1b.dat, 3 KB
014 _ESPSE.CXC, 5 KB
015 _ESPSEL.CXC, 5 KB
016 _ESPSM.CXC, 5 KB
017 _ESPSML.CXC, 5 KB
018 _ESPWE.CXC, 5 KB
019 _ESPWEL.CXC, 5 KB
020 _ESPWM.CXC, 5 KB
021 _ESPWML.CXC, 5 KB

Should you have any questions, please contact me.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on May 19, 2004.

Sincerely,



George A. Zinke
Project Manager
System Energy Resources Inc.

Enclosure: One CD-ROM
Attachment: Attachment 1

cc: Ms. D. Curran
Mr. T. L. Hoeg, Senior Resident Inspector, USNRC/RIV, Grand Gulf Nuclear Station
Mr. R. K. Anand, USNRC/NRR/DRIP/RNRP
Mr. B. S. Mallett, Administrator, USNRC/RIV
Mr. J. H. Wilson, USNRC/NRR/DRIP/RLEP

ATTACHMENT 1

The following is followup information related to the ESP April Environmental Audit:

RADIOLOGICAL/SEVERE ACCIDENTS/TRANSPORTATION ISSUES**Request:**

1. Provide input and output data for GASPARII and LAPTADII Codes

Response:

See Files (GASPARII):

- 001 Computer Run Description.pdf
- 002 EAB Iodine and Particulate 1.pdf
- 003 EAB Iodine and Particulate 2.pdf
- 004 EAB Noble Gas.pdf
- 005 Run 1 Output.pdf
- 006 Run 2 Output.pdf
- 007 EAB_Noble_Only.dat
- 008 Iodines_Part particulate_1.dat
- 009 Iodines_Part particulate_2.dat
- 010 Run 1 Input.dat
- 011 Run 2 Input.dat

See Files (LADTAPII):

- 012 GGNSSESP1bout.DAT
- 013 GGNSSESP1b.dat

Request:

2. Table 4.5-6, results of analysis of dose to construction workers - it looks like the data of SKYSHINE (clarify - possibly add another table).

Response:

The reference to Table 4.5-6 in the text of page 4.5-4 is correct. The table does provide data from the GGNS Unit 1 / Unit 2 dose analysis presented in Section 12.4 of the GGNS UFSAR, which is SKYSHINE data calculated for the Unit 2 GGNS construction work force assuming Unit 1 in operation during construction. This table and data were presented to illustrate the potential dose to construction workers building a second new unit, with the first unit presumed in full power operation, and that the first new unit is a BWR. As indicated in the ER Section 4.5.5 text, this data is considered reasonable and would be bounding for the other types of reactors since the primary source of the dose to construction workers would be from N-16 (not present in other reactor types).

Request:

3. Table 4.5-1 from the ESP application - verify why the units for total body dose and skin dose are given in the mrem/y instead of mrem. In this same table and what is the source of the direct radiation measurements given?

Response:

This data is taken from the table reference: Grand Gulf Nuclear Station (GGNS) 2001 Annual Radioactive Effluent Release Report, January 1, 2001 through December 31, 2001 (NRC Accession Number ML021150807). See page 14 of the report for a discussion of the data in the table. Also, discussion of the source of the direct radiation is provided on page 14 of the referenced report. See excerpt below.

“Average Total Body and Skin Dose Rate

Individual total body and skin dose rates from exposure to a semi-infinite cloud of noble gas are computed for a location in the southwest sector at a distance of 0.85 miles. This location corresponds to the highest annual average atmospheric dispersion for a location at the site boundary.

The total body and skin dose rates reported are the quarterly average of the maximum instantaneous dose rates determined daily during the reporting period and would represent the maximum possible dose received by members of the public.

Air Dose From Gamma and Beta Emissions

Air doses from gaseous effluents were calculated for this report using dispersion parameters from the 2001 meteorological data. The highest dispersion factor for an unrestricted area was in the west-southwest sector at the site boundary, 1722 meters (1.07 miles) from the plant.

Direct Radiation

Direct radiation dose is calculated by subtracting average doses measured by thermoluminescent dosimeter (TLD) badges located at control locations from average doses measured by TLD badges located near the site boundary. GGNS reported measured doses in 2001 as net exposure [field reading – (transit + shield)] normalized to 92 days.”

Request:

4. Section 4.5.5, the assumptions that went into Table 4.5-6 – explain the differences between workforce numbers for the 2nd unit (first ER) and the numbers for the new plant (ESP).

Response:

The Table 4.5-6 provides the number of person-hours assumed in the calculations for dose to construction workers. Adding the total numbers of person-hours, and dividing by 2000 hrs per year gives about 3388 person years. Assuming 4 years to complete the 2nd unit (first ER), this equates to about 850 people. Assuming 2 years construction remaining, this equates to about 1700 people. The actual duration of the remaining construction period used in the analysis is not known.

For a new plant, the PPE input data provided by the various vendors and plant designs considered, listed a construction work force in a range from 3150 to 1200 people. An average number per 1000 MWE is about 1750 people. The duration for construction of the second new unit (ESP) wherein construction workers might be exposed to radiation from the first new unit (ESP) is not known, but could be assumed to be approximately 2 years, given that some construction might be in parallel. This then would be comparable to the analysis done for the 2nd unit (first ER) presented in the ESP application and in the GGNS UFSAR Section 12.4.3.

As can be seen from the range of people estimated to construct a plant design, the size of the force is very much dependent on the plant selected at COL. For this ESP application, no assumptions were made in this regard. The data presented in Table 4.5-6 were for illustration purposes only, and shows that dose to construction workers is small.

HYDROLOGY ISSUES

Request:

1. Provide CORMIX model simulation.

Response:

See Files (CORMIX):

- 014_ESPSE.CXC
- 015_ESPSEL.CXC
- 016_ESPSM.CXC
- 017_ESPSML.CXC
- 018_ESPWE.CXC
- 019_ESPWEL.CXC
- 020_ESPWM.CXC
- 021_ESPWML.CXC