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System Energy Resources, Inc.
1340 Echelon Parkway
Jackson, MS 39213

CNRO-2004-00067

September 30, 2004

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

DOCKET: 52-009

SUBJECT: Response to Request for Additional Information Letter No. 7 – System Energy Resources, Inc., Early Site Permit Application for the Grand Gulf ESP Site (TAC NO. MC 1378)

REFERENCE:

1. System Energy Resources, Inc. (SERI) letter to USNRC – Early Site Permit Application (CNRO-2003-00054), dated October 16, 2003.
2. USNRC letter to SERI – Request for Additional Information Letter No. 7 – System Energy Resources, Inc., Early Site Permit Application for the Grand Gulf ESP Site (TAC No. MC1378) (CNRI-2004-00015), dated September 2, 2004.

CONTACT:

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DOCUMENT COMPONENTS:

One (1) CD-ROM is included in this submission. The CD-ROM contains the following sixteen (16) files:

001_ESP-SSAR_DraftRev-1_Oct-1_2004.pdf, 196 KB, publicly available
002_Draft-Rev1_Tables 3.3-1_thru_3.3-28_10-1-04.pdf, 90 KB, publicly available
003_2002.MET, 360 KB, publicly available
004_2003.MET, 360 KB, publicly available
005_gg0203.txt, 8KB, publicly available
006_GGESP_PAVAN.doc336 KB, publicly available
007_ESP1aR1.txt, 9 KB, publicly available
008_ESP1bR1.txt, 9 KB, publicly available
009_ESP2aR1.txt, 8 KB, publicly available
010_ESP2bR1.txt, 8 KB, publicly available
011_esp1ar1.out, 58 KB, publicly available
012_esp1br1.out, 58 KB, publicly available
013_esp2ar1.out, 53 KB, publicly available
014_esp2br1.out, 54 KB, publicly available
015_ER_DraftRev-1_10-1-2004.pdf, 150 KB, publicly available
016_ERTable 7.1-1_thru_7.1-28_Draft-Rev1_10-1-04.pdf, 99 KB, publicly available

In the referenced September 2, 2004, letter (Reference 2) the U.S. Nuclear Regulatory Commission requested additional information to support review of the SERI ESP Application. This letter transmits information as outlined in Attachment 1 to this letter.

Should you have any questions, please contact me.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on September 30, 2004.

Sincerely,

George A. Zinke
Project Manager
System Energy Resources Inc.

Enclosure: One CD-ROM
Attachment: Attachment 1
cc: Mr. R. K. Anand, USNRC/NRR/DRIP/RNRP
Mr. C. Brandt, PNL
Ms. D. Curran, Harmon, Curran, Spielberg, & Eisenberg, L.L.P.
Mr. W. A. Eaton (ECH) (w/o enclosure)
Mr. B. S. Mallett, Administrator, USNRC/RIV
Mr. J. H. Wilson, USNRC/NRR/DRIP/RLEP

Resident Inspectors' Office: GGNS

ATTACHMENT 1

SSAR Section 2.3.1, Regional Climatology

Request:

RAI 2.3.1-6

SSAR Section 2.3.1.2.6, "Weight of Snow and Ice on Safety-Related Structures," implies that the site characteristic ground snow load that the roofs of safety-related structures must be capable of withstanding during plant operation is the regional 100-yr return snowpack weight of 11.44 lb/ft^2 (0.55 kPa). Section 2.3.1.2 of Regulatory Guide 1.70 states that the weight of snow and ice on the roof of each safety-related structure should be a function of the weight of the 100-year return period snowpack and the weight of the 48-hr winter probable maximum precipitation (PMP) for the site vicinity. Since Mississippi is located in a subtropical climate where prolong snowfalls and large accumulations of snow and ice do not occur, the combined 100-yr return snowpack and the estimated winter PMP may be an unreasonable snow/ice roof loading for a structure at the Grand Gulf ESP site. As an alternative, please justify why a combination of the 100-yr return snowpack and the maximum-recorded monthly snowfall in the Grand Gulf ESP site region is not a reasonably conservative site-characteristic snow load for the roofs of safety-related structures.

Response:

As identified in SSAR Section 2.3.1.2.4, "In the Jackson/Grand Gulf area, snow melts and/or evaporates quickly, usually within 48 hours, and before additional snow is added." The longest period of subfreezing temperature recorded at the site in the four years 2000 through 2003 is just 66 hours (December 31, 2000 to January 3, 2001). Therefore, it is reasonable to view maximum ice/snow structural roof loads as being likely to result from a brief period of deposition, rather than a combination of the 100-yr snowpack plus the maximum of either a 48-hour probably maximum winter precipitation or maximum monthly recorded snowfall. Furthermore, snow deposition is so rare at this site that monthly totals tend to be delivered in a single storm. The maximum number of hours of snow fall in any single month at Vicksburg in the five years 1997 through 2001 was just 16 hours.

The SSAR Section 2.3.1.2.6 will be clarified to indicate that the site characteristic snowpack for the loads to be used on roofs of safety related structures is equal to the regional 100-year return snowpack of 11 inches of snow, or 2.2 inches water equivalent (11.44 lb/ft^2). It is considered reasonably conservative to utilize this snowpack as the site characteristic since the ESP site is subjected to a subtropical climate with mild winters. Prolonged snowfalls or large accumulations of snow or ice on the ground and on structures are not anticipated, and historical winter precipitation data for the region surrounding the Grand Gulf ESP site also supports this position.

See file: 001_ESP-SSAR_DraftRev-1_Oct-1_2004.pdf

SSAR Section 2.3.2, Local Meteorology

Request:

RAI 2.3.2-6

The NRC-requested-format files (*.MET) provided in the July 1, 2004 response to RAI 2.3.2-5 appear to contain upper level wind speed data in both the upper level and lower wind speed fields. Please provide a corrected set of files. In addition, please verify that these files were not used to compile any of the data analysis summaries presented in the Grand Gulf ESP SSAR.

Response:

Corrected NRC-requested-format files (*.MET) are included on the enclosed CD-ROM. These files were prepared specifically to provide the data in the standard NRC format, which was not the format used in performing any analyses discussed or presented in the ESP SSAR. Consequently, there is no impact on any of the analyses or data analysis summaries presented in the Grand Gulf ESP SSAR.

See files: 003_2002.MET
004_2003.MET

SSAR Section 2.3.3, Onsite Meteorological Measurements Program

Request:

RAI 2.3.3-1

SSAR Table 2.3-131 presents monthly data recovery statistics for the GGNS onsite meteorological monitoring program for the period January 1996 through December 2003. This table shows that the annual data recovery rate for 2003 was 96%. However, a review of the 2003 lower level wind direction data contained in files 012_MET2003.pdf and 020_2003.MET shows a data recovery rate of 91% (e.g., 230 hrs of lower level wind data were missing in February, 280 hrs of data were missing in March, 24 hrs were missing in May, and 233 hrs were missing in August). Consequently, please explain the basis for the data recovery rate statistics provided in SSAR Table 2.3-131.

Response:

The value of 91% calculated in the RAI can be interpreted as all instruments required for X/Q calculations operating simultaneously 91% of the time. The value of 96% can be interpreted as the eight meteorological instruments independently operating correctly 96% of the time. For example, during the 280 hours of missing wind directions in March 2003, the wind speeds, temperature, delta-T, relative humidity, and precipitation instruments functioned correctly. By the first definition, this was a period of 0% data recovery; by the second, it was a period of 75% data recovery (the two wind directions being 2 out of 8 total instruments).

Grand Gulf meteorological instrumentation is required to meet Regulatory Guide 1.23 criteria of 90% data recovery for each instrument. In order to document this, Grand Gulf Offsite Dose Calculation Manual Specification 5.6.3 requires an annual summary of Meteorological Instrumentation data recovery be filed. The results by each individual measured parameter for the two years over which X/Q calculations for the ESP were conducted are summarized here. The final row is the overall data recovery for parameters required in the X/Q calculations. This is the data that is used for Joint Frequency Distribution and dispersion calculations.

Individual Instrument Data Recovery

Measurement	2002	2003
Wind Direction, 162'	98.7%	90.0%
Wind Speed, 162'	98.7%	97.8%
Wind Direction, 33'	98.7%	91.2%
Wind Speed, 33'	98.7%	97.8%
Delta-T	98.6%	97.7%
X/Q instruments operating simultaneously	98.6%	91.2%

SSAR Section 2.3.4, Short Term Diffusion Estimates

Request:

RAI 2.3.4-1

The Grand Gulf ESP EAB and LPZ χ/Q values presented in the SSAR Section 2.3.4.2 Summary Table (top of page 2.3-8 in SSAR draft Rev. 1) do not correspond to the EAB and LPZ direction dependent maximum sector χ/Q values presented in SSAR Tables 2.3-141 and 2.3-142, respectively. For example:

SSAR χ/Q Values (s/m^3)

		Section 2.3.4.2 Summary Table Values	Maximum Sector Table 2.3-141 and 2.3-142 Values
EAB	0-2 hrs	5.95×10^{-4} (841 m SW)	5.95×10^{-4} (841 m WSW)
LPZ	0-8 hrs	6.66×10^{-5} (3219 m SW)	8.83×10^{-5} (3219 m WSW)
	8-24 hrs	4.77×10^{-5} (3219 m SW)	6.16×10^{-5} (3219 m WSW)
	24-96 hrs	2.32×10^{-5} (3219 m SW)	2.82×10^{-5} (3219 m WSW)
	96-720 hrs	8.22×10^{-6} (3219 m SW)	9.15×10^{-6} (3219 m WSW)

Response:

The values listed in Section 2.3.4.2 were the directionally independent χ/Q values. The χ/Q values using a directionally dependent methodology should have been listed since this methodology gives the highest LPZ χ/Q values. The table in SSAR Section 2.3.4.2 will be revised to list the maximum sector values. In addition, the accident analysis results given in the SSAR Section 3.3 tables will be updated based on use of the more limiting directionally dependent χ/Q values. Section 2.7.6.2 of the ESP ER and the tables of results for Section 7.1 of the ER will also be revised based on use of the more limiting directionally dependent χ/Q values.

See files: 001_ESP-SSAR_DraftRev-1_Oct-1_2004.pdf
002_Draft-Rev1_Tables 3.3-1_thru_3.3-28_10-1-04.pdf
015_ER_DraftRev-1_10-1-2004.pdf
016_ERTable 7.1-1_thru_7.1-28_Draft-Rev1_10-1-04.pdf

Request:

RAI 2.3.4-2

Please provide a copy of the PAVAN computer code input and output file(s) used to generate the EAB and LPZ χ/Q values presented in SSAR Section 2.3.4.

Response:

The PAVAN input file and output file are included on the enclosed CD-ROM.

See files: 005_gg0203.txt (input file)
006_GGESP_PAVAN.doc (output file)

SSAR Section 2.3.5, Long Term Diffusion Estimates

Request:

RAI 2.3.5-1

Please provide a copy of the XOQDOQ computer code input and output file(s) used to generate the χ/Q values presented in SSAR Section 2.3.5.

Response:

The XOQDOQ input and output files identified below are included on the enclosed CD-ROM.

See files:

Input Files	Output Files
007_ESP1aR1.txt	011_esp1ar1.out
008_ESP1bR1.txt	012_esp1br1.out
009_ESP2aR1.txt	013_esp2ar1.out
010_ESP2bR1.txt	014_esp2br1.out