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U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D.C. 20555

Attention: Document Control Desk

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No. 50-416
License No. NPF-29
Cooling Tower Drift Program

GNRO-91/00029

Gentlemen:

Entergy Operations requests the NRC's approval to terminate the Cooling Tower Drift Program required by Section 4.2.2 of the Environmental Protection Plan (EPP). The purpose of the Cooling Tower Drift Program is to monitor the surrounding area to ensure that the operation of the Grand Gulf Nuclear Station (GGNS) cooling tower does not have a statistically significant effect upon the salt deposition rate.

Section 4.2.2 of the EPP states: "This program is to be implemented at least 3 months prior to the operation of Unit 1 above 5% power and will be continued for three years of operation. If no statistically significant amount of the analyzed components are detected during this time period, then a proposal can be made to NRC to terminate the program."

The present program was initiated in 1982. The data from the program was evaluated annually and reported each year to the NRC in the Annual Environmental Operating Report. Based on the data collected, Entergy Operations has determined that cooling tower drift has no statistically significant effect on the salt deposition rate. Therefore, the intent of the Cooling Tower Drift Program has been fulfilled. More detailed justification is attached.

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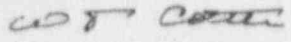
If additional information is needed for resolution of this matter, please advise.

Yours truly,



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Justification for the Termination of the Cooling Tower Drift Program

The purpose of the Cooling Tower Drift Program is to monitor the surrounding area to ensure that the operation of the GGNS cooling tower does not have a statistically significant effect upon the salt deposition rate. The present program was initiated in 1982 with the data from this program evaluated annually.

Eight sampling sites were utilized to measure cooling tower drift deposition. Six of the eight sampling sites were located in areas where maximum salt deposition was predicted. These areas were identified from the Bechtel Salt Deposition Model developed for the GGNS Final Environmental Report. The remaining two sampling sites were control sites (i.e., located offsite), with one being added in 1985. Four of the sampling sites were equipped with replicate sampling devices and two of the replicate sampling sites had triplicate sampling devices.

Fallout samples were collected on a quarterly basis and analyzed for ten constituents:

- Calcium
- Sodium
- Phosphate
- Chloride
- Sulfate
- Magnesium
- Iron
- Nitrate
- Fluoride
- Total dissolved solids

Results were reported to the NRC in the Annual Environmental Operating Report.

The criteria for the Cooling Tower Drift Program are contained in Paragraph 4.2.2 of the EPP: If statistically significant amounts of the analyzed components, at the 95% confidence level as determined by a repeated-measure analysis of variance, are obtained between the preoperational and operational samples, then a supplemental program will be implemented to determine if the increase in drift is of biological significance.

Entergy Operations reviewed the results of the annual evaluation of samples collected between the years 1983 and 1988 to determine if the cooling tower drift had a statistically significant effect upon salt deposition rate.

To assist in understanding the results of the salt deposition analysis, an understanding of when the plant started operation and when the cooling tower fill material was changed is helpful. These dates are listed below:

August 18, 1982	Achieved Critical Power
September 25, 1983	Started Low Power Testing
November 8, 1983	Stopped Low Power Testing
April 22, 1984	Resumed Low Power Testing
August 31, 1984	Full Power Operating License
May 12, 1985	Achieved 100% Power
July 1, 1985	Commercial Operation
January, 1987	Replaced Cooling Tower Media

The years 1983 and 1984 represent the salt deposition rates before plant commercial operation. The years 1985 and 1986 represent the salt deposition rates with clay block fill material in the cooling tower. During the period when clay block fill material was in use GGNS experienced visible drift carryover deposition onto site parking lots and buildings in close proximity to the cooling tower. Following the change of fill material visible carryover from the cooling tower was greatly reduced. The years 1987 and 1988 represent the salt deposition rates with a new plastic fill material in the cooling tower.

The analysis performed annually on the data utilized a statistical technique called Analysis of Variance (ANOVA). This technique is a well documented and accepted method for determining statistical significance between various populations for major potential influence (period and location). Confidence limits were established at 95%.

The ANOVA analysis was applied in two ways on the data:

1. A three-way analysis was performed on sample locations #2 and #5 since these locations were collected in replicate for interaction between period and location.

2. A two-way analysis was performed on the remaining locations. The two remote stations were classified as control stations and represented background salt deposition rates. Analysis results were reported in our Annual Environmental Operating Report.

In evaluating the data for influence by period it was determined that the deposition rate for most salts varied significantly by quarter. Analysis for interaction showed that there is interaction between sample period and location. Evaluations performed for influence by location showed that sample location did not have a significant influence on deposition rates for some salts while other salts appear to be significantly influenced by location. These variations made it difficult to directly compare preoperational plant conditions against operational plant conditions. Also, the initial set of conditions for ANOVA analysis did not provide a direct comparison of onsite sample stations against offsite sample stations (control stations). To alleviate these problems an additional two-way ANOVA analysis was performed on all salts for the years 1987 and 1988. This analysis was performed to determine if there was any statistical difference between the mean of the onsite samples and the mean of the offsite (control) samples. In evaluating the data for influence between onsite and offsite, it was determined that there was no statistical difference between the mean of the data collected onsite and the mean of the data collected offsite (control stations).

Based on the above, Entergy Operations - GGNS has concluded that the operation of the GGNS cooling tower does not have a statistically significant effect upon the salt deposition rate for those chemical species evaluated and further believes that the requirement of Section 4.2.2 of the EPP has been met.