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July 24, 1981

Mr. Harold R. Denton  
Director of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555



ULNRC- 472

Dear Mr. Denton:

DOCKET NUMBERS 50-483 AND 50-486  
CALLAWAY PLANT, UNITS 1 & 2  
ENVIRONMENTAL REPORT

Reference: NRC letter dated July 1, 1980, from R. L. Tedesco

The reference letter requested additional information concerning the Callaway Plant Environmental Report. Transmitted herewith are responses to questions in the referenced letter. This information will be formally incorporated into the Callaway Plant Environmental Report in the next revision. This information is hereby incorporated into the Callaway application.

Very truly yours,

*John K. Bryan*  
John K. Bryan

BFH/afg

Enclosure

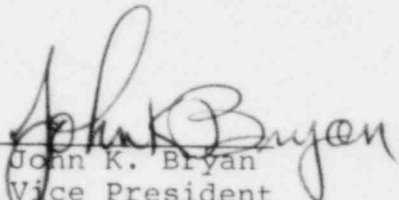
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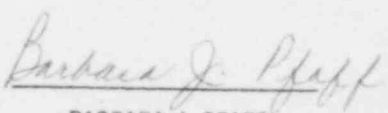
STATE OF MISSOURI )  
 ) S S  
CITY OF ST. LOUIS )

John K. Bryan, of lawful age, being first duly sworn upon oath says that he is Vice President-Nuclear and an officer of Union Electric Company; that he has read the foregoing document and knows the content thereof; that he has executed the same for and on behalf of said company with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By

  
John K. Bryan  
Vice President  
Nuclear

SUBSCRIBED and sworn to before me this 24th day of July, 1981

  
BARBARA J. PFAFF  
NOTARY PUBLIC, STATE OF MISSOURI  
MY COMMISSION EXPIRES APRIL 22, 1985  
ST. LOUIS COUNTY

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bcc: 3456-0021.6

3456-0547.4

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ITEM 291.13C Please show the calculations leading to the estimates of the maximum usage of sulfuric acid for cooling water pH control and to the estimates of the average and maximum amounts of organophosphonates used (Table 3.6-2). The method of calculation given in response to question 291.10, if used, would lead to a number that was different from the estimated maximum amount of sulfuric acid (31,000 lb/day) given in Table 3.6-2. The difference between the average sulfuric acid use for pH control (25,200 lb/day) and the maximum use (31,000 lb/day), as listed in Table 3.6-2, appears to be small when compared with the difference between the average river alkalinity (160 mg/L) and maximum river alkalinity (319 mg/L) listed in Table 3.6-1.

Response (1) The average amount of sulfuric acid used for cooling water pH control was calculated as described in the response to question 291.10 (see Reference 2), using an average make-up water flow rate of 31,120 gpm (2 Units) and average alkalinity of 160 mg  $\text{CaCO}_3$ /liter (to be reduced to 100 mg/L).

The maximum daily usage of  $\text{H}_2\text{SO}_4$  was based on the maximum daily flow rate of 38,300 gpm (2 Units) and the same, average, alkalinity figure. The maximum alkalinity figure of 319 mg  $\text{CaCO}_3$ /liter represents a single sample collected during a limited study. More comprehensive river data, albeit from further downstream, shows the river alkalinity has not been seen as high as 319 and that the alkalinity level variance is less than the 319 would indicate; therefore, the use of the same (160) alkalinity value to calculate the  $\text{H}_2\text{SO}_4$  consumptions at average and maximum flows was considered to be reasonable.

(2) The estimates for the average and maximum amounts of organophosphonates used are based on the flow rates given in (1), above, and a dosage of 5.0 mg/L (vendor's recommendation).

IT.M 291.14C      The numbers for the maximum use of NaOH, H<sub>2</sub>SO<sub>4</sub> and NaCl listed in Table 3.6-2 are not consistent with the maximum amounts of sodium, sulfate and chloride added to the plant discharge as listed in Table 3.6-5, Revision 1. Please explain the discrepancy or provide updated tables that are consistent.

Response            The apparent differences, aside from round-off adjustments, between the maximum amounts of sodium, sulfate, and chloride added to the plant discharge (Table 3.6-5, Rev. 1) and the maximum use of NaOH, H<sub>2</sub>SO<sub>4</sub>, and NaCl (Table 3.6-2) are the amounts of those species recovered from the ion exchange resins upon regeneration. The recovered amounts are estimated to be:

Sodium    -    600 lb/day  
Sulfate    -    816 lb/day  
Chloride   -    160 lb/day

These constituents are removed from the water being treated and are returned to the discharge line as part of the ion exchange regeneration wastes.