



Carolina Power & Light Company

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Office of Nuclear Reactor Regulation
ATTN: Mr. T. A. Ippolito, Chief
Operating Reactors Branch No. 2
United States Nuclear Regulatory Commission
Washington, D.C. 20555



BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-325 AND 50-324
LICENSE NOS. DPR-71 AND DPR-62
APPENDIX B TECHNICAL SPECIFICATIONS - NOBLE GAS RELEASES

Dear Mr. Ippolito:

Introduction

In recent telephone conversations with members of your staff, Carolina Power & Light Company (CP&L) has discussed the present situation relative to Brunswick Steam Electric Plant (BSEP) Unit Nos. 1 and 2 regarding Appendix B Technical Specifications for noble gas releases. This letter is to provide a discussion and assessment of the situation.

Description

Since July, 1981, Brunswick Plant has experienced a higher-than-normal amount of noble gas flow from the plant stack. Brunswick-2 has been identified as the major contributor (about 99%). We believe that there are two primary causes. First, it appears that Brunswick-2 has developed several leaking fuel elements. This unit still has some 7x7 fuel bundles in the core, and based on past experience, we believe that these bundles are the most likely candidates to have developed the leakers. Secondly, high condenser off-gas flow rate reduces delay time which results in stack release of short-lived radionuclides.

Corrective Actions

Brunswick Plant has been engaged in continuing efforts on both units to identify and correct condenser in-leakage problems. This effort will be aggressively continued during the snubber inspection outage which began on October 23, 1981. As the in-leakage problem is corrected, the flow rate of off-gas from the condenser will be reduced, which in turn will increase delay time thus reducing effluent activity.

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We anticipate that the next Brunswick-2 refueling outage will begin in June, 1982. At that time, all remaining 7x7 fuel bundles are scheduled to be discharged from the core so that only the 8x8 fuel types would then reside in the core. However, all leakers (whether 7x7 or 8x8) will be discharged from the core. This replacement will result in significant reduction of off-gas activity.

CP&L is committed to the installation and operability of augmented off-gas (AOG) systems for Brunswick Unit Nos. 1 and 2 by May, 1983 and December, 1983 respectively. Operation of the charcoal adsorbers in these systems will significantly increase delay time thereby reducing off-gas activity. Installation of these AOG systems will provide substantial and permanent improvement in off-gas releases from Brunswick.

Release Summary

The following table provides data for the previous 12 month period. The "%" column is the percentage of the 12 consecutive month limit released during each month; this is data for the gamma equation of Specification 2.5.2.b.1 in Appendix B. The "Release Rate" column is the monthly average release rate of noble gases in Ci/sec.

<u>Month</u>	<u>%</u>	<u>Release Rate (Ci/sec)</u>
October, 1980	1.95	3.415 E-3
November	1.15	1.323 E-3
December	1.03	1.667 E-3
January, 1981	0.92	1.039 E-3
February	2.50	3.753 E-3
March	5.13	6.887 E-3
April	4.32	9.719 E-3
May	0.52	1.526 E-3
June	1.93	4.127 E-3
July	8.78	1.818 E-2
August	14.09	2.259 E-2
September	15.15	2.843 E-2
October (week 1)	3.31	2.108 E-2
October (week 2)	2.38	1.637 E-2

Therefore, as of mid-October, 1981, Brunswick had released 62.7% of its 12 month Technical Specification limit. Using the month of September, 1981 for projections, releases could reach 100% within 8-10 weeks; by June, 1982, releases could reach 170%.

Assessment

The releases during the third quarter of 1981, with Brunswick-2 at about 65% average power level, yield a 3 mrad air dose due to gamma radiation at or beyond the site boundary in the northeast sector which corresponds to the most restrictive atmospheric dispersion factors.

Using data from the third quarter, we have calculated projected doses that should result from full power operation from now through the upcoming refueling. These doses are 4.08 mrad for the fourth quarter of 1981 and 4.14 mrad for each of the first two quarters of 1982. This results in a 15.36 mrad air dose due to gamma radiation per year compared to the 20 mrad numerical design objective of 10CFR50, Appendix I as given in Section 2.5 of Appendix B Technical Specifications. This is also well within 10CFR20 limits and demonstrates the actual conservatism of the Brunswick off-gas release situation. In addition, the projections indicate that no Appendix B Technical Specification limits for other effluents will be exceeded.

Conclusion

Appendix I to 10CFR50 states that a licensee is permitted the operational flexibility to temporarily exceed numerical release guides (as reflected in the Technical Specifications) when unusual operating conditions occur, consistent with considerations of health and safety. Carolina Power & Light Company believes that the continued operation of Brunswick-2 at full power in compliance with Appendix I and within 10CFR20 meets this objective and is justified to assure the public is provided a dependable source of power.

Please advise my staff if you desire any additional information.

Yours very truly,



E. E. Utley
Executive Vice President
Power Supply and
Engineering & Construction

JAM/lr (397-125)

cc: Mr. J. Van Vliet