UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

PROPOSED CHANGES TO TECHNICAL SPECIFICATIONS

RE: DC ELECTRICAL POWER SYSTEM SURVEILLANCE REQUIREMENTS

FOR

CRYSTAL RIVER UNIT NO. 3

DOCKET NO. 50-302

INTRODUCTION

The Florida Power Corporation, by letter dated May 23, 1979, submitted a request for changes to the Technical Specifications with respect to the surveillance requirements of DC electrical power system batteries in the Crystal River Unit 3. The proposed Technical Specification changes are to eliminate the full electrolyte level correction to the specific gravity reading and to lower the specific gravity limit of the Unit 2 battery from 1.200 to 1.195.

EVALUATION

The specific gravity of the battery electrolyte varies with changes in temperature. Likewise the gravity will also vary as the electrolyte level falls and rises with the use and addition of water. To accurately compare specific gravity readings taken at different times and at different temperatures and electrolyte levels, such readings are corrected to the normal reference temperature of 77°F (room temperature) and the normal level (full electrolyte level specified by the manufacturer). Specific gravity readings by the hydrometer vary with temperature and level in the same fully-charged cell. The full electrolyte level correction should be taken into consideration to determine the correct specific gravity. Therefore, the proposed change to eliminate the full electrolyte level correction is not acceptable.

A gradual lowering in the specific gravity of a cell is an indication of insufficient charge. It may occur from several causes such as by an inadequate float voltage. Ordinarily, when the float voltage is correct, the hydrometer reading will remain near the maximum value. IEEE 450-1975, 3.4.(2) requires that "An equalizing charge should be given if the average specific gravity of all cells drops more than 0.010 from the acceptance test (Section 4.1: An acceptance test of battery capacity should be made either at the factory or upon initial installation...)".

IEEE Std. 484-1975, 5.3.1(8) requires that "Any cell that shows a specific gravity (corrected to 77°F (25°C)) less than 1.200 or more than 1.220, or a voltage lower than 0.04 V below the average, requires corrective action in accordance with the manufacturer's instruction". Any lowering of the specific gravity less than 1.200 is not acceptable.

CONCLUSION

Based on our review of FPC's request to eliminate the full electrolyte level correction in Specifications 4.8.2.3.2.a.2 and 4.8.2.3.2.b.2; and to lower the specific gravity of the battery cell from 1.200 to 1.195 in Specification 4.8.1.1.1.c.2.b.), we find these changes unacceptable for the reasons given above.

Dated: December 11, 1980