

SAFETY EVALUATION
TURKEY POINT NUCLEAR PLANT UNITS 3 & 4
CHANGE OF LOW-LOW STEAM GENERATOR
WATER LEVEL REACTOR TRIP SETPOINT
TACS 12535 & 12536

INTRODUCTION

By letter dated August 9, 1979, the licensee (Florida Power and Light Company) proposed changes to the Technical Specifications for the Turkey Point Nuclear Plant, Units 3 and 4. These changes will increase the "low-low steam generator water level" minimum reactor trip setpoint from 5% to 15% of the narrow range instrument scale.

DISCUSSION

High energy line breaks inside containment can result in heatup of the steam generator level measurement reference leg. Increased reference leg water column temperature will result in a decrease of the water column density with a consequent apparent increase in the indicated steam generator water level (i.e., apparent level exceeding actual level). This potential level bias could result in delayed protection signals (reactor trip and auxiliary feedwater initiation) which are based on low-low steam generator water level. In the case of a feedline rupture, this adverse environment could be present and could delay or prevent the primary signal arising from declining steam generator water level (low-low steam generator level). High pressurizer pressure, overtemperature delta T, high containment pressure and safety injection are backup signals to steam generator water level with an adverse containment environment. For other high energy line breaks which could introduce a similar positive bias to the steam generator water level measurement, steam generator level does not provide the primary trip function and the potential bias would not interfere with needed protective system actuation.

EVALUATION

Westinghouse (NSSS vendor for the Turkey Point Nuclear Plant, Units 3 and 4) has advised that the potential temperature-induced bias described above can be compensated for by raising the steam generator low-low water level setpoint. Westinghouse has recommended a change in the allowable water level setpoint sufficient to accommodate the bias (up to 10% of the instrument's range) which could result from containment temperatures up to 280°F. Containment analyses have shown that following a secondary high energy line break, a containment high pressure signal would be generated before the containment temperature reaches 280°F.

To alleviate the error which could result from the temperature effect described above, the licensee has proposed to increase the minimum allowable low-low steam generator water level trip setting from 5% (35.5") to 15% (46.3") of the narrow range (108.09") instrument scale. The low and high level taps are 30.13" and 138.22" respectively. Increasing the setpoint by 10% of the instruments range will ensure that the trip setpoint maintains conservatism and compensates for the potential 10% error.

CONCLUSION

Based on our review of the licensee's submittal, we find the proposed changes to the Technical Specifications for the Turkey Point Nuclear Plant, Units 3 and 4, acceptable.

