

March 8, 2000

Mr. Thomas F. Plunkett  
President - Nuclear Division  
Florida Power and Light Company  
P.O. Box 14000  
Juno Beach, Florida 33408-0420

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING THE POTENTIAL RISK OF THE PROPOSED CIVIL AND GOVERNMENT AIRCRAFT OPERATIONS AT HOMESTEAD AIR FORCE BASE ON THE TURKEY POINT PLANT (TAC NOS. MA6249 AND MA6250)

Dear Mr. Plunkett:

By letter dated November 17, 1999, Florida Power and Light Company's (FPL's) responded to the U. S. Nuclear Regulatory Commission (NRC) staff request regarding the above subject. The NRC staff has reviewed FPL's submittal and has determined that additional information is needed by the staff before it can complete its review. The enclosed request for additional information (RAI) has been discussed with Olga Hanek of your staff. A target date for your response has been agreed upon to be 45 days from your receipt of this RAI. Should a situation occur that prevents you from meeting the target date, please contact me at (301) 415-1496.

Sincerely,

*/RA/*

Kahtan N. Jabbour, Senior Project Manager, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-250 and 50-251

Enclosure: Request for Additional Information

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION  
REGARDING THE POTENTIAL RISK OF THE PROPOSED CIVIL AND GOVERNMENT  
AIRCRAFT OPERATIONS AT HOMESTEAD AIR FORCE BASE ON  
TURKEY POINT UNITS 3 AND 4  
FLORIDA POWER AND LIGHT COMPANY  
DOCKET NOS. 50-250 AND 50-251

1. The attachment to the FPL June 15, 1998 letter response (L-98-152) on aircraft hazards presents the equation

$$f = N * P * A * F$$

as part of the Department of Energy methodology for assessing the risk of aircraft crashes to nuclear power plants. The definition of P is given as “in flight crash rate **per mile** . . . .” In addition, F is defined as “crash probability density over area A,” without any mention of units. If F is dimensionless, then the units of f work-out to be

$$(\text{Flight operation/year}) * (\text{crashes/mile}) * (\text{sq. miles}) * (\text{probability density}).$$

This has the units of

$$\text{Flight operations-crashes-miles/year}$$

which is incompatible with the quantity f, whose units are crashes/year.

The same equation is also presented in FPL’s attachment to June 24, 1994 letter response (L-94-157) on IPEEE results for aircraft. However, some of the definitions appear to be different. Specifically, on page 27, P is defined as “probability of an aircraft crash **per operation.**” With this definition the units for the equation are

$$(\text{Flight operations/year}) * (\text{crashes/flight operations}) * (\text{sq. miles}) * (\text{probability density}).$$

This works-out to have the units

$$\text{Crashes-sq.miles/year}$$

which again is inappropriate for a crash frequency. It appears in this case that if the crash probability density had the units of (1/sq. mile) then the overall crash frequency would have the units of crashes/year.

ENCLOSURE

Please provide a clarification of the units that were used in both analyses with respect to the crash probability and the crash probability density.

2. With respect to the aircraft risk analyses performed for Turkey Point Units 3 & 4, please indicate how the presence of the adjacent fossil unit chimneys was taken into account when calculating the effective target area used in estimating the on-site crash frequency. Indicate the relative effect of the chimneys on the total calculated effective target area.

3. The on-site crash frequency was estimated using parameters that are dependent on aircraft type and flight phase. Specifically, this applies to the parameters N, P, A, and F in the equation

$$f = N * P * A * F .$$

That is, the equation is really of the form

$$f = \sum_i \sum_j N_{ij} P_{ij} A_{ij} F_{ij}$$

where i is the ith type of aircraft and j is the jth flight phase. Please provide a sample of representative values (e.g., for a commercial air carrier and a large military aircraft) that were used in the analyses for each of these parameters. Please indicate the source of the information used to evaluate each parameter.

4. According to the draft SEIS for the proposed disposal of some of the former Homestead Air Force Base, bird strikes can cause aircraft mishaps. Hence, some portion of the overall crash rate for a given aircraft and flight phase may be attributable to bird strikes. To what extent has the possibility of bird strikes been incorporated in the aircraft risk assessment for Turkey Point Units 3 & 4? If the Turkey Point aircraft risk analyses are based on nationally averaged aircraft crash rates, please indicate how representative these rates are of the projected Homestead air operations with respect to the bird strike contribution?

5. The draft SEIS (pp. 2.2-9 to 2.2-11), in discussing the projected air traffic for the proposed Homestead airport conversion, indicates that more than 80% of the traffic is estimated to be in connection with flights from Latin America, the Caribbean, or other international locations. The aircraft crash rates presented in NUREG-0800, SRP 3.5.1.6, are based on data for U.S. Carriers, General Aviation, and military aviation. Hence, the data may not be representative of the air traffic mix being projected for the Homestead airport.

For example, in an item presented by the National Center for Policy Analysis,<sup>\*</sup> reference is made to an 80-page report of the Commercial Aviation Safety Strategy Team in which the U.S. accident rate from 1987 to 1996 is described to be on the average of 0.5 major accidents per million departures, compared to 0.7 for Western Europe, 4.8 for Eastern Europe and the old Soviet Union, 5.7 for Latin America and 13 for Africa. This suggests that the accident rate could be significantly affected by the mix of air traffic that is being projected. Indicate if this has been taken into account in the FPL aircraft analyses to-date and if not, to what extent would this affect the previously estimated aircraft risks for Turkey Point Units 3 & 4.

<sup>\*</sup>(<http://www.ncpa.org/pd/regulat/pdreg/regfeb98e.html>)

Mr. T. F. Plunkett  
Florida Power and Light Company

**TURKEY POINT PLANT**

cc:

M. S. Ross, Attorney  
Florida Power & Light Company  
P.O. Box 14000  
Juno Beach, FL 33408-0420

Attorney General  
Department of Legal Affairs  
The Capitol  
Tallahassee, Florida 32304

Mr. Robert J. Hovey, Site  
Vice President  
Turkey Point Nuclear Plant  
Florida Power and Light Company  
9760 SW. 344th Street  
Florida City, FL 33035

Plant Manager  
Turkey Point Nuclear Plant  
Florida Power and Light Company  
9760 SW. 344th Street  
Florida City, FL 33035

County Manager  
Miami-Dade County  
111 NW 1 Street, 29th Floor  
Miami, Florida 33128

Mr. Steve Franzone  
Licensing Manager  
Turkey Point Nuclear Plant  
9760 SW. 344th Street  
Florida City, FL 33035

Senior Resident Inspector  
Turkey Point Nuclear Plant  
U.S. Nuclear Regulatory Commission  
9762 SW. 344<sup>th</sup> Street  
Florida City, Florida 33035

Mr. John Gianfrancesco  
Manager, Administrative Support  
and Special Projects  
P.O. Box 14000  
Juno Beach, FL 33408-0420

Mr. William A. Passetti, Chief  
Department of Health  
Bureau of Radiation Control  
2020 Capital Circle, SE, Bin #C21  
Tallahassee, Florida 32399-1741

Mr. J.A. Stall  
Vice President - Nuclear Engineering  
Florida Power & Light Company  
P.O. Box 14000  
Juno Beach, FL 33408-0420

Mr. Joe Myers, Director  
Division of Emergency Preparedness  
Department of Community Affairs  
2740 Centerview Drive  
Tallahassee, Florida 32399-2100