UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 26, 2000

Mr. Douglas J. Heady
SAF/GCN
1740 Air Force Pentagon
Washington D.C. 20330-1740

SUBJECT: POTENTIAL RISK ON TURKEY POINT PLANT OF THE PROPOSED CIVIL AND GOVERNMENT AIRCRAFT OPERATIONS AT HOMESTEAD AIR FORCE BASE (TAC NOS. MA8912 AND MA8913)

Dear Mr. Heady:

This acknowledges receipt of your letter dated May 2, 2000, addressed to the U.S. Nuclear Regulatory Commission (NRC) Document Control Desk. Your letter forwarded Mr. Oncavage's comments on the Draft Supplemental Environmental Impact Statement (SEIS), Disposal of Portions of the Former Homestead Air Force Base (HAFB), Florida. Mr. Oncavage believes that some of his comments should be addressed by the NRC because they relate to the above subject. The NRC staff activities regarding the above subject are summarized below.

The NRC staff is currently performing a review of Florida Power and Light Company's (FPL's) submittal, dated November 17, 1999, regarding the impact of a commercial airport at HAFB on the safe operation of Turkey Point. FPL based its analysis on the flight projections provided by the Air Force letter of August 23, 1999, (Heady to NRC Document Control Desk). Our review focuses on the probability of aircraft crashes damaging the safety-related facilities at the Turkey Point Nuclear Plant, Units 3 and 4. For this review, the staff utilizes the guidance provided in the enclosed NRC Standard Review Plan (SRP), Sections 2.2.3 "Evaluation of Potential Accidents," and 3.5.1.6 "Aircraft Hazards." The acceptance criterion stated in SRP Section 2.2.3 is that the probability of initiating events resulting in radiological consequences greater than Title 10, Code of Federal Regulations (10 CFR) Part 100 exposure guidelines is acceptable if it is about 10^{-6}/year and reasonable qualitative arguments can be made to show that the realistic probability estimate is lower (i.e., in the range of about 10^{-7}/year). The acceptance criterion stated in SRP Section 3.5.1.6 is that the probability of aircraft accidents resulting in radiological consequences greater than 10 CFR Part 100 exposure guidelines be less than about 10^{-7}/year.

The NRC staff will document its review of the potential risk to the Turkey Point Plant of the proposed civil and government operations at HAFB in a safety assessment. The staff is targeting the issuance of its assessment by early June.

In addition, your letter of August 23, 1999, stated that, "The SEIS is also examining an alternative to the proposed regional airport which would involve developing a commercial spaceport at former Homestead AFB. Very little is currently known about how spacecraft would operate from the spaceport. . . ." FPL's November 17, 1999, submittal stated that the potential impact of a spaceport at the base would be bounded by the impact associated with a commercial airport. In the absence of specific data and an analysis of potential spacecraft mishaps, the staff can not determine the acceptability of FPL's conclusion. Hence, should the base be used as a commercial spaceport in addition to the military and government operations, the potential impact must be quantified in order to determine the risk for the safe operation of Turkey Point Units 3 and 4. Therefore, the NRC staff is not in a position, at this time, to assess

the potential risk of the proposed spaceport to the Turkey Point Plant. Also, for the same reason, the staff is not in a position to address Mr. Oncavage's comments related to the proposed spaceport.

The NRC staff will address Mr. Oncavage's other comments, as well as the Sierra Club's comments transmitted by a letter dated February 24, 2000, in its forthcoming safety assessment or by separate correspondence.

Emergency preparedness issues, including the evacuation of potentially increasing populations in the Emergency Planning Zone, are being addressed by FPL and the State of Florida in conjunction with Dade County. FPL stated, in its letter of June 15, 1998, that they continue to discuss this matter with local and state authorities in order to ensure that any issues emerging from the commercialization of the base are identified, that the offsite emergency preparedness program to address these issues is adequately evaluated, and that the Federal Emergency Management Agency (FEMA) concur with any changes to the offsite emergency preparedness plan. FEMA is the lead Federal Agency for assessing emergency preparedness around nuclear power plants, and provides its findings to the NRC for the NRC's use in making regulatory decisions concerning plant operation.

Based on the currently available information, the NRC staff believes that the spectrum of potential projects resulting from the disposal of the former HAFB is still under examination and development. As the potential projects become more defined, the NRC staff will continue to assess any aspects related to the safe operation of the Turkey Point Nuclear Plant.

If you have any comments related to this matter, please contact the NRC Project Manager for Turkey Point, Kahtan Jabbour, at (301) 415-1496.

Sincerely,

Richard P. Correia, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-250 and 50-251

Enclosures: As stated

cc w/enclosures: See next page

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

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

Mr. Robert J. Hovey, Site
Vice President
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

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

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

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

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

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

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

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

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

Mr. Mark P. Oncavage
Energy Chair
Sierra Club, Miami Group
12200 SW. 110th Avenue
Miami, Florida 33172

Ms. Barbara J. Lange
Everglades Chair
Sierra Club, Miami Group
P.O. Box 43-0741
South Miami, Florida 33243-0741

Mr. Alan Farago
Conservation Chair
Sierra Club, Miami Group
P.O. Box 43-0741
South Miami, Florida 33243-0741

U.S. NUCLEAR REGULATORY COMMISSION

STANDARD REVIEW PLAN

OFFICE OF NUCLEAR REACTOR REGULATION

2.2.3 EVALUATION OF POTENTIAL ACCIDENTS

REVIEW RESPONSIBILITIES

Primary - Siting Analysis Branch (SAB)

Secondary - None

I. AREAS OF REVIEW

The applicant's identification of potential accident situations in the vicinity of the plant is reviewed to determine the completeness of and the bases upon which these potential accidents were or were not accommodated in the design. (See Standard Review Plan Sections 2.2.1 and 2.2.2.)

With respect to potential offsite accidents which could affect control room habitability (e.g., toxic gases, asphyxiants), those accidents which are to be accommodated on a design basis, as determined within SRP Section 2.2.3 review, will be addressed by the Accident Evaluation Branch (AEB) within SRP Section 6.4 review, in accordance with TMI-Related Requirement III.D.3.4 of NUREG-0694.

The applicant's probability analyses of potential accidents involving hazardous materials or activities in the vicinity of the plant, if such analyses have been performed, are also reviewed by the Applied Statistics Branch (ASB/MPA) on request by SAB to determine that appropriate data and analytical models have been utilized.

The analyses of the consequences of accidents involving nearby industrial, military, and transportation facilities which have been identified as design basis events are reviewed.

II. ACCEPTANCE CRITERIA

SAB acceptance criteria are based on meeting the relevant requirements of 10 CFR Part 100, §100.10 (Ref. 1) as it relates to the factors to be considered in the evaluation of sites, which indicates that reactors should reflect through their design, construction, and operation an extremely low probability for accidents that

USNRC STANDARD REVIEW PLAN

Standard review plans are prepared for the guidance of the Office of Nuclear Reactor Regulation staff responsible for the review of applications to construct and operate nuclear power plants. These documents are made available to the public as part of the Commission's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Standard review plans are not substitutes for regulatory guides or the Commission's regulations and compliance with them is not required. The standard review plan sections are keyed to the Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants. Not all sections of the Standard Format have a corresponding review plan.

Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

Comments and suggestions for improvement will be considered and should be sent to the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Washington, D.C. 20555.

could result in the release of significant quantities of radioactive fission products. In addition, 10 CFR Part 100, §100.10 indicates that the site location, in conjunction with other considerations, should insure a low risk of public exposure.

Specific criteria necessary to meet the relevant requirements of 10 CFR Part 100, §100.10 are described in the following paragraphs.

Offsite hazards which have the potential for causing onsite accidents leading to the release of significant quantities of radioactive fission products, and thus pose an undue risk of public exposure, should have a sufficiently low probability of occurrence and be within the scope of the low probability of occurrence criterion of 10 CFR Part 100, §100.10. Specific guidance with respect to offsite hazards is provided in Chapter 2, Section 2.2.3 of Regulatory Guide (RG) 1.70 (Ref. 2). As indicated therein, the identification of design basis events resulting from the presence of hazardous materials or activities in the vicinity of the plant is acceptable if the design basis events include each postulated type of accident for which the expected rate of occurrence of potential exposures in excess of the 10 CFR Part 100 guidelines is estimated to exceed the NRC staff objective of approximately 10^{-7} per year. Because of the difficulty of assigning accurate numerical values to the expected rate of unprecedented potential hazards generally considered in this SRP section, judgment must be used as to the acceptability of the overall risk presented.

The probability of occurrence of the initiating events leading to potential consequences in excess of 10 CFR Part 100 exposure guidelines should be estimated using assumptions that are as representative of the specific site as is practicable. In addition, because of the low probabilities of the events under consideration, data are often not available to permit accurate calculation of probabilities. Accordingly, the expected rate of occurrence of potential exposures in excess of the 10 CFR Part 100 guidelines of approximately 10^{-6} per year is acceptable if, when combined with reasonable qualitative arguments, the realistic probability can be shown to be lower.

The effects of design basis events have been adequately considered if analyses of the effects of those accidents on the safety-related features of the plant have been performed and measures have been taken (e.g., hardening, fire protection) to mitigate the consequences of such events.

III. REVIEW PROCEDURES

In some cases it may be necessary to consult with or obtain specific data from other branches, such as the Structural Engineering Branch (SEB) or Auxiliary Systems Branch (ASB), regarding possible effects of external events on plant structures or components.

The applicant's probability calculations are reviewed, and an independent probability analysis is performed by the staff if the potential hazard is considered significant enough to affect the licensability of the site or is important to the identification of design basis events.

All stochastic variables that affect the occurrence or severity of the postulated event are identified, and judged to be either independent or conditioned by other variables.

Probabilistic models should be tested, where possible, against all available information. If the model or any portion of it, by simple extension, can be used to predict an observable accident rate, this test should be performed.

The design parameters (e.g., overpressure) and physical phenomena (e.g., gas concentration) selected by the applicant for each design basis event are reviewed to ascertain that the values are comparable to the values used in previous analyses and found to be acceptable by the staff.

Each design basis event is reviewed to determine that the effects of the event on the safety features of the plant have been adequately accommodated in the design.

If accidents involving release of smoke, flammable or nonflammable gases, or toxic chemical bearing clouds are considered to be design basis events, an evaluation of the effects of these accidents on control room habitability should be made in SAR Section 6.4 and on the operation of diesels and other safety-related equipment in SAR Chapter 9.

Special attention should be given to the review of standardized designs which propose criteria involving individual numerical probability criteria for individual classes of external man-made hazards. In such instances the reviewer should establish that the envelope also includes an overall criterion that limits the aggregate probability of exceeding design criteria associated with all of the identified external man-made hazards. Similarly, special attention should be given to the review of a site where several man-made hazards are identified, but none of which, individually, has a probability exceeding the acceptance criteria stated herein. The objective of this special review should be to assure that the aggregate probability of an outcome that may lead to unacceptable plant damage meets the acceptance criteria of subsection II of this SRP section. (A hypothetical example is a situation where the probability of shock wave overpressure greater than design overpressure is about 10^{-7} per reactor year from accidents at a nearby industrial facility, and approximately equal probabilities of exceeding design pressure from railway accidents, highway accidents and from shipping accidents. Individually each may be judged acceptably low; the aggregate probability may be judged sufficiently great that additional design features are warranted.)

IV. EVALUATION FINDINGS

If the reviewer, after a review of the offsite hazards identified in SRP Section 2.2.1-2.2.2 and evaluated in the above SRP section, concludes that the probability of exceeding the 10 CFR Part 100 dose guidelines due to offsite hazards is within the acceptance criteria given in subsection II of this SRP section, then the staff concludes that the site location insures a low risk of exposure, in compliance with 10 CFR Part 100, §100.10. A conclusion of the following type may be prepared for the Staff's Safety Evaluation Report.

> The staff concludes that the site location is acceptable and meets the relevant requirements of 10 CFR Part 100. This conclusion is based on the following. The applicant has identified potential accidents related to the presence of hazardous materials or activities in the site vicinity which could affect the plant, and from these the applicant has selected those which should be considered as design basis events and has provided analyses of the effects of

these accidents on the safety-related features of the plant. From the analyses, the applicant has demonstrated that the plant is adequately protected and can be operated with an acceptable degree of safety with regard to potential accidents which may occur as the result of the presence of hazardous materials or activities at nearby industrial, military, and transportation facilities.

V. IMPLEMENTATION

The following provides guidance to applicants and licensees regarding the NRC staff's plan for using this SRP section.

Except in those cases in which the applicant proposes an acceptable alternate method for complying with specified portions of the Commission's regulations, the method described herein will be used by the staff in its evaluation of conformance with Commission regulations.

V. REFERENCES

1. 10 CFR Part 100, "Reactor Site Criteria," Section 100.10.

2. Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants."

3. Affidavit of Jacques B. J. Read before the Atomic Safety and Licensing Board in the matter of Skagit Nuclear Power Project, Units 1 and 2, July 15, 1976. Docket Nos. STN 50-522, 523.

4. Atomic Safety and Licensing Board, Supplemental Initial Decision in the Matter of Hope Creek Generating Station, Units 1 and 2, March 28, 1977. Docket Nos. 50-354, 355.

5. Section 2, Supplement 2 to the Floating Nuclear Plant Safety Evaluation Report, Docket No. STN 50-437, September 1976.

U.S. NUCLEAR REGULATORY COMMISSION

STANDARD REVIEW PLAN

OFFICE OF NUCLEAR REACTOR REGULATION

3.5.1.6 AIRCRAFT HAZARDS

REVIEW RESPONSIBILITIES

Primary - Siting Analysis Branch (SAB)

Secondary - None

I. AREAS OF REVIEW

The staff reviews the applicant's assessment of aircraft hazards. The purpose of the review is to assure that the risks due to aircraft hazards are sufficiently low. Probabilistic considerations may be used to demonstrate that aircraft hazards need not be a design basis concern. Otherwise, design basis aircraft identification is made and the applicant's plant design is evaluated to assure that it is protected against the potential effects of aircraft impacts and fires.

The SAB reviews the applicant's assessment of aircraft hazards to the plant and determines whether or not they should be incorporated into the plant design basis. If the aircraft hazards are incorporated into the plant design basis, the SAB identifies and describes the design basis aircraft in terms of aircraft weight, speed, and other appropriate characteristics.

On request by SAB, the following branches with primary review responsibility will review specific aspects of aircraft hazards:

1. The Structural Engineering Branch (SEB), in the area of missile effects (SRP Section 3.5.3), with respect to aircraft impacts,

2. The Chemical Engineering Branch (CMEB), in the area of fire protection (SRP Section 9.5.1), with respect to aircraft fires, and

3. The Auxiliary Systems Branch (ASB), in the area of structures, systems, and components (SSC) important to safety (SRP Section 3.5.2), with respect to protection requirements against aircraft crashes.

USNRC STANDARD REVIEW PLAN

Standard review plans are prepared for the guidance of the Office of Nuclear Reactor Regulation staff responsible for the review of applications to construct and operate nuclear power plants. These documents are made available to the public as part of the Commission's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Standard review plans are not substitutes for regulatory guides or the Commission's regulations and compliance with them is not required. The standard review plan sections are keyed to the Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants. Not all sections of the Standard Format have a corresponding review plan.

Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

Comments and suggestions for improvement will be considered and should be sent to the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Washington, D.C. 20555.

4. For those areas of review identified above as being part of the primary responsibility of other branches, the acceptance criteria necessary for the review and the methods of their application are contained in the referenced SRP sections of the corresponding primary branches.

5. The Applied Statistics Branch (ASB/MPA) will provide technical review support with respect to aircraft accident statisics.

II. ACCEPTANCE CRITERIA

SAB acceptance criteria are based on meeting the relevant requirements of one of the following sets of regulations:

1. 10 CFR Part 100, §100.10 as it relates to indicating that the site location, in conjunction with other considerations (such as plant design, construction, and operation), should insure a low risk of public exposure. This requirement is met if the probability of aircraft accidents resulting in radiological consequences greater than 10 CFR Part 100 exposure guidelines is less than about 10^{-7} per year (see SRP Section 2.2.3). The probability is considered to be less than about 10^{-7} per year by inspection if the distances from the plant meet all the requirements listed below:

   (a) The plant-to-airport distance D is between 5 and 10 statute miles, and the projected annual number of operations is less than 500 D^2, or the plant-to-airport distance D is greater than 10 statute miles, and the projected annual number of operations is less than 1000 D^2,

   (b) The plant is at least 5 statute miles from the edge of military training routes, including low-level training routes, except for those associated with a usage greater than 1000 flights per year, or where activities (such as practice bombing) may create an unusual stress situation,

   (c) The plant is at least 2 statute miles beyond the nearest edge of a federal airway, holding pattern, or approach pattern.

If the above proximity criteria are not met, or if sufficiently hazardous military activities are identified (see item b above), a detailed review of aircraft hazards must be performed. Aircraft accidents which could lead to radiological consequences in excess of the exposure guidelines of 10 CFR Part 100 with a probability of occurrence greater than about 10^{-7} per year should be considered in the design of the plant. If the results of the review do not support a finding that the risk due to aircraft activities is acceptably low, then the design basis acceptance criteria outlined in Item II.2 below applies.

2. General Design Criterion (GDC) 4 of 10 CFR Part 50 (Ref. 13), Appendix A, requires that structures, systems, and components (SSC) important to safety be appropriately protected against the effects of missiles that may result from events and conditions outside the nuclear power unit. GDC 3 of 10 CFR Part 50, Appendix A, requires that SSC important to safety be appropriately protected against the effects of fires. The plant meets the relevant requirements of GDC 3 and GDC 4, and is considered appropriately protected against design basis aircraft impacts (Ref. 6) and fires (Ref. 3) if the SSC important to safety are capable of withstanding the effects of the

postulated aircraft impacts and fires without loss of safe shutdown capability, and without causing a release of radioactivity which would exceed 10 CFR Part 100 dose guidelines.

The safety-related SSC to be considered with respect to the above acceptance criteria include those described in the Appendix to Regulatory Guide 1.117, "Structures, Systems, and Components of Light-Water-Cooled Reactors to be Protected Against Tornadoes." Other safety-related SSC, which may not be included in Regulatory Guide 1.117, will be considered on a case-by-case basis in accordance with the acceptance criteria of the appropriate branches having primary responsibility for their protection.

III. REVIEW PROCEDURES

The reviewer selects and emphasizes aspects of the areas covered by this SRP section as may be appropriate for a particular case. The judgment on areas to be given attention and emphasis in the review is based on a inspection of the material presented to see whether it is similar to that recently reviewed on other plants and whether items of special safety significant are involved.

The staff's review of the aircraft hazard assessment consists of the following steps:

1. Aviation Uses. Data desribing aviation uses in the airspace near the proposed site, including airports and and their approach paths, federal airways, Federal Aviation Administration (FAA) restricted areas, and military uses is obtained from Section 2.2.1-2.2.2 of the SAR. For many cases, no detailed analysis need be made as the probability can be judged adequately low based on a comparison with analyses previously performed (Refs. 5, 7, 8, 9 and 10). In general, civilian and military maps should be examined to verify that all aviation facilities of interest have been considered. In the process, the reviewer should develop an independent assessment of the aircraft hazards. Communications with agencies responsible for aircraft operations and the evaluation of aircraft operational data may be utilized.

2. Airways. For situations where federal airways or aviation corridors pass through the vicinity of the site, the probability per year of an aircraft crashing into the plant (P_{FA}) should be estimated. This probability will depend on a number of factors such as the altitude and frequency of the flights, the width of the corridor, and the corresponding distribution of past accidents.

   One way of calculating P_{FA} is by using the following expression:

   $$P_{FA} = C \times N \times A/w$$

   where:

   C = inflight crash rate per mile for aircraft using airway,

   w = width of airway (plus twice the distance from the airway edge to the site when the site is outside the airway) in miles,

N = number of flights per year along the airway, and

A = effective area of plant in square miles.

This gives a conservative upper bound on aircraft impact probability if care is taken in using values for the individual factors that are meaningful and conservative. For commercial aircraft a value of $C = 4 \times 10^{-10}$ (Ref. 11) per aircraft mile has been used. For heavily traveled corridors (greater than 100 flights per day), a more detailed analysis may be required to obtain a proper value for this factor.

3. Civilian and Military Airports and Heli-Ports (Refs. 2, 4, and 14). The probability of an aircraft crashing into the site should be estimated for cases where one or more of the conditions in Item II.1 of the Acceptance Criteria are not met.

The probability per year of an aircraft crashing into the site for these cases (P_A) may be calculated by using the following expression:

$$P_A = \sum_{i=1}^{L} \sum_{j=1}^{M} C_j N_{ij} A_j$$

where:

M = number of different types of aircraft using the airport,
L = number of flight trajectories affecting the site,
C_j = probability per square mile of a crash per aircraft movement, for the jth aircraft,
N_{ij} = number (per year) of movements by the jth aircraft along the ith flight path, and
A_j = effective plant area (in square miles) for the jth aircraft.

The manner of interpreting the individual factors in the above equation may vary on a case-by-case basis because of the specific conditions of each case or because of changes in aircraft accident statistics.

Values for C_j currently being used are taken from the data summarized in the following table:

Distance From End of Runway (miles)	Probability ($\times 10^8$) of a Fatal Crash per Square Mile per Aircraft Movement			
	U.S. Air Carrier[1]	General Aviation[2]	USN/USMC[1]	USAF[1]
0-1	16.7	84	8.3	5.7
1-2	4.0	15	1.1	2.3
2-3	0.96	6.2	0.33	1.1
3-4	0.68	3.8	0.31	0.42
4-5	0.27	1.2	0.20	0.40
5-6	0	NA[3]	NA	NA
6-7	0	NA	NA	NA
7-8	0	NA	NA	NA
8-9	0.14	NA	NA	NA
9-10	0.12	NA	NA	NA

[1]Reference 2.
[2]Reference 4.
[3]NA indicates that data was not available for this distance.

4. Designated Airspaces. For designated airspaces involving military or civilian usage, a detailed quantitative modeling of all operations should be verified. The results of the model should be the total probability (C) of an aircraft crash per unit area and time in the vicinity of the proposed site.

   The probability per year of a potentially damaging crash at the site due to operations at the facility under consideration (P_M) is then given for this case by the following expression:

   $$P_M = C \times A$$

   where:

   C = total probability of an aircraft crash per square mile per year in the vicinity of the site due to the airports being considered, and

   A = effective area of one unit of the plant in square miles.

   Where estimated risks due to military aircraft activity are found to be unacceptably high, suitable airspace or airway relocation should be implemented. Past experience has been that military authorities have been responsive to modification of military operations and relocation of training routes in close proximity to nuclear power plant sites. (Ref. 12)

5. Holding Patterns. Holding patterns are race track shaped courses at specified altitudes, associated with one or more radio-navigational facilities, where aircraft can "circle" while awaiting clearance to execute an approach to a landing at an airport or to continue along an airway. Holding patterns which are sufficiently distant from the plant need not be considered (See subsection II above). Otherwise, traffic in the holding pattern should be converted into equivalent aircraft passages taking into account the characteristics, including orientation with respect to the plant, of the holding pattern. The information in Item III.2 above should be used in this evaluation.

6. The total aircraft hazard probability at the site equals the sum of the individual probabilities obtained in the preceding steps.

7. The effective plant areas used in the calculations should include the following:

   a. A shadow area of the plant elevation upon the horizontal plane based on the assumed crash angle for the different kinds of aircraft and failure modes.

   b. A skid area around the plant as determined by the characteristics of the aircraft under consideration. Artificial berms or any other man-made and natural barriers should be taken into account in calculating this area.

   c. The areas of those safety-related SSC which are susceptible to impact or fire damage as a result of aircraft crashes.

IV. EVALUATION FINDINGS

The reviewer drafts an introductory paragraph for the evaluation findings describing the procedure used in evaluating the aircraft hazards with respect to the safety-related SSC. The reviewer verifies that the site location is acceptable and meets the requirements of 10 CFR Part 100, §100.10.

The basis for the above findings may be strictly in terms of the probabilities associated with potential aircraft crashes onsite. If the aircraft crash statistics applicable to the onsite facilities are such that SRP Section 2.2.3 criteria are met without explicit consideration of plant design features, then conclusions of the following type should be included in the staff's safety evaluation report:

> The staff concludes that the operation of the _____ plant in the vicinity of _____ does not present an undue risk to the health and safety of the public and meets the relevant requirements of 10 CFR Part 100, §100.10. This conclusion is based on the staff's independent verification of the applicant's assessment of aircraft hazards at the site that resulted in a probability less than about 10^{-7} per year for an accident having radiological consequences worse than the exposure guidelines of 10 CFR Part 100.
>
> In addition, plant sites reviewed in the past which had equivalent aircraft traffic in equal or closer proximity were, after careful examination, found to present no undue risk to the safe operation of those plants. Based upon this experience, in the staff's judgment, no undue risk is present from aircraft hazard at the plant site now under consideration.

In the event that the staff evaluation of the aircraft hazards does not support the above basis, i.e., if SRP Section 2.2.3 criteria are not met, then the basis for acceptance is derived from applying GDC 3 and GDC 4 criteria. If the protection against aircraft impacts and fires is such that the plant safety-related SSC meet GDC 3 and GDC 4 criteria, then 10 CFR Part 100 requirements are considered to be met and conclusion of the following type may be included in the staff's safety evaluation report:

> The staff concludes that the operation of the _____ plant in the vicinity of _____ does not present an undue risk to the health and safety of the public due to aircraft hazards and meets the relevant requirements of General Design Criteria 3 and 4. This conclusion is based on the staff having independently verified the applicant's assessment of aircraft hazards, including aircraft fires and impacts, at the site and that if the appropriate safety-related structures, systems, and components are designed to withstand the aircraft selected as the design basis aircraft, the probability of an aircraft strike causing radiological consequences in excess of the exposure guidelines of 10 CFR Part 100 is less than about 10^{-7} per year.

V. IMPLEMENTATION

The following is intended to provide guidance to applicants and licensees regarding the NRC staff's plans for using this SRP section.

Except in those cases in which the applicant proposes an acceptable alternative method for complying with specified portions of the Commission's regulations, and method described herein will be used by the staff in its evaluation of conformance with Commission regulations.

Implementation schedules for conformance to parts of the method discussed herein are contained in the referenced regulatory guides and NUREG.

VI. REFERENCES

1. 10 CFR Part 100, "Reactor Site Criteria."

2. D. G. Eisenhut, "Reactor Siting in the Vicinity of Airfields." Paper presented at the American Nuclear Society Annual Meeting, June 1973.

3. I. I. Pinkel, "Appraisal of Fire Effects from Aircraft Crash at Zion Power Reactor Facility," July 17, 1972 (Docket No. 50-295).

4. D. G. Eisenhut, "Testimony on Zion/Waukegan Airport Interaction" (Docket No. 50-295).

5. USAEC Regulatory Staff, "Safety Evaluation Report," Appendix A, "Probability of an Aircraft Crash at the Shoreham Site" (Docket No. 50-322).

6. "Addendum to the Safety Evaluation by the Division of Reactor Licensing, USAEC, in the Matter of Metropolitan Edison Company (Three Mile Island Nuclear Station Unit 1, Dauphin County, Pennsylvania)," April 26, 1968 (Docket No. 50-289).

7. Letter to Honorable J. R. Schlesinger from S. H. Bush, Chairman, Advisory Committe on Reactor Safeguards, "Report on Rome Point Nuclear Generating Station," November 18, 1971 (Project No. 455).

8. Letter to Mr. Joseph L. Williams, Portland General Electric Company, from R. C DeYoung (in reference to Mr. Williams' letter of May 7, 1973), November 23, 1973 (Project No. 485).

9. "Aircraft Considerations-Preapplication Site Review by the Directorate of Liensing, USAEC, in the Matter of Portland General Electric Company, Boardman Nuclear Plant, Boardman, Oregon," October 12, 1973 (Project No. 485).

10. Letter to Mr. J. H. Campbell, Consumers Power Company, from Col. James M. Campbell, Dep. Chief, Strategic Division, Directorate of Operations, U.S. Air Force, May 19, 1971 (Docket No. 50-155).

11. H. E. P. Krug, "Testimony on Aircraft Operations in Response to a Question from the Board" (Docket Nos. 50-275 and 50-323).

12. Letter to Mr. J. H. Campbell, Consumers Power Company, from Col. James M. Campbell, Dep. Chief, Strategic Division, Directorate of Operations, U.S. Air Force, May 19, 1971 (Docket No. 50-155).

13. 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities."

14. NUREG-0533, "Aircraft Impact Risk Assessment Data Base for Assessment of Fixed Wing Air Carrier Impact Risk in the Vicinity of Airports."

the potential risk of the proposed spaceport to the Turkey Point Plant. Also, for the same reason the staff is not in a position to address Mr. Oncavage's comments related to the proposed spaceport.

The NRC staff will address Mr. Oncavage's other comments, as well as the Sierra Club's comments transmitted by a letter dated February 24, 2000, in its forthcoming safety assessment or by separate correspondence.

Emergency preparedness issues, including the evacuation of potentially increasing populations in the Emergency Planning Zone, are being addressed by FPL and the State of Florida in conjunction with Dade County. FPL stated, in its letter of June 15, 1998, that they continue to discuss this matter with local and state authorities in order to ensure that any issues emerging from the commercialization of the base are identified, that the offsite emergency preparedness program to address these issues is adequately evaluated, and to that the Federal Emergency Management Agency (FEMA) concur with any changes to the offsite emergency preparedness plan. FEMA is the lead Federal Agency for assessing emergency preparedness around nuclear power plants, and provides its findings to the NRC for the NRC's use in making regulatory decisions concerning plant operation.

Based on the currently available information, the NRC staff believes that the spectrum of potential projects resulting from the disposal of the former HAFB is still under examination and development. As the potential projects become more defined, the NRC staff will continue to assess any aspects related to the safe operation of the Turkey Point Nuclear Plant.

If you have any comments related to this matter, please contact the NRC Project Manager for Turkey Point, Kahtan Jabbour, at (301) 415-1496.

Sincerely,
/RA/
Richard P. Correia, Chief, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-250 and 50-251

Enclosures: As stated

cc w/enclosures: See next page

DISTRIBUTION:

HBerkow (RidsNrrDlpmLpdii)	PUBLIC	PDII-2 Reading
KJabbour (RidsNrrPmKJabbour)	RCorreia (RidsNrrDlpmLpdii2)	BClayton (Hardcopy)
LWert, RII (RidsRgn2MailCenter)	OGC (RidsOgcRp)	ACRS (RidsAcrsAcnwMailCenter)
	RBarrett (RidsNrrDssaSpsb)	GTracy (RidsNrrDipmLolb)

DOCUMENT NAME: G:\PDII-2\Turkey\Heady.wpd *See previous concurrence

OFFICE	PDII-2\PM	PDII-2\LA	SPSB\BC*	IOLB\BC*	OGC*
NAME	KJabbour KNJ	BClayton BAC	RBarrett JAH for	GTracy	HMcGurren
DATE	05/ /00	05/ /00	05/18/00	05/23/00	05/23/00

OFFICE	PDII-2\SC*	PDII\D			
NAME	RCorreia	HBerkow			
DATE	05/24/00	05/ /00	05/ /0	05/ /0	05/ /0

OFFICIAL RECORD COPY