

SAFETY EVALUATION
TURKEY POINT PLANT, UNIT NOS. 3 AND 4
CONFORMANCE TO REGULATORY GUIDE 1.97

INTRODUCTION AND SUMMARY

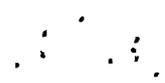
The Florida Power and Light Company was requested by Generic Letter 82-33 to provide a report to the NRC describing how the post-accident monitoring instrumentation meets the guidelines of Regulatory Guide 1.97 as applied to emergency response facilities. The licensee responded to Section 6.2 of the generic letter on January 26, 1984. Additional information was provided by letter dated May 10, 1985.

A detailed review and technical evaluation of the licensee's submittals was performed by EG&G Idaho, Inc., under contract to the NRC, with general supervision by the NRC staff. This work was reported by EG&G in the Technical Evaluation Report (TER), "Conformance to Regulatory Guide 1.97, Turkey Point Plant, Unit Nos. 3 and 4," dated June 1985 (attached). We have reviewed this report and concur with the conclusion that the licensee either conforms to, or is justified in deviating from, the guidance of Regulatory Guide 1.97 for each post-accident monitoring variable except for the variable plant and environs radiation.

EVALUATION CRITERIA

Subsequent to the issuance of the generic letter, the NRC held regional meetings in February and March 1983 to answer licensee and applicant questions and concerns regarding the NRC policy on Regulatory Guide 1.97. At these meetings, it was noted that the NRC review would only address exceptions taken to the

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guidance of Regulatory Guide 1.97. Further, where licensees or applicants explicitly state that instrument systems conform to the provisions of the regulatory guide, it was noted that no further staff review would be necessary. Therefore, the review performed and reported by EG&G only addresses exceptions to the guidance of Regulatory Guide 1.97. This Safety Evaluation addresses the licensee's submittals based on the review policy described in the NRC regional meetings and the conclusions of the review as reported by EG&G.

EVALUATION

We have reviewed the evaluation performed by our consultant contained in the enclosed TER and concur with its bases and findings. The licensee either conforms to, or has provided an acceptable justification for any deviations from the guidance of Regulatory Guide 1.97 for each post-accident monitoring variable except for the variable plant and environs radiation.

Regulatory Guide 1.97 recommends that the instrumentation provided for the variable plant and environs radiation have a range of 10^{-3} to 10^4 R/hr photons and 10^{-3} to 10^4 rads/hr beta radiation and low energy photons. The licensee identified in their May 10, 1985 submittal instrumentation with a range of 0 to 50 R/hr for this variable.

On February 27, 1986 the licensee submitted new information identifying the EBERLINE TELETECTUR (Models 6112B and 6112D) instruments with a range of 10^{-3} R/hr to 10^3 R/hr and EBERLINE (Model RO-2A) with a range of 10^{-3} rads/hr to 150 rads/hr. The licensee considers this instrumentation to be adequate to meet R.G. 1.97 purpose of determining the magnitude of release of radioactive materials and in assessing such releases. They also stated that their operators would not be placed in a position that would require higher ranges than those available. The staff has reviewed this information and finds the additional instrumentation in conformance with the guidelines of R.G. 1.97.

CONCLUSION

Based on the staff's review of the enclosed Technical Evaluation Report, and the licensee's submittals, we find that the Turkey Point Plant, Unit Nos. 3 and 4, design is acceptable with respect to conformance to the guidelines of Regulatory Guide 1.97, Revision 3.

CONFORMANCE TO REGULATORY GUIDE 1.97
TURKEY POINT PLANT, UNIT NOS. 3 AND 4

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ABSTRACT

This EG&G Idaho, Inc., report reviews the submittals for Regulatory Guide 1.97 for Unit Nos. 3 and 4 of the Turkey Point Plant and identifies areas of nonconformance to the regulatory guide. Exceptions to Regulatory Guide 1.97 are evaluated and those areas where sufficient basis for acceptability is not provided are identified.

FOREWORD

This report is supplied as part of the "Program for Evaluating Licensee/Applicant Conformance to R.G. 1.97," being conducted for the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Division of Systems Integration, by EG&G Idaho, Inc., NRC Licensing Support Section.

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CONFORMANCE TO REGULATORY GUIDE 1.97
TURKEY POINT PLANT, UNIT NOS. 3 AND 4

1. INTRODUCTION

On December 17, 1982, Generic Letter No. 82-33 (Reference 1) was issued by D. G. Eisenhut, Director of the Division of Licensing, Nuclear Reactor Regulation, to all licensees of operating reactors, applicants for operating licenses and holders of construction permits. This letter included additional clarification regarding Regulatory Guide 1.97, Revision 2 (Reference 2), relating to the requirements for emergency response capability. These requirements have been published as Supplement No. 1 to NUREG-0737, "TMI Action Plan Requirements" (Reference 3).

Florida Power and Light Company, the licensee for the Turkey Point Plant, Unit Nos. 3 and 4, provided a response to the Regulatory Guide 1.97 portion of the generic letter on January 26, 1984 (Reference 4). Additional information was provided on May 10, 1985 (Reference 5).

This report provides an evaluation of these submittals.



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necessary. Therefore, this report only addresses exceptions to Regulatory Guide 1.97. The following evaluation is an audit of the licensee's submittals based on the review policy described in the NRC regional meetings.

3.3 Exceptions to Regulatory Guide 1.97

The licensee identified deviations and exceptions from Regulatory Guide 1.97. These are discussed in the following paragraphs.

3.3.1 Containment Isolation Valve Position

From the information provided, we find the licensee deviates from a strict interpretation of the Category 1 redundancy recommendations. Only the active valves have position indication (i.e., check valves have no position indication). Since redundant isolation valves are provided, we find that redundant indication per valve is not intended by the regulatory guide. Position indication of check valves is specifically excluded by Table 3 of Regulatory Guide 1.97. Therefore, we find that the instrumentation for this variable is acceptable.

3.3.2 Radioactivity Concentration or Radiation Level in Circulating Primary Coolant

The licensee will utilize the analysis of grab samples from the reactor coolant system for this variable.

Based on the alternate instrumentation provided by the licensee, we conclude that the instrumentation supplied for this variable is adequate, and therefore, acceptable.

3.3.3 Residual Heat Removal (RHR) Heat Exchanger Outlet Temperature

Regulatory Guide 1.97 recommends an instrument range of 40 to 350°F for this variable. The range provided is 50 to 400°F. The licensee states that intake cooling water (sea water) cools the component cooling water (CCW) which cools the residual heat removal (RHR) heat exchanger. Since the licensee's historical data shows that the intake canal water temperature has never fallen below 57°F, the RHR heat exchanger outlet temperature is not expected to fall below 57°F.

The range covers the anticipated requirements for normal operation, anticipated operational occurrences and accident conditions. This range relates to the tank's rupture disk and the 100 psi tank design pressure that limits the temperature of the tank contents to saturated steam conditions under 350°F. Thus, we find that this deviation from the recommendation of the regulatory guide is acceptable.

3.3.6 Containment Spray Flow

The licensee has not provided instrumentation to directly monitor this variable. The justification submitted by the licensee for this exception is that 1) there is another independent system that performs the same function and 2) the system operation is monitored by the containment spray actuation signal, the indication of pump starting and by valve position indication. Operation of the emergency containment coolers is monitored by temperature elements at the inlet and outlet of the containment coolers. The licensee states that the containment spray system and the emergency containment coolers are redundant and that either system can independently maintain containment pressure and temperature below design limits during a large break loss of coolant accident with a single failure.

The alternate instrumentation provided by the licensee is adequate to monitor this variable. Therefore, we find this deviation acceptable.

3.3.7 Containment Atmosphere Temperature

Regulatory Guide 1.97 recommends a range of 40 to 400°F for this variable. The licensee has provided instrumentation with a range of 0 to 300°F. The justification submitted by the licensee for this deviation is that the maximum containment temperature is 275°F.



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3.3.10 Plant and Environs Radiation (portable instrumentation)

Regulatory Guide 1.97 recommends a range for this variable of 10^{-3} to 10^4 R/hr, photons and 10^{-3} to 10^4 rads/hr, beta radiation and low-energy photons. The licensee has provided a range of 0 to 50 R/hr and submitted no justification for the deviation.

The licensee should justify the existing range or provide instruments that will read the range recommended by the regulatory guide.

3.3.11 Estimation of Atmospheric Stability

Regulatory Guide 1.97 recommends a temperature range of -9 to $+18^{\circ}\text{F}$ for this variable. The licensee has provided instrumentation with a range of -5 to $+5^{\circ}\text{F}$. The licensee states that temperatures for determining atmospheric stability are taken at elevations of 10 and 60 meters. Atmospheric stability classifications are normally categorized by the temperature change per 100 meters of elevation. With a 50 meter change in elevation for the Turkey Point meteorological tower, an adequate instrument range for determining atmospheric stability would be -1.71 to 3.6°F .

Table 1 of Regulatory Guide 1.23 (Reference 7) provides seven atmospheric stability classifications based on the difference in temperature per 100 meters elevation change. These classifications range from extremely unstable to extremely stable. Any temperature difference greater than $+4^{\circ}\text{C}$ or less than -2°C does nothing to the stability classification. The licensee's instrumentation includes this range based on an elevation change of 50 meters. Therefore, we find that this instrumentation is acceptable to determine the atmospheric stability.

3.3.12 Accident Sampling (Primary Coolant, Containment Air and Sump)

The licensee takes exception to the recommendation for sampling and analysis of the following parameters:



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4. CONCLUSIONS

Based on our review, we find that the licensee either conforms to or is justified in deviating from Regulatory Guide 1.97, with the following exception:

1. Plant and environs radiation (portable instrumentation)--the licensee should provide instruments with the recommended range for this variable or justify use of the existing range (Section 3.3.10).



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BIBLIOGRAPHIC DATA SHEET

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SEE INSTRUCTIONS ON THE REVERSE

2 TITLE AND SUBTITLE

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13. ABSTRACT (200 words or less)

This EG&G Idaho, Inc., report reviews the submittals for the Turkey Point Plant, Unit Nos. 3 and 4, and identifies areas of nonconformance to Regulatory Guide 1.97. Exceptions to these guidelines are evaluated and those areas where sufficient basis for acceptability is not provided are identified.

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