



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

Enclosure

SUPPLEMENTAL SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REGARDING CONFORMANCE TO REGULATORY GUIDE 1.97, REVISION 2

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION UNIT NO. 1

DOCKET NO. 50-220

1.0 INTRODUCTION

By letter dated November 14, 1991, the NRC staff issued a Supplemental Safety Evaluation (SSE) with attached Technical Evaluation Report (TER), EGG-NTA-9191 dated September 1991, to Niagara Mohawk Power Corporation (NMPC or licensee) regarding conformance of the Nine Mile Point Unit No. 1 (NMP-1) design to Regulatory Guide (RG) 1.97, Revision 2. We found the licensee's design acceptable with the exception of the instrumentation associated with post-accident neutron flux monitoring. By letter dated June 1, 1992, NMPC identified statements in the TER which may represent areas of misunderstanding regarding the conformance of NMP-1 with RG 1.97, Revision 2.

We have reviewed the licensee's submittal and are providing the following clarification to our previous SSE regarding NMP-1's conformance to RG 1.97, Revision 2. This SSE does not include an evaluation of the post-accident neutron flux monitoring system since it will be the subject of future correspondence.

2.0 EVALUATION

We have reviewed the licensee's June 1, 1992, submittal and have concluded that NMP-1 either conforms to, or NMPC has adequately justified deviations from the guidance of RG 1.97, Revision 2, as discussed below for:

a) adherence to RG 1.97, Revision 2, and future instrument upgrades; b) Type A variables; c) redundancy and separation; d) channel isolation; e) suppression pool water level; and f) secondary containment area radiation.

a) Adherence to RG 1.97, Revision 2, and future instrument upgrades

Generic Letter No. 82-33 (NUREG-0737, Supplement No. 1) requires licensees and applicants to document how they meet the recommendations of RG 1.97, Revision 2. The generic letter also requests licensees and applicants to explicitly show deviations from the guidance in RG 1.97, Revision 2, and to present supporting justification or alternatives. NMPC identified instrumentation modified to meet the regulatory guide, and identified exceptions and deviations from the regulatory guide.

9303230305 930317  
PDR ADDCK 05000220  
P PDR



The licensee has stated that RG 1.97, Revision 2, was not part of the licensing basis for the plant, nor was full adherence to RG 1.97, Revision 2, and its referenced guides and criteria a commitment. RG 1.97, Revision 2, has not been part of the licensing basis and the licensee believes that full compliance is not necessary to assure safe operation of the plant.

The licensee is committed to documented plant-specific RG 1.97, Revision 2, commitments, and to safe operation of NMP-1 as determined by the Design Basis Analysis and the Emergency Operating Procedures (EOPs) plant-specific basis documents for instrumentation needed to assess plant and environmental conditions during and following an accident.

The licensee has not made a commitment to meet RG 1.97, Revision 2, for future post-accident instrumentation modifications. However, the licensee has described design criteria documentation to be used for future modifications. The design basis procedures have been revised to include a RG 1.97, Revision 2, review to assure that current plant-specific commitments to RG 1.97, Revision 2, will continue to be met. The licensee has stated that it is not possible or practical to attempt full compliance with RG 1.97, Revision 2, for all modifications to instrumentation. The design of future modifications will be determined and implemented using design and licensing basis requirements, Design Basis Accident and EOP analysis results and associated bases, and existing specific commitments pertaining to RG 1.97, Revision 2.

Although, the licensee has not made an explicit commitment to conformance to RG 1.97, Revision 2, we find the licensee's commitments as stated above to be a good faith attempt (as defined in NUREG-0737, Supplement No. 1, Section 3.7) to meet the NRC requirements, and is, therefore, acceptable.

b) Type A variables

RG 1.97, Revision 2, does not specifically identify Type A variables, i.e., those variables that provide the information required to permit the operator to take specific manual actions. The licensee stated that there were no Type A variables. However, the licensee defined and described "EOP key parameters." We concluded that the definition of EOP key parameters is inclusive of the definition of Type A variables. We also concluded that the EOP key parameters with the exceptions the licensee identified, either meet or will be upgraded to meet the Category 1 recommendations consistent with the requirements for Type A variables.

The licensee stated that, other than through existing plant-specific commitments, RG 1.97, Revision 2, is not considered to be part of the design basis or licensing basis. Therefore, the degree to which instrumentation meets or will be upgraded to the level of the Category 1 recommendations is a function of plant-specific commitments and programs. Where the recommendations of RG 1.97, Revision 2, are consistent with:



12

13

14

1) previous commitments; 2) the design and licensing basis; and 3) the design basis accident analysis and EOP basis, these recommendations have been incorporated. The licensee also stated that when RG 1.97, Revision 2, recommendations exceed these three criteria, compliance is not required.

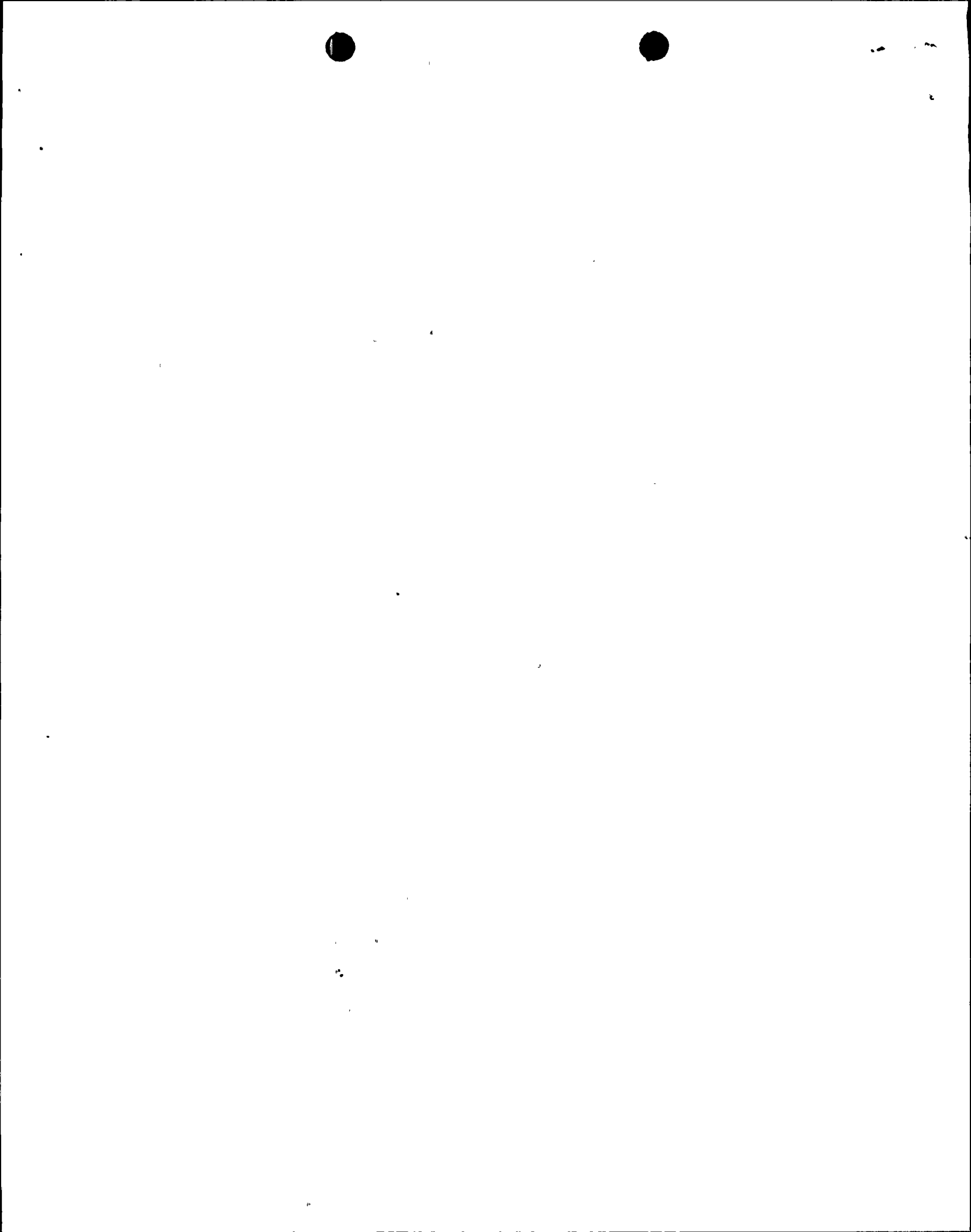
It is the staff's position that if a Type A variable does not meet the Category 1 criteria of RG 1.97, Revision 2, licensees should provide detailed information of any and all deviations from these criteria. Therefore, unless deviations are documented by the licensee and accepted by the NRC, Type A variables are considered to either meet the Category 1 criteria, or commitments have been made to meet the Category 1 criteria.

Deviations from the Category 1 criteria that were identified by the licensee were discussed in the individual instrumentation sections in Section 3.3 of the TER. Therefore, based on the information provided by the licensee and the accepted deviations, the EOP key parameters are acceptable as the basis for meeting the RG 1.97, Revision 2, criteria.

c) Redundancy and separation

RG 1.97, Revision 2, recommends that redundant or diverse channels should be electrically independent and physically separated from each other and from equipment not classified important to safety in accordance with RG 1.75 to protect against potential single failures. The licensee's instrumentation design predates the issuance of RG 1.75 separation criteria and therefore, not all Category 1 channels have complete physical separation. However, based on the information provided by the licensee, we found the licensee's redundancy and separation Design Criteria Document acceptable.

The licensee questioned why the NRC approved exceptions for fuel zone reactor pressure vessel (RPV) water level and wide range RPV water level were not acknowledged in the TER discussion of redundancy and separation. In response, we note that where a specific deviation from the RG 1.97, Revision 2, criteria has been identified by the licensee, it is discussed in the individual instrumentation section (Section 3.3) of the TER. This deviation was not repeated in the TER general section (Section 3.3.40) on redundancy and separation. The TER general section on redundancy and separation concerns general deviations that are not identified for specific instrumentation. This general section on redundancy and separation is not intended to supersede TER Section 3.3.4 (RPV water level) or any other specific instrumentation section. TER Section 3.3.40 is intended to address instrumentation not specifically discussed in other sections. Therefore, the fuel zone RPV water level and wide range RPV water level deviations as presented by the licensee are acceptable.



d) Channel isolation

RG 1.97, Revision 2, recommends the use of qualified isolation devices whenever Category 1 and Category 2 instrumentation interfaces with instrumentation or control circuits that have less stringent design criteria. We found the isolation methods provided by the licensee acceptable.

The licensee also identified interfaces that do not have qualified isolation devices and provided documentation on the isolation methods used for these circuits. We have also accepted the licensee's isolation methods for these circuits.

e) Suppression pool water level

RG 1.97, Revision 2, recommends Category 1 suppression pool water level instrumentation with a range from the bottom of the emergency core cooling system suction line to 5 feet above the normal water level. The licensee's July 31, 1989, submittal stated that the range of this instrumentation is 1.25 feet to 14.75 feet. We accepted this range. The licensee's October 29, 1990, submittal commits to revising the range of this instrumentation to 1.0 foot to 30.0 feet. This new range is acceptable.

f) Secondary containment area radiation

RG 1.97, Revision 2, recommends Category 2 secondary containment area radiation instrumentation. The licensee listed various radiation monitoring instruments with deviations that we accepted, including reactor building ventilation system isolation, and the emergency ventilation actuation when the exposure rate exceeds  $2 \times 10^{-2}$  R/hour.

The licensee stated in the June 1, 1992, letter that the setpoint at which the reactor building ventilation system isolates and emergency ventilation system actuates is  $5 \times 10^{-2}$  R/hour. This change in the setpoint for reactor building ventilation system isolation and emergency ventilation system actuation is acceptable.

3.0 CONCLUSION

Based on the NRC staff's review of the licensee's June 1, 1992, submittal, we find the Nine Mile Point Unit No. 1 design acceptable with respect to conformance to RG 1.97, Revision 2, except for the instrumentation associated with post-accident neutron flux monitoring. Evaluation of post-accident neutron flux monitoring instrumentation is not included in this SSE and will be the subject of future correspondence.

Principal Contributor:  
B. Marcus

Date:

