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RECIP.NAME RECIPIENT AFFILIATION
EISENHUT,D.G. Division of Licensing

SUBJECT: Forwards addl responses to 801231 submittals re instrumentation for inadequate core cooling detection & shift technical advisor.Util will install instrumentation to monitor water level from core bottom to over normal level.

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NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

February 9, 1981

Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Eisenhut:

Re: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

Our letter of December 31, 1980 provided information in response to NUREG 0737. Attachment 1 to this letter provides the design information for Item II.F.2 titled Instrumentation for Detection of Inadequate Core Cooling. Due to an oversight on our part, this information was not included in our previously mentioned December 31, 1980 submittal.

Attachment 2 provides a revised Page 1 to our December 31, 1980 response to NUREG 0737 which corrects a typographical error in TMI Action Plan Item I.A.1.1 titled Shift Technical Advisor. The revision is denoted by a line in the right margin.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION

Thomas E. Lempges

Thomas E. Lempges
Vice President Nuclear Generation

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ATTACHMENT 1

TMI ACTION PLAN ITEM NO. II.F.2

INSTRUMENTATION FOR DETECTION

OF INADEQUATE CORE COOLING

NRC POSITION

Licensees shall provide a description of any additional instrumentation or controls (primary or backup) proposed for the plant to supplement existing instrumentation (including primary coolant saturation monitors) in order to provide an unambiguous, easy-to-interpret indication of inadequate core cooling (ICC). A description of the functional design requirements for the system shall also be included. A description of the procedures to be used with the proposed equipment, the analysis used in developing these procedures, and a schedule for installing the equipment shall be provided.

RESPONSE

Niagara Mohawk intends to install instrumentation to monitor the water level over the range from below the bottom of the core to above the maximum normal reactor water level. It is intended to install this instrumentation during the spring 1981 refueling outage but in any case, it will be complete before January 1, 1982. No additional instrumentation or analysis is required.

The instrumentation to be added at Nine Mile Point Unit 1 will consist of redundant Rosemount Model 1153 DA5 differential pressure transmitters. The differential pressure transmitters will be installed on the lower core plate differential pressure taps to monitor the vessel water level from below the core to approximately elevation 306'. This range will include the bottom of active fuel at elevation 278'-2 5/16" to above the maximum normal reactor water level at elevation 304'-3". As shown in Figure 1, the new differential pressure transmitters will be tied into the existing low low low water level instrumentation. When the water level is above the low low low water level elevation, the water level indication signal will be provided by the existing differential pressure transmitter. If the water level drops below the low low low water level elevation, or if the core spray system is running, the water level indication system will automatically switch to the signal provided by the new differential pressure transmitter.

Rosemount Model 1153 GA9 pressure transmitters and thermocouples are also being installed to correct the indicated water level for reactor vessel pressure, drywell sensing line temperature and reactor building sensing line temperature. The signals from these instruments will be input to the microprocessor as shown in Figure 2 to electronically correct the water level signal.

RESPONSE (Continued)

The differential pressure transmitters, pressure transmitters, thermocouples and instrument cable were procured in accordance with the quality assurance requirements of Appendix B to 10CFR50 for safety related equipment. In addition, the differential pressure transmitters, pressure transmitters and thermocouples were specified to meet the requirements of IEEE 323-1971 and 344-1971 and will be installed to meet the separation criteria of IEEE 384-1977. The instrument cable was specified to meet the requirements of IEEE 383-1974. Since the microprocessor will be located in the auxiliary control room with the indication system located in the control room, in accordance with NUREG 0737 clarification (8) for this item they may be non-class 1E equipment.

The instrumentation system will be supplied with a source of emergency power from separate channels of the Reactor Protection System. The instrumentation will perform an indication function only and it will be tied into the process computer to provide information in the Technical Support Center. Relay isolation will be provided between all contact closure inputs and outputs in the cabinet where the microprocessor will be located.

Since the water level indication system being installed does not provide an accurate water level indication when the recirculation pumps are running, it will be on but will provide an upscale indication when the recirculation pumps are running. In this way the operators will have an indication that the system is operational. The water level indication system will automatically initiate when the recirculation pumps are tripped. The recirculation pumps are tripped automatically on low low reactor water level which is approximately thirty-five inches above the low low low water level elevation (the lowest water level the current instrumentation is capable of monitoring). Annunciation will also be provided to indicate when conditions in the instrument lines are such that flashing, which could lead to erroneous indication, may be occurring.

Existing equipment such as raceways, connection boxes, terminal boards, instrument racks, cabinets, panels and piping peviously purchased for "safety related" systems will be used without modification.

The guidelines for use of the additional instrumentation and the analyses used to develop these guidelines were submitted by the BWR Owners Group in accordance with TMI Action Plan Item No. I.C.1 Guidance for the Evaluation and Development of Procedures for Transients and Accidents.

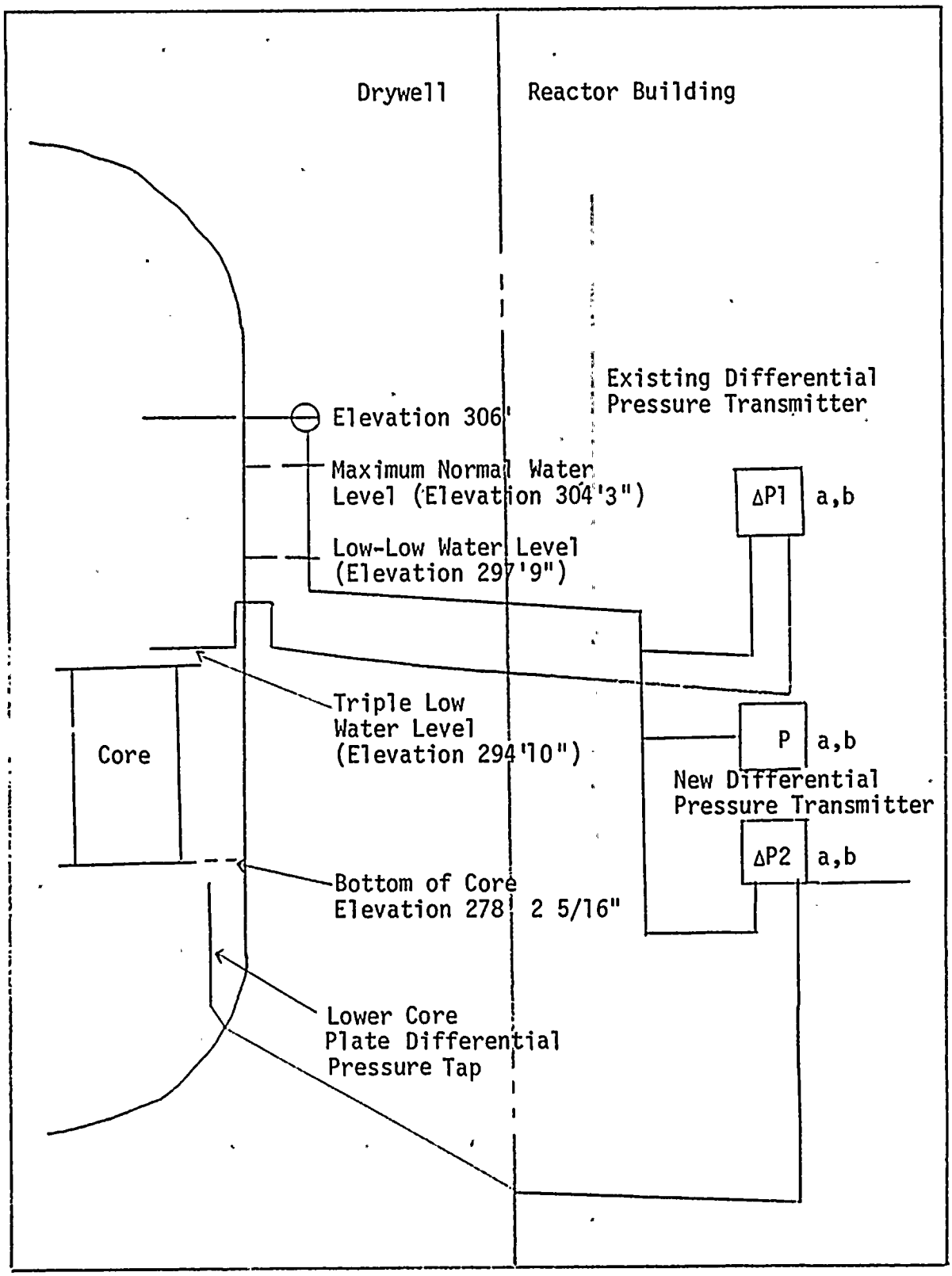

Figure 1

PIPING DIAGRAM OF PRESSURE TRANSMITTERS

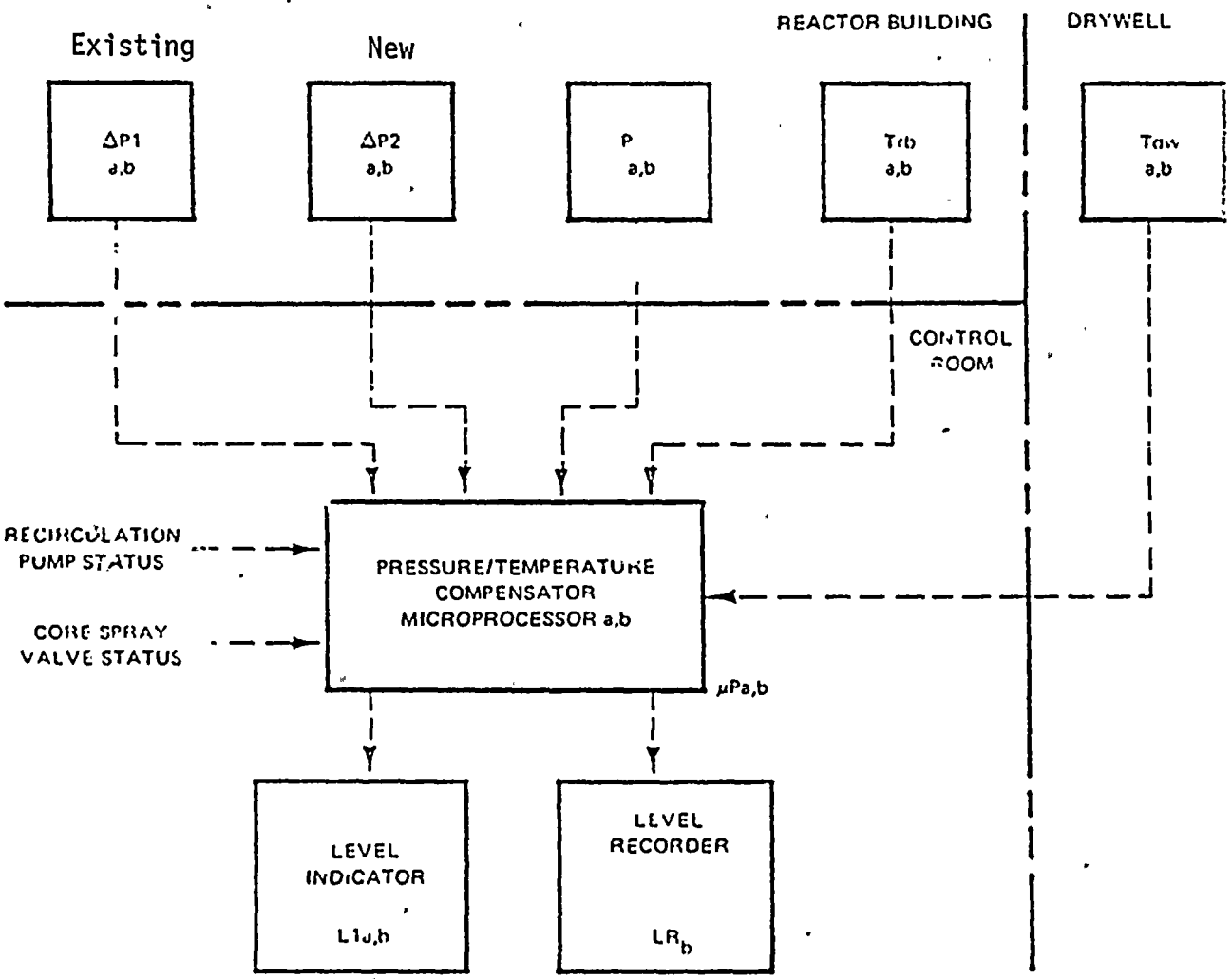

Figure 2 Fuel Level Instrumentation

ATTACHMENT 2

TMI ACTION PLAN ITEM NO. I.A.1.1

SHIFT TECHNICAL ADVISOR

NRC POSITION

Each licensee shall provide an on-shift technical advisor to the shift supervisor. The shift technical advisor (STA) may serve more than one unit at a multiunit site if qualified to perform the advisor function for the various units.

The STA shall have a bachelor's degree or equivalent in a scientific or engineering discipline and have received specific training in the response and analysis of the plant for transients and accidents. The STA shall also receive training in plant design and layout, including the capabilities of instrumentation and controls in the control room. The licensee shall assign normal duties to the STAs that pertain to the engineering aspects of assuring safe operations of the plant, including the review and evaluation of operating experience.

RESPONSE

Since January 7, 1980, an Assistant Shift Supervisor (Shift Technical Advisor) has been added to the normal Control Room shift composition to be an on-shift technical advisor to the shift supervisor. The Assistant Shift Supervisors have a bachelor's degree or equivalent in a scientific or engineering discipline. The operations experience assessment function is performed by special meetings of the Site Operations Review Committee which are held at least once every two months. These meetings are attended by the Assistant Station Shift Supervisor as available.

Training which meets the lessons learned required has been completed (i.e. training in the response and analysis of the plant for transients and accidents and in the plant design and layout, including the capabilities of instrumentation and controls in the control room).

Attachment 1 included at the end of this report provides a description of the current training program for the Nine Mile Point Unit 1 Shift Technical Advisors and the long term training requirements. Also included is a comparison of our training program to the draft INPO document entitled "Nuclear Power Plant Shift Technical Advisor - Recommendations for Position Description, Qualifications, Education and Training".