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FURNISHING INFO RE APPLICANT'S CONSTRUCTION MODIFICATIONS TO THE PRESSURE SHIELDING STEEL DIAPHRAGM IN THE TURBINE BLDG.

PLANT NAME: RE GINNA -- UNIT 1

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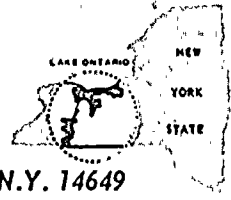
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LEON D. WHITE, JR.
VICE PRESIDENT

TELEPHONE
AREA CODE 716 546-2700

August 25, 1978

Director of Nuclear Reactor Regulation
Attention: Mr. D. L. Ziemann, Chief
Operating Reactors Branch #2
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Pressure Shielding Steel Diaphragm
in Turbine Building
R. E. Ginna Nuclear Power Plant, Unit No. 1
Docket No. 50-244

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REGISTRATION
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Dear Mr. Ziemann:

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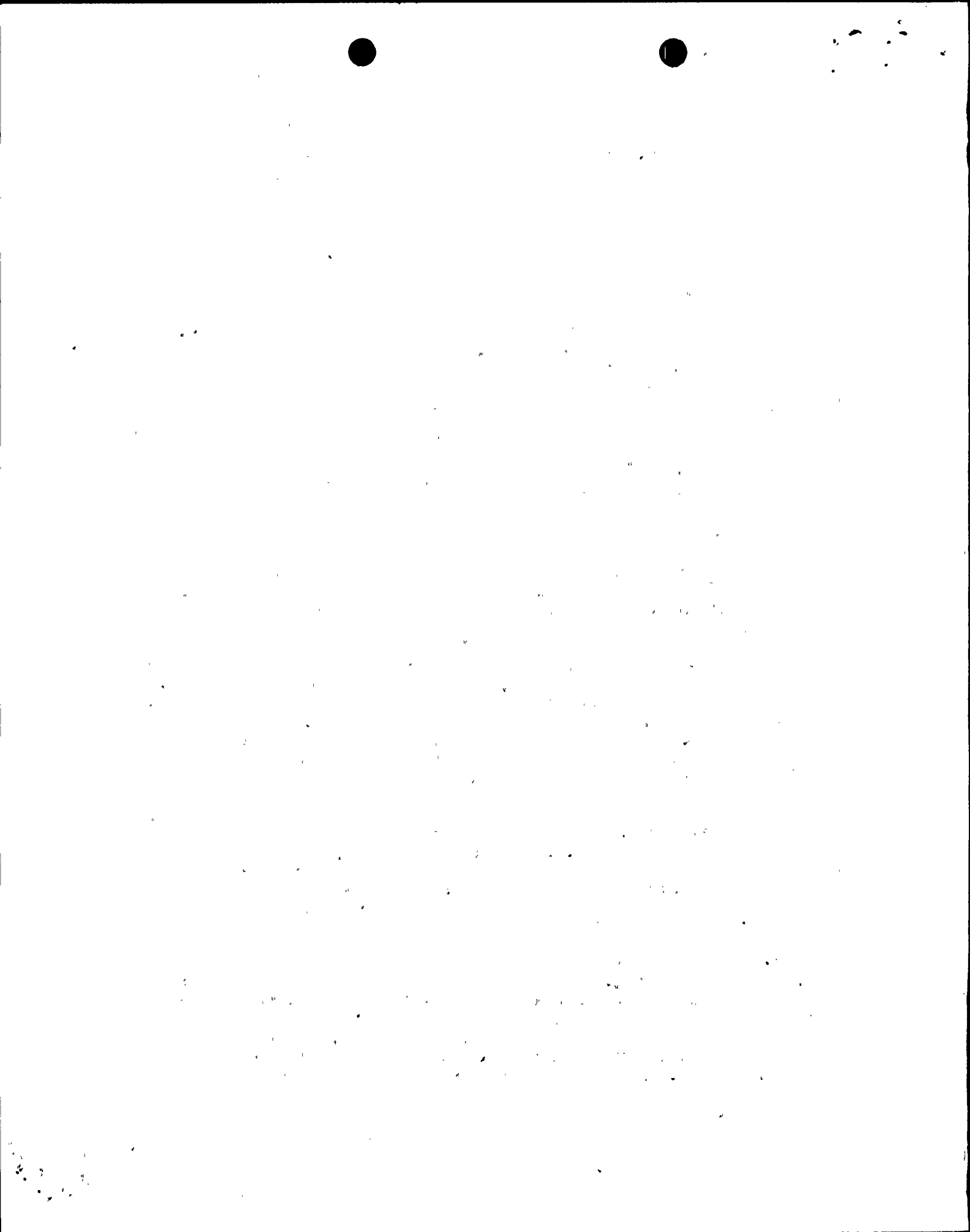
RG&E is presently constructing additional barriers between the control building and the turbine building and between the diesel generator annexes and the turbine building at Ginna Station. These barriers are described in the Design Criteria submitted with our letter of February 6, 1978 and are intended to fulfill the requirements of 10CFR Section 73.55 (c)(6); to provide protection against postulated pipe breaks and subsequent pressurization of the turbine building; and to provide protection against postulated fires in the turbine building. The purpose of this letter is to summarize the design goals of the modification, to provide additional information requested by members of the NRC Staff, and to specify approvals that we request from the NRC.

Several modifications are in progress to bring the control room into conformance with the requirements of 10CFR Section 73.55 (c)(6). The modification described by the Design Criteria submitted February 6, 1978 will satisfy the requirement for the control room-turbine building wall and the door in that wall. We request that the NRC approve installation of this wall and door as meeting the requirements of 10CFR 73.55(c)(6).

The proposed modification also incorporates fire protection modifications. The existing walls between the control building and the turbine building were found to provide adequate separation except at the operating level in our Fire Evaluation Report, submitted by letter of February 24, 1977. The existing separation between the diesel generator annex and the turbine building was also found to be adequate in our Fire Evaluation Report. As described in our letter of February 6, 1978, we now propose to provide fire protection for the operating level of the control

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Approved
5/10
ADD
R. A. CLARK



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TO Mr. D. L. Ziemann, Chief

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building by use of a water curtain instead of a rated wall. In the Safety Evaluation prepared by the Staff in response to this letter we request that the Staff approve the present fire barriers between the turbine building and the control building (except the operating level) and between the turbine building and the diesel generator annex as providing acceptable fire protection. We suggest that approval of protection for the operating level be addressed with the Staff's fire protection evaluation.

In a letter dated April 24, 1974, the Staff requested that we address the consequences of high energy lines in the turbine building, particularly effects of a break on the control room. Certain breaks in the larger steam and feedwater piping in the turbine building are included in the Augmented Inservice Inspection Program which was approved by the NRC in Amendment No. 7, issued May 14, 1975. Thus, these breaks need not be considered as a design basis for this modification. Smaller breaks, however, must be considered and are bounded by postulated full diameter breaks in the 20" feedwater piping and in the 12" main steam piping or postulated crack breaks in the 36" main steam line. The pressure analysis reflected in the Design Criteria takes credit for failure of the exterior metal siding and of a section of masonry wall on the south turbine building wall between column lines 10 and 11 between elevations 274' and 304'4".

In discussions with members of the NRC Staff, a request was made for additional information on how the structural evaluation for this modification was being performed. The design is being performed in the following manner.

The diaphragm, consisting of steel beams spanning horizontally between the existing turbine building columns and covered with a vertically spanning steel skin of corrugated metal was designed for the maximum pressure load due to a pipe rupture, modified by the collapse of certain areas of block wall and siding, in addition to, simultaneously, the loading in both the vertical and horizontal directions due to a seismic event.

The seismic design ground response spectra that was used is in accordance with Regulatory Guide 1.60 (Rev. 1 Dec. 1973).

The damping values that were used are in conformance with Regulatory Guide 1.61 (Oct. 1973) for a bolted steel structure, 4% being used for the OBE and 7% for the SSE.

The results thus obtained gave a peak acceleration for OBE of 0.28g and 0.55g for SSE. These results were then multiplied by a factor of 1.5 in accordance with Standard Review Plan Section 3.7.2 "Seismic System Analysis" Subsection II Paragraph 1.b(3).

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This paragraph allows the use of an equivalent static load on the structure rather than the determination of the natural frequencies of the structure and a dynamic analysis thereof. The resultant factored loads were then applied statically to the structure, both horizontally and vertically, and designed for as a simultaneous loading condition.

The section of the existing turbine room structure between the control building and the diesel generator annex was checked for the same seismic criteria as stated above plus a 125 lb./sq. ft. live load on both the operating floor and the mezzanine floor plus the pipe break pressure load and the dead load.

Load combinations were used as for a Category 1 steel structure using elastic working stress design methods in conformance with Section 3.8.4 of the USNRC Standard Review Plan.

The resulting stresses indicate the turbine room-control room-diesel generator area, will withstand, with some very minor connection reinforcing modifications, the imposition of all the above noted loading conditions. The effects of the pressure transient on the remaining portions of the turbine hall will be addressed in conjunction with an analysis of the consequences of crack breaks in high and moderate energy piping in the turbine building area currently being performed. At this time we request approval for our proposed turbine building modifications in the vicinity of the control building and the diesel generator annex.

Construction for these modifications has already begun. The steel plate designed to comply with the requirements of 10 CFR Section 73.55(c)(6) has been installed and structural steel to support the pressure barrier has been erected. Installation of the pressure barrier and connection reinforcement modification are being held pending approval of this modification.

If there are further questions, please do not hesitate to contact us as we are anxious to complete construction on this modification and resolve this issue.

Very truly yours,

Lee S. Lang
for

L. D. White, Jr.