VERMONT YANKEE
NUCLEAR POWER CORPORATION

RD 5, Box 169, Ferry Road, Brattleboro, VT 05301

REPLY TO:
ENGINEERING OFFICE
1671 WORCESTER ROAD
FRAMINGHAM, MASSACHUSETTS 01701
TELEPHONE 617-872-8100

December 6, 1984
FVY 84-144

United States Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Office of Nuclear Reactor Regulation
Mr. D. G. Eisenhut, Director
Division of Licensing

References: (a) License No. DPR-28 (Docket No. 50-271)
(b) Generic Letter No. 84-23, USNRC to All BWR Licensees of Operating Reactors, NVY 84-231, dated October 26, 1984

Subject: Reactor Vessel Water Level Instrumentation (Generic Letter No. 84-23)

Dear Sir:

Pursuant to Generic Letter No. 84-23 ([Reference (b)], Vermont Yankee Nuclear Power Corporation herein provides a response to the request for information concerning the above subject matter. Vermont Yankee has performed a detailed engineering analysis of the Vermont Yankee Reactor Water Level (RWL) Measurement System with respect to the potential improvement categories presented in Reference (b). Our analysis focused on the following areas:

1. Errors in water level indication due to changes in water density in the reference leg when drywell temperature varies from the value assumed during level instrument calibration;

2. Transient oscillations and subsequent erroneous indication of water level, including instruments reading off-scale and various spurious trips due to flashing of the reference leg water when vessel pressure drops below reference leg water saturation pressure;

3. Possible failure of water level instruments to give needed signals for starting emergency core cooling injection if there should be a reference leg rupture coincident with a malfunction in one of several level transmitters (such a malfunction might be the result of a pre-existing condition); and,

4. Improvements that could be made to the existing water level instrumentation, procedures, and the emergency systems to assure adequate core cooling under any conceivable condition that could cause reference leg flashing, regardless of the effectiveness upgrades designed to avoid flashing.

A001
1/1

Figures 1 and 2 provide a general layout of Vermont Yankee's water level instruments.

Our analysis identified several potential improvement options to Vermont Yankee's water level measurement and instrumentation system, and the capability of the operator to enhance his awareness of the onset of flashing and take appropriate actions to assure adequate core cooling in emergency situations. These options are currently under evaluation and include replacing the existing Yarway temperature compensated reference column with a cold reference leg and/or modifying procedures to reduce the potential for operator confusion in the unlikely scenario that results in reference leg flashing.

Vermont Yankee's plans for determining what course of action to take is dependent upon completion of our ongoing evaluation of the options identified. Vermont Yankee intends to complete this evaluation on or before April 1985. At that time, we will provide the Commission with a detailed description of our plans and our proposed schedule.

The second improvement category noted in Reference (b) which concerns mechanical level indication equipment does not apply to Vermont Yankee as all the mechanical devices associated with Vermont Yankee reactor vessel water level indication have been previously replaced with analog level transmitters.

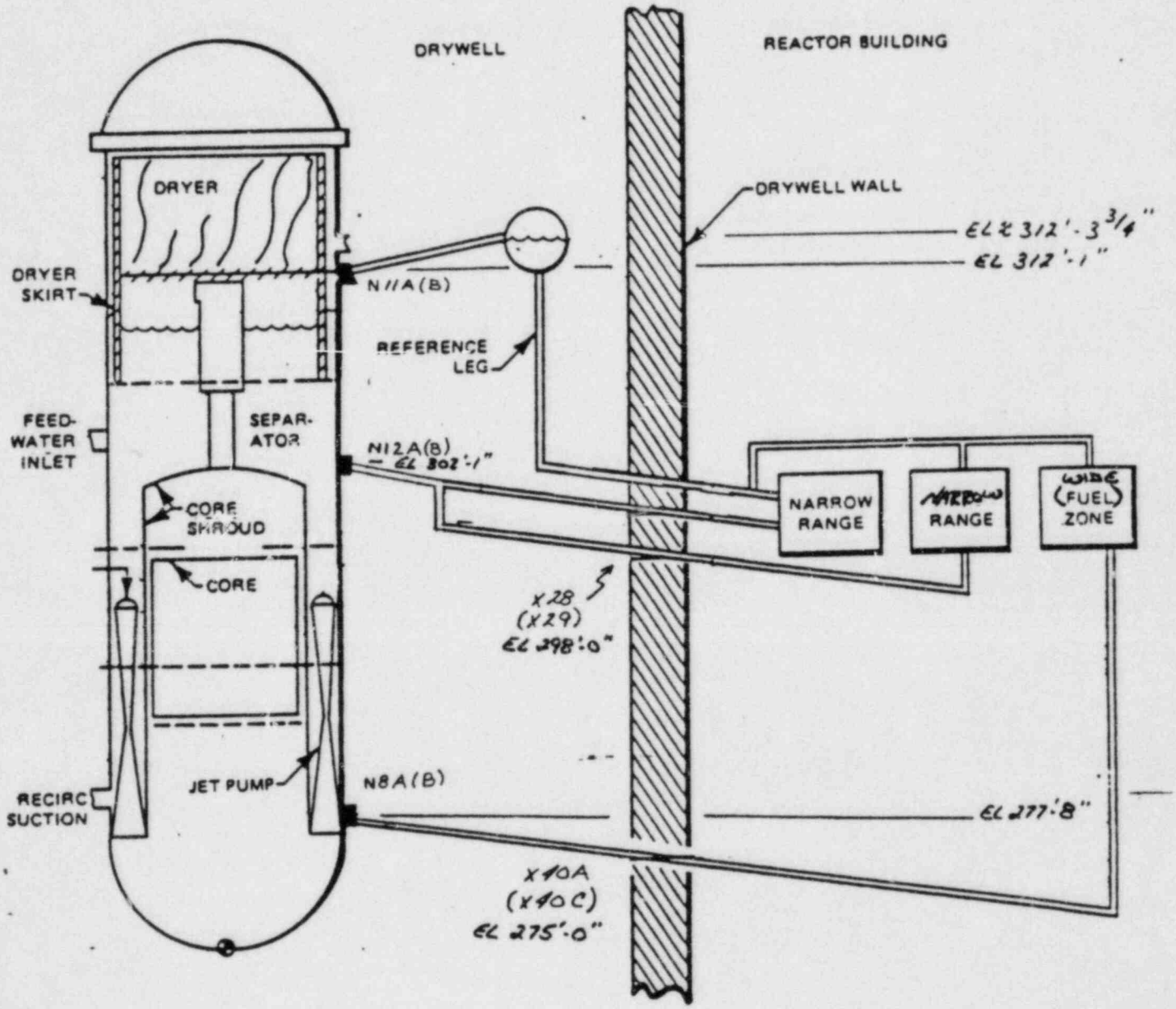
We trust this response is satisfactory; however, should you have any further questions, please contact us.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

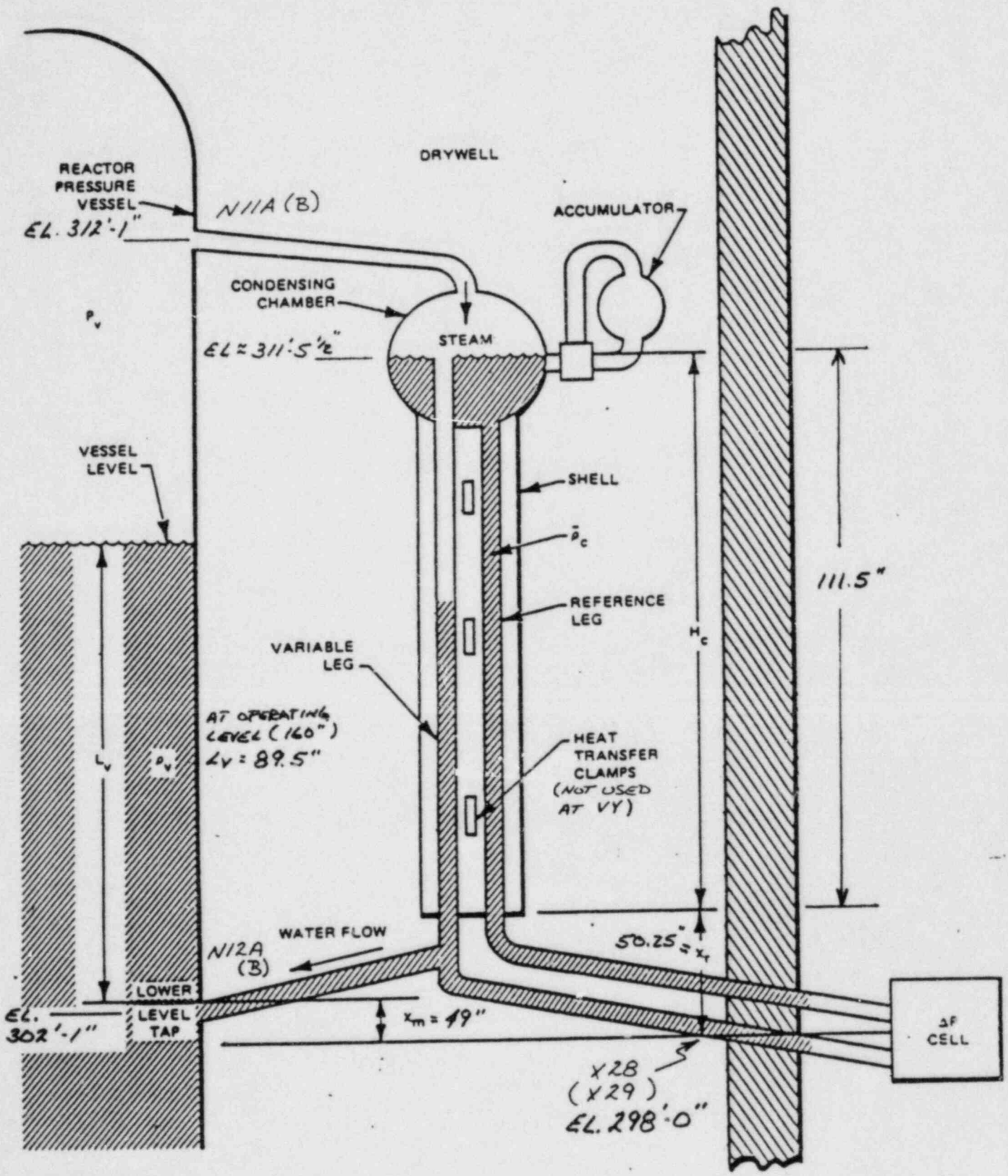
Donald Hunter
Vice President

DH/hja



Cold Leg Level Instruments

GENERAL ARRANGEMENT - VERMONT YANKEE



Yarway Level Measuring Instrument