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ELECTRIC ENGINEERING
DEPARTMENT

July 15, 1981

Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attn: Mr. Robert A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing

Subject: Calvert Cliffs Nuclear Power Plant
Units Nos. 1 & 2; Dockets Nos. 50-317 & 50-318
Auxiliary Feedwater System Modifications

References: (a) Letter from D. G. Eisenhut to A. E. Lundvall, Jr. dated 7 November 1979, NRC Requirements for Auxiliary Feedwater Systems at Calvert Cliffs Nuclear Power Plant.
(b) Letter from A. E. Lundvall, Jr. to R. A. Clark, same subject dated 18 November 1980.

Gentlemen:

Reference (a) forwarded for our action certain generic and plant-specific Auxiliary Feedwater System (AFWS) recommendations that resulted from the NRC's Bulletins and Orders Task Force Review. Also contained in Reference (a) were four additional short term recommendations which had not been reviewed by NRC for specific applicability to Calvert Cliffs Nuclear Power Plant. We have been considering all of the above recommendations in our ongoing design upgrade of the Calvert Cliffs AFW systems.

In response to Additional Short Term Recommendation No. 1, concerning redundant condensate tank level indications and alarms, we will be making modifications to our systems as described below.

At present, as shown in Figure 1, Condensate Storage Tank (CST) No. 12 has a local level indicator and a level transmitter which provides level indication and alarm at the Auxiliary Shutdown Panels (ASPs) and in the Control Room. In conjunction with the Auxiliary Feedwater (AFW) modifications, as discussed in reference (b), we will be installing an additional level transmitter for CST No. 12 and providing redundant indication in the control room and at the ASPs, as shown in Figure 2.

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The following design criteria will be met for the purchase and installation of the equipment.

1. The equipment will be supplied in accordance with the IEEE requirements for class 1E equipment; i.e., IEEE 323-74 for environmental qualification.

2. Complete isolation will be provided between redundant circuits.

3. ASP indication will be completely isolated from the control room.

4. The system will meet the seismic criteria of IEEE 344-75 with the exception of the cable routing to the level transmitter of the CST. This cable will be routed through the non-seismic turbine building and existing pipe tunnel outside to the condensate tank area.

5. The system will be single failure proof, with the exception of local indication.

6. There will be redundant indication in the control room and at the ASPs. In addition, the local level indicator is available. Dual alarm capacity is installed.

7. The cable routing will meet the physical separation criteria of IEEE-384.

8. Each indicator will be powered from a separate vital AC power source.

9. The level indicators will cover the full range of CST level. No recording of instrumentation readout information will be provided.

These modifications to the CST level system, supplemented by our operating procedures as discussed below, will ensure that an adequate supply of makeup water is available to the AFW pumps:

1. CST No. 12 has local and control room indication. These instruments are checked and logged every four hours by both the Control Room Operator and Outside Operators. This provides two independent level checks every shift. Any discrepancies between the two readings would be resolved.

2. During any event where loss of AFW takes place, Abnormal Operating Procedure 15 (AOP-15) is effective. An operator is required to go to CST-12, check the valve line-up and CST-12 local level indication, and make preparations to switch from CST 12 to CST 11 (CST 21 for Unit 2). Should both level indications be lost for CST 12 or if the control room indications were not in agreement with local level, an operator would be required by AOP-15 to take the same action as above.

3. If power was interrupted to the level transmitters, the indicators would fail low and the alarm would activate. This would give the operator positive indication that the instrumentation had failed, and he would take the actions as detailed in Item 2 above.

4. Should the loss of level indication occur during AFW pump operation, the operator would have a backup control room alarm for low pump suction pressure (existing). There is also discharge pressure and AFW flow indication in the control room. If the operator were to receive these alarms or low discharge pressure or low flow indication, he would trip the AFW pumps to avoid damage, have the outside operator verify the level in CST 12 or change the lineup to CST 11 (CST 21) if necessary, and then restart the AFW pumps. If the AFW pumps of the affected unit were damaged prior to tripping, AFW could be supplied via the cross-connect from the other unit's electric driven AFW pump.

Although we are sending this letter for your information, in the interest of maintaining our schedule for the AFW modifications, if you have any comments or questions concerning our design, please contact us as soon as possible.

Very truly yours,

R. F. Ash
Chief Nuclear Engineer

RFA/smn
Enclosure

cc: J. A. Biddison, Esquire
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Messrs. E. L. Conner, Jr. - NRC
J. C. Ventura - Bechtel
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Figure 1

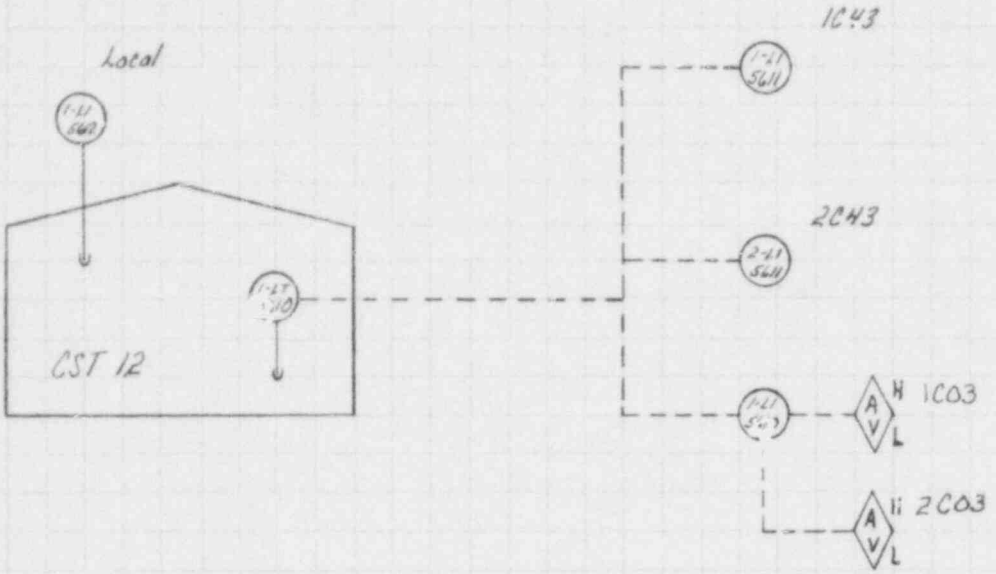
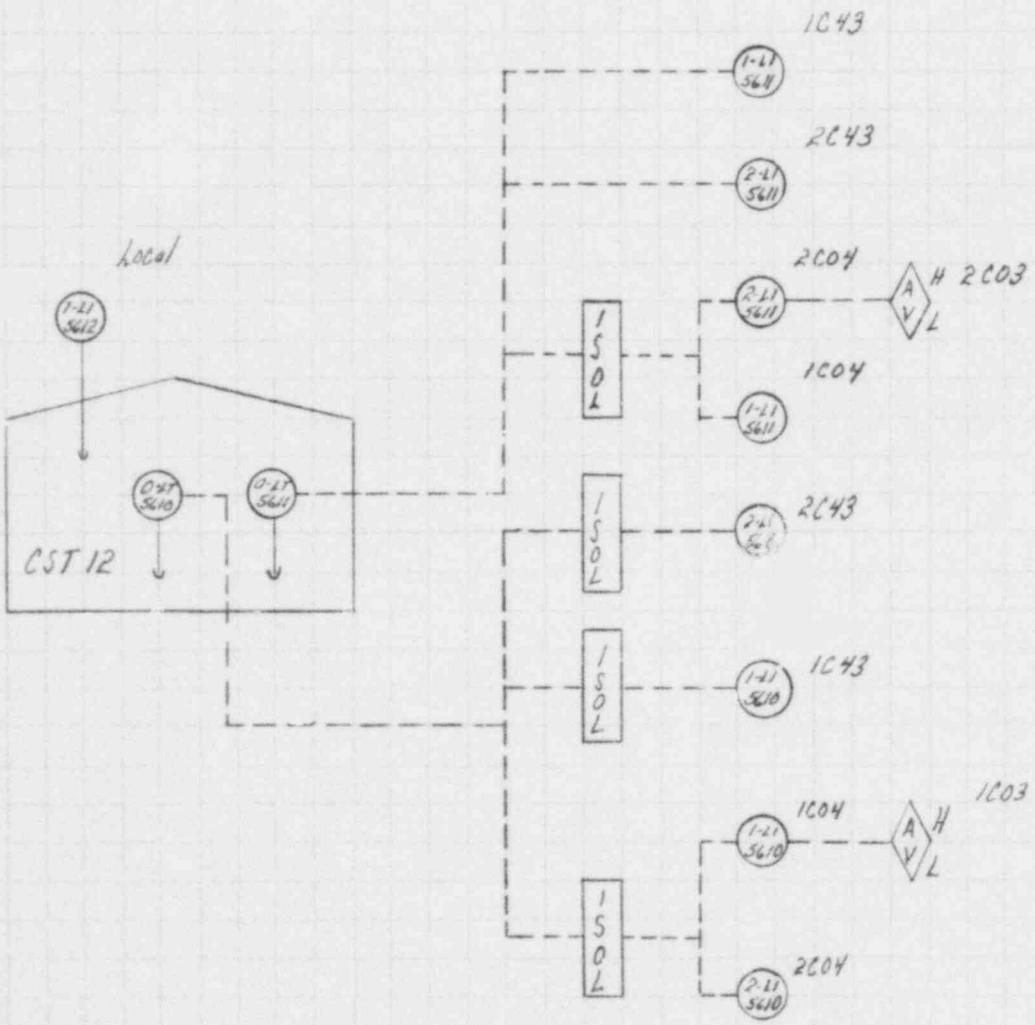


Figure 2



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