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C321-92-2267
September 29, 1992

US Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

References:

1. Generic Letter No. 92-04, "Resolution of the Issues Related to Reactor Vessel Water Level Instrumentation in BWRs Pursuant to 10 CFR 50.54(f)", dated August 19, 1992.
2. BWROG-92074 to William T. Russell (NRC), BWROG Report, "BWR Reactor Vessel Water Level Instrumentation", dated August 28, 1992.
3. BWROG-92082 to U.S. Nuclear Regulatory Commission, Washington, DC 20555, "Reactor Vessel Water Level Instrumentation" dated September 24, 1992.

Gentlemen:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Response to Generic Letter 92-04
BWR Reactor Vessel Water Level Instrumentation

Generic Letter 92-04 requested all Boiling Water Reactor Licensees to respond to a list of specific questions from the NRC staff relating to reactor water level indication accuracy. Attachment 1 to this letter provides the plant specific GPU Nuclear response for the Oyster Creek Nuclear Generating Station.

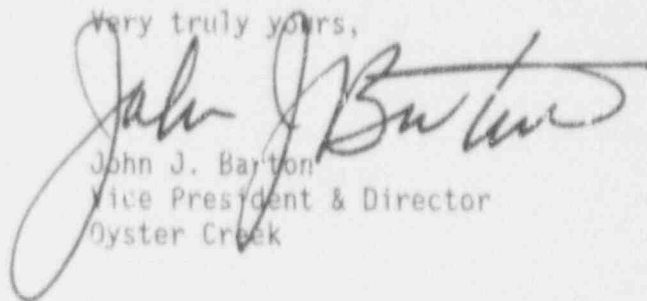
As requested on page 5 of GL 92-04, this letter is being submitted subject to the provisions of 10 CFR 50.54(f).

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If you should have any questions or require further information, please contact Brenda DeMerchant, OC Licensing Engineer at (609) 971-4642.

Very truly yours,

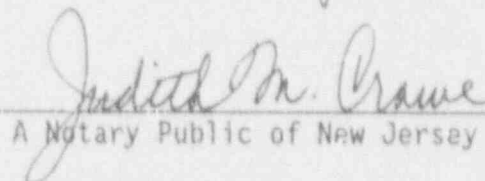


John J. Barton
Vice President & Director
Oyster Creek

JJB/BDEM:jc

cc: Administrator, Region 1
Senior NRC Resident Inspector
Oyster Creek NRC Project Manager

Sworn to and Subscribed before me this 29th day of September 1992.



Judith M. Crowe
A Notary Public of New Jersey

JUDITH M. CROWE
Notary Public of New Jersey
My Commission Expires 11/25/95

ATTACHMENT 1

"In light of potential errors resulting from the affects of non-condensable gas, each licensee should determine:"

NRC REQUESTED ACTION 1(a)

"The impact of potential level indication errors on automatic safety system response during all licensing basis transients and accidents."

GPUN RESPONSE

There is no impact on automatic safety system response during licensing basis transients or accidents. The Lo and Lo-Lo reactor water signals for RPS and ECCS systems are sensed by the hot leg Yarway instrument. As documented in the BWROG letter to the NRC staff, Yarways are not susceptible to the non-condensable gas phenomenon because of their geometric configuration.

The Lo-Lo-Lo level setpoint used for Oyster Creek ADS actuation and RBCCW isolation is sensed by a cold leg instrument. The BWROG generic report (Ref. 2) reiterates previous conclusions with respect to cold leg instrumentation that safety system actuations occur prior to the introduction of errors associated with non-condensable gases coming out of solution. This conclusion is applicable to Oyster Creek.

NRC REQUESTED ACTION 1(b)

"The impact of potential level indication errors on operator's short and long term actions during and after all licensing basis accidents and transients."

GPUN RESPONSE

As all protective functions are automatic and actuations based on level occur prior to any degassification effects, there are no required operator actions during or after licensing basis accidents or transients.

A review of the Oyster Creek UFSAR accidents and transients which result in rapid vessel depressurization was conducted. None of these accidents or transients require the operator to take actions.

NRC REQUESTED ACTION 1(c)

"The impact of potential level indication errors on operator actions prescribed in emergency operating procedures or other affected procedures not covered in Item b."

GPUN RESPONSE

The Oyster Creek emergency operating procedures (EOPs) provide appropriate guidance on how to address level indication discrepancies.

Operator guidance directs the operator to flood the reactor whenever confidence is lost in the level indication. The Emergency Procedure Guidelines are symptom-based procedures. The operators will assess the following symptoms to determine if the level indication can be trusted.

1. Conflicting information
2. All off-scale or unknown level indication
3. Reference leg temperature which could cause flashing

The current procedural guidance is appropriate to deal with the non-condensable issue given the present industry understanding. No revisions are currently planned.

"Based upon the results of Item 1 above, each licensee should notify the NRC of short term actions taken, such as:"

NRC REQUESTED ACTION 2(a)

"Periodic monitoring of level instrumentation system leakage."

GPUN RESPONSE

During the upcoming refueling outage which is currently scheduled to begin November 27, 1992, GPUN has scheduled testing of level instrumentation equalizing valves for internal leakage. GPUN will evaluate the data and continue this leakage testing in future outages if it is deemed necessary. In addition, Equipment Operators will be instructed to look for evidence of external leakage from vent, equalizing, drain and isolation valves while on normal walkdowns during plant operation.

NRC REQUESTED ACTION 2(b)

"Implementation of procedures and operator training to assure that potential level errors will not result in improper operator actions."

GPUN RESPONSE

As stated previously, procedure revisions are not necessary at this time. Existing operator training continues to emphasize RPV flooding if level indication is in question. In addition, the operator practice of verifying level indication prior to termination of injection for level control will be reinforced.

NRC REQUESTED ACTION 3

"Each licensee should provide it plans and schedule for corrective actions, including any proposed hardware modifications necessary to ensure the level instrumentation system design is of high functional reliability for long term operation. Since this instrumentation plays an important role in plant safety and is required for both normal and accident conditions, the staff recommends that each utility implement its longer term actions to assure a level instrumentation system of high functional reliability at the first opportunity but prior to starting up after the next refueling outage commencing three months after the date of this letter."

GPUN RESPONSE

GPUN is participating in BWROG efforts and endorses the conclusions of the Generic BWR Owners Group Report provided in Reference 2 and the BWROG letter (reference 3).

During the next refueling outage (14R), GPUN has scheduled inspections and verifications of cold reference leg level instrumentation. This will include assessments of the steam leg insulation, slope, and configuration. In addition, details of the condensing chamber type will be obtained. This geometric information will be provided to the BWROG. Steam pipe insulation will be repaired as necessary.

During the cooldown for 14R : subsequent scheduled cooldowns until this issue is resolved, the plant computer system will be used to collect data from RPV level and pressure instrumentation. As stated previously in the response to 2a, GPUN has scheduled testing for internal leakage on the equalizing valves during 14R. The results of this data collection effort will be provided to the BWROG.

GPUN is presently evaluating the installation of Resistance Temperature Detectors (RTDs) on the cold reference leg condensing chambers as a part of a data gathering effort in support of the BWROG test program. However, GPUN is not proposing any modifications to the plant level instrumentation system at this time. Throughout the Oyster Creek operating history, no level indication anomalies which would indicate non-condensable gas accumulation in the reference leg have been experienced. Therefore, it appears to be unnecessary to provide any modifications to the plant at this time. When the results of the BWROG efforts to better understand the degassification phenomena are completed, GPUN will re-evaluate if any changes are appropriate for Oyster Creek.

In conclusion, please note:

1. A review of plant data and discussion with control room group shift supervisors and control room operators, indicates that GPUN has not experienced the notching phenomenon associated with non-condensable gases coming out of solution.
2. The notching phenomenon is mainly applicable to cold reference leg instrumentation. The Oyster Creek reactor water level measurement configuration is noted on table 1. Based on the above, it can be seen that the Lo and Lo-Lo level protective actuations for OC are sensed via Yarway columns which are hot reference legs and not susceptible to the non-condensable gas issue witnessed by some utilities. The only cold reference leg instruments of safety significance are the Lo-Lo-Lo (ADS) function, and fuel zone indication.
3. The use of level instruments, including fuel zone level, is being evaluated for other possible options to determine reactor water level before directing operator actions related to the discussion in Response to NRC Requested Action 2(b). For example, GPUN is evaluating guidance for the operators to wait for some level indication on the Yarway indicators before terminating injection flow.
4. GPUN is also participating in the BWROG generic program pertaining to the non-condensable gas issue. Until the results of the generic program are known, the benefit of any potential modification to Oyster Creek reactor water level instrumentation will not be understood.

TABLE 1

<u>INSTRUMENT</u>	<u>LEVEL SET POINT/RANGE</u>	<u>PROTECTIVE FUNCTION/SERVICE</u>
Yarway (Hot Ref. Leg) Range: 86" to 186" TAF	1. Lo	° Reactor Trip
	2. Lo-Lo	° Recirc Pump Trip
		° Reactor Isolation
		° Alt. Rod Injection
		° Iso. Condenser Initiation
		° Containment Isolation
		° Containment Spray
GEMAC (Cold Ref. Leg)	1. Rosemount Transmitter (90" to 186" TAF)	° FW Control - No Safety Function
	2. Lo-Lo-Lo Barton switch (56" to 186" TAF)	° RBCCW Isol ⁽¹⁾
		° ADS Interlock ⁽²⁾
GEMAC (Cold Ref. Leg) (Wide Range)	3. Fuel Zone (-144" to +180" TAF)	° Post LOCA Level
	1. 90" to 490" TAF	° Cold Shutdown Indication

(1) Alternate RBCCW Isolation Initiation on High Drywell Pressure & Lo-Lo Level.

(2) ADS is not required for rapid depressurization scenarios.