

UNITED STATES
ATOMIC ENERGY COMMISSION
DIVISION OF COMPLIANCE
REGION II - SUITE 818
230 PEACHTREE STREET, NORTHWEST
ATLANTA, GEORGIA 30303

TELEPHONE: 526-4537

SEP 19 1968

J. P. O'Reilly, Chief, Reactor
Inspection and Enforcement Branch
Division of Compliance, Headquarters

FLORIDA POWER AND LIGHT COMPANY, TURKEY POINT UNIT NO. 3
CONCRETE VOID PROBLEM IN CONTAINMENT MAT
LICENSE NO. CPPR-27, DOCKET NO. 50-250

Transmitted herewith for action are Region II comments on
1) FP&L's Report on Honeycombing Turkey Point Unit No. 3
Containment Mat dated on 7/19/68; 2) the reviews of the
Honeycombing Report submitted by Messrs. Philleo and Kesler,
AEC Concrete Consultants (copies attached). The Region II
comments are as follows:

1. FP&L's Honeycombing Report: Section VI is silent on what
we consider to be two significant items:
 - a. How will it be determined that the grout introduced
behind the bulkhead covered void did, in fact,
completely fill the void? One possible method would
be to make a volumetric determination of the void and
compare this to the volume of grout introduced. A
second method could be to provide coring holes in
which "dip sticks" could be inserted to determine
the grout placement. A third method could be the use
of a "bleed line" in an appropriate location in the
void. Grout discharging from the "bleed line" would
indicate that the void was filled. It should be
pointed out that the second and third methods
discussed above also provide a means during grouting
of removing air that otherwise would be trapped in
the void.

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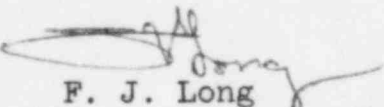


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- b. How will the temporary bulkhead be secured to the tendon inspection gallery ceiling in a leak-tight manner during grouting operation? This question is raised because of the following observation: The Region II inspector noted during his inspection of the gallery that the removal of the defective concrete was not performed judiciously, i.e., there are some sections in the ceiling 30-feet long which are continuously void of concrete from trumpet to trumpet. In some cases, voids extend down into the walls of the gallery.

If we assume the grouting will be done in 10-foot long sections which span the width of the ceiling, i.e., about 4.5 feet, considerable loading of the plate will be encountered. Section VI of the Honeycombing Report states that the grout would be introduced at a pressure of 5-15 psi. For a 45 square foot bulkhead plate the pressure on the plate could be 225 to 675 pounds/square foot. In light of the manner in which the defective concrete was removed, it is not apparent to us how the temporary plate will be secured and sealed to the gallery ceiling such that concrete filling of the voids will be assured.

2. Consultants' Review: We concur with the observations and conclusions discussed in the Concrete Consultants' reviews of the Honeycombing Report. Questions posed in the reviews will be follow-up items for subsequent inspections by Region II.


F. J. Long
Senior Reactor Inspector

CO:II:WCS

Enclosure:
Reports (3)

cc: G. W. Reinmuth, CO:Hqs

Long

R. R. 3
Champaign, Illinois 61820
September 9, 1968

Mr. G. W. Reinmuth
Technical Support Branch
Division of Compliance
Atomic Energy Commission
Washington, D. C. 20545

Dear Mr. Reinmuth:

I have read and studied the "Report on Honeycombing--Turkey Point Unit 3--Containment Mat," July 19, 1968, prepared by Bechtel Associates. The report in general corroborates our observations and discussions during our visit to the site on April 25.

The inspection procedures outlined and the repair recommendations appear entirely adequate.

The report prepared by Professor Whitehurst is excellent, although there does appear to be some slight discrepancies between some of the statements in Chapter IV, Investigation, the figure marked Appendix E and Professor Whitehurst's report. For instance, in Chapter 4, section 2.3, the statement is made that "Possible interference with trumpets and stand pipes could account for 42 shots, all at elevation 3.0 feet." On page 45 of Professor Whitehurst's report he states, "Conflicts of the test path with vertical trumpets may account for 31 of the unreadably weak signals and conflicts with stand pipes for another 6." Even though these discrepancies exist, the interpretation of the results are satisfactory, and it is not likely that any major voids have gone undetected.

I concur in the discussion of the factors causing the honeycombing, Chapter V. Although shrinkage and creep are important factors for such vessels, perhaps undue weight was given to their consideration resulting in a requirement for the specified low slumps which made the concrete more difficult to place. Since the batch plant was within one-half mile of the site, it is somewhat difficult to understand why the rate of delivery was not substantially decreased such that the concrete could be satisfactorily consolidated at the site.

Chapter VI outlines the repair methods but with little detail. The information provided, however, indicates that the methods are suitable. One of the performance criteria for the grout is that it shall have at least two per cent

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Mr. G. W. Reinmuth
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expansion. It would be well to also indicate an upper limit for the expansion, since too much expansion can result in an unsatisfactory patch. It is not clear just where the repairs will be made with grout and where with shotcrete or dry-pack. The impression is given that grouting will be used wherever reinforcing has been exposed. In some of the less critical areas it may be satisfactory to use shotcrete even though the reinforcing has been exposed.

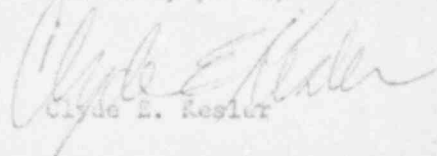
Every effort should be made to insure complete filling of the voids around the prestressed cable bearing plates. I was not aware that the "presence of voids behind tendon bearing plates is a relatively common occurrence in prestressing work," as apparently stated by Mr. Kulka or so indicated in Chapter VIII.

The measures outlined in Chapter VII to prevent a reoccurrence of honeycombing in the base of Unit 4 are satisfactory. It was clear at the time of our visit in April that the placement of the reinforcing in Unit 4 was much improved compared to Unit 3 and placing of the concrete around the reinforcing in Unit 4 should be satisfactory. I note that close communication will be maintained between the point of discharge and the batch plant. If the "preventive measures" as outlined in this chapter are followed, there should be no difficulty with the placement of the concrete.

Following the proposed repair measures as outlined in this report should adequately repair Unit 3 and following the suggested measures for preventing honeycombing in the concrete of Unit 4 should eliminate the problem there.

I will return the report in about a week, after further review.

Sincerely yours,


Clyde E. Resler

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cc: Frank Long

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