

PHILADELPHIA ELECTRIC COMPANY

2301 MARKET STREET

P.O. BOX 8699

PHILADELPHIA, PA. 19101

(215) 841-4500

JOHN S. KEMPER
SENIOR VICE-PRESIDENT - NUCLEAR

April 18, 1989

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Docket No. 50-353

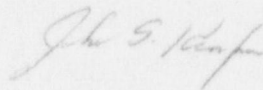
SUBJECT: Limerick Generating Station, Unit 2
Response to Request for Additional
Information on Concrete Aggregate

Gentlemen:

Enclosed is Philadelphia Electric Company's response to your verbal request for additional information on the use of one-inch aggregate. The attachment provides the request as we understand it, and follows with the supplemental information.

If you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,



Attachment

ERG/dk/0412891

Copy to: T. J. Kenny, LGS Senior Resident Inspector
W. T. Russell, Region I Administrator
R. J. Clark, LGS Project Manager

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ATTACHMENT
ADDITIONAL INFORMATION ON
CONCRETE MAXIMUM AGGREGATE SIZE
FOR
LIMERICK GENERATING STATION, UNIT 2

REQUEST:

In section 3.8.6 it is indicated that the maximum coarse aggregate size was increased from 3/4-inch to 1-inch. Provide a discussion on other potential changes ranging from the selection and grading of the aggregates and design of concrete mixes to meet the concrete strength criteria to the conformance of the requirements of Section 3.3 of the ACI 349 Code as a result of the size change of coarse aggregate. It is realized that you have completed your construction of the concrete structures. However, the required information is to ensure the adequacy of the completed construction and may reflect the adequacy of your quality assurance and quality control program.

ADDITIONAL INFORMATION:

From the beginning of the Limerick project to the end of 1987, coarse aggregate (including the 3/4" size) was procured from the same source/quarry. This quarry ceased operation in late 1987. A search for an alternative qualified source of 3/4" coarse aggregate showed that only 1" maximum aggregate is readily available from a local source. A decision was made to use the 1" aggregate and the LGS FSAR was revised to allow additional concrete mix design using coarse aggregate grading size 57 as defined in ASTM C33. The 1" coarse aggregate obtained from a locally qualified source was tested to ascertain its conformance with ASTM C33 per FSAR Section 3.8.6.1.1.2.

This change in aggregate size affects only minor plant construction and modifications from early 1988 onward. At the end of 1987, all major seismic category I concrete structures (Containment Structure, Diesel Generator Building, Reactor/Control Enclosure, and the Spray Pond Pump House) were essentially complete and thus are not affected by this change in the aggregate size.

As a result of the size change of coarse aggregate, new coarse aggregate gradation and concrete mixes using the 1" maximum coarse aggregate were developed. Trial mixes for the new concrete mix designs were made & tested (compressive strength, unit weight, slump, & air content) to ensure the new mix designs meet the commitments shown in FSAR Section 3.8.6.1.2. Upon satisfactory completion of these activities in early 1988, the project concrete specification was revised and the FSAR change was issued to include the new concrete mixes using 1" coarse aggregate. Furthermore, construction testing of concrete and concrete material as stated in FSAR Section 3.8.6.1.5 are performed to assure the concrete used in construction meets the strength criteria.

As stated in FSAR Section 3.8.4.4 and the response to question 220.1, LGS concrete structures are designed to the requirements of ACI-318-71, and ACI-349 was not used. However, the requirement of ACI-349, Section 3.3.3 is essentially the same as ACI-318-71, Section 3.3.2 with which LGS complied.

Therefore, it is concluded that the change in maximum coarse aggregate size from 3/4" to 1" has no impact on the safety of the plant. Pertinent activities related to the qualification of aggregate and the new concrete mixes meet the project technical and QA requirements and the FSAR commitments.

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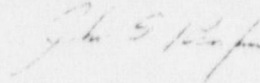
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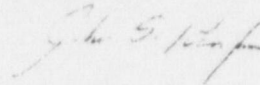
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