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U. S. Dept. of the Interior
Geological Survey
Washington, D. C. (H. Coulter)

O:

Mr. Newell

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

October 6, 1967

Mr. John F. Newell
Division of Reactor Licensing
U. S. Atomic Energy Commission
4915 St. Elmo Avenue
Bethesda, Maryland 20014

Dear Mr. Newell:

Transmitted herewith is a preliminary draft statement concerning the Preliminary Safety Analysis Report for the Three Mile Island Nuclear Station, A.E.C. Docket 50-289.

Sincerely yours,

Henry W. Coulter

Henry W. Coulter
Deputy Assistant Chief Geologist
for Engineering Geology

Enclosure

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10/3/67

Metropolitan Edison Company

Three Mile Island Nuclear Station

Geology

The analysis of the geology of the Three Mile Island Atomic Power Station presented in AEC Docket No. 50-289 and supplements was reviewed and compared with the available literature. The analysis appears to be carefully derived and to present an adequate appraisal of those aspects of the geology that would be pertinent to an engineering evaluation of the site.

There do not appear to be any positively identifiable geologic structures that could be expected to localize earthquakes in the immediate vicinity of the site. Three probable faults are shown on the geologic map of the area (Appendix 2D--Addendum 1), the traces of which are projected near the site. The actual existence of these faults, however, appears to be very tenuous (see Appendix 2A--Addendum 1). Even if any of these faults do exist, there is no evidence that they could have been tectonically active for at least the last 10,000 years and perhaps for as much as the last million years (see Appendix 2D, p. 30). The border fault of the Pennsylvania Triassic Basin lies approximately 5 to 6 miles north of the site. Elsewhere in the eastern United States many of the earthquake epicenters appear to be located in the immediate vicinity of comparable geologic structures.

Neither footing design nor invert elevation of the cooling water intake structure are given in the report. Design of the structure should include plans for protection during a flood stage from either rapid sedimentation in the immediate vicinity of the structure, or from possible scour of the foundation by river currents. If the invert elevation of the structure is based on a minimum pool elevation for the York Haven Reservoir, then the design bases for the York Haven Dam should be consistent with Class I structures at the reactor site.

Details of design of the dikes that are to protect the plant site are not given. These structures also should be designed so as to provide adequate protection against any excessive scour or erosion that may occur from river currents in effect during the maximum or design flood stage.

Logs of borings, as shown in Appendix 2A and in Figure 2A-2, indicate that foundation conditions in sound bedrock (Gettysburg Shale) underlying the site should be adequate for the proposed facility. During construction, however, some minor modifications of foundation design may be required due to variations in the thickness of the weathered zone on the Gettysburg Shale. The relationship between rock structures and potential shear strengths of the rock, as noted in Section 3.3, also may necessitate some modifications of design during construction in order to ensure the integrity of the more heavily loaded foundations.

Such modifications, however, should be within the limits of standard engineering design and practice.