

# ROUTING AND TRANSMITTAL SLIP

ACTION

1 TO (Name, office symbol or location)

H. Silver

INITIALS CIRCULATE

DATE COORDINATION

THRU: W.S. Bivins

INITIALS FILE

DATE INFORMATION

2

INITIALS NOTE AND RETURN

DATE PER CONVERSATION

3

INITIALS SEE ME

DATE SIGNATURE

REMARKS

Three Mile Island Unit 2  
Response to ACES Questions

cc: L. Hulman

Do NOT use this form as a RECORD of approvals, concurrences, disapprovals, clearances, and similar actions

FROM (Name, office symbol or location)

T. Johnson

DATE

10/12/76

PHONE

2-7288

OPTIONAL FORM 41

AUGUST 1967

GSA FPMR (41CFR) 101-11.204

449-16-81594-1 532-103 GPO 5041-101

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PDR FOIA  
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Proposed Response to ACRS Questions  
Regarding Flood Design Bases

A question was also raised at the July 1972 ACRS meeting as to the effects of Tropical Storm Agnes on current flood design bases. The staff concluded at that time that the estimate of the Probable Maximum Flood peak for the Three Mile Island Site was adequate. This conclusion was based on reviews by the staff, the Corps of Engineers, and the National Oceanic and Atmospheric Administration of precipitation potential in the Susquehanna River Basin and the resultant flood. In addition, it was concluded that if the rainfall which occurred during Agnes has been more severe, or that different storm tracks had occurred, the resulting flood at the site would not have exceeded the Probable Maximum Flood used as the design basis for Three Mile Island. Our conclusions remain unchanged.

In response to Prof. Kerr's question regarding significant hydraulic pressure differentials and seepage under the dike as a result of the water level on the outside of the dike being higher than the level on the inside, we do not believe a significant effect on plant structures would occur. Plant structures are designed for all hydrostatic, hydrodynamic, and wave forces associated with a water level equivalent to the peak PMF level. In addition, some amount of time is required to develop seepage, some distance exists between the river and plant structures, and a review of the permeability of site soils indicates that the time for seepage to travel this distance is considerably longer than the time that the river level is above the level of the dikes. It should also be pointed out that the top-of-dike elevation at the intake structure, for example, is only

- 2 -

one foot above the plant grade of 304. This indicates that little water level differential would occur near the ground surface.



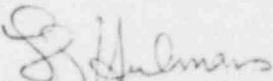
UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

OCT 15 1976

MEMORANDUM FOR: W. Regan, Chief, Environmental Projects Branch 3  
FROM: L. G. Hulman, Chief, Hydrology-Meteorology Branch  
SUBJECT: RESPONSE TO AGENCY DES COMMENTS

PLANT NAME: Three Mile Island Nuclear Generating Station, Unit 2  
LICENSING STAGE: OL  
DOCKET NUMBER: 50-320  
REQUESTED COMPLETION DATE: October 15, 1976  
REVIEW STATUS: Hydrologic Engineering Section, HME -- Complete

Enclosed is a response to comments raised by the Susquehanna River Basin Commission regarding flood protection. The enclosed response may be inserted to replace the last paragraph on page 2-3 of the July 1976 Supplement.

  
L. G. Hulman, Chief  
Hydrology-Meteorology Branch  
Division of Site Safety and  
Environmental Analysis

Enclosure:  
As stated

cc: w/o enclosure  
R. Boyd  
W. McDonald  
J. Panzarella

cc: w/enclosure  
W. Gammill  
D. Wigginton  
J. Norris  
T. Johnson

dupe of  
~~794417475~~

Three Mile Island Unit 2  
Response to Agency Comments  
Draft Supplement to FES

Because of the threat of flooding, the station is protected from floods by an extensive dike system surrounding the island. This system is designed to withstand the effects of a flood as great as 1,100,000 cfs, without overtopping or damage. A minimum of approximately one foot of freeboard is provided for this flood. Details of the dike elevations and locations may be found in the FSAR. For floods greater than the levee design flood of 1,100,000 cfs, emergency procedures provide for a safe and orderly shutdown of the plant. Additionally, the station is designed for and protection is provided for a flood as severe as the Probable Maximum Flood (PMF). The PMF has a discharge of 1,625,000 cfs and a water surface elevation of 309 ft. above mean sea level at the Unit 2 intake structure. All plant structures subject to flooding are fully designed for the effects of static water level and also the dynamic effects associated with coincident wind waves. An evaluation of flooding potential may be found in the staff's Safety Evaluation Report. Discussions of the shutdown and waterproofing procedures to be followed in the event of a large flood may be found in the FSAR.



METROPOLITAN EDISON COMPANY

POST OFFICE BOX 542 READING, PENNSYLVANIA 19603

TELEPHONE 215 - 929-3601

August 6, 1976  
GQL 1115



Director of Nuclear Reactor Regulation  
ATTN: Mr. D. B. Vassallo  
Light Water Reactor Branch No. 4  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Dear Sir:

Three Mile Island Nuclear Station (TMI)  
Docket Nos. 50-289 and 50-320

The purpose of this letter is to clarify several statements in our letter of July 29, 1976, and to indicate the results of the recently completed toe of the dike survey.

The dike acceptance criteria referenced in our July 29, 1976, letter will be developed and implemented prior to the next periodic dike inspection planned for December, 1976. The purpose of the acceptance criteria will be to define, as objectively as possible, when repairs to the dike are necessary. Comparison of the dike's condition to photographs taken previously will indicate where changes have taken place. Significant changes such as subsidence, bare spots, and erosion will be identified and investigated. If the investigation of a change results in the acceptance criteria being exceeded, repairs to the dike would then be initiated. Part of the acceptance criteria will require that detrimental vegetation, such as trees greater than 1½ inches in diameter at chest height, be removed and that vegetation which precludes proper inspection will be defoliated or removed.

Photographs of each sector of the dike from a sufficient number of views will be taken and used as discussed above, to identify future changes. This photo record will be retained as a baseline for comparison until repairs to a sector are accomplished and then the photographs of the repaired area would form a new baseline for subsequent evaluations.

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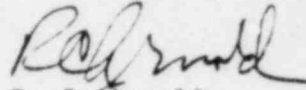
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D. B. Vassallo

- 2 -

Attached are drawings which show the results of the post repair toe survey recently conducted. It can be seen from these drawings that between the intake structures the dike toe slopes more steeply than specified. Therefore, we plan to correct the toe slope at the same time that repairs to dike's east exposure are accomplished. These repairs will be completed by April 30, 1977.

Sincerely,



R. C. Arnold  
Vice President

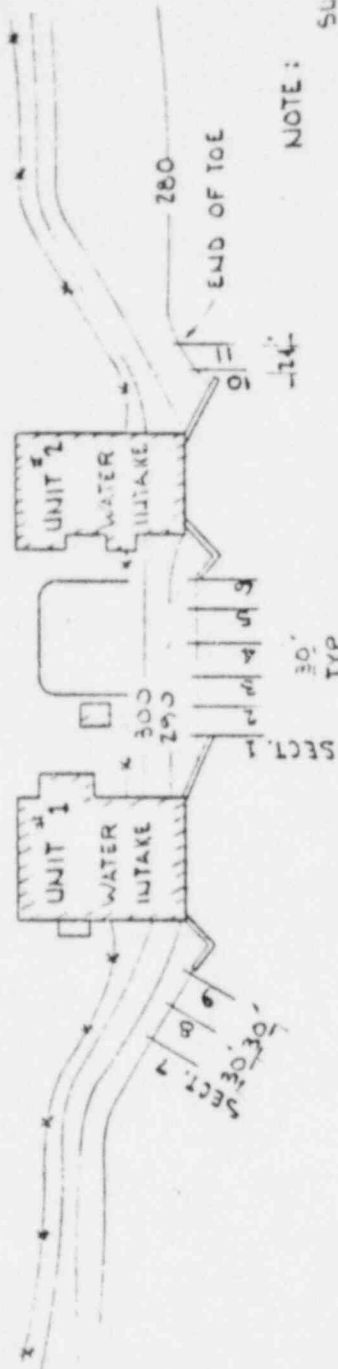
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Attachments

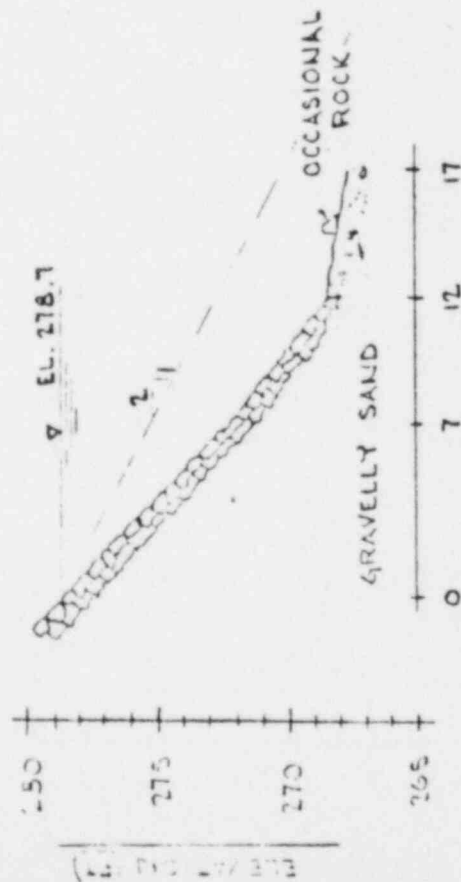
cc: Mr. R. W. Reid  
Operating Reactors Branch No. 4  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

# THREE MILE ISLAND

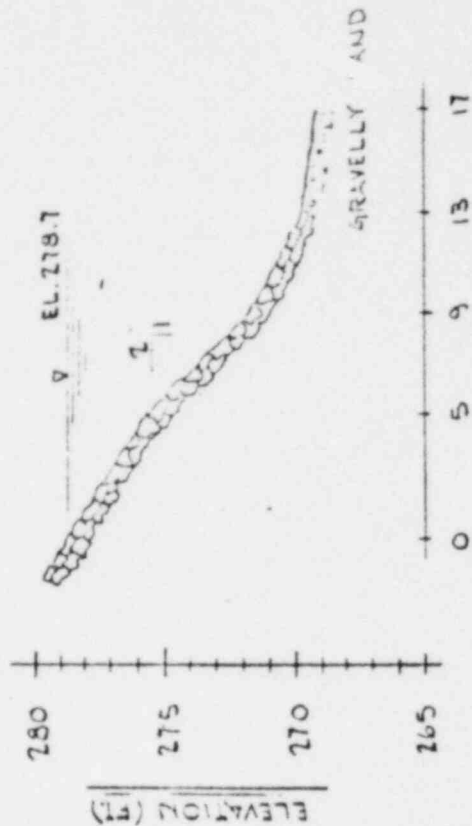
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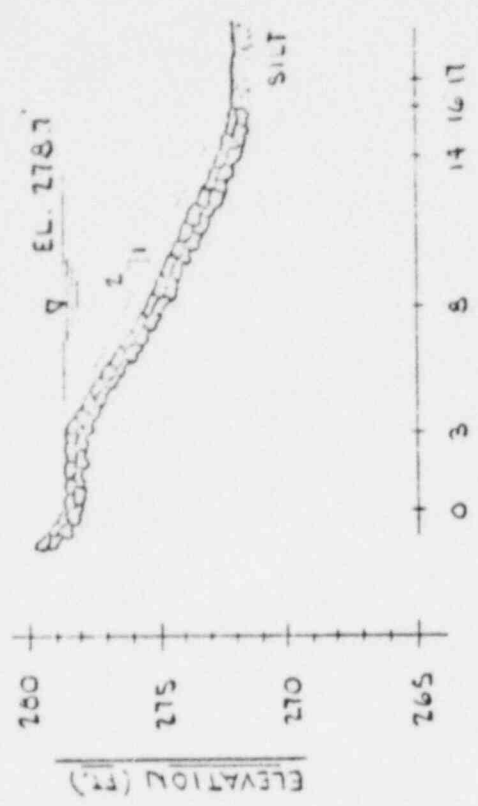
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SECTION 2

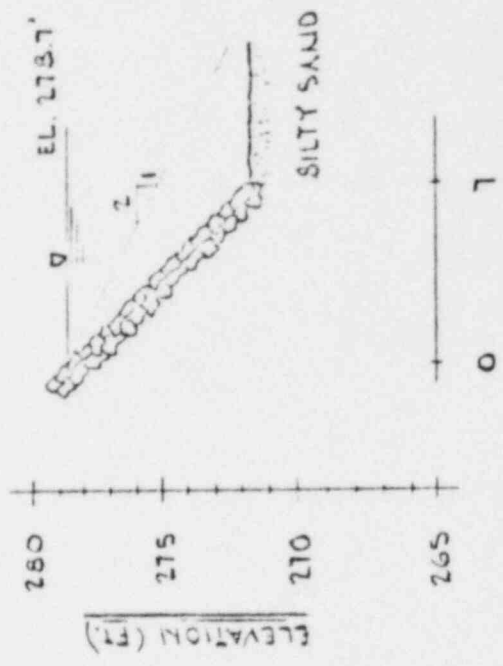
SURFACE FEATURES OF TOE PROTECTION - SURVEY RESULTS - G.A.I. JUNE 1976

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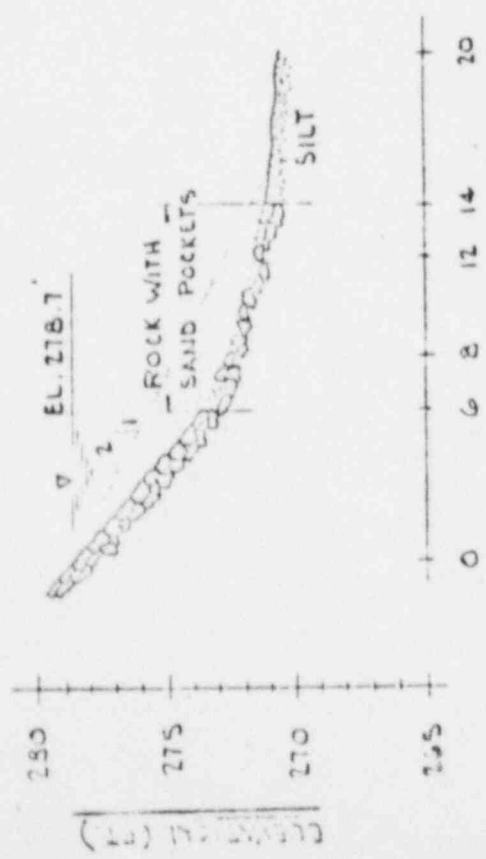


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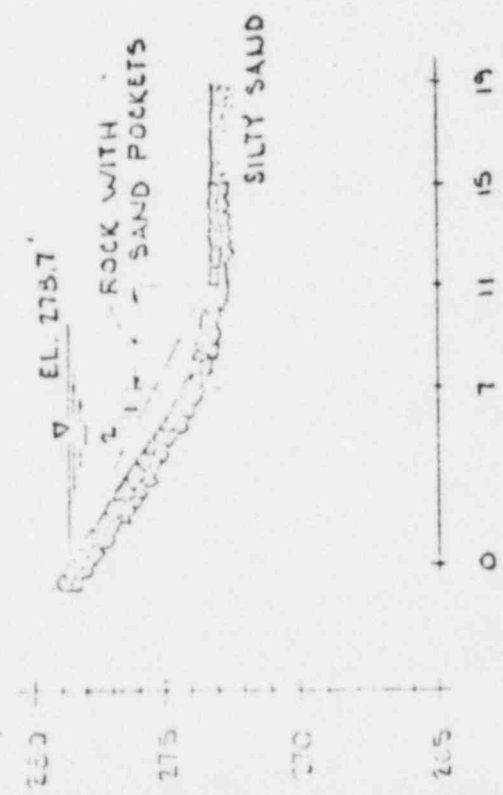
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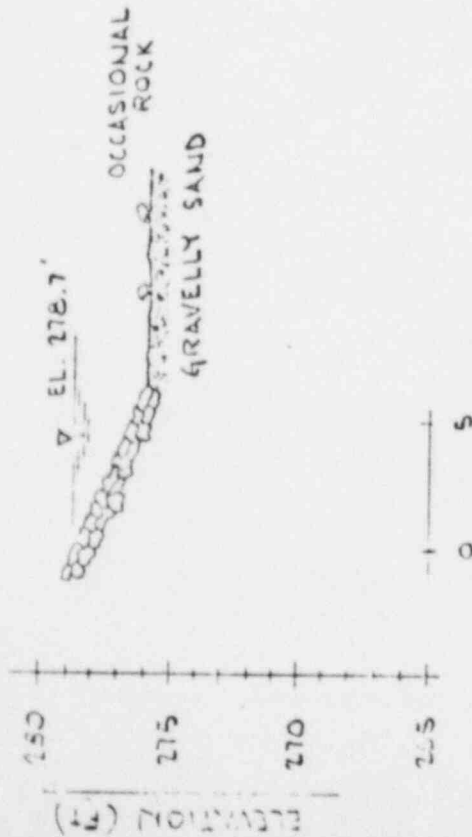
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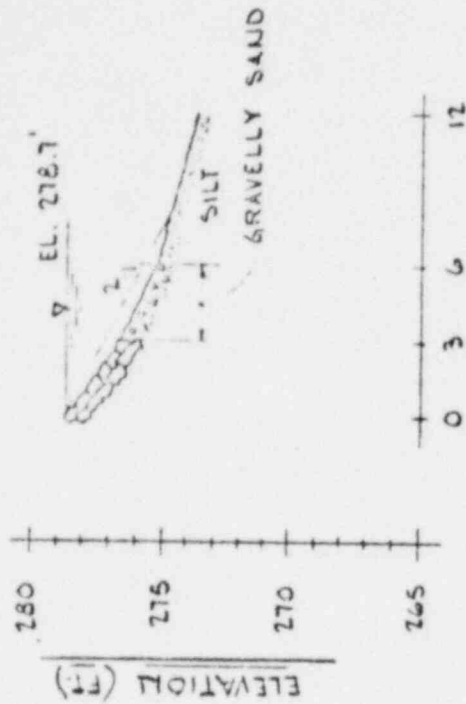
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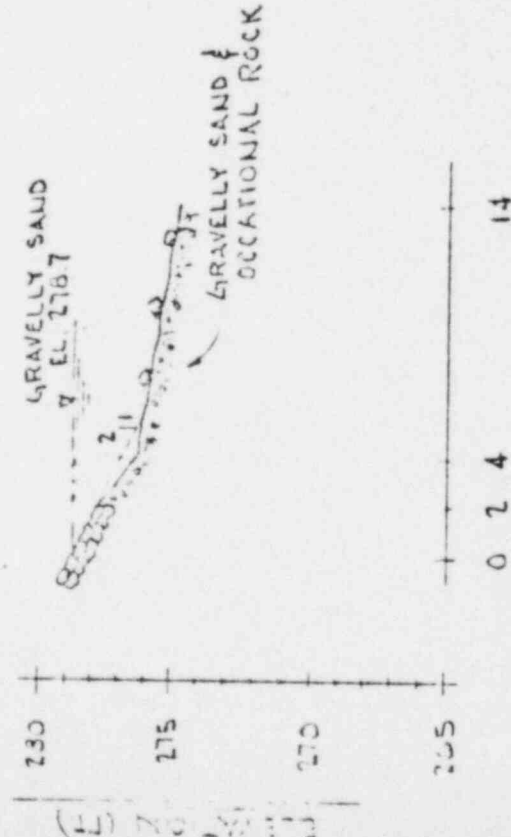
SURFACE FEATURES OF TOE PROTECTION - SURVEY RESULTS - G.A.I. JUNE 1976



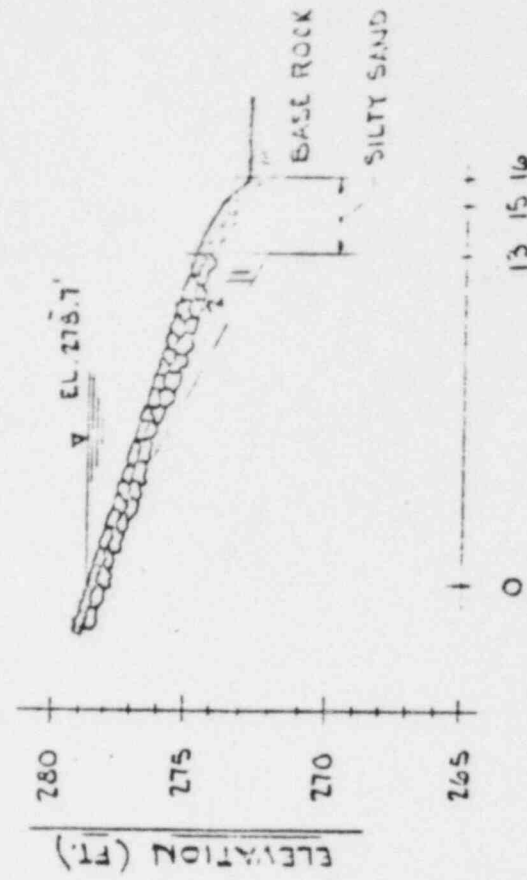
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SECTION 8



SECTION 9



SECTION 10

SURFACE FEATURES OF TOE PROTECTION - SURVEY RESULTS - G.A.I. JUNE 1976 T.M.I