

AUG 5 1974

V. Moore, Assistant Director for Light Water Reactors, Group 2

HYDROLOGIC ENGINEERING Q-1-PSAR

PLANT NAME: Three Mile Island - Unit 2

LICENSING STAGE: OL

DOCKET NUMBER: 50-320

RESPONSIBLE BRANCH: LWR-2-2

REQUESTED COMPLETION DATE: August 2, 1974

APPLICANTS RESPONSE DATE NECESSARY FOR

NEXT ACTION PLANNED ON PROJECT: October 18, 1974

DESCRIPTION OF RESPONSE: Answer questions

REVIEW STATUS: SAB(HES) - Awaiting responses

Enclosed are PSAR Q-1's for the subject plant, prepared by T. L. Johnson and W. S. Bivins, for your transmittal to the applicant.

Original Signed by

H. R. Denton

Harold R. Denton, Assistant Director
for Site Safety
Directorate of Licensing

Enclosure:

As stated

cc: w/o enclosure

A. Giambusso

W. McDonald

J. Panzerella

cc: w/enclosure

S. Hausner

J. Hendrie

SS Branch Chiefs

A. Kanneke

C. Long

L. Siao

K. Uriel

B. Washburn

T. Johnson

R. Klecker

D. K. -mbut

S. [unclear]

Distribution:

L: Lockhart

L: Lij

L: SAB

L: AB/SS

OFFICE	S. [unclear]	W. Bivins	L. Johnson	W. P. Gammill	CS-201
SURNAME	T. Johnson	W. Bivins	L. Johnson	W. P. Gammill	
DATE	8/5/74	8/5/74	8/5/74	8/5/74	

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UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

AUG 5 1974

V. Moore, Assistant Director for Light Water Reactors, Group 2

HYDROLOGIC ENGINEERING Q-1-FSAR

PLANT NAME: Three Mile Island - Unit 2

LICENSING STAGE: OL

DOCKET NUMBER: 50-320

RESPONSIBLE BRANCH: LWR 2-2

REQUESTED COMPLETION DATE: August 2, 1974

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REVIEW STATUS: SAB(HES) - Awaiting responses

Enclosed are FSAR Q-1's for the subject plant, prepared by T. L. Johnson and W. S. Bivins, for your transmittal to the applicant.

A handwritten signature in dark ink, appearing to read "H. R. Denton".

Harold R. Denton, Assistant Director
for Site Safety
Directorate of Licensing

Enclosure:

As stated

cc: w/o enclosure

A. Giambusso

W. McDonald

J. Panzarella

cc: w/enclosure

S. Hanauer

J. Hendrie

SS Branch Chiefs

A. Kenneke

C. Long

L. Shao

K. Kniel

B. Washburn

T. Johnson

R. Klecker

D. Eisenhut

S. Varga

69-202

AUG 5 1974

SITE ANALYSIS BRANCH - HYDROLOGIC ENGINEERING
FSAR (Q-1) THREE MILE ISLAND - UNIT 2
REVIEWED BY: T. L. Johnson & W. S. Bivins

- 32.2.
(2.4.2.3) Substantiate the adequacy of site protection for the effects of local intense precipitation, including the PMP. Provide assurances that the site drainage system, including the roofs of safety-related buildings, will prevent flooding of safety-related facilities. Describe and provide details (sizes, dimensions, composition, grades) of site drainage facilities such as culverts, ditches, canals, and drains. Present applicable design bases to substantiate the adequacy of the designs. Provide a more detailed site map, with detailed topography, showing locations of levees, channels, and culverts, any other features involving hydrologic considerations.
- 32.2.2
(2.4.3.1) Properly reference Hydrometeorological Report No. 40.
- 32.2.3 Furnish detailed river cross-sections used in determination of water surface profiles and division of flow through the various Susquehanna River channels at the site.
- 32.2.4. Discuss sedimentation and estimate sediment loads in the vicinity of the intake structure. Provide assurances that material cannot be deposited during a flood or a flood recession in a manner which would cause the cooling water intakes to be segregated from the river cooling water.
- 32.2.5
(2.4.10) (a) The riprap and the riprap toe should be designed in accordance with EM 1110-2-1601, Hydraulic Design of Flood Control Channels, or similar conservative criteria, for protection against channel velocities if they are the controlling design basis. Define the controlling design basis and criteria (wind waves or channel velocities) used to establish riprap size and thickness. Provide the bases for filter thickness and gradation. Provide the estimated scour depths, and basis therefore, anticipated at the toe of the dike during the design flood and PMP. Provide detailed channel cross-sections that were used in riprap design.
- (b) Document that the riprap will withstand the effects of flood waves and channel velocities created by the failure of Stoney Creek reservoirs, assuming various levels of

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flow (up to 1/2 PMF) in the Susquehanna River. Include wave heights and velocities and describe the nature of the waves.

(c) Discuss any adverse effects on the access bridge for flows up to and including the PMF, due to accumulation of debris, scouring of bridge piers and abutments, and sedimentation. Will the bridge provide access to TMI for all Susquehanna River flood levels up to and including the PMF? Discuss the need for access during floods.

(d) Describe placement of the riprap. Was, or will any riprap be placed underwater?

(e) Provide the bases for design of additional riprap protection that may be required in the vicinity of structures which protrude into the channel flow area or otherwise may produce vortices and/or other undesirable flow patterns.

(f) Furnish results and bases of computations of wave action on the levee and safety-related facilities for the levee design flood and the PMF. Provide the bases for your decision not to place riprap on the south dike across the island.

(g) Provide assurances that all safety-related structures have been adequately designed to withstand flooding and the static and dynamic effects thereof, such as wave action, runup, and splash during the occurrence of the PMF.

32.2.7.
(2.4.11) Present in detail the hydraulic design bases for the determination of water surface elevations during lowflow conditions.

32.2.8. Provide assurances that liquid effluents can be discharged through the plant discharge canal, or otherwise safely disposed of, at any river level up to and including the level requiring plant shutdown. Discuss any flooding effects related to this structure.

32.2.9
(2.4.14) Provide assurances that all necessary steps taken to prevent flooding of safety-related facilities during various stages of Emergency Closure, Shutdown, or Shutdown Alert can be accomplished in the available time. This discussion should be referenced to the PMF hydrograph, water surface elevations, rate of rise and time required (including bases for time required) to accomplish necessary flood-prevention actions such as gate closures and flood-barrier placements.