Docket No.: 50-410

SEP 18 1985

APPLICANT: Niagara Mohawk Power Corporation (NMPC)

FACILITY: Nine Mile Point Nuclear Station, Unit 2 (NMP-2)

SUBJECT: SUMMARY OF SITE VISIT AT NMP-2 TO REVIEW THE QUALITY CONTROL OF THE REVETMENT DITCH

On August 27, 1985, Mr. Joseph Kane, the NRC staff geotechnical review for NMP-2 made a site visit to NMP-2 to review the quality control (QC) of the revetment ditch. This issue corresponds to confirmatory issue 2 in the Safety Evaluation Report (SER).

Enclosure 1 contains the Summary of Observations, Discussions and Agreements during August 27, 1985, Site Visit prepared by Mr. Kane following the site visit. Enclosure 2 contains the list of meeting attendees.

Mary F. Haughey, Project Manager
Licensing Branch No. 2
Division of Licensing

Enclosure:
As stated

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

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NINE MILE POINT NUCLEAR STATION, UNIT 2
DOCKET No. 50-410

SUBJECT: Summary of Observations, Discussions and Agreements during August 27, 1985, Site Visit

Prepared by: Joseph Kane, DE:SGEB, GES

1. The revetment-ditch structure located at the shoreline of Lake Ontario at the Nine Mile Point Station, Unit 2, was visually inspected from the landside over its approximate 1100 feet length. The revetment-ditch structure is a shore protection barrier and consists of a dike section about 20 feet high with side slopes of 2 horizontal to 1 vertical. A 10 foot wide ditch is located at the toe of the landside slope and is intended for carrying rainfall runoff and return flow from wave overtopping during the probable maximum surge.

   Several types of gravels, stones and concrete dolos units make up the revetment-ditch structure which was founded on bedrock. Only the concrete dolos units (4900 pounds each), the back armor units (5 to 7 ton stones), and underlayer no. 2 (75 to 225 pound stones) are now visible at the surface of this completed structure. Quarry operations to produce the required stone sizes had begun in 1983 and actual construction of the revetment structure was completed between April and November of 1984.

2. The revetment-ditch structure for Unit 2 was observed by the staff to be well constructed with good interlocking of the double layer of concrete dolos units and the very large back armor stones. The stones in underlayer no. 2 were observed to be reasonably well graded with sizes ranging from large to small, resulting in no visible areas of open gaps or voids. The stones appeared to be durable and of good quality with no signs of weathering after approximately one year of exposure. Photographs were taken of the surface stones and dolos units that included the use of a survey rod to permit visual perception of the wide range in stone sizes.

3. At the site meeting which followed the visual inspection of the revetment-ditch structure, discussions were held between the applicant and its consultant and the NRC staff. The initial topic discussed was the technical specification provisions which would be required for long-term monitoring of the revetment-ditch structure during years of plant operation. The representatives from Niagara Mohawk Power Corporation (NMPC) briefly covered their assessment of the example technical specification from the Fermi project which had been provided by the staff to the applicant prior to the site visit. The applicant identified certain shore protection barrier design and construction features for the Nine Mile Point project which were considered superior to the Fermi project. Because of these differences, the applicant proposed significant changes in the frequency of monitoring for the Nine Mile Point project. The major points of the NMPC proposal included:

a. Perform a visual inspection of the revetment-ditch structure once per year.

b. Perform a Level III optical survey of key control points on the crest and dolos units if major structural changes were identified by the annual visual inspection.

c. Perform a Level III survey within the first year after fuel load and then every 10 years thereafter.

4. The staff responded that the ten year interval for surveying the seismic Category I shore protection structure appeared excessively long. After considerable discussion, the following agreements were reached:

a. The applicant will provide a table, similar to Table 3.7.3-1 in the Fermi technical specification, which will establish the coordinate location and "as-built" control elevations for a minimum of three survey point locations (two points at crest and one at toe of landside slope) across the shore protection structure. The three minimim control points are to be provided at each 100 feet station interval. (In response to staff questioning, the applicant indicated that this survey information was now available in their records and had been recorded following completion of the revetment-ditch construction).

b. The applicant will perform a visual inspection of the revetment-ditch structure at least once per year and within seven days after a severe storm event. The applicant is to provide the staff with a description of what features are to be inspected during a visual inspection (e.g. check for deterioration of concrete and stone quality, maintenance of interlocking, movements, erosion, build-up of debris on structure, etc.) A severe storm will be defined as a storm that causes the crest elevation (el.263 ft.) to be overtopped by wave run-up (This definition had been suggested by the staff's HES reviewer prior to the site visit).

c. The applicant will perform a level III survey (accuracy of approximately 0.25 inch) on at least one control crest point at each of the 100 feet station intervals at a minimum frequency of once per year and after any severe storm event.

d. The applicant will perform a Level III survey prior to fuel loading (now scheduled for February 1986) on the same survey point locations where the "as-built" control elevations had been established. If recorded total settlements for each survey point location do not exceed

two inches between the initial survey and the second survey, and between successive surveys during future monitoring, the frequency of the next instrument survey could be lengthened to once every two years. Settlements at any control point greater than two inches between successive surveys would automatically require the next survey at a frequency not to exceed once a year. Regardless of the survey frequency, if any settlement point location was recorded to have a total settlement in excess of one foot from its "as-built" control elevation, the applicant would be required within 90 days of its discovery, to submit a special report to the NRC. The report would need to (1) address the reason for the vertical movement, (2) provide a planned course of restoration of the structure to design elevations and a schedule for accomplishing this work, (3) provide current elevations of each control point and (4) evaluate risks and justify continued plant operations during repair of the revetment.

5. The final topic discussed at the site meeting dealt with the applicant's statistical approach for determining the acceptability of the revetment materials. This approach is covered in the applicant's submittal of August 20, 1985, in a letter from C. V. Mangan, NMPC to W. Butler, NRC. The statistical approach used by the applicant and the results from this study are different from the construction control limits on weight and size requirements which are stated in the FSAR. In explaining the reasons for the changes to the original FSAR criteria, the applicant's consultant described the problems in consistently producing stones of a specified weight and size from the blasting and quarry operations that are normal for this type of work and which were encountered in the early stages of the Nine Mile Point work. Based on the staff's past technical experiences, where similar difficulties with quarry operations were encountered, the staff believes the applicant's adjustments in the field were carefully considered and properly made and are a major reason that resulted in the well constructed revetment-ditch structure. The staff plans to address this aspect of deviations from the FSAR in greater detail in the scheduled SER Supplement; no additional documentation for this topic is required from the applicant.

List of Attendees
August 27, 1985 Site Visit at Nine Mile Point Nuclear Station, Unit 2

NAME	AFFILIATION
Norm Rademacher	Niagara Mohawk-Licensing
Lawrence Prunotto	Niagara Mohawk-Structural Engr.
Kim-Fun, Tsang	Stone & Webster-Geotechnical Engr.
Joseph Kane	NRC, NRR, DE-Geotechnical Engr.