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 YOUNGBLOOD, B. J. Licensing Branch 1

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SUBJECT: Forwards corrections to util 800610 response to NRC geologic info Request Q3611 & to 801031 rept of geologic investigation of facility radwaste thrust structure.

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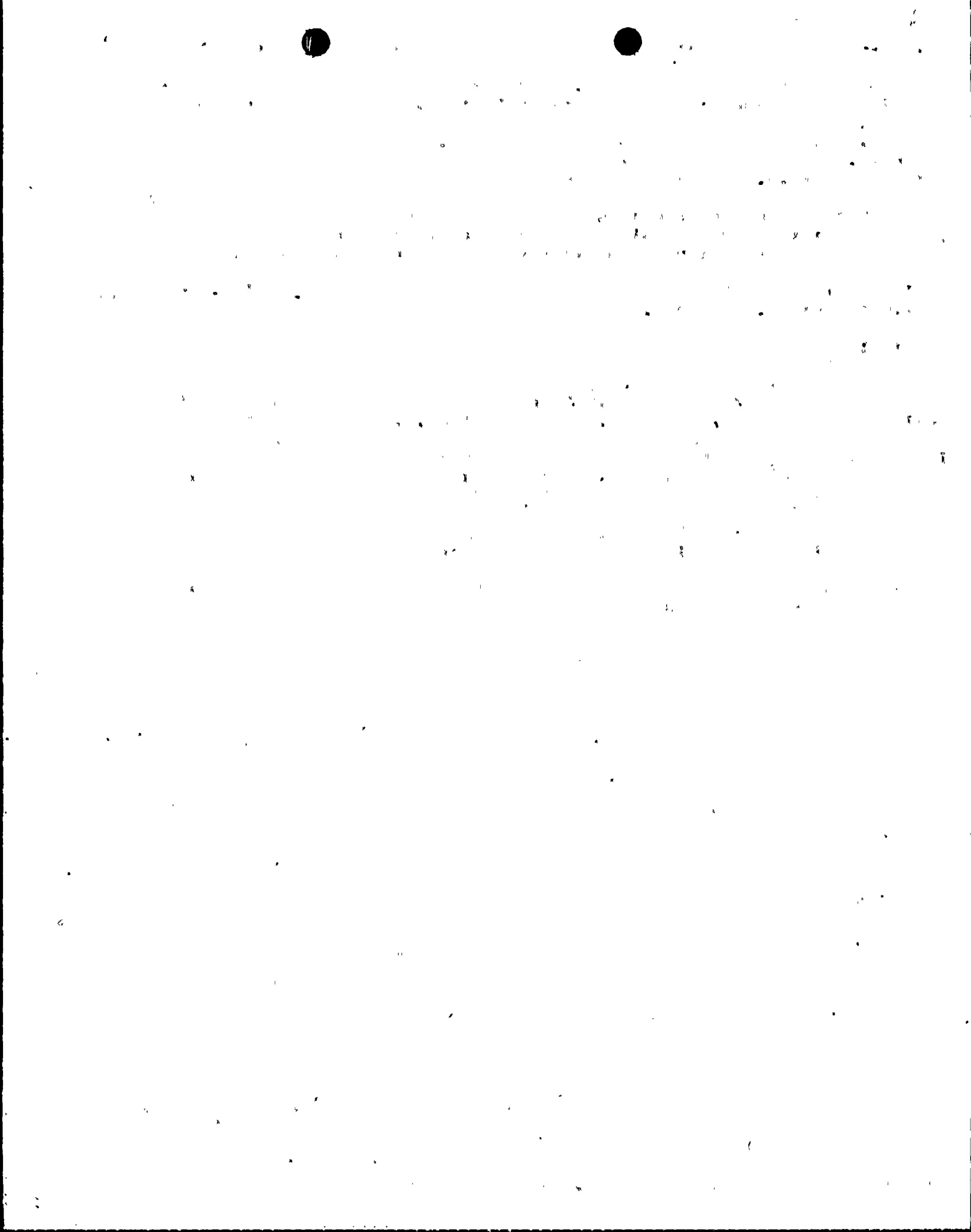
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February 2, 1981

Mr. B. J. Youngblood, Chief
Licensing Branch No. 1
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

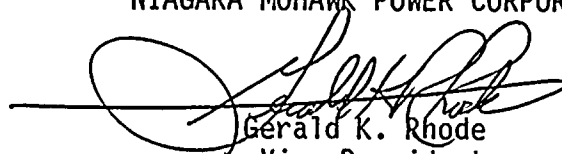
Dear Mr. Youngblood:

Re: Nine Mile Point Unit 2
Docket No. 50-410

Enclosed are twenty-five (25) copies of a correction to the Niagara Mohawk response to the Nuclear Regulatory Commission geologic information Request Q361.1 and to the report of the geologic investigation of the Nine Mile Point Unit 2 Radwaste Thrust Structure. These reports were submitted to the Office of Nuclear Reactor Regulation on June 10, 1980 and October 31, 1980.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION



Gerald K. Rhode
Vice President
System Project Management

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NIAGARA MOHAWK POWER CORPORATION

Nine Mile Point Unit 2

Docket No. 50-410

Corrections to Geologic Report

Attached are 25 copies of the following pages:

1. Page 9 to Niagara Mohawk's response to the Nuclear Regulatory Commission's geologic information Request Q361.1.
2. Page 90 to the geologic investigation of the Nine Mile Point Unit 2 Radwaste Thrust Structure.



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4. Post-Pleistocene (Holocene) movements have been small if they have occurred at all. It cannot be demonstrated that no Holocene movements have occurred, as no reference features (e.g. dated infilling sediments) extend entirely across the zones of disturbance.
5. Future movements along the structure are not likely to occur. Further relief of the limited amounts of strain now in the rocks will be distributed in the affected ground as dilation and small movements along fractures and bedding surfaces. The Radwaste Structure is so nearly dead at present levels of exposure that its participation in such future movements would amount to no more than a small fraction of an inch ($\leq 1/4$ inch). It is still the judgmental opinion of Dames and Moore that the movement on the Radwaste Thrust structure would be very slight amounting to either a negligible movement or at the most a small fraction of an inch. However, Dames and Moore has recently pointed out that the state of the art for predicting future movement of the Radwaste structure does not enable them to give specific assurance that the above judgment does indeed represent a maximum credible movement. Consequently, additional mathematical model studies have been conducted which lead Dames and Moore to conclude that one inch is a conservative allowance for future maximum credible movement. Therefore, an allowance of one inch will be used for design purposes.
6. The Radwaste Structure is not seismotectonic."

Based on these conclusions it was judged that movements of the Radwaste Structure (if any) would be of no consequence to the operation of the plant.



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- "The faulting is not related to current tectonic processes that could introduce additional amounts of strain energy" (Philbrick/Jahns, Appendix F). Thus, as stated in their report (Appendix F), "it can be concluded that no increase in the amount of stored strain energy will occur during the coming centuries".
- Dr. Price postulated that the stresses acting normal to the boundary faults act as clamping stresses restraining the movement of the "thrust" sheet. Rebound or crustal tilting could reduce these stresses and allow the "thrust" sheet to move. However, as a result of the in situ stress program, it was demonstrated that the clamping stresses are negligible and, therefore, not a significant factor in the overall equilibrium.

4. Future Movement of the Radwaste Structure

- It was not possible to demonstrate with certainty that no Holocene movements have occurred. The relationship of the lacustrine clays which are approximately 11,000 years old to the bedrock deformation is debatable and does not provide unequivocal resolution of the age of latest deformation.
- The possible future displacements on the "thrust" faults cannot be ruled out. Drs. Jahns and Philbrick concluded that "future movements along the structure

are not likely to occur". However, should they occur it is expected that further relief will involve "dilation and small movements along fractures and bedding surfaces". Because of the inability of the structure to build up significant amounts of strain energy, Drs. Philbrick and Jahns further concluded that "the radwaste structure is so nearly dead at present levels of exposure that its participation in such future movements would amount to no more than a small fraction of an inch".

° Based on observations of analogous geologic structures, by Dr. Jahns in Maine, Vermont, New Hampshire, Massachusetts and New York and by Dr. Philbrick in Pennsylvania, West Virginia and Tennessee, it has been concluded that any future movements should not exceed 1/4 inch. It is still the judgmental opinion of Dames and Moore that the movement on the Radwaste Thrust structure would be very slight amounting to either a negligible movement or at the most a small fraction of an inch. However, Dames and Moore has recently pointed out that the state of the art of predicting future movement of the Radwaste structure does not enable them to give specific assurance that the above judgment does indeed represent a maximum credible movement. Consequently, additional mathematical model studies have been conducted which led Dames & Moore to conclude that one inch is a conservative allowance for future maximum credible movement. Therefore, an allowance of one inch will be used for design purposes.