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RECIP. NAME RECIPIENT AFFILIATION
ADENSAM, E. G. BWR Project Directorate 3

SUBJECT: Forwards marked-up FSAR pages & submits info on reactor dewatering sys to clarify 860819 & 22 ltrs, respectively, per staff concerns.

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NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202/TELEPHONE (315) 474-1511

NMP2L 0903
October 10,1986

Ms. Elinor G. Adensam, Director
BWR Project Directorate No. 3
U.S. Nuclear Regulatory Commission
7920 Norfolk Avenue
Washington, DC 20555

Dear Ms. Adensam:

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

In response to concerns expressed by your staff, the following information is provided relating to Niagara Mohawk letters dated August 22, 1986 (NMP2L-0851) and August 19, 1986 (NMP2L-0825).

Letter dated August 22, 1986

Question: Why was the word "all" removed from page 2.5-171a?

Response: "All" was removed to better describe the reactor dewatering system. The sumps are provided to control the water level around the Reactor Building foundation. There will be residual water remaining in the sump that will not be removed and, therefore, the removal of "all" is a more appropriate description of system performance.

Letter dated August 19, 1986

Question: Request a written statement that the final reports referenced in the change have been reviewed and support the Final Safety Analysis Report position.

Response: Attached are revised Final Safety Analysis Report (FSAR) pages 2.5-5 and 2.5-128 to reflect the completed review and support of the FSAR position.

Very truly yours,

C. V. Mangan
Senior Vice President

TS/pns
2122G
xc: W. A. Cook, NRC Resident Inspector
Project File (2)

B001

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
Niagara Mohawk Power Corporation) Docket No. 50-410
(Nine Mile Point Unit 2))

AFFIDAVIT

C. V. Mangan, being duly sworn, states that he is Senior Vice President of Niagara Mohawk Power Corporation; that he is authorized on the part of said Corporation to sign and file with the Nuclear Regulatory Commission the documents attached hereto; and that all such documents are true and correct to the best of his knowledge, information and belief.

C V Mangan

Subscribed and sworn to before me, a Notary Public in and for the State of New York and County of Onondaga, this 10th day of October, 1986.

Christine Austin
Notary Public in and for
Onondaga County, New York

My Commission expires:

CHRISTINE AUSTIN
Notary Public in the State of New York
Qualified in Onondaga Co. No. 4787687
My Commission Expires March 30, 1987

CHRISTINE AUSTIN
Notary Public in the State of New York
Qualified in Onondaga Co. No. 4782637
My Commission Expires March 30, 19__

A geothermal test well drilled in the Spring 1982, penetrated the basement near Auburn, NY. Preliminary results will be reviewed when available, and basement composition compared to information reported herein. INSERT A

Deep well data from western New York State[11,12] indicate extensive areas of granite and marble. Locally, gabbroic intrusives, surrounded by areas of metavolcanics are known[12].

The Central Metasedimentary Belt of the Canadian Shield in Ontario consists of rock types similar to those extracted from deep wells in central and western New York State. In the belt, local mafic intrusives and extensive felsic intrusive bodies are surrounded by highly deformed gneisses, marbles, and schists[6]. This information suggests that prominent local density and magnetic contrasts may exist in the basement rocks. Moreover, the pattern of regional Bouguer gravity anomalies (Figure 2.5-8)[13,14] and regional aeromagnetic anomalies (Figure 2.5-9)[15] confirms such contrasts. From these observations, it appears reasonable to suggest that the Central Metasedimentary Belt extends southward from the Canadian Shield into central and western New York. It is uncertain, however, how far south this belt continues.

Paleozoic Sedimentary Rocks

The Paleozoic formations in northern central New York State form a wedge that thickens to the south, away from the Canadian Shield. The strata are relatively flat-lying but have been rotated slightly, exhibiting a gentle, regional gradient to the south (approximately 9.5 m/km, 50 ft/mi). In the vicinity of the Nine Mile Point site, Late Ordovician formations have been exposed by erosion that removed younger units (Figure 2.5-3). Farther south, younger Silurian, Devonian, and Carboniferous formations are still preserved in the central part of the Appalachian Basin.

The basal units of this sedimentary wedge consist of an Early Cambrian clastic sequence (the Potsdam Sandstone) and an Ordovician carbonate sequence (the Beekmantown, Black River, and Trenton Groups) both of which were deposited in a relatively stable shelf environment (Figures 2.5-7 and 2.5-10). These strata are overlain by a Late Ordovician-Early Silurian clastic sequence, which constitutes the Utica Shale and the Lorraine Group (Whetstone Gulf and Pulaski Formations), the Oswego Sandstone, the Queenston Formation, and the Grimsby Formation[16]. This sedimentary sequence represents a transition from a shelf to a terrestrial

2.5.4.1.4 Unrelieved Residual Stresses

Regional Stress Conditions

A review of stress determinations in the Lake Ontario region was undertaken in 1978[94] to assist in evaluating the stress conditions at Nine Mile Point. Five groups of data were considered with the intention of identifying regional characteristics of rock stress. Of these five groups, only the results of overcoring and hydrofracturing are field measurements of in situ stress and even these measurements are based on simple models that result in approximations of the in situ stress. Additionally, analyses of earthquake seismic records, surface strain-relief observations and trends of postglacial buckles were compiled and assessed. These measurements and indicators of stress provide a profile of stress conditions from the surface and near surface (surface strain relief, postglacial buckles, and overcoring) through intermediate depths (hydrofracturing) to depths of up to 15,240 m (50,000 ft) (earthquake focal mechanisms).

The available hydrofracture test data in western New York State are presented in Volume III of Reference 94. Maximum horizontal stresses of 105 to 160 kg/sq cm (1,495 to 2,275 psi) are reported from tests ranging from 152 to 528 m (500 to 1,700 ft) below the ground surface. The maximum principal stresses, as determined by hydrofracturing, generally trend east-northeast. Additionally, hydrofracturing tests were completed by the USGS in a well near Auburn, NY, in the spring of 1982. These tests, conducted as part of a NYSERDA and ESEERCO-sponsored geothermal project, were performed in the Paleozoic cover rock; but test results were not available at the time of the writing of this document. INSERT B

Table 2.5-3 is an updated summary of near-surface overcore test sites and results in the region. An outstanding characteristic of the data is the variability of both the maximum and minimum horizontal stress magnitudes, stress differences, and stress orientations. The reported magnitude of maximum horizontal stress at depths of less than 26 m (85 ft) varies from -49 to 302 kg/sq cm (-700 to 4,300 psi) and averages approximately 84 kg/sq cm (1,200 psi). Despite the variability of stress magnitude and orientation, the regional data indicate a horizontal stress that is higher than the value that could be attributed to a simple gravitational loading by the present overburden.

INSERT A

Core retrieved from the Auburn Geothermal Test well at 1560 meters depth consisted of a coarse grained, light gray massively bedded dolomite marble with occasional trace amounts of pyrite, chalcopyrite with bornite and chalcocyte. This basement rock type is consistent with rock types previously extracted from deep wells in southern Ontario and Central and Western New York State.

INSERT B

Results of these tests show that the maximum horizontal stress is oriented approximately N85°E with a magnitude that varies from 141 $kg/cm^2 \pm 10$ kg/cm^2 at 593 meters to 499 $kg/cm^2 \pm 10$ kg/cm^2 at 1482 meters depth. These results agree in orientation and relative magnitude with other hydrofracturing results in western New York State.