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NEW YORK STATE QUESTIONS ON INDIAN POINT SEISMICITY

On April 22, 1974, we met with representatives of the New York State Atomic Energy Council and the State Geological Survey at their request to discuss the geologic and seismic information contained in the Final Safety Analysis Reports for the Indian Point facilities. They are concerned about the adequacy of the seismic design of the Indian Point plants for potential earthquakes on the Ramapo fault, which passes less than one mile from the plant site. They cited several published reports which suggest that the Ramapo fault may be seismically active. (This fault is a well known, major structural feature of the region that is generally postulated on geologic evidence to have been recurrently active throughout the recognizable tectonic development of the area during the last 700 to 800 million years.) Two of the reports propose that historical earthquake activity (both early macroquakes and recent instrumentally recorded microquakes) may be associated with this fault zone. In another report, a swarm of micro-earthquakes centered about twelve miles north of the Ramapo fault were found to result in a focal mechanism consistent with a northeast trending fault parallel to the trend of the Ramapo fault. This information is cited by the New York State Geological Survey staff as a strong basis for asserting that the Ramapo fault is a "capable" fault within the definition of 10 CFR Part 100 Appendix A and could cause an earthquake to be localized in the vicinity of the site resulting in an accaleration higher than the SSE g values for which the Indian Point units are designed. On the latter point, they cite certain recordings of very high accelerations in the source areas of several earthquakes in California.

With respect to the central issue, we do not consider the studies cited above to show that the Ramapo fault is "capable." No evidence of surface slippage has been found on any segment of the fault zone. While one recent study has shown many offsets of glacial striations up to one inch in magnitude along the Hudson River, their significance is unclear. They could be associated with tectonic stresses, but can be equally well explained by glacial unloading, thermal or chemical processes or frost heaving of the rocks. Failure to find correlations between these small offset features and earthquake epicenters favors a nontectonic interpretation. The reports cited do, however, indicate a need for additional

geologic and seismic data that can be used to assess the activity on the Ramapo fault. For example, accurately located microearthquakes might provide more definitive indications.

We recommend that a meeting with the applicant to discuss the above issues be arranged in the near future.

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