

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of	)	
	)	
CONSOLIDATED EDISON COMPANY	)	Docket Nos. 50-3
OF NEW YORK, INC., and	)	50-247
POWER AUTHORITY OF THE STATE	)	50-286
OF NEW YORK	)	
	)	
(Indian Point Station, Units 1, 3	)	(Show Cause - Seismic)
and 3)	)	

AFFIDAVIT OF PHYLLIS SOBEL, Ph.D.

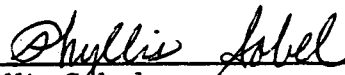
I, Phyllis Sobel, do depose and state:

1. My Professional Qualifications are attached to this affidavit.
2. I have reviewed the record in this proceeding and the existing information in the area of the Ramapo Fault. My preliminary assessment is found below.
3. Since 1975, Consolidated Edison has operated 12 seismic stations located around the Ramapo Fault and near the Indian Point site.
4. The Lamont-Doherty Geological Observatory of Columbia University (Lamont) has operated a network of seismic stations in New York and New Jersey since 1970. In 1978, Lamont's seismic monitoring program was funded by the New York State Energy Research and Development Authority, the U. S. Geological Survey, the New York State Geological Survey, and the NRC Office of Nuclear Regulatory Research (RES). In 1976, 1977 and 1978, seismologists at Lamont

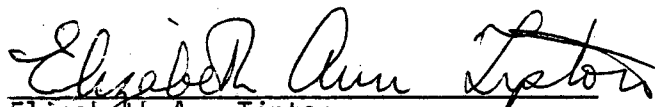
increased coverage of the southern end of the Ramapo Fault by establishing five stations in New Jersey (station names - GMTN, GPD, LVNJ, PRIN, RAMA). In 1978, Lamont increased coverage of the northern end of the Ramapo Fault by establishing two stations (station names - CLIN and WPNY). Thus, although the Con Ed network has not been expanded to the extent suggested by the State and the Staff in the Indian Point 3 hearings, coverage of the Ramapo Fault system has increased in recent years by the addition of 7 stations.

5. These two networks have provided valuable information on the microseismicity of the region. This is the type of information envisioned by the Staff when it imposed condition 2(C) 4 on the Indian Point Unit 3 operating license.
6. The Staff continues to believe that there is no geological evidence to indicate that the Ramapo Fault is capable within the definition of Appendix A to Part 100. However, there continues to be sufficient uncertainty whether the Ramapo is a localizer of seismicity.
7. For this reason, the Staff of NRR is preparing an NRR User Need Statement for RES which will ask that the following tasks be performed:
  - a. Incorporate the Con Ed stations in the Lamont network in the region around the Ramapo Fault. Lamont and the NRC Staff should work to determine optimal deployment of the Con Ed stations to monitor seismicity in the Highlands.

- b. Determine the velocity structure of the crust in the Highlands Region. Reevaluate instrumental data using the velocity structure to determine more accurate epicentral locations.
  - c. In the quarterly Lamont bulletin include maps for the seismicity occurring in the reporting period and for cumulative instrumentally determined seismicity in the Highlands.
8. The Staff believes that a final decision on this funding will be made in the very near future.

  
Phyllis Sobel

Subscribed and sworn to before me  
this 7th day of November, 1979.

  
Elizabeth Ann Tipton  
Notary Public in and for the State  
of Maryland, Montgomery County

My Commission expired: July 1, 1982.

PHYLLIS SOBEL, PH. D.  
GEOSCIENCES BRANCH  
DIVISION OF SITE SAFETY AND ENVIRONMENTAL ANALYSIS  
U. S. NUCLEAR REGULATORY COMMISSION

My name is Phyllis Sobel and I presently reside at 3526 South Stafford Street, Arlington, Virginia 22206. I am employed as a Geophysicist in the Geosciences Branch, Division of Site Safety and Environmental Analysis, Office of Nuclear Reactor Regulation, Washington, D. C. 20555.

PROFESSIONAL QUALIFICATIONS

In 1969 I received a B. S. degree in Geological Sciences from the Pennsylvania State University. I also pursued graduate studies at Princeton University and the University of Minnesota. In 1978 I received a Ph. D. degree in Geophysics from the University of Minnesota.

From 1970 to 1973 I was a teaching assistant and research assistant at the University of Minnesota. I taught undergraduate laboratories in physical geology, historical geology, and oceanography courses. My activity as a research assistant was in the development and use of a program to simulate marine magnetic anomalies. My interests in graduate school included all areas of geophysics, structural geology, and marine geology. My field experiences included a geophysical cruise to the South Pacific to gather detailed geophysical data on the midoceanic ridge system. My dissertation was a study of seismic phases reflecting off structures below the Earth's crust under several geographic regions.

From 1973 to 1977 I was employed by Teledyne Geotech in Alexandria, Virginia as a research geophysicist. At this corporation's research laboratory I worked on a variety of research problems in seismology related to the detection of nuclear explosions, including (1) the use of filters to extract signals from seismograms, (2) the propagation of Rayleigh waves through heterogeneities, and (3) the characteristics of earthquakes in areas of proposed underground nuclear testing in Asia.

I am a member of the American Geophysical Union and the Seismological Society of America. I have authored or co-authored ten papers published as Teledyne Geotech reports or in the Bulletin of the Seismological Society of America. I have authored or co-authored two papers presented at meetings of the Seismological Society of America.

From October 1977 to March 1978 I was employed as a seismologist by the NRC Office of Standards Development in the revision and development of new regulatory guides and standards and the supervision of technical assistance contracts related to generic problems found in the licensing process. Since March 1978 I have been employed by the Geosciences Branch in the evaluation of the seismological and geophysical data submitted to the NRC in support of a proposed seismic design basis for nuclear facilities. I have participated in the licensing activity for approximately fifteen sites.

**BEFORE THE COMMISSION**

(Indian Point Station,  
Units 1, 2 and 3)

Docket Nos. 50-3  
50-247  
50-286

**(Show Cause - Seismic)**

# CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF MOTION FOR ADDITIONAL TIME TO RESPOND TO NEW YORK STATE ENERGY OFFICE AND CITIZENS' COMMITTEE FOR PROTECTION OF THE ENVIRONMENT PETITIONS FOR REVIEW OF SEISMIC ISSUES" in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class or, as indicated by an asterisk, through deposit in the Nuclear Regulatory Commission's internal mail system, this 7th day of November, 1979.

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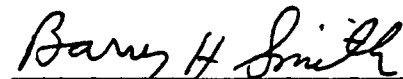
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Counsel for NRC Staff