



APPENDIX D
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

JAN 6 1969

Mr. Harold Price
Director of Regulation
U.S. Atomic Energy Commission
4915 St. Elmo Avenue
Bethesda, Maryland 20545



Dear Mr. Price:

Transmitted herewith in response to a request by Mr. Roger Boyd, is a review of the hydrologic and geologic aspects of the Indian Point Nuclear Generating Unit No. 3 proposed by the Consolidated Edison Company of New York, Inc.

The review was prepared by P. J. Carpenter and H. H. Waldron and has been discussed with members of your staff. We have no objections to your making this review a part of the public record.

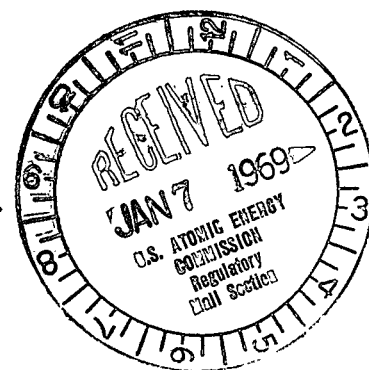
Sincerely yours,

Acting Director

Enclosure:

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Consolidated Edison Company of New York, Inc.
Indian Point Nuclear Generating Unit No. 3
Docket No. 50-286



Hydrology

The Indian Point Nuclear Generating Unit No. 3 will be located adjacent to and immediately downstream of Unit No. 1, in Westchester County, Village of Buchanan, New York, on the east bank of the Hudson River, 2 miles downstream of Annsville Creek, 2½ miles southwest of Peekskill, and 24 miles north of New York City. The unit will employ a pressurized water reactor of 3,025 megawatts thermal or 1,005 megawatts electrical capacity. Water for once-through condenser cooling will be taken from and returned to the Hudson River. The drainage area of the Hudson River at the site is approximately 12,500 square miles.

The hydrologic analysis of the site with respect to the release of radionuclides to the environment from operational or accidental spills, as presented by the applicant, appears to be adequate. Comments on the hydrologic analysis were based on a review of the Preliminary Safety Analysis Report, an independent check of the available data and literature, and an inspection of the site on December 20, 1968.

The Hudson River past the site is subject to tidal action. Discharge at times of normal ebb and flood tides vary between 250,000 and 300,000 cubic feet per second. The natural water supply at the site may be expected to greatly exceed the cooling water requirements at all times.

The design flood level for the plant is 19.3 ft above mean sea level, which corresponds to the stage of the probable maximum hurricane plus spring high tide as computed by the applicant. The analysis of a high spring runoff concurrent with the hurricane surge showed no additional significant rise in the water surface elevation. The flood level for a fresh water design flood of 1,720,000 cubic feet per second, consisting of precipitation runoff, attenuated peak discharge resulting from the breaching of five major dams upstream of the site, and the ebb tide flow, is 16.0 ft above mean sea level. The design flood discharge and stage appear to be reasonable.

Any accidental spill of radionuclides on the impervious paved and built up areas of the plant site could be flushed to the Hudson River directly. Any contaminant which permeated the soil surface in the plant area would be moved to the Hudson River through the very permeable limestone bedrock under the influence of the hydraulic gradient in this unconfined aquifer. Radionuclides which reached the Hudson River accidentally or operationally would be moved up and downstream considerable distances. Poughkeepsie, 30 miles upstream of the site, is the nearest municipality utilizing the Hudson River for water supply. The city of New York may use its Chelsea pumping station, 22 miles upstream, as a supplementary source of water supply during drought conditions. Contaminants entering the Hudson River at the plant site would not likely reach the Chelsea station or Poughkeepsie until at least three

tidal cycles had elapsed, thereby affording some time to monitor the contaminant concentration and initiate alternative water-supply plans or remedial action as necessary.

The deposition of a significant amount of longlived radioactive materials on the relatively permeable soil in the site area, the outcrops of permeable limestone and other consolidated rocks which surround the site, and the numerous water-supply reservoirs located within a fifteen mile radius of the plant, could result in the introduction of radioactive materials into the fresh water supplies of the area.

Geology

The analysis of the geology of the Indian Point Nuclear Generating Plant, Unit No. 3, has been reviewed and compared with the available literature. The analysis appears to be carefully derived and to present an adequate appraisal of those aspects of the geology that would be pertinent to an engineering evaluation of the safety of the site.

The site is located in the New England Uplands Province of New York. According to the applicant's report, Unit No. 3 will be founded in a hard limestone that is well-jointed but reported to be noncavernous; it should provide an adequate foundation for the proposed facility.

There are no known active faults or other young geologic structures in the area that could be expected to localize earthquakes in the immediate vicinity of the site. Although several ancient faults occur in the area, none appears to have been tectonically active since glacial times, or for at least the past several hundred thousand years.

Although it may be anticipated that earthquakes within the general region will continue with approximately the same frequency and with approximately the same intensity with which they have been recorded during the past 100 years, there are no demonstrable geologic controls which could be expected to concentrate such events in the immediate vicinity of the site.