



Commonwealth Edison
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June 10, 1977

Mr. Edson G. Case, Deputy Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555



Subject: Commonwealth Edison Company
Consolidated Meteorology Study of
Northern Illinois

- References (a): Letter Byron Lee, Jr. to J. F. O'Leary
(U.S. AEC), dated August 20, 1973.
- (b): Letter A. Giambusso (U.S. AEC) to Byron Lee, Jr.,
dated October 1, 1973.
- (c): Letter Byron Lee, Jr. to A. Giambusso,
dated July 2, 1974.

Dear Mr. Case:

The attached report describes the findings of research performed for Commonwealth Edison to document atmospheric dispersion in northern Illinois and to determine the amount of on-site meteorological equipment required at nuclear power plants sited here. Your review of this report and approval of its conclusions, with respect to the need for on-site meteorological equipment and measurements programs, is requested.

In 1972, U.S. AEC Safety Guide 23 - Onsite Meteorological Programs (now Regulatory Guide 1.23) was issued to provide guidance to nuclear power plant licensees on suitable onsite meteorological programs. The onsite program was considered necessary in order to provide:

- (1) A conservative and realistic assessment of dispersion of radioactive material from, and the radiological consequences of, a spectrum of accidents.
- (2) An assessment of the potential annual radiation dose to the public resulting from routine releases.
- (3) An assessment of other than radiological environmental effects, such as fogging and icing.

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- (4) A rapid, conservative assessment of the radiological consequences of an accidental release of radioactive material to the atmosphere.

In 1973, with these requirements of Regulatory Guide 1.23 in mind, we proposed to perform research to determine the type of meteorological program required for nuclear stations sited in northern Illinois (Reference (a)). We believed the requirement to maintain meteorological programs at all of our nuclear stations unnecessary because the topographical and meteorological conditions of this region seemed uniform, with the possible exception of areas adjacent to and affected by Lake Michigan. The study's objectives were:

- (1) To determine whether or not on-site preoperational meteorological data are needed to formulate an accurate judgement about the dispersive properties of a site; and
- (2) To determine if a network of off-site instrumented towers provides adequate data for use during emergencies which might arise during plant operation.

Commonwealth Edison then submitted a report entitled "Study of Low-Level Dispersion over Northern Illinois" (Reference (c)). This report described the research to be performed using meteorological data collected at Commonwealth's towers, local National Weather Service installations, and the Argonne National Laboratory.

The results of this study are now available. The attached report documents that conclusions reached regarding a site's dispersive capacity inferred from N site years of preoperational on-site studies are no different from conclusions reached using data from N site years at operating sites in other locations in northern Illinois. Thus, a preoperational program at a new site is unnecessary. However, it was found that variations in meteorological conditions are such that off-site data alone are insufficient for adequate documentation of an emergency. Therefore, when a nuclear plant begins operation, some on-site meteorological measurements are necessary. Sufficient instrumentation for the operational phase includes measurements of wind speed and direction at two tower levels and differential temperature. Dew point temperature measured at the lower level will provide preoperational information for new sites.

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Commonwealth Edison requests that you approve the attached report as the basis for not conducting preoperational meteorological studies on any new sites in northern Illinois. We also request approval of the instrumentation proposed for existing Commonwealth Edison nuclear stations as listed in Table 6.1(e) of the attached report.

One (1) signed original and 59 copies of this letter are provided for your use.

Very truly yours,



R. L. Bolger
Assistant Vice President

Attachments