

*Meteorological Considerations in Preparing a Combined License Application
for a New Nuclear Power Plant to Be Located at a Green Field Site*
Ping Wan (Bechtel Power Corporation)

Nuclear power generation has become an increasingly attractive alternative in the United States (U.S.) power market due to several factors: growing demand for electric power, increasing global competition for fossil fuels, concern over greenhouse gas emissions and their potential impact on global warming, and the desire for energy independence.

This paper focuses on meteorological considerations in preparing a combined license application for a new nuclear power plant to be located at a greenfield site.

In support of the permit applications, the following assessments using onsite meteorological data are required:

- the potential dispersion of radioactive material from, and the radiological consequences of, design-basis accidents to aid in evaluating the acceptability of the site and the adequacy of engineered safety features of a nuclear power plant;
- the maximum potential annual radiation dose to the public resulting from the routine releases of radioactive materials in gaseous effluent;
- the habitability of the control room during postulated design-basis radiological accidents and hazardous chemical releases;
- a near-real-time, ongoing atmospheric transport and diffusion estimate immediately following an accidental releases of airborne radioactive material to provide input to the evaluation of the consequences of radiological releases to the atmosphere and to aid in the implementation of emergency response decisions;
- the potential dispersion of radioactive materials from, and the radiological consequences of, a spectrum of severe accidents to aid in evaluating the environmental risk posed by a nuclear power plant; and
- a realistic assessment of nonradiological-related environmental effects, such as fogging, icing, and salt drift from cooling towers, to aid in evaluating the environmental impact of a nuclear power plant.

Long-term offsite representative data should be used for development of meteorological design criteria of the proposed plant.

This paper describes an onsite meteorological monitoring program that would provide an adequate database for making the required meteorological assessments. In addition, an overview of available computer modeling tools (including the USNRC-endorsed dispersion models), and model input requirements, as well as a brief discussion on use of meteorological data collected on regional meteorological network, will be included.