Doris Mendiola - Industry Comments on Draft Regulatory Guide DG-1164, "Meteorological Monitoring Programs for Nuclear Power Plants"

From: "BELL, Russ" <rjb@nei.org>
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Subject: Industry Comments on Draft Regulatory Guide DG-1164, "Meteorological Monitoring Programs for Nuclear Power Plants"

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November 27, 2006

Chief, Rules and Directives Branch
Office of Administration
U.S. Nuclear Regulatory Commission
Mail Stop T6-D59
Washington, DC 20555-0001

SUBJECT: Industry Comments on Draft Regulatory Guide DG-1164, *"Meteorological Monitoring Programs for Nuclear Power Plants"*

PROJECT NUMBER: 689

On behalf of the nuclear industry, the Nuclear Energy Institute (NEI)[1] is pleased to submit the following response to the *Federal Register* notice, dated September 22, 2006, *Volume 71, Number 184,* which invited written comments on the Proposed Revision 1 of Regulatory Guide 1.23 (DG-1164), *"Meteorological Monitoring for Nuclear Power Plants."*

Sincerely,

Russell J. Bell
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Enclosure

[1] NEI is the organization responsible for establishing unified industry policy on matters affecting the nuclear energy industry. NEI's members include all entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, nuclear material licensees, and other organizations and individuals involved in the nuclear energy industry.

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NUCLEAR ENERGY INSTITUTE

Russell J. Bell
DIRECTOR, NEW PLANT LICENSING
NUCLEAR GENERATION DIVISION

November 27, 2006

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The enclosure provides comments and recommendations from the NEI Combined License Issues Task Force. The industry review has noted many positive changes to DG-1164 and provides recommendations for further enhancements to improve clarity and ensure consistency with current industry standards and practices.

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We appreciate the opportunity to comment on the draft documents. If you have any questions regarding this effort please contact Leslie Kass at (202) 739-8115; lck@nei.org.

Sincerely,

Russell J. Bell

Enclosure

c: Mr. William S. Raughley
Mr. Stephen C. O'Connor
NRC Document Control Desk

Comments on Draft Regulatory Guide DG-1164 (Dated October 2006)

The proposed Regulatory Guide is well written and organized, reflects current industry practice, and addresses latest technologies for operational meteorological measurements.

Specifically the positive changes from existing documentation are:

- Improved guidance about heights of meteorological measurements
- Expanded guidance about siting of meteorological instruments
- Better information about system accuracies that is consistent with the state-of-the-art for field measurements
- Clarification of data recovery and maintenance, including routine inspection of tower guy wires and anchors
- More complete information about data reduction and compilation
- Additional guidance concerning complex terrain sites

As another general comment, there is opportunity for NRC to further enhance the proposed Regulatory Guide to better recognize the context of the guidance with licensing and/or Emergency Planning purposes. While Emergency Planning application of the proposed guidance is recognized in this document, the guidance is more focused on licensing support issues. NEI encourages NRC to consider all the applications and audiences that will rely on this guidance and to provide clarification throughout the guidance to ensure the context is clearly identified.

Comment	Recommendation
Section B - Discussion	
1. The proposed revision allows for a single set of instruments to obtain the basic data needed for the specified assessments. 2. The minimum amount of meteorological data needed at docketing for an ESP or COL is a representative consecutive 24-month period, including the most recent 1-year period. a. Industry would prefer to submit a representative 12-month period, including the most recent 1-year period at docketing of an ESP or COL for a Greenfield site. b. Clarify "representative" and whether the term is in regards to time or locale. c. Provide guidance or	1. After TMI, NUREG-0654 called for the use of backup towers at all commercial nuclear plants. Most plants have installed backup towers following issuance of this regulatory guidance. In some cases rather than put in backup towers, plants have put in redundant instrumentation. In either case, the use of this "backup" data has been very useful in attaining the 90% data recoverability for all parameters required in ANSI 3.11 as well as in the proposed new guidance. The use of backup towers or redundant instrumentation could be continued in the future and discussed in the new guidance as a way to attain high data recoverability. 2. Consider the following recommendations:

Comment	Recommendation
interpretation for "the most recent 1-year period".	a. Industry recognizes NRC has addressed similar comments in DG-1145 (C.I.2.3.3-1) and requests the response to those comments be incorporated in this regulatory guide as appropriate. b. If "representative" refers to locale, then wording should specify using either onsite meteorological data or offsite data that may be shown, by comparison with onsite data, or due to proximity of the measurement system to the site, to describe the meteorological conditions of the site. c. Consider changing the text to read "a consecutive 24-month period of data that is defendable, representative and complete, but not older than 10 years from the date of docketing if existing on-site data are to be used."
Section C – Regulatory Position	
1. Definitions a. Dew Point should be defined as Dew Point temperature b. The definition of Pasquill Stability Class should state the preferred determination methods. c. System Accuracy – Does the term "displays" refer to local displays at the meteorological tower, in the Control Room, or to the final data set? d. The defining term of "temperature" is ambiguous, as there are many types of temperature.	1. Definitions a. Change "Dew Point" to "Dew Point Temperature (often referred to only as Dew Point)." b. State the preferred determination method (delta-T), but note that other methods can be justified by applicant. c. Clarify the extent of the system which must be included in the accuracy evaluation. d. Change "Temperature" to "Ambient Temperature".
2. Meteorological Parameters a. "Release points significantly greater than 60 meters" is not defined adequately. b. Clarify the nature of the "releases at the 60-meter level" referred to in Footnote 5.	2. Meteorological Parameters a. Clarify "significantly greater than". b. Explicitly define whether the releases are routine, accidental or both. c. Consider moving the contents of

Comment	Recommendation
c. Footnote 5 contains significant guidance. d. Footnote 6 does not make provision for the appropriate use of the sigma theta method for determining atmospheric stability. e. Footnote 6 contains significant guidance. f. Measurement of "Precipitation at ground level" may not be practical in some cases (e.g., at sites with heavy snowfall and drifting snow). g. The guidance suggests certain instrumentation should be provided at sites where there is a "potential for fogging or icing." h. Footnote #7 states the importance of the amount of precipitation for severe accident dose consequence analysis using the MELCOR code that accounts for the efficient removal of particulate radio-nuclides from the plume by wet deposition. i. Footnote 7 provides incomplete rationale for the collection of precipitation data. j. Footnote 7 contains significant guidance. k. The guidance regarding measurements of humidity at height(s) representative of water-vapor release is not feasible as currently stated, in particular for sites with natural draft cooling towers. l. Reasons for collecting humidity related parameters (dew point or wet-bulb temperature) at heights representative of water-vapor release are not clear. m. In addition, natural draft cooling towers have discharge points sufficiently high so as not to cause local fogging or icing. Humidity measurements at the elevation of the discharge are neither practical nor necessary.	Footnote 5 into the text of the guidance to convey the significance of the statements. d. Recommend inserting wording at the end of the footnote such as: "In addition, alternate methods (e.g., sigma theta) may be used for classifying atmospheric stability for applications other than design basis evaluations (e.g., Emergency Plan evaluations). e. Consider moving the contents of Footnote 6 into the text of the guidance to convey the significance of the statements. f. Consider revising the text to state "Precipitation measurements should represent ground-level precipitation near the base of the tower". g. Provide an explicit basis for determining when this requirement applies. Industry experience (including at fossil plants) is that fogging and icing do not occur at sites that employ cooling ponds or towers. h. Clarify how the precipitation data is going to be used in the MELCOR code which requires hourly input data for every hour of a year. What is the acceptable data recovery rate (e.g., 90%) for precipitation, and provide methodology for replacing the missing data. i. To complete the rationale, consider adding the following language to footnote 7: "Many accident dispersion models use rain rate to determine the deposition velocity and transport of radionuclides. For emergency planning purposes this can be an important factor in the dose rate particularly near the plant." j. Consider moving the contents of Footnote 7 into the text of the guidance to convey the significance of the statements.

Comment	Recommendation
	k. Provide clarification about the heights of humidity measurements. Consider the following language: "…instrumentation should be provided for measuring temperature and humidity…such that water-vapor release can be characterized." l. Provide clarification for how the humidity data collected at the release height is to be used in assessing the environmental impact. m. The parenthetical note should specify <u>mechanical draft</u> towers.
3. Siting of Meteorological Instruments a. There are 2 criteria given for avoiding airflow modifications by obstructions: (i) with obstruction heights exceeding one-half the height of the wind instrument and (ii) with 10 obstruction heights separation between the wind sensor and the obstruction. b. "The tower should not be located on or near permanent manmade surface"	3. Siting of Meteorological Instruments a. Provide an explicit basis for determining when each criterion applies. For example, if this is the intent, provide clarification such as "criterion (i) applies when the obstruction is within 10 obstruction heights from the tower." b. Clarify or quantify "near."
4. Instrument Accuracy and Range It is not clear if the expected range of climatic conditions refers to normal values or to historical extremes.	4. Instrument Accuracy and Range Address the need to record extreme values and the acceptable system accuracy under such conditions.
5. Instrument Maintenance and Servicing Schedules The guidance notes that "Where applicable, guyed wires and anchors used to support guyed towers should be inspected annually." Tower manufacturers recommend that towers be inspected annually and that foundations be inspected every 5 years. ANSI/TIA-222-G, "Structural Standard for Antenna Supporting Structures and Antennas," denotes a three year interval for inspection of guyed masts.	5. Instrument Maintenance and Servicing Schedules Recommend that this statement of tower inspections be clarified regarding the description and frequency of inspections and that it be more consistent with industry practices.

Comment	Recommendation
6. Data Reduction and Compilation a. Wind speed gust is not defined and no guidance is provided for how to collect such data. b. No guidance is provided for what is considered "high frequency of low wind speeds" as provided in Footnote 10. c. It is not clear what and how joint frequency distributions of humidity data summaries should be developed and how these data will be used.	6. Data Reduction and Compilation a. Define "wind speed gust" and provide an appropriate sampling methodology. b. Clarify the circumstances that would constitute a "high frequency of low wind speeds." Provide guidance for determining the number of additional wind speed categories. c. Provide guidance about methodology to be used.
Appendix A	
1. Recommended Format a. The use of 5 integers (99999 and 77777) is not consistent with the format provided in the 2nd paragraph: "the remaining records, one per hour, contain the meteorological data in the format A4, I4, I3, I4, 25F5.1, F5.2, 3F5.1." The format specification provided in the 3rd paragraph calls for 25F5.1. b. In addition, in the 2nd paragraph, the format for solar radiation is specified as F5.2; however, the format specified on Page A-3 for solar radiation is F5.1.	1. Recommended Format a. To be consistent with the above format, missing data and calm hour should be coded as 999.9 and 777.7, respectively, instead of 99999 and 77777. b. The format for solar radiation provided on Page A-3 should be corrected to F5.2.
2. Description of changes a. Proposed Change Number 6 states "Delete the criterion for using standard deviation of horizontal wind direction as a basis for classifying atmospheric stability. b. Proposed Change Number 11 adds a criterion that an electronic copy of the hourly database should be submitted with the application.	2. Description of changes a. Many commercial nuclear plants currently use sigma theta as a backup method for determining stability class in the context of Emergency Planning. The new guidance discourages the use of any method other than delta temperature for determining stability for design basis evaluations. While delta temperature has been the most widely used method in the past, ANSI 3.11 recognizes the use of other methods. The proposed Regulatory Guide should allow additional options for determining stability class. The use of sigma theta has been included in other proposed regulatory guides in the past and should be included in any new guidance. b. Current NRC electronic submittal guidance does not contemplate the

Comment	Recommendation
	submission of electronic files other than in Adobe Acrobat format as part of the application. The NRC staff must work together to acknowledge the many formats for which electronic information may be provided by a licensee or applicant.

In summary, NEI agrees with NRC's conclusion that Regulatory Guide 1.23 should be revised and updated to better reflect current regulatory requirements and best practices.