

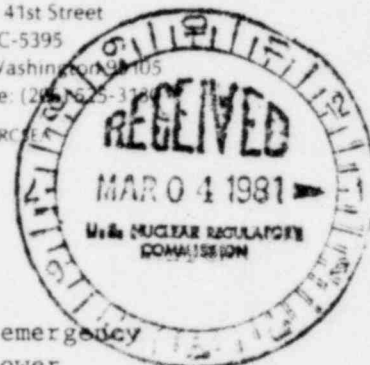
February 25, 1981



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Dear Steve:

We have reviewed the draft survey instrument for testing the emergency warning systems in the areas surrounding commercial nuclear power stations. It is our conclusion that major revisions need to be made before this questionnaire receives general use.

Although the instrument in its present form will provide some indication of the adequacy of emergency warning systems, the length and apparent complexity of the questionnaire are likely to reduce the number of respondents significantly below the anticipated 50% response rate. Moreover, the manner in which some issues are addressed is likely to reduce the reliability of the response data and, consequently, its usefulness in identifying which portions of the population of the plume EPZ are not receiving adequate information on emergency preparedness.

Specific comments on individual items follow.

Item 1 refers to "your local utility." In some areas--Cowlitz County, Washington, for example--the NRC licensee will not be the respondent's "local utility." Either the referent should be "your county" or the cover letter should clearly designate which utility is in question.

Item 2 uses the term "emergency warning system," rather than either of the two labels ("public warning system" or "prompt alerting and notification system") presented in Item 1. Only one term should be used in the questionnaire, preferably "emergency warning system."

In Item 4b the boxes to the left of the legend "Please mark corresponding digits" should be deleted. Their purpose is more confusing than illuminating.

In Item 5, the tenth response alternative uses the phrase "other than a member of the household." This response alternative should use the same referents ("relative/friend/neighbor/coworker") as the immediately preceding response alternative. In response alternatives 11 and 12, using the word "other" before "household member" is unnecessary, potentially confusing and should be deleted. In response alternatives 13 and 14, the list of examples could be reduced to (e.g., fire or police department) with no loss in clarity. "Told in person by," as found in

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response alternative 12 is preferable to "word-of-mouth from" in alternatives 10 and 14, and should appear in all three response alternatives.

Item 6 provides separate response alternatives for "neighbor's house," "friend's house," and "relative's house." Unless there is a compelling justification for making these distinctions, the three should be consolidated into one. The response alternative "Other indoor location" should follow "Shopping." "In car" should be changed to "In car or other vehicle" and repositioned to follow "Other indoor location." The location, "at work" should be included somewhere in the list, possibly "at work indoors" and "at work outdoors." All of the indoor response alternatives, "At home," "at neighbor's home," etc. should be changed to "In my home," "In a neighbor's home" to clearly indicate that they are limited to indoor locations.

The distance categories in Item 7 do not match those of the sampling plan (0-2; 2-5; 5-10). The response alternatives should be changed to "From plant to 2 miles" and "2.01 miles to 5 miles," etc.

In Item 8, the first response alternative should use the same term as is used in Items 1 and 2. Such a revision might read, "That it was a test of the emergency warning system for the nuclear power plant."

In Item 9, the response alternatives should be clustered so that similar systems appear together, e.g., Bells, Sirens, Whistles, Public Address, etc. The distinction between "Radio Broadcasts" and "Special Radio Broadcasts" is not obvious to the reader, especially since there is no comparable distinction for TV. It would probably be more informative if the question itself were changed to read, "If there were an emergency at the nuclear power plant, how would you expect to be warned?" Such wording deals only with portions of the system about which the respondent should be expected to be aware.

In Item 10, alternatives "l" and "m" should be deleted. Alternative "n" should be expanded to read "(for instance, due to illness, old age or handicap)." Response alternatives "p," "q" and "r" should also be considered for consolidation. The revision might read "What to do with pets or farm animals." Alternative "c" is too similar to "h" and "e" too similar to "f" to justify separate items.

In Item 11, the respondent may be confused about which alternative to check if the information came from a weekly newspaper. Perhaps "Magazines, books" would be a better alternative than "articles (other.....)." In the absence of any clear need for more precise

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information these two alternatives ("Newspapers" and "articles (other.....)") should be combined to read "newspapers, magazines, books." A combined "television, radio" alternative would save space and time, as would "Other printed materials from official sources (federal, state or local government)."

In Item 12, the second response could be shortened and made compatible with the other response alternatives by restating it, "I have such information but it is not 'on hand'."

Item 13 could be made less burdensome for the respondent in a number of ways. First, the first four column heads should be shortened to "As soon as I hear an emergency warning," "Depending upon what others (friends, neighbors) do," "Depending upon what I think of the situation," "Only when recommended by officials." Each of the revised column heads (which will each fit on two lines) should be typed on a diagonal so that they can be read without having to rotate the questionnaire. The questions should be reordered so that they follow a logical behavioral sequence: c, e, k, o, (seek information; d, v, w, x (sheltering); f, g, h, i, j, p, q, r, s (preliminary evacuation preparations); b, m (reunite family); l, t, u (final evacuation preparations); and a, n (evacuate). More specifically:

- o Item c is vague enough that it overlaps with e. Either c should be made more specific or one of them deleted.
- o Surely no more than four of the nine items in the preliminary evacuation preparations cluster are necessary. Items q, r and s could be combined to read, "Make arrangements for public or private transportation for evacuation."
- o Item l should read "Turn off utilities (gas, electricity, water)."
- o Items t and u could be combined. "Inform appropriate authority of your departure."
- o Items a and n reiterate information that is in the column head. A single item, "Evacuate to a safer location" would suffice.
- o Item p appears to be unnecessary.

Items 15c and 15d should be combined. The information gained from breaking down the 5-18 year range into two categories is not important enough to justify the added reporting burden.

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The same comment applies to Item 19 as to Item 7. The distance categories should use 2 miles as a break point.

On Item 19a, some of the respondents will answer the item as directed. A sizable minority of the respondents will tell you the direction of the plant from their residence, instead. Since the home is a major reference point for most people's geographic orientation, it should be used here, too.

It appears from the description of the sampling procedure that only a single wave of questionnaires is to be mailed out. This is surprising in light of the reference to Dillman's "Total Design" method, which typically relies on a multiwave mailout. There is no reason to believe that an acceptable response rate can be achieved unless a multiwave mailout is adopted.

In view of the seriousness of the deficiencies in this draft, it would be advisable to have the questionnaire revised and resubmitted for review. If Battelle's staff can be of assistance in clarifying these comments or offering further suggestions about revisions to the questionnaire, please let me know.

Sincerely,

Michael K. Lindell
Research Scientist

MKL/sh

cc: Art Desrosiers--BNW
Dick Donovan--FEMA