

## Enclosure 95003.02-F Guidance for Evaluating Safety Culture Surveys

This enclosure provides safety culture assessors with guidance for evaluating a safety culture survey that was administered by a licensee. (The NRC's safety culture assessment will not include the use of surveys.)

Method: Quantitative surveys are structured, written questionnaires, administered to respondents. Questions are close-ended (require a single answer with no explanation) and require respondents to select the best answer from the several options provided. Answers given can be transformed into numerical information for statistical analysis.

### Strengths:

- Can be administered to a very large sample or entire population.
- Can provide precise and quantitative data.
- Usually quick and easy to complete, depending on questionnaire length.
- Data can be rapidly analyzed.
- Respondents remain anonymous while information on general demographic characteristics can be collected.
- When completed by a representative sample can provide precise and reliable information on total population and subpopulations.
- Some reliable and valid surveys already exist.

### Limitations:

- Not effective for exploring complicated/ambiguous issues.
- Managers can be strongly influenced by statistics.
- Results can be misleading, especially if the design, application, or interpretation of the questionnaire is less than satisfactory.
- Requires large sample sizes to draw valid conclusions, make valid comparisons, and assure statistical validity across the population and subpopulations selected.

### Guidance

1. Review the questions used, as follows, to determine whether:

(Note - the criteria listed for this step can also be used to evaluate questions used by the licensee for interviews or focus groups.)

- Question wording is simple. Questions avoid technical or specialized words, unless the participants are highly familiar with them.
- Sentences are short.
- No ambiguous words or equivocal sentence structures.

- Times and places and frequencies are specified, even if they are usually assumed.
  - Questions do not include double negatives.
  - Questions address only one topic at a time; questions are not embedded within questions.
  - Questions are unbiased and not leading (i.e., wording does not lead the respondent to answer one way rather than another or place the respondent in a double-bind where no answer accurately reflects his or her situation).
  - Each question is necessary and provides additional, useful information.
  - Related questions are grouped.
  - Questions are sequenced so that one question or line of questioning does not influence responses to subsequent questions.
  - Questions flow from the general to the more specific.
  - Questions flow from the least sensitive to more sensitive topics.
  - Initial questions address screening and rapport-building topics before specific questions.
  - Unique or unusual questions are prefixed with an explanation to avoid confusion. For example, terms used in the questions, such as “your supervisor” or “management” should be defined, as well as any terms that may be unfamiliar to the participants, such as “SCWE.”
2. Through interviews and document reviews, evaluate whether the survey was developed in accordance with standard practices. Determine whether:
- The survey questions were pilot-tested with respondents who were representative of the intended participants.
  - Problematic survey questions were revised, on the basis of pilot test results.
  - The revisions were again pilot-tested with representative respondents.
  - The survey developer assessed test-retest or split-half reliability of the survey instrument.
  - The survey has been previously used at the licensee’s facility, or in other organizations, and evaluate any evidence provided by the licensee that indicates whether the previous results were valid and accurately identified strengths and weaknesses that could be verified from other sources of information.
3. Evaluate the procedures used to administer the survey to determine whether they were systematic and were unlikely to have biased the responses. Determine whether:
- The methods used to select the sample of participants assured representativeness.

- Questionnaires were administered in a consistent location under a consistent set of conditions. If the survey was administered at different locations or an online survey was used, determine whether the instructions to participants and other means were used to minimize the potential spurious effects of such differences on the data.
  - Participants were monitored while taking the survey by the survey administrators and survey administrators were available to answer questions.
  - Participants had sufficient time to complete the survey.
  - All individuals in the sample had an equal opportunity to participate (e.g., accommodations were made to permit backshift personnel to participate).
  - Licensee supervisors or management personnel were present only to introduce the survey team or not at all.
  - The introduction to the survey clearly describes the purpose(s) of the survey, whether responses will be maintained anonymous, who will have access to the raw data, and how the information will be used.
  - Introductory information and instructions encourage the respondents to answer truthfully, indicate that there are no right or wrong answers, and avoid statements that may bias the responses.
  - The same introductory information and instructions were provided to all survey respondents.
  - Anonymity and confidentiality were discussed.
4. Evaluate the statistical methods used to analyze the results. Determine whether:
- Sufficient responses were received to ensure statistical validity.
  - The statistical techniques applied were appropriate for the types of data collected (i.e., nominal, ordinal).
  - Any differences in responses between functional groups or levels of management were appropriately tested to determine whether the differences were likely due to chance or appear to be statistically reliable.
  - The probability level established for comparisons between responses to individual questions, question sets, and among different subgroups was sufficiently low to reduce the likelihood of “false positives,” in which differences appear to be statistically reliable but are, in fact, due to chance.
  - Any analyses were performed to verify that scales or sets of grouped questions are internally consistent and so appear to be measuring related constructs, and that the results confirm the item groupings.
  - The conclusions drawn from the survey are supported by the results of the analyses.
5. Determine whether the quantitative survey results were supplemented with any of the following to enhance the interpretation of the results:

- Interviews or focus groups were conducted to gain additional information, as needed, to interpret ambiguous results or gain greater insights related to any issues identified in the survey.
  - The survey provided opportunities for respondents to write-in comments, clarifications, explanations, and additional, more detailed information.
  - Additional information related to any global organizational conditions that could affect the results, such as recent reductions in force, acquisitions or mergers, incentive buy-outs leading to large-scale retirements, or other factors, was used to evaluate differences between subpopulations or responses to the same survey administered at different times.
6. Evaluate participants' responses to the survey:
- Determine whether any issues related to the survey were entered into the CAP, raised to the Employee Concerns Program/Ombudsman or other alternate means of raising concerns, or to the NRC in allegations.
  - Elicit individuals' perceptions of the survey, the manner in which the survey was administered, the integrity of the results, the manner in which results were communicated, and the manner in which the results were used.