

Attachment 95003.04
Guidance for Evaluating Safety Culture Surveys

This attachment provides inspectors with general 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.) This guidance provides some illustrative examples of effective survey characteristics. These examples can be used by inspectors to gain an overall evaluation of the quality of the survey used and to identify areas for further review and consideration.

Method: **Quantitative surveys** are generally 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. The general strengths and weaknesses of quantitative surveys are listed below for inspectors to consider when conducting the review. The applicability of each strength/weakness depends on the circumstances of the situation and does not necessarily apply for every survey.

General strengths:

- Can be administered to a very large sample or entire population.
- Can provide precise and quantitative data.
- Usually quick and easy to complete, however depends on length of questionnaire.
- Provides rapidly analyzable data.
- 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.

General limitations:

- May not be as effective for exploring complicated/ambiguous issues.
- Managers may 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 size to generalize across the population and subpopulations.

Guidance

1. Review the questions used, as follows, to evaluate that:

(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.
- 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).
- 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.
- Unique or unusual questions are prefixed with an explanation to avoid confusion.

2. Through interviews and document reviews, evaluate whether the survey was developed in accordance with standard practices, as follows:

- Consider whether the survey questions were pilot-tested with respondents who were representative of the intended participants.
- Consider if problematic survey questions were revised, on the basis of pilot test results.
- Consider whether the survey developer assessed test-retest or split-half reliability of the survey instrument.
- Consider whether the survey has been previously used at the licensee's facility, or in other organizations, and evaluate any evidence provided by 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 if they were used

systematically and were unlikely to have biased the responses; consider if:

- Questionnaires were administered in a consistent location under a consistent set of conditions (e.g., survey was administered by the same individuals, under similar plant status conditions, etc.).
- 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:

- 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.
- 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.
- Conclusions drawn from the survey are supported by the results of the analyses.