

Attachment 95003.06
Guidance for Structured Behavioral Observations

This attachment provides guidance for developing and using structured behavioral observation checklists to identify patterns of behavior related to the components of safety culture.

1. Overview

Behavioral Observation Checklists involve the use of a structured format to record observational data. Key observable attributes of behaviors associated with safety culture are listed in checklist fashion, which ensures structured collection of data associated with observations. The structure also allows quantification of observational information. Behavioral Observation Checklists may also be used to guide and focus observations without quantifying the information collected.

2. Strengths

- Data collected reflect real activities (versus respondent opinions or perceptions).
- Multiple observations of similar activities (e.g., turnovers) allow quantification of information across multiple occurrences of the activity.
- Observer is non-intrusive and does not interrupt activity.
- Checklist format ensures similar information will be collected across multiple observers.
- When quantitative data are not obtained or cannot be reported due to limited observations, qualitative data can be useful.

3. Limitations

- Observer's presence may affect the manner in which the activity is conducted.
- In some cases, multiple observations of a similar activity are not possible.
- Unless multiple observations of a similar activity are conducted, quantitative data cannot be reported.
- Those observed may avoid discussing any sensitive topics in the presence of the observer.

4. Applications

To be completed when observing:

- licensee decision-making processes, including goal-setting, oversight, and work planning sessions;

- the actual performance of work activities, including activities for which formal procedures and standards of behavior exist;
- communications, including interactions between managers and staff, between peers, as well as interdepartmental, intradepartmental and external communications; and
- training.

5. Guidance:

- Identify the categories of activities that will be observed. Select activities to observe based on their relevance to specific safety culture components to be assessed with this data-collection method, as defined in the assessment plan.
- Through discussion with knowledgeable licensee personnel, identify the frequency with which the selected activities typically occur and determine the number of observations to be scheduled for each category of activity. If structured behavioral observation will be the primary method of collecting data about a specific safety culture component (e.g., decision-making), plan to observe a minimum of 25 activities of interest over the course of a one-week inspection. A minimum of 15 observations may be sufficient if behavioral observation will be used as a supplement to other information-gathering methods.
- To develop consistency in using the checklists among different observers,
 - discuss the checklist items in advance and determine how they will be used;
 - jointly observe several of the same activities;
 - compare the results obtained by the different observers when observing the same activity;
 - discuss and resolve any differences in how the checklist items were interpreted;
 - revise the checklist items, as necessary.
- For each category of activity to be observed, select a subset of the checklist items below or develop additional items, based on the nature of the activity and the safety culture components to be assessed. Do not plan to collect data about all of the safety culture components from any one observation, because the behaviors associated with some components do not occur with sufficient frequency to be provide an adequate sample of observations (e.g., budget planning meetings involving corporate and site management that might provide insights related to the Resources component).
- Include no more than 15 items on a single checklist. Longer checklists are difficult to use and searching for items on the checklist can distract the observer.

- Use the same checklist items when observing activities that fall into the same category of activities, so that the frequencies of the behaviors of interest can be determined.
- For activities performed frequently during the inspection (e.g., shift turnover, pre-job briefs, and surveillance and maintenance activities), plan to observe up to 25 of the activities during the inspection.
- For infrequently performed activities (e.g. weekly management/staff meetings, all-hands meetings, personnel action meetings) plan to observe a sample of convenience (i.e., perform the observation if one occurs during the inspection and if inspectors are available at the time.)
- Maintain the checklists used for each observation, even if no data were collected, in order to document the sample size and calculate behavior rates.
- For each checklist created, the inspector should note:
 - the date and time of the observation;
 - the activity observed (e.g., pre-job briefing, shift turnover, plan-of-the-day meeting, department meetings, a maintenance job, corrective action review meeting);
 - the levels of management and staff involved (e.g., senior management, functional area management, middle management, first-line supervisors, staff or contractors);
 - the functional area(s) involved (e.g., operations, maintenance, radiation protection, engineering);
 - the number of individuals involved, and
 - other characteristics of the activity that can be used to compare and contrast data collected from different activities.
- Provide space on the checklist for the inspector to add notes that record more details about the interactions observed. For example, one of the checklist items below asks, "Was risk or nuclear safety discussed?" If the answer is yes, the inspector should add a description of the context in which risk or safety was discussed, the extent of the discussion, and an assessment of it. However, the additional information should be recorded only after the observation is completed, in order to ensure that the inspector is not distracted from observing.
- Following the observation, the inspector should also document any qualitative assessment of the interaction or work activity observed, related to the safety culture components. This information will be necessary to ensure that the observation data are appropriately interpreted.
- When all observations have been completed, summarize the following:

- The number of observations made of each category of activity;
- The rates at which behaviors that are consistent with the safety culture components were observed;
- The rates at which behaviors that are inconsistent with the safety culture components were observed; and
- Any qualitative information necessary to interpret properly the quantitative data.

This information can then be used to assess how the components of safety culture are integrated into day-to-day activities. This information is useful in assessing the overall safety culture as well as the safety culture of individual functional groups.

Example checklist items:

Decision-making

(May be observed in scheduled or informal meetings or during ongoing work activities.)

Did the decision involve technical ____, policy ____, or personnel __ issues?

Were any uncertainties discussed? Yes ____ No ____ N/A ____

Were alternatives generated ____ or not ____?

Was “risk” or nuclear safety discussed? Yes ____ No ____ N/A ____

Were conservative assumptions used? Yes ____ No ____ N/A ____

Were any alternatives rejected because of risk or nuclear safety considerations?
Yes ____ No ____ N/A ____

Was resolution reached ____ or not ____?

If resolution was reached, was it through consensus-seeking ____ or top-down direction from management ____?

If resolution was not reached, was it decided to push the decision up the management hierarchy ____ or not ____?

If resolution was not reached, was it decided to seek more information ____ or not ____?

If nuclear safety was involved, was the decision based on sufficient evidence that it was safe to proceed? Yes ____ No ____ N/A ____

If nuclear safety was involved, was the decision based on sufficient evidence that it was unsafe to proceed? Yes ____ No ____ N/A ____

If the decision concerned policies, rules, and goals, did the manager consult with his/her immediate subordinates? Yes ____ No ____ N/A ____

If the decision concerned staffing, did the manager consult with his/her immediate subordinates? Yes ____ No ____ N/A ____

If the decision concerned a technical issue, did the manager consult with any technical staff? Yes ____ No ____ N/A ____

If the decision concerned how to solve a work-related problem, did the individual consult his/her superior? Yes ____ No ____ N/A ____

Was a plan made for communicating the results of the decision? Yes ____ No ____ N/A ____

If yes, was communicating with the affected individuals discussed?

Yes ___ No ___ N/A ___

If yes, was communicating with a higher management level discussed?

Yes ___ No ___ N/A ___

Were any previous, similar decisions discussed? Yes ___ No ___ N/A ___

If yes, was the effectiveness of the previous decision discussed?

Yes ___ No ___ N/A ___

Safety Policies

(Typically observed in scheduled meetings.)

Was nuclear safety discussed as a goal? Yes ___ No ___ N/A ___

Were goals other than nuclear safety discussed? Yes ___ No ___ N/A ___

Goals were ___ were not ___ prioritized?

Nuclear safety was ___ was not ___ assigned the highest priority.

Were any target levels attached to the goals? Yes ___ No ___ N/A ___

If goals were being set on a departmental level, were overall organizational goals factored in? Yes ___ No ___ N/A ___

If yes, nuclear safety was ___ was not ___ one of the goals.

If goals were being set on an organizational level, were corporate goals factored in? Yes ___ No ___ N/A ___

If yes, nuclear safety was ___ was not ___ one of the goals.

Was there overall agreement among the individuals setting the goals on what the goals and priorities should be? Yes ___ No ___ N/A ___

Was there any indication that the goals of different departments were in conflict?

Yes ___ No ___ N/A ___

If nuclear safety goals were discussed, the following individuals brought them up:

- ___ Corporate management
- ___ Senior management
- ___ Functional area management
- ___ Middle management
- ___ Licensee staff
- ___ Contractor
- ___ Other (describe)

If production goals were discussed, was the potential impact on nuclear safety mentioned?

Yes ___ No ___ N/A ___

Accountability

(Observed during ongoing work activities.)

Are the personnel who are performing the activities given specific success criteria that define organizational expectations before beginning the work? Yes ___ No ___ N/A ___

If yes, nuclear safety was ___ was not ___ among the expectations.

Is performance feedback timely, so that corrections in performance can be achieved?

Yes ___ No ___ N/A ___

If yes, did any feedback concern nuclear safety? Yes ___ No ___ N/A ___

Is performance feedback available from verbal communication ___ or performance evaluation reports generated at a later date ___?

If yes, did any feedback concern nuclear safety? Yes ___ No ___ N/A ___

Did any supervisor offer performance feedback related to nuclear safety?

Yes ___ No ___ N/A ___

Did any manager offer performance feedback related to nuclear safety?

Yes ___ No ___ N/A ___

Did any peers offer performance feedback related to nuclear safety?

Yes ___ No ___ N/A ___

If it was necessary to deviate from the originally planned activities, did the personnel performing the activities have the authority to approve the deviation?

Yes ___ No ___ N/A ___

If yes, did the deviation have nuclear safety implications? Yes ___ No ___ N/A ___

If the work is being performed by a crew, is there an obvious structure to the group (i.e., there is a clearly identified group leader and specified roles and responsibilities for each of the other group members)? Yes ___ No ___ N/A ___

Were the personnel selected to perform the activities familiar with the task requirements ___ or was there obvious uncertainty regarding the tasks to be performed ___?

(To be observed during meetings.)

Were the specific individuals responsible for implementing the initiative, project, or program under discussion present? Yes ___ No ___ N/A ___

Was the individual given an opportunity to present discuss or defend his or her position?

Yes ___ No ___ N/A ___

If the responsible individual was present, did s/he receive any feedback related to nuclear safety? Yes ___ No ___ N/A ___

If yes, was the feedback provided by (check all that apply):

___ Peers
___ Supervisor
___ Manager

If the responsible individual was present, did s/he receive any feedback related to deadlines, costs, quality or other performance criteria? Yes ___ No ___ N/A ___

If yes, was the feedback provided by (check all that apply):

___ Peers
___ Supervisor
___ Manager

Work Practices

(Observed during ongoing work activities.)

Are there obvious time pressures for work completion? Yes ___ No ___ N/A ___

If obvious time pressures exist:

Do they appear reasonable given the activities to be performed?

Yes ___ No ___ N/A ___

Is there evidence that those pressures compromised the quality of the work performed in any way? Yes ___ No ___ N/A ___

Is there evidence that those pressures compromised the safety of the work performed in any way? Yes ___ No ___ N/A ___

Were time constraints for the work activities clearly communicated to all individuals involved in the activity? Yes ___ No ___ N/A ___

The reason for the time constraints is related to (check all that apply):

___ nuclear safety concerns
___ limited personnel resources
___ other scheduled work activities
___ pressure to get the facility back on-line
___ other/unknown

Human error prevention techniques were ___ were not ___ used.

Human error prevention techniques were ___ were not ___ discussed during the pre-

job brief.

Were procedures used in performing the activity? Yes ___ No ___ N/A ___

If procedures were used, were they conveniently located and easily accessible?
Yes ___ No ___ N/A ___

Verbatim compliance with the procedures was ___ was not ___ required.

If verbatim compliance was required, was it achieved? Yes ___ No ___ N/A ___

If verbatim compliance was not achieved,
(Note - these items relate to Resources.)

was it because the activities described by the procedure could not be performed as written, given the conditions (e.g., time constraints, personnel resources, unexpected conditions)? Yes ___ No ___ N/A ___

was it because the procedures not well understood or understandable?
Yes ___ No ___ N/A ___

The formal process for deviating from a procedure was ___ was not ___ followed.

Were any problems encountered during performance of the work activities?
Yes ___ No ___ N/A ___

If yes, did the problems have any nuclear safety implications?
Yes ___ No ___ N/A ___

Work was ___ was not ___ stopped until the problem was resolved.

If a management decision or additional expertise was required to solve the problem, were the necessary individuals made available within a reasonable time period?
Yes ___ No ___ N/A ___

Did any personnel point out *conditions* that could adversely impact nuclear safety?
Yes ___ No ___ N/A ___

Did any personnel point out *behaviors* that could adversely impact nuclear safety?
Yes ___ No ___ N/A ___

Were any work-arounds used? Yes ___ No ___ N/A ___

If yes, was the work-around long-standing ___ or created for the current work activity ___?

Was it proceduralized? Yes ___ No ___ N/A ___

If the work activity was considered critical, was management present?
Yes ___ No ___ N/A ___

If yes, did management offer direction ___ or feedback ___ ?

Was the direction or feedback related to nuclear safety? Yes ___ No___ N/A___

Work Control

(Observed during ongoing work activities or a work planning session.)

When planning a work activity, were the following issues discussed (check all that apply)?

- risk insights
- defense in depth
- job site conditions that could impact human performance
- task sequencing to optimize system availability
- potential impacts on nuclear safety of performing the activity at the same time as other activities are performed
- contingencies
- compensatory actions
- conditions under which the work would need to stop for nuclear safety reasons
- the impact on nuclear safety of any temporary modifications to be installed
- the impact on human performance of any operator work-arounds to be created
- any relevant internal or external operating experience

A pre-job briefing was ___ was not___ conducted. If it was conducted, were the following issues discussed (check all that apply)?

- risk insights and/or nuclear safety considerations
- defense in depth
- job site conditions that could impact human performance and means to mitigate their potential effects
- contingencies for mitigating the effects of mistakes and/or possible worst-case scenarios
- procedure usage requirements
- other work activities that have the potential to interact with this one
- conditions under which work would be stopped for safety reasons
- communications requirements
- applicable lessons learned from internal or external operating experience

When performing a work activity simultaneously with other work activities that had the potential to interact, communications were ___ were not___ maintained between the individuals/groups performing the different activities.

When performing the work activity, unexpected conditions did ___ did not___ arise.

Resources

(Observed during ongoing work activities. See also procedures-related items in Work Practices.)

Did personnel have problems reading the work package (legibility)?

Yes ___ No ___ N/A ___

Did personnel have problems interpreting the information in the work package?

Yes ___ No ___ N/A ___

Was any information missing from the work package? Yes ___ No ___ N/A ___

Were an adequate number of staff available to perform the work?

Yes ___ No ___ N/A ___

Were the procedures adequate to perform the work? Yes ___ No ___ N/A ___

Did personnel have the equipment necessary to perform the work safely?

Yes ___ No ___ N/A ___

Continuous Learning Environment

(When observing training.)

Is the training a result of an event or incident that occurred at the facility due to a human performance problem? Yes ___ No ___ N/A ___

Do trainees appear hesitant to ask questions or seek clarification?

Yes ___ No ___ N/A ___

Do trainees appear to be engaged? Yes ___ No ___ N/A ___

Do trainees have an opportunity to offer feedback about the training?

Yes ___ No ___ N/A ___

Are trainees evaluated at the completion of training?

Yes ___ No ___ N/A ___

Are trainees provided with feedback while the training is ongoing?

Yes ___ No ___ N/A ___

Are lessons learned from internal or external operating experience incorporated into the training? Yes ___ No ___ N/A ___

Is nuclear safety addressed during the training? Yes ___ No ___ N/A ___

Environment for Raising Concerns

(Observed during any interactions among site personnel.)

Did a subordinate(s) ask any questions of a superior during the interaction?

Yes ___ No ___ N/A ___

If yes, did the superior answer the question(s)? Yes ___ No ___ N/A ___

Did a subordinate(s) raise any concerns to a superior during the interaction?

Yes ___ No ___ N/A ___

If yes, did the concerns involve (check all that apply):

- ___ nuclear safety
- ___ radiological or industrial safety
- ___ resources (e.g., staff, expertise)
- ___ scheduling or deadlines
- ___ other

If yes, did the superior address the concerns? Yes ___ No ___ N/A ___

If yes, did the superior resolve the concerns? Yes ___ No ___ N/A ___

If yes, was the supervisor's response open and non-defensive?

Yes ___ No ___ N/A ___

Did a subordinate offer any suggestions to a superior during the interaction?

Yes ___ No ___ N/A ___

If yes, did the superior discuss the suggestion(s)? Yes ___ No ___ N/A ___

Was the interaction obviously strained ____, obviously pleasant ____, or was there no apparent affect ___?

Was the interaction related to a safety issue ____, regulatory requirement(s) ____, production issue(s) ____, personal conflict ____, other ___?

Did the interaction include discussion of ways to improve the facility performance?

Yes ___ No ___ N/A ___

Did the interaction include discussion of ways to improve personnel performance?

Yes ___ No ___ N/A ___

Did any staff member self-report an error? Yes ___ No ___ N/A ___

If yes, did peers react favorably? Yes ___ No ___ N/A ___

If yes, did supervisor(s) react favorably? Yes ___ No ___ N/A ___

Preventing and Detecting Retaliation

(Observed during management or oversight meetings.)

Was there a rigorous investigation of the potential issue? Yes ___ No ___ N/A ___

Did the disposition seem appropriate? Yes ___ No ___ N/A ___

Was the potential for the action to discourage the reporting of concerns discussed?

Yes ___ No ___ N/A ___

If yes, mitigation actions were ____ were not ____ assigned.