SECTION F: SAFETY CULTURE ASSESSMENTS

Contra Costa County Board of Supervisors approved and adopted the departmental amendment to the County Ordinance Code Chapter 450-8 in June 2006. Section 450-8.016 (h) is a requirement to perform Safety Culture Assessments:

> *"The Stationary Source shall conduct a Safety Culture Assessment. The assessment shall be based upon a method listed in the Contra Costa County Safety Program Guidance Document or shall be reviewed by the CCHMP to determine substantial equivalency. The initial assessment shall be performed by one year following the revisions to the Industrial Safety Ordinance Guidance Document that addresses the Safety Culture Assessment, and at least once every five years thereafter. The Safety Culture Assessment will be reviewed during the audit and inspection of the Stationary Source. CCHMP may perform its own Safety Culture Assessment after a Major Chemical Accident or Release or the occurrence of any incident that could reasonably have led to a Major Chemical Accident or Release, or based on CCHMP audit results of the Stationary Source."*[1]

What is Safety Culture and Why Assess It?

Merriam-Webster defines "culture" as "the set of shared attitudes, values, goals and practices that characterizes an institution or organization". Safety culture is a measure of the importance that individuals and organizations exhibit towards working safely.   It is the summation of attitudes and actions people do at 2 a.m. on a Sunday night when no one is watching. An organization can influence employees to embrace positive shared safety values with consistent policies and practices and by leading through example.

History is filled with tragic life altering and ending events that can be traced back to phrases like, "we've been doing it this way for years" or "this way is good enough". This guidance document was prepared to help Stationary Sources, hereafter referred to as facilities, identify pervasive attitudes or beliefs regarding risk tolerance in the work place. There is a correlation between improving safety culture and decreasing the number and severity of accidents.

Although facilities subject to Contra Costa County's or the City of Richmond's Industrial Safety Ordinance already frequently evaluate situations for "hidden" problems or latent conditions, see Section B in this Guidance Document, safety culture is more subtle and even more difficult to assess. A Safety Culture Assessment will enable a facility to understand where they are in terms of risk acceptance. Additional benefits of performing a Safety Culture Assessment include:

- Identify positive as well as negative aspects of the onsite health and safety program
- Assist in identifying opportunities for improving health and safety
- Another tool to improve facility personnel's awareness and participation in health and safety
- Identify perception gaps between managers, supervisors, and the workforce
- Assist to demonstrate management's commitment to safety by performing the assessment and visibly addressing the results

Every company has a culture. Sometimes certain aspects of safety culture are more evident (e.g., using the proper PPE) and sometimes it is more of an undercurrent of how things are done (e.g., recommended hearing protection is absent when the 'boss' is not around). There will always be some element of risk in the workplace and in the work that is performed, but being cavalier about safety could lead to major problems beyond serious personal injury. Large facilities may have different cultures across departments, process units, or even between shifts in the same process unit. Finding whether these differences exist is one of the challenges of the assessment. In general, the larger and more broad the population being assessed, the less evident these differences in perception may appear. For example, 10 similar perceptions from one work group may not be noticeable in a facility-wide survey of hundreds; whereas these same 10 perceptions out of a total work group size of 30 would stand out. Depending on the size of the facility, the following work groups should be assessed: management, supervisors, operators, maintenance, engineering, health and safety personnel and resident and applicable transient contractors. To better understand potential differences in behavior and develop improvement strategies, facilities should consider identifying sub-work groups for the assessment between processing areas, shifts, crews, maintenance crafts, or levels of management.

Performing an initial Safety Culture Assessment will give a company a baseline from which they can compare future assessments. Any Safety Culture Assessment represents only a snap shot in time. Since the safety culture of a company will change over time, only by performing multiple assessments can a company discover if the steps that were taken to improve safety are actually improving. If not, the company may need to adjust and focus future improvement topics.

Although Safety Culture Assessments should be viewed as a facility-specific exercise, lessons learned and best practices, if shared, can be very useful to others as well. Some of the available literature on safety culture describes differences between safety culture and safety climate. This guidance draws no distinction between safety culture or safety climate, and will use the term safety culture throughout.

F.1   GOALS AND OBJECTIVES

The primary goal of a Safety Culture Assessment is to assess individual and group values towards safety and risk tolerance. An ultimate goal for each facility should be to assess values towards safety and risk tolerance associated with each work group. One objective of the Safety Culture Assessment is to gauge the commitment and effectiveness of an organization's health and safety management program by evaluating attitudes, perceptions, competencies and patterns of behavior. Once these issues are known, a facility can direct the design, execution, evaluation, and continuous improvement in the work environment to affect changes to safety-related behaviors and attitudes that ultimately minimize accidents.

F.2   DEFINITIONS

Employee(s): An employee is an individual employed by the facility.

Contractor(s): A contractor is an individual who is working at the facility and employed by another company. Contractors may generally be classified into two groups, resident contractors and transient contractors.

Resident Contractor: Resident contractors are workers who work at the facility for 3 months at a time or longer on assignment. Examples include, but are not limited to, daily maintenance contractors, project engineers, operations support personnel and construction personnel.

Transient Contractor: Transient contractors work at the facility for less than 3 months at a time. Most common transient contractors are the individuals working on turnaround maintenance. Other examples include, but are not limited to, short-term daily maintenance contractors, project engineers, operations support personnel and construction personnel. If the same individual returns to work at the facility for more than one turnaround, regardless of the contractor company, the individual should be considered a transient contractor.

Worker: Refers to all facility personnel, in all departments (including employees and contractors).

Work Group: Refers to a division of the workforce into the following general disciplines: employees in management, supervisors, operators, maintenance, engineering, health and safety personnel and resident and applicable transient contractors.

F.3   Employee Participation

The Safety Plan should contain a brief, site-specific overview of the method used to ensure that employees and their representatives participate in the development of the written Safety Culture Assessment including but not limited to:

- A description of how employees and their representatives participated in the development of the initial human factors program
    - Any training provided
    - How input was solicited on the initial written program development
    - Method for submitting comments
    - Method for responding to all written comments

- A description of how employees and their representatives participated in the customization of the Safety Culture Assessment, if applicable

- A description of how employees and their representatives participate in the implementation of the Safety Culture Assessment

- A description of how employees assisted in developing the action plan to address the results of the Safety Culture Assessment including:

- What areas to address based on the results of the assessment
- Actions to address the findings of the assessment
- The schedule of implementation of the actions

- A description of how employees and their representative participate in the periodic review the effectiveness of implementing the action plan to address the findings of the assessment

- A description on how the owner or operator determines the employee representatives for stationary sources that do not have bargaining agreements.

F.4 ASSESSMENT SCOPE

The facility must establish their Safety Culture Assessment process and state what methodology is selected for each work group and the criteria for successful participation. Due to the potential of different subcultures existing within various major workforce disciplines, at a minimum, the work groups assessed should include employees in management, supervisors, operators, maintenance, engineering, health and safety personnel and resident and applicable transient contractors. Facilities may elect to further assess for differences in cultures within the various sub-work groups (e.g., survey by unit or by crew within units, by maintenance craft, etc.), although this is not required.

While 100 percent participation from each work group is difficult to attain, it is expected that whatever assessment method(s) used will include sufficient documentation to demonstrate to the satisfaction of CCHMP the appropriateness of the participation level targeted and achieved. As an ultimate goal, facilities should maximize the participation level from each work group. The work group response rate needs to be representative of the population and is viewed as an indication of whether the workforce believes that participation will result in worthwhile outcomes[2]. For example, survey response rates that fall below 70 percent for a specific work group indicates a subculture needs specific attention for improvement[3]. Response rate is likely to vary depending on the assessment method used. For example, surveys contained in a magazine may only get a 1 to 2 percent response rate; surveys sent by mail may get between 10 and 50 percent; telephone surveys have obtained 80 percent; personal interviews have obtained 90 percent[4]. Refer to Section F.4 and F.5 for best practices for implementation and assessment methods.

The Safety Culture Assessment must address the components discussed in more detail in Section F.6:

- Management Commitment and Leadership
- Individual Performance and Accountability
- Peer Perception and Accountability
- Safety Program Performance.

A report must be developed for every Safety Culture Assessment data collection method applied. Report contents are further described in Section F.8.

F.54 BEST PRACTICES FOR IMPLEMENTING THE ASSESSMENT

This section contains information to help plan and conduct the Safety Culture Assessment. Although specific documentation for considering these items is not required, Sections F.4.3 and F.4.5 contain expectations for data collection and requirements for the frequency of assessments.

The following summarizes the four general phases in performing any assessment:
- Plan
- Do
- Analyze and Report
- Revise and Repeat

F.54.1 PSYCHOLOGY OF QUESTION DEVELOPMENT

It is important to note that there are a number of ways in which a question can be worded, asked, or delivered that could unintentionally alter the meaning, and in so doing, the response received. This section highlights several issues or traps to avoid in developing and asking questions. In addition, other sections throughout this guidance document offer tips on reducing bias.

1. **Wording should be open-ended.** Respondents should be able to choose their own terms when answering oral interview questions. For example: "Describe what a good safety culture means to you?" is a better question than "Do you think we have a good safety culture?"
2. **Questions should be as neutral as possible.** Avoid wording that might influence answers, e.g., evocative, judgmental wording. The topic needs to be worded to not imply or infer a "correct" answer. For example: "Do you want to improve process safety or maintain our current level of performance?"
3. **Questions should be worded clearly.** This includes knowing any terms particular to the program or the respondents' culture. Don't assume that everyone will understand acronyms.
4. **Questions should be broad-based.** Use questions that will cover various aspects of safety and the respondents "feeling".
5. **Be careful asking "why" questions.** This type of question infers a cause-effect relationship that may not truly exist. These questions may also cause respondents to feel defensive, e.g., that they have to justify their response, which may inhibit their responses to this and future questions.
6. **Be conscious of body signals.** Body language can greatly alter the meaning of a question asked or the answer supplied. Be aware of non-verbal clues, but don't read too much into them. Seeing someone's arms folded across their chest may or may not mean

their guard is up. Ask yourself if their body language matches their words. Investigate when they contradict.

7. **Minimize questions that may generate socially desirable answers.** Some people may answer a question based on what a socially expected answer should be regardless of how they truly feel or have behaved[3]. For example, "How often do you drive a vehicle after you have consumed alcohol?"

8. **Watch your grammar.** Double-check to make sure your questions do not have any typographical errors in them and are properly worded. Some people may take the view that the entire assessment may not be important if nobody took the time to correct the grammar and/or spelling in the questions.

9. **Eliminate double meanings.** Take extra precautions to make sure that questions do not have multiple meanings or interpretations. Depending on people's knowledge and experiences, they may hear questions differently than intended. Send your questions to different groups of people and ask for feedback.

The Baker Panel Report for the March 2005 British Petroleum incident in Texas City described the Safety Culture Assessment used: "The survey solicited each participant's views on 65 statements or survey items related to process safety culture at the participant's workplace. None of the statements described a culture as being good or bad overall. Instead, the statements were designed to invoke participants' perceptions regarding various aspects of process safety culture in their workplace. The statements were grouped into six categories: process safety reporting, safety values/commitment to process safety, supervisory involvement and support, procedures and equipment, worker professionalism/empowerment, and process safety training." A copy of the Baker Panel Survey is presented in Attachment E-1.

F.54.2 DELIVERY OF ASSESSMENT

The method of delivery is dependent on the assessment methodology. Regardless of the method used, it is important to introduce the concept of safety culture, the assessment method, stress the importance of anonymity, worker participation all the way to top management and with support reinforced by peers. However, it may be more difficult to make interviews and observations anonymous. Face-to-face delivery is likely to result in better participation and will demonstrate the importance of the assessment. Depending on the maturity level of the facilities' safety culture, measures to maintain confidentiality may be necessary to get sufficient participation with the assessment.[5]

However, a bias in the interviewing process can be created by the choice of interviewer. For instance, if a facility manager conducts interviews, the person being interviewed may be more likely to provide the answer that he or she thinks the facility manager wants to hear. Similarly, persons who conduct interviews should not include those who could influence or control the interviewee's financial situation. The location of the interview is another important factor, for example conducting the interviews in a supervisor's office may be awkward or uncomfortable to some.

Another point to make about the individual(s) who conduct interviews, performs observations, or who act as moderators in a focus group is the potential to gain significant insights in watching and interacting with people. As the saying goes, only about 10 percent of most conversations are verbal; the other 90 percent is how they say it. The inflections in someone's voice, the manner in how they speak, body position, and gestures can tell volumes beyond the words said or not said. Watch for changes in speech and body language. Sites that use individuals that recognize these subtle signals and know when they may be important will greatly enhance the output of their assessment process.

The manner in which a survey is presented to employees may be important as well. Some employees may prefer their own peers to present a written survey instead of management. Others may feel more comfortable if a third party performs the entire assessment such that their responses are not viewed directly by any of their peers or management. Consideration should also be given to providing a secure location for employees to complete electronic surveys. Conducting surveys in a group setting has been shown to provide better results as compared to providing the survey to the employees to complete on their own time[6]. A group setting can be both positive and negative because some individuals may be intimidated by doing the survey as a group, however with the presence of a proctor(s), obscure questions can be further explained. For example in Baker Panel Report: during the administration period, two-person (or, in the case of Texas City, four-person) teams introduced the survey, addressing steps taken to promote the integrity of the survey and the anonymity of survey respondents and how the survey differed from surveys administered previously by or on behalf of BP; described the Panel's intent in conducting the survey; showed a video; and responded to potential participants' questions or needs relating to the survey.

F.54.3 TIMING OF ASSESSMENT

The timing of the assessment should be carefully considered to ensure that the least biased evaluation is given. Performing an assessment at the end of the shift when the individual wants to go home and may try to rush may cause a bias. Certain other factors that can also skew a Safety Culture Assessment results are time periods in which any of the following are taking place: union contract negotiations, lay-offs, strikes, major organizational changes, bonuses, performance evaluations and immediately after an incident. In some of these occasions, employees may already be predisposed to negative feelings toward the company and may not be answering the question honestly. Also factors such as performance evaluations and bonuses can cause false positive results, as the employee may not want to compromise rewards for themselves or their team. Periods during the holiday season should also be avoided as much of the workforce could be gone giving less of a population to survey. The best time to perform a Safety Culture Assessment would be during a neutral period. To minimize the potential of these factors affecting the outcome of a Safety Culture Assessment, and to ensure that the process has a finite duration, the data collection period (Section 5) should conclude 60 days after it is started. A data collection period lasting longer than 3 months must be discussed in advance with CCHMP.

F.54.4 CATEGORIZATION/BREAKDOWN OF ASSESSMENT

For a facility with multiple operating areas and work crews, it is important to assess or have the ability to categorize based on potential differences in subculture that may exist in the facility such as within units/zones, from crew to crew, crafts, engineering discipline, etc. The following information should be considered for the purposes of categorization[7]:

- Job level (hourly, foreman, supervisor…)
- Full time employee / part time employee
- Job Function (generic)
- Process area / zone including shift / crew or craft identification
- Years onsite
- Years in refining or chemical industry

F.54.5 FREQUENCY OF ASSESSMENT

Within one year after the issuance of this Safety Culture Assessment guide, an initial Safety Culture Assessment using one or more of the methods outlined needs to be performed. Additional assessments are required at least every five years thereafter. Documentation must be maintained to satisfy requirements as outlined in Section F.8. Facilities that consistently reassess their safety culture will have a better idea on the direction the facility is headed in terms of safety culture, and are in a better position to make further changes or adjustments that may improve their safety culture. As such, facilities should consider performing more frequent and potentially smaller in scale additional Safety Culture Assessments using one or more of the methods identified within this guidance to achieve the desired results. For example, it may be insightful to have pre- and post short (15 questions or less) surveys before and after implementing the selected actions items obtained from the Safety Culture Assessment.

F.54.6 MAINTAINING A SENSE OF VULNERABILITY

When completing the initial and subsequent Safety Culture Assessments, it is important that a sense of vulnerability be maintained by the facility. The mindset of: "that could never happen here", can make it difficult to identify safety and cultural concerns during the assessment. While a facility should be proud of their safety culture, they must keep in mind that accidents can always happen. The goal is not to instill fear in the facility but to keep everyone aware that the possibility of an incident can only be reduced and never eliminated.

F.54.7 ADDITIONAL BIASES

Another situation to be aware of is approximately 10 percent of those who respond to assessments, have a tendency to agree with any statement made[3]. This type of agreement is called acquiescence. To test for the number of people who may complete an assessment in this manner, some assessments include a statement and their opposite. For example, "My direct supervisor consistently promotes safety" and "My direct supervisor does not promote safety".

The results of a Safety Culture Assessment can also be misleading depending on how the results are reported. For example, reported results that state 67 percent of the operators surveyed agreed they felt safe in their workplace would be misleading if only 2 percent of the operators responded to the assessment. Low response rates could result in other biases as well. For example, since most people do not feel strongly one way or another on any particular topic, a low response rate may allow a few strong opinions to dominate or skew the results.

F.65   ASSESSMENT METHODOLOGY

The purpose of the assessment is to gauge the safety culture of an organization and the effectiveness of Safety Programs in meeting the organization's stated goals and objectives. Through a committee comprised of CCHMP and industry representatives, the following listed methods have been approved to be used individually or combined to capture a snap shot of the organization's safety culture. Facilities must submit and receive written approval before using any other assessment methods. In the future, CCHMP may develop additional assessment tools or place conditions on the use of the approved assessment tools.

It should be emphasized that although the methods are described separately, there are similarities between each of them. For example, the order of asking questions, which is described under the interview method, is also a relevant topic for consideration under the written surveys and focus groups methods. Therefore, it is advisable to review all the method guidance presented to assist in developing the best method(s) to use at your site.

Facilities may need to take measures to maintain a certain level of confidentiality to achieve the desired number of participants and responses to the assessment. Although most individuals may feel more comfortable participating in an anonymous survey and provide more honest answers, large efforts to maintain confidentiality may indicate an underlying area for improvement. Nevertheless, assessment results that reveal notable issues may be difficult or nearly impossible to remedy without some minimum knowledge of whether it applies to, for example, line supervision, operations, management, or everyone. Therefore, at a minimum, the work group associated with the individuals who participated within the assessment should be maintained. Additional suggested categorizations for the assessment participants are contained within Section F.4.4.

F.65.1 WRITTEN SURVEY

Written surveys are the most common type of assessment used. There are a number of positive reasons written surveys are so popular. Of the four assessment methods presented, many people believe written surveys are the easiest to create and require the least amount of resources to print, copy and distribute or even just have a web link. A number of available pre-packaged surveys both public and proprietary are available to be used as well, further reducing development time. Those completing the survey do so usually without the need for additional training or the need for additional staffing to oversee survey completion. As such, larger populations can be surveyed much more quickly. Completion of the surveys can be done relatively fast. Results of the surveys are typically quantitative since the number of people answering a question "yes" or "no" can be tabulated. As such, written surveys can generate statistically significant results.

Written surveys are also one of the more difficult types of surveys to do well. Printing or copying errors could make the survey difficult to read and understand. If a question is unclear, there is nobody to ask for clarification. Those surveyed may be asked about topics they are not responsible to know, for instance asking maintenance personnel about the adequacy of operating procedures. There is little assurance that people truly read and contemplate each question before providing an answer. There is no way to tell whether anyone answered the questions truthfully. In addition, some people may complete a survey as suggested by others instead of providing their own opinions. In most cases, the biggest problem with written surveys is just getting people to complete and return them.

Following the suggestions identified within this Safety Assessment Guidance document should assist in minimizing many of the hazards associated with performing written surveys. In addition, computer based surveys can be successfully used to minimize some of the potential problems with printed versions. For example, computerized surveys can be administered by a third-party service; potentially giving some people completing the survey a greater sense of anonymity. They can be designed to make sure no questions are skipped and can ask the person completing the survey to double-check potentially invalid responses. Computer surveys are also useful in organizing the questions, or properly branching to the next set of questions based on relevance to the person's experience or previous responses.

The written survey method involves use of a questionnaire (survey form) in either electronic or paper form. It is given to employees to answer openly. The survey form consists of questions developed to measure the Safety Culture Assessment components outlined in F.6. Each question should be worded in an objective, non-leading manner (see Section F.4.1 for guidance on question wording). Consideration should also be given in the manner the survey is delivered to the employees (see Section F.4.2 for guidance on assessment delivery). Additional insights can be gleaned by reviewing the remaining sections of this guidance document.

The survey form may be designed to rate agreement with questions on a numerical scale. If the survey has been designed in this manner, it will be possible to utilize the survey as a metric

measurement of improvement in various areas over time. For example, if the same survey is given three years later, improvements may be measured in a given area.

Refer to Attachment E-1 for a copy of the Baker Panel Survey, Attachment E-2 for an example of a written survey from a facility, and Attachment E-3 for a list of example questions.

F.65.2 INTERVIEWS

Interviewing site personnel within individual work groups can be a critical part of a Safety Culture Assessment as long as those being interviewed are sufficiently comfortable and willing and the interviewers are sufficiently practiced in performing interviews. The Human Resource department may be a good neutral group to tap for this activity. Asking the right questions during the interview is important to collecting meaningful information. Since performing interviews is a time consuming and resource intensive task, they are not routinely performed for site-wide assessments unless the total population is relatively small. Compared to written surveys, which are more quantitative in nature, interviews are more qualitative. Interviews may be useful as follow-up to certain respondents to questionnaires, e.g., to further investigate their responses.

Facilities should design interview questions and assessment processes, clearly articulating the goal of the Safety Culture Assessment and how the information to be gathered will be utilized. A recommended interview process should include:

- Choosing a diverse interview panel that includes various years of service, job functions or levels of responsibility
- Conducting personal 1:1 or team interviews
- Asking behavioral-based interview questions

F.65.2.1 PREPARATION FOR INTERVIEW

1. **Choose a setting with little distraction.** Avoid loud lights or noises, ensure the interviewee is comfortable and the setting is confidential.
2. **Explain the purpose of the interview.**
3. **Address terms of confidentiality.** Note any terms of confidentiality. Explain who will have access to their answers and how their answers will be analyzed. If their comments are to be used as quotes, get their written permission to do so which may require informed consent.
4. **Explain the format of the interview.** Explain the type of interview you are conducting and its nature. Encourage them to ask questions.
5. **Indicate how long the interview usually takes.**
6. **Tell them how to get in touch with you later if they want to.**
7. **Ask them if they have any questions** before you both get started with the interview.
8. **Don't count on your memory to recall their answers.** Ask for permission to record the interview or bring along someone to take notes.

F.6̶5.2.2 TYPES OF INTERVIEWS

1. **Standardized, open-ended interview -** open-ended questions are asked to all interviewees (an open-ended question is where respondents are free to choose how to answer the question, i.e., they don't select "yes" or "no" or provide a numeric rating, etc.); this approach facilitates faster interviews that can be more easily analyzed and compared.
2. **General interview guide approach -** the guide approach is intended to ensure that the same general areas of information are collected from each interviewee; this provides focus to the interview, but still allows a degree of freedom and adaptability in getting information from the interviewee.
3. **Closed, fixed-response interview -** where all interviewees are asked the same questions and asked to choose answers from among the same set of alternatives. This format is useful for those not practiced in interviewing.
4. **Informal, conversational interview** - no predetermined questions are asked, in order to remain as open and adaptable as possible to the interviewee's nature and priorities; during the interview, the interviewer "goes with the flow".

F.6̶5.2.3 TYPES OF TOPICS IN QUESTIONS

There are various types of questions that may be asked:

1. **Behaviors -** about what a person has done or is doing
2. **Opinions/values -** about what a person thinks about a topic
3. **Feelings -** note that respondents sometimes respond with "I think ..." so be careful to note that you're looking for feelings
4. **Knowledge -** to get facts about a topic
5. **Sensory -** about what people have seen, touched, heard, tasted or smelled
6. **Background/demographics -** standard background questions, such as age, education, years of experience in that particular position, etc.

Note that the above questions can be asked in terms of past, present or future. Examples of additional questions can be found in Attachment E-3.

F.6̶5.2.4 SEQUENCE OF QUESTIONS

1. **Get the respondents involved in the interview as soon as possible.**
2. **Before asking about controversial matters (such as feelings and conclusions), first ask about some facts.** With this approach, respondents can more easily engage in the interview before warming up to more personal matters.
3. **Intersperse fact-based questions throughout the interview** to avoid long lists of fact-based questions, which tends to leave respondents disengaged.
4. **Ask questions about the present before questions about the past or future.** It's usually easier for them to talk about the present and then work into the past or future.

5. **The last questions might be to allow respondents to provide any other information they prefer to add and their impressions of the interview.**

F.65.2.5 CONDUCTING INTERVIEWS

1. **Occasionally verify the tape recorder (if used) is working.**
2. **Ask one question at a time and allow time for an answer.**
3. **Attempt to remain as neutral as possible.** That is, don't show strong positive or negative emotional reactions to their responses (i.e., "you've heard it all before.")
4. **Be careful about the appearance when note taking.** That is, if you jump to take a note, it may appear as if you're surprised or very pleased about an answer, which may influence answers to future questions.
5. **Provide transition between major topics**, e.g., "We've been talking about (some topic) and now I'd like to move on to (another topic)."
6. **Don't lose control of the interview.** This can occur when respondents stray to another topic, take so long to answer a question that time begins to run out, or even begin asking questions of the interviewer.
7. **Responding to "I don't know" answers.** Sometimes people are hesitant to voice their opinion or may not fully understand the question. Consider responding with something like, "I was just trying to get your opinion; there really is not a right or wrong answer to many of these questions."
8. **Incomplete or too brief answers.** When asking open-ended questions, you want to get a fairly complete answer and sometimes you may need to probe a little. For example, you might say, "That's interesting; could you explain that a little more?" [3]

F.65.2.6 IMMEDIATELY AFTER INTERVIEW

1. **Make any notes on your written notes,** e.g., to clarify any shorthand, ensure pages are numbered; fill out any notes that don't make sense, etc.
2. **Write down any observations made during the interview.** For example, where did the interview occur and when, was the respondent particularly nervous at any time? Were there any surprises during the interview? Did the tape recorder stop and distract the interview?

F.65.3 OBSERVATION

An observation process is designed to assess the positive work practices that minimize or prevent injury, property damage, or environmental impact to employees, contractors, and our neighbors in the community. The attitudes of managers, supervisors, and other work groups towards safety work processes are an important measure in evaluating the overall effectiveness of the site's safety management system.

The manner in which an observation process is performed at a site could indicate the maturity level of their safety culture. For example, a site that encourages anyone to observe anyone, be it management observing represented employees, or vice versa, or contractors observing

operators or maintenance employees, likely has a more mature safety culture than another facility that only allows peer-to-peer observations.

The basic process to conduct an observation is typically as follows. An observer surveys the safety message and climate by noting signs, slogans, general housekeeping and observations to see if that is consistent with management vision and mission statements. Specific safe behaviors and at-risk behaviors of personnel are observed during their normal activities. Additional insights into the person's safety beliefs could be culled by engaging in conversations with those being observed.

To be used as a Safety Culture Assessment method, CCHMP expects that the observation program used at a site defines: who can observe whom; when and how they should be performed; suggested activities to observe; specific items to watch for; questions to ask; yardstick or criteria to measure against; training program to ensure observer consistency; and documentation to be preserved.

An example of one company's observation process can be found in Attachment E-4.

F.65.4 FOCUS GROUPS

An effective focus group program allows small groups of people to share their opinions, thoughts, feelings, attitudes, and ideas with each other on a certain topic. Focus groups allow people to build on each other's responses and formulize opinions or ideas they might not have come to during private or one-on-one interviews. Some of the primary goals of a focus group are to foster a healthy atmosphere where all participants can freely share their opinions or diverse points of view with no pressure to agree or come to a consensus. These groups also offer a portal or window for others to observe how people interact in a group setting, to gain access to various cultural or social elements, and to stimulate new thoughts or ideas to explore.[8]

Focus groups are useful in evaluating group behavior and performance. Group meetings can be held much quicker than individual interviews. Opinions given can be easier to understand and easier to make sense in a report than statistical summaries. Other advantages of focus groups are to: better understand perceptions and opinions that are held; evaluate existing programs; and assist in the planning and design of new programs.[7] Out of all of the methods presented in this guidance, focus groups have the best chance at uncovering core values held by groups of people.[9]

There are also some topics that focus groups are not that good at uncovering. For example, they are not useful in assessing individual behavior and performance since comments are influenced by the group's interaction. Focus group discussions can become very lively and touch on a variety of topics in a fast and chaotic manner, and depending on the moderator, make it difficult to control and adequately document. Side topics can consume a lot of time, and individuals who are very vocal could end up dominating the discussions and make others reticent to talk. Since focus groups are made up of very small numbers of people, "you cannot

assume that their views and perceptions represent those of other groups that might have slightly different characteristics"; they are not random samples.[7]

Additional insights and details are identified in the following sections on developing focus groups. In using this method, facilities should design a focus group process that clearly articulates the goals of the Safety Culture Assessment and how the information to be gathered will be utilized. Refer to Attachment E-5 for an example focus group provided by a facility.

F.65.4.1 GROUP DYNAMICS

Many people behave and speak differently in a group setting than during one-on-one interviews. The reasons for this are varied and complex. To help open people up more, focus groups are typically comprised of people who do not know each other. Groups comprised of friends tend to form cliques, support each other's opinions, and strive to keep up appearances more so than if they were in a group of people they do not know. On the other hand, groups that include people that do not get along with each other may have a tendency of offering contrary opinions more out of habit than expressing true feelings. For focus groups to be useful in assessing safety culture within individual work groups, more responsibility is placed on the moderator to identify these situations and draw out individual opinions that are closer to the truth.

To improve group session communication, everyone needs to feel safe and not pressured in anything they say or how they say it. They need to be told how the comments and session results will be summarized and reviewed. All group participants need to be instructed to respect everyone's opinion even if they disagree with them and that there are no wrong answers. Participants should be encouraged to offer contrary opinions to what they have heard. For example, at the beginning of the session, the following could be said by the moderator to draw out opinions from those not usually willing to offer divergent views. "If you find yourself having a totally different set of experiences, or a different set of opinions than the rest of the group, I need to hear it, since you will be representing a sizable portion of those people who are not here today that support your view. If you don't speak up, the results of this session may be seriously misleading, since an important view will not be represented. I hope you will have the fortitude to speak up." [10] The moderator should offer praise for the first contrary opinion with a comment like, "I knew you all couldn't be agreeing about this. Thanks for sharing that. Let's hear more." [10]

F.65.4.2 PLANNING THE SESSIONS

Planning for each focus group will need to be extensive. For example, the following needs to be identified: participants for each focus group, the goals for each session, the number of sessions necessary to assess each work group evaluated under this method, the types of questions to be asked, the location where the sessions will be held, methods to minimize distractions, qualifications and expectations for the moderator, manner in which notes will be kept, etc.

Most literature identifies that the size of a focus group ranges from 6 to 10 participants and one moderator. Groups larger in size can result in people having the tendency of talking collectively as a group instead of relating their own individual opinions. Mini focus groups comprised of only 3 to 4 participants can occasionally be used to delve further into select thoughts, opinions, and beliefs.[10, 11]

Locations used for focus groups should be relatively free of distractions (e.g., windows, PA system, artwork, interruptions). Similarly, radios, telephones, pagers, Blackberries and the like are turned completely off or not brought into the room. Chairs ideally should be arranged in a circle so everyone can face each other. A number of researchers suggest not having any obstructions (e.g., tables, desks) in between the participants, and go as far as to suggest having the focus group re-arrange the room so that the chairs face each other.

Most focus groups limit the number of questions asked to a small number from 5 to 6. It is difficult to ask a focus group in excess of 10 questions and expect to obtain truthful responses.[7, 9] Of course this is because it takes time to explore each question when the focus group has a diverse mixture of individuals participating. Facilities should question the validity of the responses obtained if a lot of effort is spent rushing to ask the remaining questions towards the end of a session. In many aspects, less may be more. Facilities should recognize that greater depth can be achieved in understanding the issues raised if multiple focus groups in sequence are used.

Realize that people will be talking about the focus group sessions before they show up for their first session. Consider taking the opportunity to encourage these discussions so that people can bring these peer opinions to the group for further exploration. Also, after the group session is done, anticipate that some people may want to stick around and say things they were not comfortable sharing with the group. Some people may even think about things for a day or so and then want to comment further. Allowing for these possibilities can yield some very valuable information. [10]

The focus group program developed will need to identify how the Safety Culture Assessment components outlined in F.6 are evaluated.

F.65.4.3 MODERATING A FOCUS GROUP

The moderator has the responsibility to determine if a question or topic has been sufficiently probed and evaluated. As such, facilities should evaluate the qualifications of each and every moderator they intend to use. CCHMP will review these qualifications during audits.

Several points should be mentioned about moderating. The first point is that there is a lot more to moderating than most people realize. The second point is that it is very difficult to tell how well a moderator is doing just by listening to them. Remember that the moderator should not be the one who is doing the talking; instead, the moderator is there to get the participants to talk to each other. The moderator is there to probe and to guide the

discussions. One of the keys to performing successful focus groups is the ability of the moderator to establish and maintain rapport with the entire group. Without rapport, any results received should be questioned. To as much as practical, the moderator should have minimal stake in the outcome of the discussion to not bias their objectivity during the session and in summarizing the results. The following are examples of some of the responsibilities that are or may be placed on the moderator: [7, 8, 9, 10]

- Treat everyone and their comments with respect and expect the same
- Make sure everyone participates equally and not let any one participant dominate
- Be able to use appropriate probes and questioning to improve responses (e.g., "Tell me more about that…", "So, it sounds like you are saying…", "I can't read the groups' reaction to that. Help me out", "Boy, that got quite a rise out of everyone. What is everyone reacting to?")
- Know when to remain silent (e.g., wait at least 5 seconds after someone stops speaking in case someone else was going to comment)
- Know when to encourage discussions going down a desired path

F.76 SAFETY CULTURE ASSESSMENT COMPONENTS

The Safety Culture Assessment must document the Safety Culture Assessment process and a defined goal.   The process should state what methodology was selected for each work group and the criteria for successful participation. Furthermore, the assessment must address the following components:

1. Management Commitment and Leadership
2. Individual Performance and Accountability
3. Peer Perception and Accountability
4. Safety Program Performance

The topics listed within the following subsections should be addressed under each of the four components. Suggestions for questions/topics identified for each component are provided for reference and additional suggestions are given in Attachment E-3. Since the assessment is a summary of the beliefs of the personnel surveyed, interviewed or observed, an explanation should be provided for each component to determine if the results are satisfactory or if it is determined to need improvement. The assessment must include a description of planned action including communication to work force.

F.76.1 MANAGEMENT COMMITMENT AND LEADERSHIP

Management commitment and leadership can be assessed in various ways. Typically what comes to mind may be: What is the worker's perception on how effective the various layers of management exhibit, encourage, communicate, and provide commitment and leadership in Process Safety? What is the worker's perception on how open and transparent the various layers of management are to hear process safety issues, and the appropriateness of management's response? What is the worker's perception on whether the various levels of management emphasize and support safety even if it slows or halts productivity? There are a number of areas that can be evaluated to determine this. These include, but are not limited to the following list:

- Stated company mission and vision that indicate safety is a shared value
- Encouragement of safe behavior
- Encouragement of near miss reporting
- Expectations to follow procedures
- Providing safety feedback to workers
- Welcoming safety suggestions
- Allocation of adequate resources to perform work safely
- Recognizing good safety performance
- Identifying goals and objectives for safety performance
- Adherence to goals and objectives for safety performance
- Responsiveness to safety concerns
- Investigations aimed at identifying safety system failures rather than identification of who to blame
- Emphasis on communication of safety issues
- Sets expectations to shutdown unsafe equipment or activities
- Provides support for facility Health and Safety committee work
- Supports preventive maintenance
- Encouragement of training even those that are outside job class
- Embraces continuous improvement
- Visible participation in the safety arena at all levels of management

F.76.2 INDIVIDUAL PERFORMANCE AND ACCOUNTABILITY

Personal performance and accountability can be gauged in many ways. For instance: How well do you embrace safe work practices and follow work directions and policies? Do you feel empowered to shutdown unsafe equipment or activities? Do you feel that there are occasions or reasons to justify not following safety rules or cutting corners on process safety? Would there be any reasons that would prompt you to not report process safety concerns or near misses? There are a number of areas that can be evaluated to determine this. These include, but are not limited to the following list:

- Safe work practices and procedures are followed
- Incidents are reported

- Investigations are aimed at identifying safety system failures rather than identification of blame
- Near misses are reported
- Safety concerns are communicated to supervision and resolutions are shared and are satisfactory
- Equipment in need of repair is reported and repaired
- Procedures are followed
- Unsafe equipment or activities are shutdown and corrected
- Proper PPE utilization
- Trust in coworkers to work safely
- Initiative to mentor new employees
- Embracing the importance of training

F.76.3 PEER PERCEPTION AND ACCOUNTABILITY

Peer Perception and accountability can be measured in many ways. For instance: How well do you believe your coworkers embrace safe work practices and follow work directions and policies? Do you believe your coworkers have different attitudes towards company policy and process safety when they are by themselves versus in the presence of the following groups: supervision, peers, or contractors? What is your perception of the predominant reasons why some peers may not report process safety concerns or near misses? Is there any concern of herd mentality at the work place? Do you believe that everyone is held to the same level of accountability? There are a number of areas that can be evaluated to determine this. These include, but are not limited to the following list:

- Safe work practices are followed
- Incidents observed are reported
- Near misses are reported by those involved or affected
- Safety concerns are communicated
- Cooperation among coworkers to complete jobs safely using formalized procedures
- Recognize the importance of training
- Shift turnover logs are adequately completed
- Proper PPE utilization
- Procedures are followed

F.76.4 SAFETY PROGRAM PERFORMANCE

Safety Program performance includes questions or items that request an evaluation or impression of how successful the various safety programs are at achieving objectives. These questions must address the effectiveness of the facilities prevention programs, and in some cases, the questions may be designed to see if participants are aware of the existence or the basic mechanics of the program. Topics for evaluation should include but are not limited to the following list:

- Worksite Hazard Analysis and Communication
- Preventive Maintenance

- Turnaround Maintenance
- Self Inspection
- Injury Prevention
- Incident Investigation
- Operating Procedures
- Health and Hygiene
- Emergency Preparedness
- Contractor Safety and Management
- Environmental Awareness
- Management Commitment and Leadership
- Performance and Accountability
- Health and Safety Training
- Communication
- Safety Meetings

F.8~~7~~ CONTINUOUS IMPROVEMENT STRATEGY

F.8~~7~~.1 EFFECTIVENESS OF ASSESSMENT

The initial assessment will serve as the baseline for future assessments. The results of the initial and subsequent assessments must be summarized in a report to management and the workforce. These documented communications should identify both positive areas and areas that need improvement. The report must state the assessment goal and process including what general criteria are used by the facility to identify an area that needs improvement and rationale for any prioritizations.

After the assessment, the facility along with workforce participation will develop an implementation plan to take steps to act on the findings. Additional notifications should be sent back to the remaining workforce that participated in the assessment to inform them of the steps to be taken. The more rapid and transparent this notification process, accompanied with visible results, the more satisfied the workforce will likely be that management is taking this task seriously.[1] It should be noted that it might take some time to implement action items as a result of this assessment before the workforce notices any significant change or improvement. Facilities are encouraged to consistently refer back to the assessment results during other safety meetings and periodically report the progress on resolving action items. It may be necessary to conduct shorter interim assessments to ensure that the action plan is on track to achieve the defined objectives.

F.8~~7~~.2 EFFECTIVENESS OF PROGRAM AGAINST STATED GOALS

The facility must establish goals and metrics for the improvement of safety culture at the facility. The specific goals should encompass the state of the group values, attitudes, perceptions, competencies and patterns of behavior at the facility regarding the effectiveness of the health and safety programs and any identified improvements as a result of the assessment.

The improvements must be made into a plan of action designed with metrics to assess its effectiveness in achieving the facility's stated goals.

F.~~8~~7.3 GUIDANCE DOCUMENT REVIEW

The Safety Culture Guidance document will be amended as needed by CCHMP. A formal review will take place at least once every three years to evaluate its adequacy by CCHMP. The timing of the first review will need to be such to allow CCHMP to inspect a representative number of Safety Culture Assessments completed by the regulated facilities.

F.~~9~~8   DOCUMENTATION

A report must be developed for every Safety Culture Assessment data collection method applied. The report is to be presented to management and the workforce and should be within 6 months of data collection. Reports that are not completed and communicated within 9 months of data collection must be discussed in advance with CCHMP. With workforce participation, the report is to include an action plan for areas that need improvement. Since the report is a summary of the assessed beliefs of the personnel, interviewed or observed, there should be an explanation provided for each item that is determined to need improvement. It may be necessary to prioritize the list of improvements within the action plan based on the number, complexity, and/or relative level of concern associated with the issues. The implementation of improvements should start within 3 months of the report presentation.

The facility must maintain the following auditable records regarding each Safety Culture Assessment including, examples of assessments (e.g., surveys or interview questions), aggregated assessment results and an executive summary that contains the following (Note, facilities are not required to specifically identify issues to be improved for individual sub-work groups to CCHMP although the improvement plan needs to track progress made):

- Safety Culture Assessment reports
- Stated facility goals and objectives regarding safety culture and related topics
- Documentation of the appropriateness of the participation level targeted and achieved (e.g., ideally this should be by work group and include the total population, sample size, and response rate obtained)
- Assessment methodologies used for each work group and criteria for successful participation
- Criteria used for rejection of any results or findings
- Criteria used for determining if no action(s) will be taken on assessment results or recommendations
- Summary of the assessment components (corresponding to section F.6) with key findings
- Improvement plan with clear list of action items and identifiable milestones
- Rationale for prioritizing action items and justification for the action items to be worked on
- Documentation of communications to work force

- Qualitative and quantitative comparisons in subsequent assessments of whether improvement plans affected observable safety behavior, or culture.

As part of the annual performance review and evaluation (§E.7 of this guidance document) reporting the following items should be added to include as part of the annual report to show the work that is being done to evaluate the safety culture at each stationary source:

- Was a Safety Culture Assessment performed at this stationary source during the reporting year? (If a Safety Culture Assessment was not performed during the reporting year the following questions do not need to be addressed).
  - o What method(s) were used in the Safety Culture Assessment?
    - ▪ Written Survey
    - ▪ Interviews
    - ▪ Focus Groups
    - ▪ Observational
  - o What areas of improvements are being addresses as the result of the Safety Culture Assessment?
  - o Did the action plan developed by the previous Safety Culture Assessment make the improvements the actions were designed to address? If not, were changes made to to the action plan to achieve the desired improvements?
- If a Safety Culture Assessment was not performed in the reporting year, complete the following questions:
  - o Have milestones and metrics been developed to determine that the Safety Culture Assessment actions are being implemented?
  - o How is the effectiveness of the actions that are being implemented addressing the findings from the Safety Culture Assessment?
  - o If based on the measuring of the effectiveness of the Safety Culture Assessment, have changes been made in the actions being taken to address any shortcomings?

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[1] The citation from the Industrial Safety Ordinance incorrectly referenced the "Contra Costa County CalARP Program Guidance Document" and "Industrial Safety Ordinance Guidance Document" instead of the Contra Costa County Safety Program Guidance Document. Approved methods for performing Safety Culture Assessments will be included in the Contra Costa County Safety Program Guidance Document. In addition, for the purposes of clarification, CCHMP (Contra Costa Hazardous Materials Programs) was used instead of "department" in the citation.

[2] Summary Guide to Safety Climate Tools, 2001, HSE

[3] 70% response rate from the Baker Panel Report issued in 2007: 7,451 out of 10,298 members participated in the safety culture survey done for the 5 BP U.S. Refineries (a 72% response rate). Individual Refinery response rates varied from 65%-76%.

[4] Research Methods, 7th Edition, 2007, McBurney, D.H and T.L. White

[5] Whether employees feel comfortable enough to honestly answer a safety culture assessment when not performed anonymously can be an indicator of the maturity level of a company's safety culture. (Summary Guide to Safety Climate Tools, 2001, HSE)

[6] From the HSE Process Guidelines Climate Survey Tool: "There are various ways of issuing the questionnaire. One is to issue it to the respondents directly, either at work or to their home with the completed questionnaires returned by mail….

Response rates using this method are typically around 30-40%… Another method, which has proved very successful, is to bring people together in a convenient place. Then issue the questionnaire, allowing them time to complete it. Using this type of approach, very high response rates (typically 70-80% and above) can be achieved.

[7] These items were identified within the BP Texas City Baker Panel Report in order to break down the survey results in a meaningful way while preserving the anonymity of all respondents.

[8] Using Focus Groups for Evaluation, University of Arizona, Marczak, M and M. Sewell

[9] Getting to the Right Psychological Level in Your Focus Groups, Market Navigation, Inc., Silverman, G.

[10] How to Get More Out of Your Focus Groups, Market Navigation, Inc., Silverman, G.

[11] How to Get Beneath the Surface in Focus Groups, Market Navigation, Inc., Silverman, G.