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December 18, 2020

<u>**Via Electronic Mail**</u>

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Subject: **Comments of the Public Advocates Office on the Wildfire Safety Division's Draft Safety Culture Assessment Requirements for Electrical Corporations.**

<u>**INTRODUCTION**</u>
Pursuant to Rule 14.5 of the Rules of Practice and Procedure of the California Public Utilities Commission (Commission), the Public Advocates Office at the California Public Utilities Commission (Cal Advocates) submits these comments on the Wildfire Safety Division's (WSD's) Draft Safety Culture Assessment Requirements for Electrical Corporations.

Cal Advocates recommends that the WSD:

1. Adopt similar survey questions and other elements from Contra Costa County's Industrial Safety Ordinance safety culture assessment program.

2. Revise the current phrasing used in numerous survey questions in the self-assessment.

3. Require the utilities[1] to hire an independent third-party entity,

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[1] Many of the Public Utilities Code requirements relating to wildfires apply to "electrical corporations." *See e.g.*, Public Utilities Code Section 8386. These comments use the more common term "utilities" and the phrase "electrical corporations" interchangeably to refer to the entities that must comply with the

      selected and overseen by the WSD, to organize, deploy, collect, and validate the surveys given to utility staff.

4. Require the utilities to provide all supporting documentation to validate the self-assessment submissions by the utilities and make it available to stakeholders.

5. Require that each survey question allow options for respondents to provide comments.

6. Expand the workforce survey beyond employees, supervisors, managers, and contractors engaged in wildfire hazard mitigation activities to include all staff and maintenance/construction crews who have any relation to wildfire risk.

7. Modify the behaviorally anchored rating scale used to rate the questions on the self-assessment.

8. Add questions to inquire about preventative actions at utilities to better understand the safety culture at the utilities.

9. Add questions to inquire about organizational communication.

BACKGROUND

Public Utilities Code Section 8389(d) requires the Commission to consult with the WSD and adopt several requirements related to catastrophic wildfire risk by December 1, 2020 and annually thereafter. The Commission must adopt performance metrics, requirements for wildfire mitigation plans (WMPs), and a process for conducting annual safety culture assessments.

On November 30, 2020, the WSD issued Resolution WSD-011, which implements the requirements of Public Utilities Code Section 8389(d) (hereinafter Draft Resolution). The Draft Resolution includes guidelines for the annual safety culture assessment process.

On December 3, 2020, the WSD issued the Draft Safety Culture Assessment Requirements of utilities.[2] The Draft Safety Culture Assessment was presented to stakeholders for public comment by December 18, 2020.

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wildfire safety provisions of the Public Utilities Code.

[2] *Wildfire Safety Division (Draft Safety Culture Assessment Requirements of Electrical Corporations*, December 3, 2020.

DISCUSSION

A. Cal Advocates' Recommendations

1. The WSD should adopt similar survey questions and other elements from Contra Costa County's Industrial Safety Ordinance safety culture assessment program.

Contra Costa County adopted its Industrial Safety Ordinance (ISO) in 1999 after a number of refinery and chemical plant incidents. In 2006, recognizing the importance of safety culture in preventing and reducing incidents, the County amended the ordinance to require safety culture assessments.[3]

After nearly two decades of monitoring and continuous improvement, Contra Costa has experienced a significant reduction in incidents ("Major Chemical Accidents or Releases (MCARs)"), as shown in the figure below.[4]
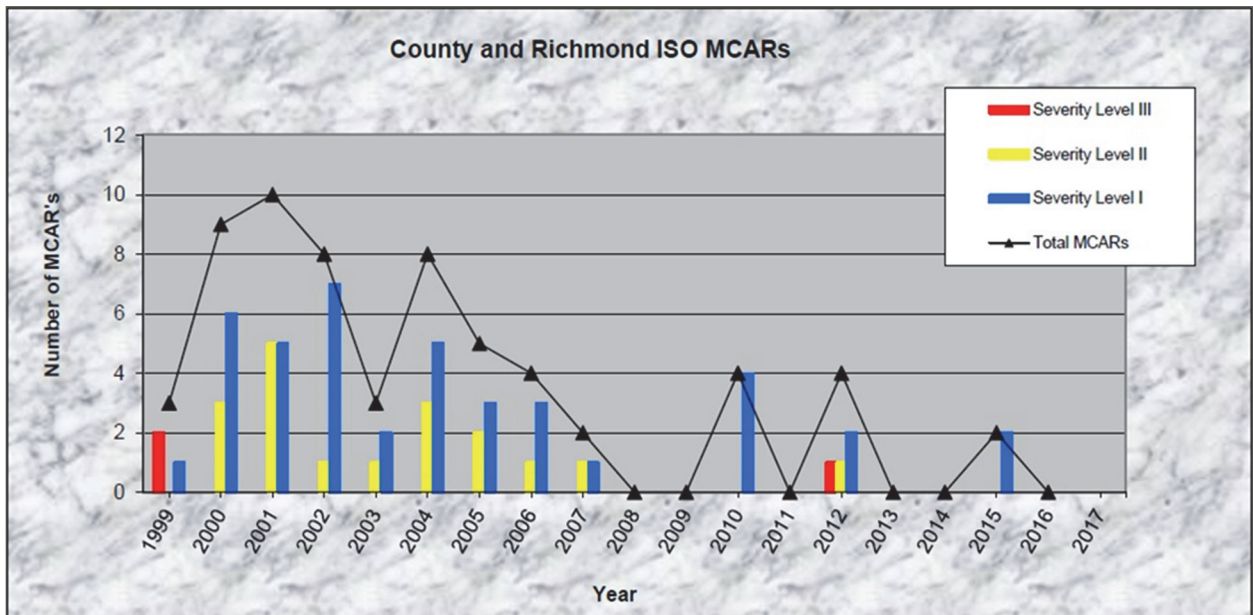
Contra Costa County publishes information on its Industrial Safety Ordinance on its

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[3] East Bay Times: "Industrial safety law celebrates 10 years" December 6, 2008, updated August 15, 2016. *See* https://www.eastbaytimes.com/2008/12/06/industrial-safety-law-celebrates-10-years/.

[4] March 8, 2018 CPUC En Banc on Safety Management Systems: Slide 8, Presentation by Randall L. Sawyer, Contra Costa County: "Accidental Release Prevention Process Safety Management Systems - Incident Reductions after Implementation of Contra Costa County Industrial Safety Ordinance, including Safety Culture Requirements. *Please see* https://www.cpuc.ca.gov/2018safetyenbanc/.

website.[5] "Section F," Contra Costa's "Safety Culture Guidance Document" is devoted to safety culture assessment requirements. It includes the following guidance for conducting a written survey:[6]

> "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."

We recommend that the WSD revise its survey questions in a fashion similar to the survey questions from the Industrial Safety Ordinance Attachment E, included as Appendix A to these comments, due to the success Contra Costa County has had in reducing incidents. If this cannot be completed in time for the next safety culture assessment, we urge the WSD to include this format for additional questions in the next safety culture assessment.

2. The WSD should revise the current phrasing used in numerous survey questions in the self-assessment.

Within the proposed workforce survey questions, the WSD provides examples of survey questions regarding Leadership Influence and Workforce Behavior.[7] These are currently presented only as positive statements to the survey taker, requesting a rating on a scale of 1 to 5 corresponding with "strongly disagree" to "strongly agree" on how true the statement is. This could lead to complacency by the survey taker, reduced engagement, and subsequent inaccurate results, thereby masking organizational blind spots in the safety culture assessment.[8]

Furthermore, the questions are presented with a positive bias where the questions are phrased in a manner indicating how things should be, possibly risking the leading question phenomenon.[9] This phrasing could result in utility staff leaning towards a higher rating for each statement producing skewed and misleading results.[10] Cal Advocates recommends the

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[5] "ISO Guidance Document," *see* https://cchealth.org/hazmat/iso/guidance.php.

[6] "Safety Culture Guidance Document," *see* https://cchealth.org/hazmat/iso/guidance.php.

[7] Draft Safety Culture Assessment, pp.11-12.

[8] See David L. Vannette and Jon A Krosnick's "Answering Questions, A Comparison of Survey Satisficing and Mindlessness." https://pprg.stanford.edu/wp-content/uploads/2014-Mindlessness-Chapter.pdf.

[9] Such "leading questions" push respondents to answer in a specific manner, based on the way the questions are framed. Because these questions often contain information that survey creator wants to confirm they rarely yield true and unbiased answers.

[10] The Pew Research Center's "Questionnaire design." https://www.pewresearch.org/methods/u-s-survey-research/questionnaire-design/.

WSD employ a varied approach where negative statements are presented as well to further engage utility staff and avoid rushed completions.

> **3.** **The WSD should require the utilities to hire an independent third-party entity, selected and overseen by the WSD, to organize, deploy, collect, and validate the surveys given to utility staff.**

The WSD proposes that the utilities in 2021 will be required to assess their current state on various safety culture elements and to project where they anticipate they will be on these elements by the end of 2022.[11] Elements in the utilities' self-assessment should be externally validated via questionnaires by independent third-party entities or via CPUC and WSD inspections. This will ensure the accuracy of utilities' self-assessments, since an external third-party entity can recognize and confirm that the results are authentic and complete.[12] Items to be confirmed may include the number of staff surveyed, the channels the responses have travelled through, as well as whether staff confidentiality was provided when soliciting survey responses.

> **4.** **The WSD should require the utilities to provide all supporting documentation to validate the self-assessment submissions by the utilities and make it available to stakeholders.**

The Draft Safety Culture Assessment states that if requested by the WSD, utilities shall complete the supporting documentation requirement to further justify and validate the self-assessment submission.[13] Cal Advocates recommends that the utilities be required to provide all supporting documentation to the WSD upon request. The WSD should require the utilities to justify and validate every aspect of the self-assessment and make this justification and validation available for stakeholders to review. Cal Advocates anticipates that the majority of supporting evidence that could be requested by the WSD will already be collected by the WSD via inspections and observations and made available to stakeholders.

> **5.** **The WSD should require that each survey question allow options for respondents to provide comments.**

Comments are a common important element of safety culture surveys. They capture critical information not otherwise captured that may be used to drive corrective actions and to improve future surveys.

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[11] WSD Draft Safety Culture Assessment p. 4.

[12] A fundamental problem with surveys is the willingness of the respondent to answer a question accurately. *See*, Fowler, *Improving Survey Questions: Design and Evaluation*, SAGE Publications: 1995.

[13] Draft Safety Culture Assessment p. 4.

6.   The WSD should expand the workforce survey beyond employees, supervisors, managers, and contractors engaged in wildfire hazard mitigation activities to include all utility staff and maintenance/construction crews who have any relation to wildfire risk.

The current target population for the workforce survey is employees, supervisors, managers, and contractors who are engaged in wildfire hazard mitigation activities.[14] Cal Advocates recommends the assessment include the full range of employees and contractors that have any relation to current and previous wildfire risk. This should explicitly include, but not be limited to: executive and senior leadership, legal and other staff involved in wildfire related proceedings including rate case, rulemaking, and enforcement proceedings, staff involved in budgeting and funding, staff involved in operations and risk analysis, engineering, quality control and quality assurance staff, root cause analysis staff, the chief financial officer, risk and safety officers and risk and safety staff.[15] References to 'staff' and 'utility staff' in these comments include both employees and contractors.

When the WSD or a third-party, plans to meet with the utilities to identify the staff to be surveyed, emphasis should be placed on a varying target population that views the organization's operations from different perspectives or frame of reference.

7.   The WSD should modify the behaviorally anchored rating scale used to rate the questions on the self-assessment.

The current behaviorally anchored scale provides limited extreme options, where 1-2 are very negative and 3-4 are extremely positive. The behaviorally anchored rating scale of 1 to 4 in the Draft Safety Culture Assessment[16] corresponds with the ratings "as a requirement," "as a priority," "as a value," and "who we are," respectively. Values 1 and 2 may be perceived as too negative to be chosen regularly and values 3 and 4 may be viewed as aspirational, but unrealistic responses. This limited range of responses does not provide employees taking the survey with response choices that will help ensure they have every opportunity to respond in a way that reflects their views. Cal Advocates recommends that the scale be expanded to at least five values with one value representing neutrality and the other values reworded to reflect more realistic response statements.

In addition, some of the questions are confusing. As one example, 2.1.1[17] asks: "Who is

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[14] Draft Safety Culture Assessment p. 8.

[15] References to 'staff' and 'utility staff' in these comments include both employees and contractors.

[16] Draft Safety Culture Assessment p. 14.

[17] Draft Safety Culture Assessment p. 16.

accountable for wildfire safety outcomes?" The possible answers appear to force selection of an inaccurate answer, as well as a lack of choice representing the responsibility of the utility staff providing the response.[18] We recommend that the WSD conduct an in-depth review of all questions, and also consider the questions included as Appendix A to these comments.

We recommend that the WSD also incorporate some questions using the format and style used by the U.S Navy in its Safety Climate Assessment Surveys below:[19]
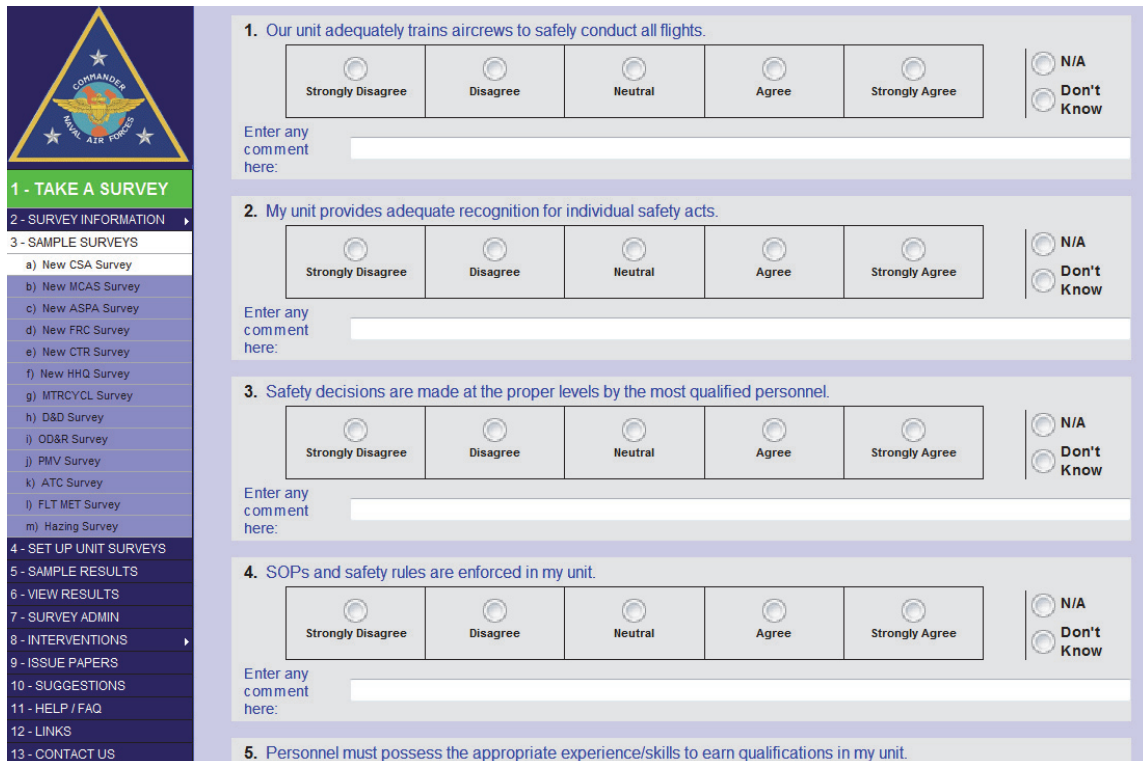
8.   **The WSD should add questions to inquire about preventative actions at utilities to better understand the safety culture at the utilities.**

In the prioritizing safety section of the proposed workforce survey questions, item 11 reads: "Accidents and incidents are investigated completely to find out what happened, and the corrective actions needed."[20] Cal Advocates recommends a similar item be included to

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[18] The Pew Research Center's "Questionnaire design." https://www.pewresearch.org/methods/u-s-survey-research/questionnaire-design/.

[19] U.S. Navy Aviation Climate Assessment Survey System (ACASS). Please see https://www.safetyclimatesurveys.org/mainpage.aspx.

[20] Draft Safety Culture Assessment p. 11.

inquire about preventative actions taken by the utilities, in addition to inquiring about corrective actions. Preventative measures are a key factor of a successful safety culture.[21]

9. The WSD should add questions to inquire about organizational communication.

The WSD should add questions so employees can provide feedback and information on how they receive safety messages. It is important to understand how utilities are conveying their safety message to front-line workers and how often the message is reinforced or amended. It is also important to understand how top-level executives in charge of designing the safety message receive feedback on the design of the safety message once it is implemented. As an example, the utilities might distribute a survey question inquiring about how safety plans are introduced to employees, with responses ranging from email and virtual meetings to in-person meetings or direct discussions with a supervisor.

CONCLUSION

Cal Advocates respectfully requests that the Wildfire Safety Division adopt the recommendations discussed herein. Please contact Christopher Parkes (christopher.parkes@cpuc.ca.gov) or Talal Harahsheh (talal.harahsheh@cpuc.ca.gov) with any questions relating to these comments.

Sincerely,

/s/   NATHANIEL W. SKINNER
        Nathaniel W. Skinner, PhD
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Cc: Service List in R.18-10-007
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[21] Industrial Safety and Hygiene News' "6 ways to implement a safety culture within your workplace." https://www.ishn.com/blogs/16-thought-leadership/post/108187-ways-to-implement-a-safety-culture-within-your-workplace.

Appendix A

ATTACHMENT E

E-1: Example Survey Excerpted From Baker Panel Report
E-2: Written Survey Development – Example from a Facility
E-3: Example Interview / Written Survey Assessment Topics
E-4: Observation Process – Example from a Facility
E-5: Focus Group Development – Example from a Facility

The above tools are provided as examples only for conducting safety culture assessments. These tools may not contain all of the necessary elements as presented in Section F.6 of this guidance document. As such, Stationary Sources should amend the examples provided or use other means to ensure that their Safety Culture Assessments address required components specified in Section F.6.

ATTACHMENT E-1

EXAMPLE SURVEY EXCERPTED FROM BAKER PANEL REPORT
(BP REFINERIES INDEPENDENT REPORT)

Have you viewed the survey introduction video?

☐₁ Yes

☐₂ No

It is highly recommended that you watch the video prior to completing this survey.

If you responded NO, please take a moment to view the 5-minute video before completing the survey.

OVERVIEW

This survey contains three major sections:

I. About Me

This section asks for information about yourself and your work background. This information is for research purposes only and will not be used to identify you.

II. My Opinions and Comments

This section contains statements that ask for your thoughts on what it is like to work at a BP refinery. There are no right or wrong answers. We simply ask for your opinion, based on your experience. Please review each statement and select the number from 1 to 5 that best expresses your response to the statement. Please note that selecting number 3 in response to a question means either that you do not know or that you do not have an opinion.

Comment sections after each category of questions provide you with an opportunity to express your written thoughts regarding the topic. If you do not have enough space to write your comment after each selection, please feel free to continue commenting on the final page of the survey.

III. Final Comments

There is also an open-ended final comment question at the end of the survey in which you will have an opportunity to add any additional feedback that you might have.

INSTRUCTIONS FOR COMPLETING THE SURVEY

Please observe the following requirements carefully to ensure that your responses are correctly recorded:

- **Use a soft lead pencil or a blue or black pen.**

- Place a heavy "X" in the box which best reflects your answer.

- **Mark only one** opinion for each statement. <u>**Multiple marks cannot be counted.**</u>

- If you want to change an answer, erase completely, or, if you answered in pen, completely black out the wrong answer and put an "X" in the correct box.

MARKING INSTRUCTIONS

CORRECT   INCORRECT

☒   ☑ ③ ☒

I. ABOUT ME

In this section you are asked to provide some information about yourself and your position within BP. This information is requested because workers from different locations of BP or from different job levels might have varying opinions. The Panel will use the information from this section to break down results in a meaningful way while preserving the anonymity of all respondents.

1. IN WHICH FACILITY DO YOU DO MOST OF YOUR WORK?

- ☐1 Carson
- ☐2 Cherry Point
- ☐3 Texas City
- ☐4 Toledo
- ☐5 Whiting

2. WHAT IS YOUR JOB LEVEL?

- ☐1 Hourly Worker
- ☐2 Foreman / First Level Supervisor
- ☐3 Superintendent
- ☐4 Manager
- ☐5 Other

3. ARE YOU A MEMBER OF A SAFETY COMMITTEE?

- ☐1 Yes
- ☐2 No

4. WHAT TYPE OF WORKER ARE YOU?

- ☐1 Regular Full-Time BP Employee
- ☐2 Regular Part-Time BP Employee
- ☐3 Contractor

5. WHAT IS YOUR CURRENT PRIMARY JOB FUNCTION?

- ☐01 Administration / Support
- ☐02 Analytical / Laboratory
- ☐03 Commercial / Shipping
- ☐04 Digital & Communications Technology (DCT)
- ☐05 Drafting / Engineering Design
- ☐06 Engineering Professional (all disciplines)
- ☐07 External Affairs / Communications
- ☐08 Financial Control & Accounting (FC&A)
- ☐09 HSSE (Health, Safety, Security & Environment) as Full Time (no other functional responsibility)
- ☐10 Human Resources
- ☐11 Learning & Development / Training
- ☐12 Maintenance / Craft Technician (all disciplines)
- ☐13 Maintenance Management
- ☐14 Maintenance / TAR Planning
- ☐15 Materials / Corrosion / Inspection
- ☐16 Operations-Management
- ☐17 Operator
- ☐18 Planning / Strategy / Business Development
- ☐19 Procurement / Supply Chain Management
- ☐20 Production Planning / Analysis
- ☐21 Project Management (Engineering)
- ☐22 Research and Technology
- ☐23 Other (specify: _____)

PLEASE CONTINUE TO NEXT PAGE

6. WHAT IS YOUR HERITAGE COMPANY?

- [01] Amoco
- [02] Aral
- [03] Arco
- [04] BP
- [05] Castrol
- [06] Mobil
- [07] Sohio
- [08] Vastar
- [09] Veba
- [10] I am a contractor
- [11] None of the above

7. HOW LONG HAVE YOU WORKED AT THIS REFINERY?

- [1] Less than a year
- [2] 1 year but less than 3 years
- [3] 3 years but less than 5 years
- [4] 5 years but less than 8 years
- [5] 8 years but less than 10 years
- [6] 10 years but less than 15 years
- [7] 15 years or more

8. HOW LONG HAVE YOU WORKED IN THE REFINING INDUSTRY?

- [1] Less than a year
- [2] 1 year but less than 3 years
- [3] 3 years but less than 5 years
- [4] 5 years but less than 8 years
- [5] 8 years but less than 10 years
- [6] 10 years but less than 15 years
- [7] 15 years or more

THE FOLLOWING CODING QUESTIONS ARE VOLUNTARY. HOWEVER, WE DO ASK FOR YOUR COOPERATION. THE INFORMATION WILL ALLOW US TO COMPARE RESPONSES BY DIFFERENT GROUPS.

9. WHAT IS YOUR GENDER?

- [1] Male
- [2] Female

10. WHAT IS YOUR RACIAL / ETHNIC BACKGROUND?

- [01] American Indian / Alaskan Native / Canadian Aboriginal Descent
- [02] Asian Descent
- [03] Black / African American
- [04] European Descent (White / Caucasian)
- [05] Hispanic / Latino Descent
- [06] Middle Eastern Descent
- [07] Pacific Islander, Aboriginal or Maori Descent
- [08] Multi-Racial (more than one of the above)
- [09] None of the Above
- [10] Decline to Respond

11. WHAT IS YOUR AGE?

- [1] Under 20
- [2] 20 - 24
- [3] 25 - 29
- [4] 30 - 39
- [5] 40 - 49
- [6] 50 or above

SURVEY TERM DEFINITIONS

Please read through the following definitions of key words that are used throughout the survey. You may come back to this page and reference these definitions at any time.

PLEASE REVIEW THESE DEFINITIONS PRIOR TO COMPLETING THIS SURVEY.

"ACCIDENT" refers to an event or series of events and circumstances that results in one or more undesirable consequences.

"HAZARD" refers to chemicals, materials, operating environments or conditions that have the potential to cause damage to people, property, or the environment.

"NEAR MISS" refers to an event or series of events that could have resulted in one or more undesirable consequences under different circumstances, but actually did not.

"PROCESS" refers to any activity involving, but not limited to, a hazardous chemical (i.e., a substance possessing toxic, reactive, flammable, or explosive properties) or other potentially dangerous material (including steam), including any use, storage, manufacturing, handling, or the on-site movement of such a chemical or material.

"PROCESS SAFETY" refers to the prevention of unintentional releases of chemicals, energy, or other potentially dangerous materials (including steam) during the course of refinery processes that can have a serious effect. Process safety involves, for example, the prevention of leaks, spills, equipment malfunction, over-pressures, over-temperatures, corrosion, metal fatigue and other similar conditions. Process safety programs focus on design and engineering of facilities, maintenance of equipment, effective alarms, effective control points, procedures and training.

"REFINERY MANAGEMENT" refers to all refinery department managers and the business unit leader of your refinery.

"SUPERVISOR" refers to the person to whom you report directly on a daily basis.

"WORK GROUP" refers to the group of people with whom you work on a daily basis.

"WORKER" refers to all refinery personnel, in all departments (including employees and contractors).

II. MY OPINIONS AND COMMENTS

Please review each statement below and select the number from 1 to 5 that best expresses your response to the statement. Please note that selecting number 3 in response to a question means either that you do not know or that you do not have an opinion.

Process Safety Reporting

Note: For each statement below, you should select "3" under the response labeled "?" only if you do not know or you do not have an opinion.

		Agree	Tend to Agree	?	Tend to Disagree	Disagree
1.	This refinery provides adequate training on hazard identification, control and reporting....	1	2	3	4	5
2.	I have received training on hazard identification, control and reporting in the last 12 months	1	2	3	4	5
3.	I can report hazardous conditions without fear of negative consequences	1	2	3	4	5
4.	In general, workers don't bother to report minor process-related incidents, accidents, or near misses	1	2	3	4	5
5.	I believe a culture exists at this refinery that encourages raising process safety concerns...	1	2	3	4	5
6.	Corrective action is promptly taken when unsafe process safety conditions are brought to management's attention	1	2	3	4	5
7.	I am confident that process safety issues are:					
	a. Thoroughly investigated	1	2	3	4	5
	b. Appropriately resolved	1	2	3	4	5
8.	Workers are informed about the results of process related incident, accident, and near miss investigations	1	2	3	4	5
9.	I am satisfied with the process safety reporting system at this refinery	1	2	3	4	5
10.	I do not hesitate to report actions or conditions that raise a process safety concern, even when a co-worker is involved	1	2	3	4	5

Please provide any comments you have about Process Safety Reporting in the space below.

_____

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_____

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Safety Values / Commitment to Process Safety

Note: For each statement below, you should select "3" under the response labeled "?" only if you do not know or you do not have an opinion.

		Agree	Tend to Agree	?	Tend to Disagree	Disagree

11. My supervisor puts a high priority on process safety through actions and not just empty slogans 1 2 3 4 5

12. Refinery management puts a high priority on process safety through actions and not just empty slogans 1 2 3 4 5

13. Operational pressures do not lead to cutting corners where process safety is concerned 1 2 3 4 5

14. At this refinery, process safety improvement is a long-term commitment that is not compromised by short-term financial goals.. 1 2 3 4 5

15. In my opinion, the people at my refinery with specific process safety responsibilities have the:

    a. Authority to make changes 1 2 3 4 5

    b. Resources to make changes 1 2 3 4 5

16. In my opinion, process safety programs at my refinery have:

    a. An adequate number of people responsible for process safety.................................. 1 2 3 4 5

    b. Adequate funding.. 1 2 3 4 5

17. There is usually sufficient staff in my work group to perform my job safely........................ 1 2 3 4 5

18. After a process-related incident, accident, or near miss, management is more concerned with correcting the hazard than assigning blame or issuing discipline 1 2 3 4 5

19. At this refinery, a formal hazard assessment is performed to ensure that changes that affect processes will be safe.. 1 2 3 4 5

20. Workers at this refinery feel pressured to work considerable overtime from:

    a. Co-workers.. 1 2 3 4 5

    b. Supervisors... 1 2 3 4 5

    c. Refinery management 1 2 3 4 5

    d. Their own sense of loyalty to their operating units 1 2 3 4 5

Please provide any comments you have about Safety Values / Commitment to Process Safety in the space below.

_____

_____

_____

_____

_____

_____

Supervisory Involvement and Support

Note: For each statement below, you should select "3" under the response labeled "?" only if you do not know or you do not have an opinion.

		Disagree	Tend to Disagree	?	Tend to Agree	Agree

21. In my work group, process safety concerns are secondary to achieving production goals ... ① ② ③ ④ ⑤

22. My supervisor sometimes asks me to operate an unsafe process .... ① ② ③ ④ ⑤

23. My supervisor will support me if I refuse to participate in unsafe work........................... ① ② ③ ④ ⑤

24. My supervisor encourages me to identify and report unsafe conditions .... ① ② ③ ④ ⑤

25. My supervisor makes sure that procedures relating to the following activities are safe before such activities are initiated:

    a. Operations .... ① ② ③ ④ ⑤

    b. Maintenance.. ① ② ③ ④ ⑤

26. Persons with appropriate supervisory authority and expertise participate in hazardous process-related activities, such as startup... ① ② ③ ④ ⑤

27. My supervisor takes action when a worker engages in a poor process safety practice...... ① ② ③ ④ ⑤

28. My supervisor takes appropriate action in response to my suggestions for process safety improvements... ① ② ③ ④ ⑤

Please provide any comments you have about Supervisory Involvement and Support in the space below.

_____

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_____

_____

_____

_____

Procedures and Equipment

Note: For each statement below, you should select "3" under the response labeled "?" only if you do not know or you do not have an opinion.

	Agree	Tend to Agree	?	Tend to Disagree	Disagree

29. Interlocks, alarms, and other process safety-related devices are regularly:

    a. Tested.. 1 2 3 4 5

    b. Maintained... 1 2 3 4 5

30. Disabled or failed process safety devices are restored to service as soon as possible 1 2 3 4 5

31. Written operating procedures are:

    a. Regularly followed.. 1 2 3 4 5

    b. Kept up to date.. 1 2 3 4 5

32. Procedures exist at this refinery that instruct operators to take action as soon as possible if safety critical interlocks, alarms, or other process safety-related devices fail or become unavailable during operation.. 1 2 3 4 5

33. Maintenance checklists and procedures are:

    a. Easy to understand.. 1 2 3 4 5

    b. Easy to use 1 2 3 4 5

34. Process equipment is **not** regularly:

    a. Tested... 1 2 3 4 5

    b. Maintained... 1 2 3 4 5

35. In order to ensure process safety at my refinery, inspection and maintenance are made high priorities 1 2 3 4 5

Please provide any comments you have about Procedures and Equipment in the space below.

_____

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_____

_____

_____

Worker Professionalism / Empowerment

Note: *For each statement below, you should select "3" under the response labeled "?" only if you do not know or you do not have an opinion.*

	Agree	Tend to Agree	?	Tend to Disagree	Disagree

36. I feel that I can influence the process safety policies implemented at this refinery .... ① ② ③ ④ ⑤

37. Workers at all levels of my refinery actively participate in:

   a. Hazard reviews and assessments .... ① ② ③ ④ ⑤

   b. Incident and accident investigations .... ① ② ③ ④ ⑤

38. When a process safety issue is involved, I can challenge decisions made by the following without fear of negative consequence:

   a. My supervisor.. ① ② ③ ④ ⑤

   b. Refinery management .... ① ② ③ ④ ⑤

39. Workers sometimes work around process safety concerns rather than report them .... ① ② ③ ④ ⑤

40. Creating unapproved shortcuts around process safety is not tolerated at my refinery...... ① ② ③ ④ ⑤

41. I am informed when potentially dangerous processes are started .... ① ② ③ ④ ⑤

42. I am responsible for identifying process safety concerns at my refinery............................. ① ② ③ ④ ⑤

43. I feel free to refuse to participate in work activities that are unsafe................................... ① ② ③ ④ ⑤

44. Operators are empowered to take corrective action as soon as possible (including shutting down when appropriate) if safety critical interlocks, alarms, or other process safety-related devices fail or become unavailable during operation .... ① ② ③ ④ ⑤

Please provide any comments you have about Worker Professionalism / Empowerment in the space below.

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Process Safety Training

Note: For each statement below, you should select "3" under the response labeled "?" only if you do not know or you do not have an opinion.

		Agree	Tend to Agree	?	Tend to Disagree	Disagree

45. The training that I have received does not provide me with a clear understanding of the process safety risks at my refinery .... [1] [2] [3] [4] [5]

46. I know how to access appropriate process safety resources if I need them .... [1] [2] [3] [4] [5]

47. The following receive the necessary process safety training to do their job safely:

    a. New workers.. [1] [2] [3] [4] [5]

    b. Experienced workers... [1] [2] [3] [4] [5]

    c. My supervisor... [1] [2] [3] [4] [5]

    d. Contractors... [1] [2] [3] [4] [5]

48. The process safety training that I have received allows me to recognize when a process should be shut down if safety critical interlocks, alarms or other process-safety devices fail or become unavailable during operation.. [1] [2] [3] [4] [5]

49. The process safety training that workers receive at my refinery is adequate to prevent process-related incidents, accidents and near misses.. [1] [2] [3] [4] [5]

Please provide any comments you have about Process Safety Training in the space below.

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III. FINAL COMMENTS

Please provide any other comments you might have regarding process safety at your refinery in the space below.

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THIS IS THE END OF THE SURVEY. THANK YOU FOR YOUR PARTICIPATION.

ATTACHMENT E-2

WRITTEN SURVEY DEVELOPMENT – EXAMPLE FROM A FACILITY

The following is presented as an example of a written survey currently being conducted at one facility. CCHMP has not audited this facility's safety culture program or the written survey process presented below. As such, the written survey example presented should be viewed solely as one that is currently being used, and not necessarily one that has satisfied all of the elements contained within this Safety Culture Guidance document. CCHMP may modify or eliminate this and/or other examples in the future as deemed appropriate.

The Survey consists of ninety-eight items (questions) in thirteen categories.
The categories in the survey are:

> Management Commitment & Leadership
> Performance & Accountability
> Preventive Maintenance
> Worksite Hazard Analysis
> Health & Safety Training
> Injury Prevention
> Safety Meetings
> Incident Investigation
> Health & Hygiene
> Emergency Preparedness
> Contractor Safety
> Self-Inspection
> Environmental Awareness

There are six to nine survey items for each category. The survey items are all statements related to a refinery safety, health, or environmental issue. The survey respondent answers each item by choosing a number between one and five or marking "N/A" for not applicable.
Each individual item is rated from 1 through 5 or marked "N/A".
The ratings represent:

> 1; "Strongly Agree",
> 2; "Agree",
> 3; "Not Sure",
> 4; "Disagree",
> 5; "Strongly Disagree".

An "N/A" would be used to mean Not Applicable.

At the end of the survey, some group identification information is requested. The degree of detail in this request has to be carefully expressed to ensure an employee will not feel that they can be identified by the group information checked. If there were only one employee with less than five years in a department, asking for both years of service and specific department would identify the employee. In the past, many employees went out of their way to identify themselves when that information was not requested or desired. The group information requested is: Hourly or Salary (contract covered or exempt), Day or Shift worker, and the years of service.

The survey also provided an area to record comments from the respondent on the survey, an item on the survey, or anything else that they cared to say. The comments were reviewed by management but not compiled in any statistical way. Comments were responded to when requested by the author.

The Site Manager requests Supervisors to distribute the survey to their employees by hand. The surveys are handed to employees during a safety meeting. Employees return the surveys to the Health & Safety Department anonymously by placing them in a refinery mail envelope addressed to the Health & Safety Representative or H&S Coordinator. The face-to-face request by supervisors serves a number of functions. It makes the request more personal, it enables each supervisor to provide time for their employees to complete the survey, and it controls the number of surveys. This site believes the survey should not be made available by email or site message because it would permit multiple submittals.

The responses are sorted into different groups to view the different results between hourly employees and salary employees. Other divisions of the answers were not published but were looked at for potential trends in answers. The percentage of "Favorable", "Not Sure", and "Unfavorable" responses are tabulated to generate an Employee Perception Index, which is the average of all items in the same category.

The report of the results identifies an area as "Needing Improvement" if the Employee Perception Index is below 60%. The "Not Sure" and "Unfavorable" response percentages must be checked for these questions to identify the correct issue. A large number of "Not Sure" answers might indicate a problem with the question or a need for additional training.

Areas that have an Employee Perception Index greater than 90% are noted as highlights.

After a baseline is established with the first survey, an additional objective on following surveys is to measure improvement or decline in the different areas covered by the survey.

The survey results are reviewed during the annual Health, Safety, and Environmental Management System review. Additional goals and objectives are assigned to address the areas that need improvement. Some corrective actions may be related to increasing employee knowledge for those items with a high percentage of "Not Sure" responses.

ATTACHMENT E-3

EXAMPLE INTERVIEW / WRITTEN SURVEY ASSESSMENT TOPICS:

The following is presented as an example of interview/ written survey questions collected from various sources and not specifically used at any particular facility and are being provided for reference only.

There are four dominant types of questions used in assessments: true/false, multiple-choice, open-ended, or ratings. One of the most common types of questions involves those that allow for someone to indicate the amount they agree or disagree with a statement. The Baker Panel Report used this technique and requested answers in the following form:

     1) Agree
     2) Tend to Agree
     3) ? (do not know or no opinion)
     4) Tend to Disagree
     5) Disagree

Depending on the type of assessment method used, certain types of questions may be more appropriate. For example, in a written survey like the Baker Panel Report, topics were arranged into statements as described above. On the other hand, many interview type questions are open-ended that allow a more descriptive answer and can start with words like: "Describe…", "Explain…", "Tell me about…", "Give an example of…", "What does the following mean to you…", etc.

The following topics are arranged in a question format. Example open-ended questions are listed first. It should be noted that with only slight wording changes, questions could be converted into true/false or open-ended type of statements.

- What are some examples of how management puts appropriate resources (e.g., money, equipment, people) and commitment into process safety?
- How frequently do you have access to the plant manager/and other management? What are some examples of the discussion topics?
- How frequently do you have access to supervisor/superintendent/manager? What are some examples of the discussion topics?
- How does HSE fit into the daily functioning of your facility?
- What would happen if someone were not following a safety procedure? Would you stop them? What if it is a coworker, contractor, supervisor, or plant manager?
- If you were not following a safety procedure, would a coworker passing by stop you or would a supervisor, or plant manager?
- How would you rate the quality and content of safety meetings/team/committees?
- How well is individual ownership or accountability clearly communicated and followed?
- If you could change one thing at the site about HSE, what would it be?
- Are you satisfied in your job? Can you suggest ways to improve your job?
- Do you think management's commitment to safety is solid and observable?
- Which of the following best describes how appropriate and timely management responds to safety concerns?

- o Appropriate corrective measures are implemented quickly
    - o Adequate corrective measures are implemented quickly
    - o Appropriate or adequate corrective measures are implemented eventually
    - o Some type of a "Band Aid" fix is applied that may or may not be adequate
    - o Issues are downplayed or worked on so slowly that the concern seems to go away
- Which of the following best describes how well management communicates corrections made to address safety concerns?
    - o Communicated properly to everyone who should know
    - o Communicated properly to those involved
    - o Communicated to some
    - o Some type of communication is made
    - o Management inconsistently communicates how issues were resolved
- How often are the company safety values and management practices consistent?
- Do the plant manager/ and other management personnel have an open door policy? Are they responsive to the workforce?
- Which of the following best describes your experience with the channels of communications to management?
    - o Can talk to anyone and everyone, receive constructive feedback from all levels
    - o Need to talk to direct supervision first then can talk to others, feedback constructive
    - o Can talk to a variety of people, but only a few tend to make any difference
    - o Talk to direct supervision although sometimes feel pressured to resolve issues there
    - o Makes little difference who I talk to since rarely anything changes
- How often are job safety expectations known and understood by you?
- How often do you believe job safety expectations are known and understood by your peers?
- How adequate do you believe the training is on Standard Operating Procedures for: (use 5-point agreement or similar scale)
    - o Operators working less than 1 year
    - o Operators working 1 to 3 years
    - o Operators working 3 to 6 years
    - o Operators working 6 to 10 years
    - o Operators working over 10 years?
- How well do you believe your peers understand <u>or</u> follow Standard Operating Procedures for: (use 5-point agreement or similar scale)
    - o Operators working less than 1 year
    - o Operators working 1 to 5 years
    - o Operators working 5 to 10 years
    - o Operators working 10 to 20 years
    - o Operators working over 20 years?
- How adequate do you believe process safety training is for: (use 5-point agreement or similar scale)
    - o New workers
    - o Experienced workers
    - o Your supervisor
    - o Upper management
    - o Contractors?
- How strongly do you feel that your voice is heard or your comments acknowledged?

- How comfortable are you with understanding the process safety risks: (use 5-point agreement or similar scale)
    - Within your process area
    - Within your unit's boundary limits
    - That are in upstream units or those that send you product
    - That are in downstream units or those that accept your product?
- How satisfied are you with the process safety and near miss reporting for: (use 5-point agreement or similar scale)
    - Your shift
    - Your unit
    - Your neighboring units
    - Your site?
- Do you believe that the rewards for good process safety performance are the same as for good production performance?
- To what extent have you experienced peer or management pressure to ignore issues and not report them?
- Have you ever felt pressured to work more overtime than you are comfortable with? Do you see others working more overtime than you think they should?
- How effective is the process used to make sure that the written operating, emergency, and/or maintenance procedures that are applicable to you are up to date, accurate, and clear?
- How comfortable are you that all of the process safety related devices (e.g., interlocks, alarms, PSVs) in your unit are properly tested and maintained?
- How comfortable are you that all of the process safety related devices (e.g., interlocks, alarms, PSVs) in units that border your boundary limits are properly tested and maintained?
- How confident are you right now that all of the pressure relief devices and flare systems associated with your unit are not plugged and would work as intended?
- What is the competency level of: (use 5-point agreement or similar scale)
    - Operators in your unit
    - Maintenance personnel that work in your unit
    - Contractors that work in your unit
    - Line management?
- How would you rank the process safety awareness: (use 5-point agreement or similar scale)
    - Of yourself
    - Of your peers
    - Of new workers
    - Of experienced workers
    - Of your line management?
- How would you rank the process safety of your facility?

ATTACHMENT E-4

OBSERVATION PROCESS – EXAMPLE FROM A FACILITY

The following is presented as an example of an observation process currently being conducted at one facility. CCHMP has not audited this facility's safety culture program or the observation process presented below. As such, the observation example presented should be viewed solely as one that is currently being used, and not necessarily one that has satisfied all of the elements contained within this Safety Culture Guidance document. CCHMP may modify or eliminate this and/or other examples in the future as deemed appropriate.

Pre-review preparation should identify documentation of the following items. Items that cannot be found in documented processes should be noted as follow-up in the interview. .
- Leadership message regarding health and safety
- Employee beliefs regarding health, safety and the prevention of all injuries
- Health and safety goals and objectives for the site
- Goals and objectives development and communication processes
- Accountability processes in place at the site
- Establishment and communication of expectations and boundaries
- Current challenges with regards to health and safety

Interaction with Front Line Leaders and Workers
- Make contact with employees and encourage safe work
- Emphasize the importance of their personal safety
- Recognize the positive things they do
- Gain perspective of strengths and challenges from line leadership

Observe work practices – Focus Areas (LOTO and Work Permits)
- Observe basic work processes and activities, and explore safety mechanisms used in the execution of work
- Observe and discuss energy isolation practices (LOTO) – isolation and verification process
- Observe and discuss work permit process – joint jobsite visits

Take note of key observations to share with facility
- Best practices and takeaways
- Opportunities to share
- Suggested actions
- Feedback on strengths and opportunities for improvement

ATTACHMENT E-5

FOCUS GROUP DEVELOPMENT – EXAMPLE FROM A FACILITY

The following is presented as an example of a focus group currently being conducted at one facility. CCHMP has not audited this facility's safety culture program or the focus group process presented below. As such, the example presented should be viewed solely as one that is currently being used, and not necessarily one that has satisfied all of the elements contained within this Safety Culture Guidance document.

The "Hearts and Minds"[1] Health Safety Environmental (HSE) culture program includes nine individual tools for developing the maturity of a facility's HSE culture. One of these tools, "HSE – Understanding your Culture," is specifically designed for assessing HSE culture. A facilitator leads participants in groups of 4-5 individuals through an exercise to assess the current level of HSE culture maturity. The groups are composed of individuals from the same part of the work group. Ideally, the facilitator is a *site* HSE culture champion, who exhibits local commitment to driving HSE culture maturity.

The facilitator introduces the concept of different levels of HSE culture maturity, and explains why it is important to understand the facility's culture and make it stronger. Participants are provided with a brochure that describes a range of organizational characteristics, corresponding to five different levels of cultural maturity, for each of eighteen different dimensions. The five levels of maturity, listed from least mature to most mature, are: Pathological; Reactive; Calculative; Proactive; and Generative. The eighteen dimensions are:
- Communicating HSE issues with the workforce
- Commitment level of workforce
- What are the rewards of good HSE performance?
- Who causes accidents in the eyes of management?
- Balance between profit and HSE
- Contractor management
- Are workers interested in competency?
- What is the size/status of the HSE department?
- Work planning including permit to work
- Work-site safety management techniques
- What is the purpose of procedures?
- Incident/accident reporting/analysis
- Hazard and unsafe act reports
- What happens after an accident?
- Who checks HSE on a day-to-day basis?
- How do HSE meetings feel?
- Audits
- Benchmarking, trends, and statistics

Descriptive language is provided for each level of maturity, for each dimension. Each participant marks on a score sheet where he/she believes the facility is, based on the fit of the

descriptive language to the facility as it appears from his/her part of the work group. Participants are instructed to read the descriptive characteristics from least mature to most mature, and mark the level for each dimension that fits best. If aspects of adjacent levels are perceived to be equally descriptive, participants are permitted to mark adjacent levels for a dimension.

Individual participants complete the entire score sheet first, and then discuss with the other members of their group how they marked their score sheets. The groups discuss whether the weaker and stronger areas are consistent with experience.

The scores are not aggregated across work groups, but rather are intended to indicate how different groups perceive the site's culture.

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[1]The Hearts and Minds safety program was developed by Shell Exploration &Production in 2002, based on research with leading universities since 1986, for additional information see: http://www.energyinst.org.uk/heartsandminds/