PRELIMINARY DETERMINATION

Phillips 66
San Francisco Refinery
1380 San Pablo Avenue
Rodeo, CA 94572

Site ID: 771363
CERS ID: 10012096

October 1, 2020

CONTRA COSTA
HEALTH SERVICES
HAZARDOUS MATERIALS PROGRAMS

Preliminary Determination

Contra Costa Health Service Hazardous Materials Programs (CCHSHMP) conducted a comprehensive audit/inspection of the programs, policies, and procedures developed by Phillips 66 San Francisco Refinery (Phillips 66) in Rodeo, California to satisfy the requirements of the California Accidental Release Prevention (CalARP) Program (Title 19 California Code of Regulations Division 2 Chapter 4.5), and Chapter 450-8 of County Ordinance 98-48 (ISO) as amended or Chapter 6.43 of the City of Richmond Industrial Safety Ordinance 42-01 (RISO), as amended, (hereafter referred to as ISO/RISO). The audit took place from January 6, 2020 through January 30, 2020.

CCHSHMP is required to conduct an audit/inspection of Phillips 66 per Sections 2775.2 and 2775.3 of the (CalARP) Program Regulations (Title 19 Division 2 Chapter 4.5 of the California Code of Regulations), and per Chapter 450-8 §8.018(f) of the ISO or per §6.43.100(g) of the RISO. CCHSHMP conducted the audit/inspection in accordance with the *Audit Plan for the California Accidental Release Prevention (CalARP) Program, & Industrial Safety Ordinance (ISO) Program or Richmond Industrial Safety Ordinance (RISO) Program Audit/Inspection* developed for Phillips 66. This plan describes pre-audit, audit, and post-audit activities and is included in Attachment A. The completed questionnaires (e.g., "A37 – Process Safety Information"), including the basis for each recommended action item, are included as Attachment B. There may be questions receiving "R" answers that were not assigned an action. In these instances, a previous corrective action will address the identified deficiency. CCHSHMP also conducted interviews of approximately 6 (~3%) of operators, 3 (~5%) of maintenance and approximately 18 "key personnel" (those employees with responsibility for developing and or implementing programs required by the CalARP Program and ISO/RISO regulations).

CCHSHMP appreciates the cooperation from Phillips 66 management and personnel during the audit and interview process. The participants were open in their discussion and helpful in the audit process. During the field audits, employees and contractors all exhibited high safety awareness and generally are diligent in following company's safety policies and procedures to create a safe work environment.

CCHSHMP reviewed the management system at Phillips 66 responsible for overseeing the implementation of the CalARP/ISO/RISO Programs. The facility's Health, Safety, and Environmental Management System (HSEMS) was found to be well developed and the various CalARP and ISO programs incorporated within its 15 elements. Senior refinery management was found to be engaged in overseeing the implementation of the various safety programs, including frequent meetings with element owners and in the review of metrics. Each element owner provides a report out to the site's Safety Leadership Committee and provides a detailed review of their progress in meeting their stated goals and objectives, including improvements implemented from the previous year. CCHSHMP did not observe any program that appeared deficient based on a lack of management oversight or one that needed additional oversight.

CCHSHMP identified 3 deficiencies and 16 partial deficiencies in existing programs at the facility. This audit report identifies the corrective actions generated to correct all of the deficiencies in Attachment C. CCHSHMP reviewed the 24 deficiencies/partial deficiencies from

the previous (2017) audit and documented the findings in each questionnaire. Five of these past deficiencies were found not adequately addressed and have been repeated in the 2020 audit. The deficiencies repeated were related to the following programs: Compliance Audits (A44-03), Management Systems (A49-05 and A49-28), Management of Organizational Change (A54-05), and Employee Participation (A55-05).

CCHSHMP also generated 30 corrective actions to improve upon programs that already comply with the requirements of the CalARP Program Regulations and ISO/RISO. These corrective actions begin with "consider" and are optional for Phillips 66 to incorporate (e.g., consider updating the RMP to include investigating Major Incidents within the Incident Investigation Program). This audit report identifies all of the suggestions to improve upon programs that already comply with the requirements of the CalARP Program Regulations and ISO/RISO, in Attachment D.

Upon completion of addressing the action items, Phillips 66 will provide CCHSHMP with a resolution status update. The status update does not need to include the actual copies of the proposed remedies (i.e. studies, updated policies, training documentation, etc.), but rather an overview of the actions taken by Phillips 66 to complete the action items and actual dates of completion.

Audit Reporting Process

Once CCHSHMP completes an audit, an Administrative Draft of the Preliminary Determination report is issued, and the audited Stationary Source has 14 days to respond in writing to identify any technical or factual inaccuracies. If no written technical or factual inaccuracies are received, the Administrative Draft will then become the Preliminary Determination report. Once the Preliminary Determination has been issued, the Stationary Source has 90 days to respond in writing and provide proposed remedies and due dates to address the identified corrective actions. The Stationary Source can also identify which recommendations, if any, will be rejected in whole or in part. For those recommendations rejected, the Stationary Source shall explain the basis for the rejection and provide substitute revisions.

Upon receipt, CCHSHMP reviews the proposed remedies, due dates, and any rejections proposed and will communicate any final revisions to the Stationary Source. Once CCHSHMP is in agreement, the Summary of Actions Items Table contained within Attachment C and the Summary of Consider Items Table contained within Attachment D are modified to include the proposed remedies, due dates, and other approved revisions. A 45-day public review process begins after this time. As required by the ISO/RISO, a public meeting must be held to allow review and comment on the issues found during the audit. After the conclusion of the public notice period and incorporation of any relevant public comments, this final document is considered to be the Final Determination.

Upon completion of the action items, the stationary source will provide CCHSHMP with a status update. The status update does not need to include actual copies of the documented resolutions (i.e. studies, updated policies, training documentation, etc.), but rather an overview of the actions taken to address the action items along with actual dates of completion.

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ATTACHMENT A

Audit Plan for the California Accidental Release Prevention (CalARP) Program & Contra Costa County Industrial Safety Ordinance (ISO) Program or the City of Richmond's Industrial Safety Ordinance (RISO) Program Audit/Inspection

Audit/Inspection Plan for the California Accidental Release Prevention (CalARP) Program & Industrial Safety Ordinance (ISO) Program / Richmond Industrial Safety Ordinance (RISO) Program

Prepared for:

Phillips 66
San Francisco Refinery
1380 San Pablo Avenue
Rodeo, CA 94572

Site ID: 771363

December 9, 2019

Prepared by:

CONTRA COSTA
HEALTH SERVICES
HAZARDOUS MATERIALS PROGRAMS

I. INTRODUCTION

This document describes the plan for conducting a comprehensive audit/inspection of the programs, policies, and procedures developed for the Phillips 66 San Francisco Refinery (Phillips 66), located in Rodeo, California, to satisfy the requirements of the California Accidental Release Prevention (CalARP) Program (Title 19 California Code of Regulations, Division 2 Chapter 4.5) and Chapter 450-8 of County Ordinance 98-48 (ISO) as amended or Chapter 6.43 of the City of Richmond Industrial Safety Ordinance 42-01 (RISO), as amended, (hereafter referred to as ISO/RISO). A generic audit plan, including pre-audit/inspection, on-site audit/inspection, and post audit/inspection activities is included in Appendix A. This audit plan describes the pre-audit/inspection activities for Phillips 66.

II. ALLOCATE RESOURCES

Accidental Release Prevention Engineers Michael Dossey, Habib Amin, Miguel Rizo, Robert Long, and Sam Calvert will conduct the audit/inspection. The audit team will conduct quality assurance/quality control (QA/QC) on the work plan and Written Preliminary and Written Final Determinations. The audit responsibilities will be distributed through the completion of the following questionnaires:

Questionnaire	Program Level [1]	Responsibility
• A37 – Process Safety Information	4	Amin
• A38 – Process Hazard Analysis	4	Rizo
• A39 – Operating Procedures	4	Dossey
• A40 – Training	4	Calvert
• A41 – Mechanical Integrity	4	Dossey
• A42 – Management of Change	4	Long
• A43 – Pre-Startup Safety Review	4	Long
• A44 – Compliance Audits	4	Amin
• A45 – Incident Investigation	4	Rizo
• A46 – Employee Participation	4	Amin
• A47 – Contractors	4	Long
• A48 – Emergency Response Program	4	Calvert
• A49 – Section A: Management System	4	Dossey
• A50 – Section B: HFP & Latent Conditions	4	Long/Dossey
• A51 – Section B: PHA's & SPA	4	Rizo
• A52 – Section B: Incident Investigation	4	Rizo
• A53 – Section B: Procedures	4	Dossey
• A54 – Section B: MOC for Organizational Changes	4	Calvert/Long
• A55 – Section B: Employee Participation	4	Amin
• A56 – Section B: Training	4	Calvert/Rizo
• A57 – Section C: Root Cause Analysis	4	Rizo
• A58 – Section D: HCA/ISSA	4	Amin
• A59 – Section F: Process Safety Culture Assessment	4	Long
• S1 – Hot Work Permit	4	Amin
• S3 – Lockout / Tagout	4	Calvert/Amin

1 - CalARP Program 4 questionnaires include ISO/RISO requirements

Contra Costa Health Services Hazardous Materials Programs (CCHSHMP) will require one meeting room to accommodate the audit team members (i.e., ideally the room would be equipped with a table and sufficient electrical outlets for laptop computers). CCHSHMP will also require two or more meeting rooms to accommodate simultaneous employee interviews on scheduled days.

III. PURPOSE & SCOPE

The primary purpose of this audit/inspection is to evaluate Phillips 66's capability to effectively meet the requirements of the CalARP Program 4 regulations and ISO/RISO, to verify the status of previous audit action items, and to identify potential regulatory deficiencies or areas where improvement is warranted. A secondary purpose of the audit is to ensure that the Risk Management Plan (RMP) and Safety Plan accurately describe the accidental release prevention programs and safety programs currently being implemented at Phillips 66. Finally, CCHSHMP may identify areas of the accidental release prevention program and safety program that may be improved based on generally accepted practices and guidelines. All non-mandatory action items will begin with "Consider…".

The physical scope of the Phillips 66 audit/inspection includes all processes located within the refinery per Program 4 requirements.

The historical scope of this audit/inspection is from the effective date of the CalARP Program regulations, August 19, 1996, and October 1, 2017 for Program 4, and the ISO, January 15, 2000, or RISO, December 18, 2001 to January 6, 2020, the starting date of this audit/inspection.

The regulatory scope of this audit/inspection includes the requirements included within the CalARP Program regulations (T19 CCR Division 2 Chapter 4.5) and the ISO/RISO. The CalARP Program regulations also reference the following regulations:

T8 CCR §3220	Emergency Action Plans
T8 CCR §5192	Hazardous Waste Operations and Emergency Response
T8 CCR §5189	Hot-Work Permits/Procedures
T8 CCR §5156/5157/5158	Confined-Space Regulations
T8 CCR §5194(g)	MSDS Requirements under Hazard Communications
T8 CCR §2320/3314	Lockout/Tagout
T8 CCR §3329/6815/6816	Line Opening

In addition to the preceding requirements, the following sources will be utilized in assessing compliance and formulating action items during the audit:

- Contra Costa County CalARP Program Guidance Document
- Contra Costa County Safety Program Guidance Document
- Accidental Release Prevention Requirements: Risk Management Programs Under the Clean Air Act, Sections 112(r)(7) Parts III and IV of 40 CFR Part 68
- Pre-amble Part III of 40 CFR Part 68
- CAA Section 112(r) Frequently Asked Questions
- Sections 25531-25543.3 of the California Health and Safety Code

- Pre-amble to the OSHA PSM standard, 29 CFR §1910.119
- Questions and Answers to the Cal/OSHA PSM standard, T8 CCR §5189
- OSHA Instruction CPL 2-2.45A CH-1 Program Quality Verification Checklist
- OSHA 3132, *Process Safety Management*, 1994 (Compliance Audits)
- OSHA 3133, Process Safety Management Guidelines for Compliance, 1994 (Compliance Audits)
- Guidelines for Auditing Process Safety Management Systems, Center for Chemical Process Safety, AIChE, 1993

Acceptance criteria for the audit/inspection will be determined on a case-by-case basis. CCHSHMP will determine whether the deficiencies represent isolated incidents (in which individual deficiencies would be identified to correct) or trends (in which program deficiencies would be identified to correct). CCHSHMP may take photographs in the field as part of the facility audit records.

IV. QUESTIONNAIRES

The entire stationary source is subject to CalARP Program 4 and the requirements of ISO/RISO. Questionnaires associated with CalARP Program 4 and the ISO/RISO program will be completed and were identified in Section II of this Audit Plan and are included in Appendix B. It should be noted that the attached questionnaires are the most up to date at this time although select questions may be modified prior to the start of the Phillip 66 audit. Final versions can be provided at the beginning of the audit. The sampling size for the records will be determined on a case-by-case basis.

CCHSHMP shall document the findings, including documents reviewed (see Appendix D) and records sampled, in the "Findings" column. The "Clarifications" column provides guidance to the auditors including suggested documents to review and interpretations from CalARP Program 4, the ISO/RISO Program and Guidance, federal OSHA and federal EPA. CCHSHMP shall then provide the answer to the question in the "Answer" column. The following codes shall be applied:

- Y Full compliance with all requirements of the question
- N No compliance with the question's requirements
- P Partial compliance with the requirements
- R An action item is listed elsewhere with cross reference
- N/A The question is not applicable to the facility

CCHSHMP shall develop a list of actions to resolve potential deficiencies in the risk management program or to resolve discrepancies between the risk management program and the RMP and Safety Program and the Safety Plan. These and other regulatory deficiencies are required to be addressed and will begin with "Ensure". CCHSHMP may also develop a list of actions to improve a risk management program based on generally accepted practices or guidelines. These actions are non-mandatory and will begin with "Consider". If no actions are developed, CCHSHMP shall enter "None".

V. EMPLOYEE & "KEY PERSONNEL" INTERVIEWS

CCHSHMP shall meet with Phillips 66 personnel to review an organizational chart of employees and the existing shift schedule. CCHSHMP shall then identify approximately 3-5% of the employees to interview including personnel from operations, maintenance, and staff. Employees shall also be

notified that they may have union representation present, if they choose. Any employee not selected, but who would like to be interviewed, would also be interviewed. Interviews will last approximately 30 minutes.

CCHSHMP shall also meet with "key personnel" responsible for each CalARP Program and Safety Program requirement. The following "key personnel" were identified in Appendix C of the 2019 RMP:

- Refinery Manager
- Operations Manager
- Maintenance Manager
- Tech Services Manager
- HSE Manager
- Operations Training Supervisor
- Reliability Superintendent
- I&E Superintendent
- ME&I Superintendent
- Process Engineering Supervisor
- Process Safety Director
- Process Safety Specialist
- Senior H&S Consultant
- Health & Safety Team Leader
- H&S Specialist
- H&S Emergency Response Team Lead
- Emergency Response Specialist

CCHSHMP will conduct procedural and P&ID walk-downs with qualified operators in the field during this audit. These walk-downs are anticipated to be in lieu of some or all of the sit down employee interviews. This will include an assessment of the relative accuracy of the written documents based on field observations and input from site personnel. Written notes of these walk-downs will be provided to Phillips 66 for your records. These walk-downs should be treated as personnel interviews and be without the presence of management and supervision.

CCHSHMP will meet with local union representatives, as applicable, at the stationary source at the beginning and throughout the audit/inspection. Union representatives should be invited to the opening, closing meetings and debriefs.

CCHSHMP will also meet with personnel to discuss the management system in place necessary to implement the CalARP Program and include a summary of this in the completed audit report.

In addition, CCHSHMP shall meet with a representative(s) from the Process Engineering/ Capital Improvements/Long Range Planning department(s) or corporate equivalent to understand if there may be new processes being considered for the facility, where ISS/HCA should be applied in the early stages of the project conception, scoping and design.

VI. AUDIT SCHEDULE

CCHSHMP will begin the audit/inspections with an opening meeting to discuss the audit process and answer any specific questions by Phillips 66. CCHSHMP encourages the attendance of all Phillips 66 CalARP and Safety Program key personnel, management staff, and union representatives.

Tentative Overall Schedule

The on-site audit/inspection activities will start:

January 6, 2020:	9:00 a.m. – 9:30 a.m.	CCHSHMP Safety Orientation
	9:30 a.m. – 10:30 a.m.	Opening meeting. An agenda is included in Appendix D.
	10:30 a.m. – 4:30 p.m.	Audit

CCHSHMP shall schedule weekly debriefings with Phillips 66 representatives, beginning the week of January 6th. Preferably, the debriefings will be held in the late morning. During the debriefings, CCHSHMP will discuss their current draft findings and action items. Completion of all on-site audit/inspection activities is anticipated to be on or before January 30, 2010. This date may change depending on the circumstances. Phillips 66 may be able to rectify potential deficiencies before the conclusion of the audit/inspection. These deficiencies will still be included in the written report, however, they will be identified as rectified.

VII. DOCUMENTS TO BE REVIEWED

CCHSHMP may request and review the documents listed in Appendix C during the on-site portion of the audit/inspection. Phillips 66 is expected to have this information compiled and available prior to the audit/inspection.

VIII. PUBLIC COMMENTS

CCHSHMP has not concluded the public notice/comment period per §2745.2(c) and §2745.2(d) of the CalARP Program regulations for Phillips 66's RMP received on September 13, 2019.

IX. SITE SAFETY PLAN

CCHSHMP shall wear personal protective equipment (PPE) as appropriate (i.e., hard hat, safety glasses/goggles, steel toed shoes, Nomex coveralls, hearing protection). CCHSHMP will not enter any areas where respiratory protection is required. CCHSHMP shall be escorted throughout the facility by personnel who are knowledgeable of the facility's emergency action plan (i.e., evacuation routes, headcounting procedures, alarms).

APPENDIX A
OVERALL AUDIT PLAN

AUDIT ACTIVITIES

CCHSHMP followed the internal procedure, "Conducting Audit/Inspection Protocol", adapted from the *Guidelines for Auditing Process Safety Management Systems* (Center for Chemical Process Safety, AIChE, 1993) for developing this work plan and for conducting the audit. This procedure includes specific tasks for three phases of the audit: Pre-Audit/Inspection, On-site Audit/Inspection, Post-Audit/Inspection. The specific tasks to be completed are as follows:

Pre-Audit/Inspection Activities

Allocate resources

a. Select audit team members with the following attributes: auditing skills, knowledge of the process, diligence, perceptiveness, thoroughness, objective, unbiased
b. Provide audit team members as needed with copies of the audit/inspection questionnaires, objectives, sampling strategies, and secondary reference materials
c. Schedule the conference and meeting rooms required for the initial, daily, and closing debriefing sessions; the employee interviews; and team meeting rooms
d. Acquire any required audit equipment/software (i.e., computers, software for recording, documentation forms, printers, copiers)

Clearly identify objectives of the audit/inspection

a. Assign audit/inspection team members to programs to be reviewed based on familiarity with the CalARP Program regulations, ISO/RISO, and the processes, and availability
b. Clearly identify "final products" from each of the audit/inspection team members (i.e., agree on documentation format and ensure consistency with audit/inspection report and the trade secret policy)

Determine the scope of the audit/inspection

a. Identify the physical scope of the audit/inspection – clearly identify the covered processes and ISO/RISO covered processes that will be included in the evaluation and their boundaries
b. Identify the historical scope of the audit/inspection under the CalARP Program – the starting date of the program is August 19, 1996, the effective date of the CalARP Program regulation. The starting date of subsequent audits, perhaps due to covered process modifications, will be determined.
c. Identify the historical scope of the audit/inspection under ISO – the starting date of the initial audit will be January 15, 1998, the effective date of ISO. The starting date of subsequent audits, perhaps due to ISO covered process modifications, will be determined.
d. Identify the historical scope of the audit/inspection under RISO – the starting date of the initial audit will be December 18, 2001, the effective date of RISO. The starting

date of subsequent audits, perhaps due to RISO covered process modifications, will be determined.

e. Identify the regulatory scope of the audit/inspection – the audit/inspection includes the requirements of the CalARP Program regulation, Title 19, Division 2, Chapter 4.5. The CalARP program regulation also references the following regulations:

T8 CCR§3220	Emergency Action Plans
T8 CCR§5192	Hazardous Waste Operations and Emergency Response
T8 CCR§5189	Hot-Work Permits/Procedures
T8 CCR§5194(g)	MSDS Requirements under Hazard Communications

f. Determine acceptance criteria for the audit (i.e., if one record out of 100 sampled shows that the written procedure was not followed does this constitute a finding and warrant a recommendation)

Plan and organize the audit/inspection

a. Develop (i.e., identify and revise as necessary) the questionnaires to be used by the audit team members. When auditing/inspecting an ISO/RISO regulated source all processes are to be audited/inspected against Program 3 requirements. This includes all questionnaires listed in Appendix B.
b. Compile all secondary reference materials (e.g., OSHA Instruction 2-2.45A CH-1, *CAA Frequently Asked Questions*, industry standards and techniques from professional groups such as AIChE, ASME, Chlorine Institute, IIAR)
c. Determine documentation methodology (i.e., consistency in use of wording and columns) and audit team member's deliverables (e.g., working papers, software printout, interview information)
d. Determine sampling size and strategy for records (e.g., stratified).
e. Schedule employee interviews and meetings with key personnel
f. Schedule opening and closing meeting start times and participants
g. Schedule debriefing meetings, as needed.

Collect background information, as needed, from the list in Attachment G of *Conducting Audits/Inspection Protocol (see Appendix D)*

Stationary sources may elect not to submit confidential business information (CBI) to CCHSHMP prior to the on-site portion of the audit. These documents will therefore need to be reviewed during the on-site portion of the audit, possibly increasing the duration of the audit. If the stationary source elects to submit CBI to CCHSHMP, it will be handled in accordance with the *Trade Secret Policy*.

Review public comments and written responses developed in accordance with Section 6.6 of the *RMP/Safety Plan Completeness Review Protocol*

Also review any other comments or questions submitted by the public regarding the regulated source or ISO/RISO regulated source. All of the public comments should be available in each regulated source's or ISO/RISO regulated source's files under *RMP/Safety Plan Completeness Review* and *Public Notices and Comments, and Written Responses to Comments.*

Finalize audit/inspection scope, objectives, and methodology

a. Develop a written audit plan. Follow the format included in Attachment I of *Conducting Audits/Inspections Protocol*.
b. Circulate the written audit plan to audit team members and to the regulated source or ISO/RISO regulated source
c. Revise the written audit plan to reflect the audit team members' and the regulated source's or ISO/RISO regulated source's comments

On-site Audit/Inspection Activities

The audit team leader is responsible for ensuring that the audit team members conduct the following activities/tasks.

Conduct opening meeting

a. Discuss the audit objectives, scope, methodology, and schedule for the audit
b. Conduct a tour of the stationary source with stationary source escorts (optional)
c. Identify personnel who are responsible for the implementation of the various elements of the program. Establish schedule, as necessary, for audit team members to meet with personnel to discuss the programs and review records, and to conduct P&ID and/or Procedure walk-downs as applicable
d. Receive any necessary safety training (emergency evacuation procedures) and specialty PPE (e.g., alert monitors, escape respirators)

Review programs, policies, and procedures associated with the CalARP program and the Safety Program (if applicable) including, but not limited to, those documents listed in Attachment G of *Conducting Audits/Inspections Protocol*

a. Identify any findings or potential deficiencies between the existing programs, policies, and procedures and the developed protocol
b. Identify any findings or inconsistencies between the existing programs, policies, and procedures and the written RMP and Safety Plan (if applicable)
c. Formulate action items to rectify any identified potential deficiencies or inconsistencies

Collect and record data to verify that the regulatory requirements are being met and that the stationary source programs, policies, and procedures are being implemented

a. Perform records reviews using the selected sampling strategies discussed in Attachment H of *Conducting Audits/Inspections Protocol*
b. Conduct an on-site conditions inspection
c. Perform interviews with selected management, operations, and maintenance personnel
d. Perform and document the activities denoted with an asterisk (*) in the Clarifications column of the protocol. The Clarifications column includes information from OSHA, EPA, OES, and professional organizations that may or may not be applicable to the stationary source being audited. The auditors should use judgement in applying the guidance.

e. Conduct procedural walk-downs in the field with qualified personnel as appropriate to verify accuracy of select procedures
f. Conduct P&ID walk-downs in the field with qualified personnel as appropriate to verify accuracy of select P&IDs

Document the audit/inspection

a. Audit findings and action items should be written to "stand alone"
b. The regulatory basis that supports the ensure action items (e.g., §2755.1) must be identified in the question, findings, or referenced at the end of the ensure action
c. Action items should not be written to constrain the *regulated source* or *ISO/RISO regulated source*, in the event that better alternatives may be available
d. Clearly differentiate between action items necessary for compliance and items beneficial to safety but not necessary for compliance (These actions are non-mandatory and will begin with "Consider")
e. Audit findings and action items should be objectively documented. Avoid making legal conclusions, characterizing conduct, or inappropriate connotations (e.g., grossly negligent, unprofessional operating practices, appalling)
f. Ensure that all findings and action items are true. Avoid speculating (e.g., "it appears") or expressing opinions (e.g., "I believe")

Evaluate audit information by applying the acceptance criteria

Document "Y", "P", "N", "R", "N/A" in the "Answer" column of the questionnaire for each question. Avoid making conclusions based on a statistical summary (e.g., the stationary source is 60% in compliance with the CalARP Program regulation or Safety Program Elements of ISO/RISO) because some audit questions are more indicative of a successful *accidental release prevention program* than others.

a. Acceptable (i.e., full compliance with the acceptance criteria): "Y"
b. Incomplete (i.e., partial compliance with the acceptance criteria): "P"
c. Negative (i.e., no compliance with the acceptance criteria): "N"
d. Cross Reference (i.e., an action item is listed elsewhere): "R"
e. Not applicable (i.e., acceptance criteria not applicable): "N/A"

Incorporate public comments into the questionnaires where appropriate.

Post-Audit/Inspection Activities

The audit team leader is responsible for ensuring that the audit team members conduct the following activities/tasks.

Prepare audit/inspection report and send to stationary source

a. Gather all audit/inspection documentation from audit team members
b. Consider all public comments on the RMP or Safety Plan formulated during the formal public review (§2745.2 of the CalARP program regulations, ISO Chapter 450-8.018(A), RISO Section 6.43.100)
c. Generate a "written administrative draft preliminary determination" of necessary revisions, including an explanation for the basis of the revisions, reflecting industry

standards and guidelines (such as AIChE/CCPS Guidelines and ASME and API standards) to the extent that such standards and guidelines are applicable.

d. Distribute the written administrative draft preliminary determination to at least one other member of the audit team for that stationary source for a quality control review.

e. Address technical or factual inaccuracies, if necessary, in the written administrative draft preliminary determination as appropriately identified by the stationary source and then issue the written preliminary determination. Both the written Administrative Draft and the Preliminary Determination should be sent to the stationary source via email or certified mail.

f. Work with each regulated source and ISO/RISO regulated source to ensure the accuracy of the written preliminary determination. The regulated source or ISO/RISO regulated source may reject revisions, in a written response, and may propose a substitute recommendation. Documentation of meetings, including all agreements and points of contention shall be documented and maintained in each regulated source's (including ISO/RISO regulated source's) file. Unresolved issues between the CalARP team members and the regulated source or ISO/RISO regulated source will be handled in accordance with the *Dispute Resolution Policy*.

g. Both the written administrative draft preliminary determination and the written preliminary determination are public documents and shall be made available for review upon request.

<u>Verify the implementation of proposed corrective actions from the stationary source</u>

CCHSHMP will review proposed remedies and due dates from the stationary source identified to address the action items and consider items formulated from the audit/inspection. The status of each resolution should be recorded in the appropriate column of the report. CCHSHMP will take enforcement action, in accordance with the *Enforcement Policy*, if the resolution status review demonstrates that the Stationary Source is not implementing the action items in a timely fashion as agreed upon.

APPENDIX B
QUESTIONNAIRES

Copies of the complete questionnaires are included in this Appendix. The column titled "Type" identifies whether a question is included as an abridged question by the "Abr" notation and whether it is a new Program 4 question by "New". For this audit, CCHSHMP will focus on answering those questions with the "Abr" and "New" notations; however, retains the discretion to answer additional questions or even entire questionnaires based on information uncovered during the onsite audit.

(Blank Questionnaires not included in final report)

APPENDIX C
DOCUMENTATION TYPICALLY REVIEWED DURING AN AUDIT

The following is a list of documents normally reviewed during a CalARP Program audit/inspection. Information tagged with a (*), or samples of this information, may be asked for in advance of the audit/inspection. All other information should be available for review during the audit/inspection. The documentation shown in bold may be available, to some extent, in the RMP; however, more detailed information may be required. Stationary sources may elect not to submit confidential business information (CBI) to *CCHSHMP* prior to the onsite portion of the audit.

Background Information

* **Plant/process descriptions**
* Plant plot plan
* Plant CalARP program manual
* **Plant organization chart**
* **List of covered chemicals**
* Rationale for covered and non-covered processes
* Rationale for any claimed regulatory exemptions

Management System

* **Description of CalARP Program**
* Designation of responsible management
* **CalARP program policy statement and the Environmental Health and Safety Policy**
- Plant policies manual
- Objective evidence of management commitment and leadership
* CalARP program performance criteria
* CalARP program progress reports
* Description of system to track CalARP program action items
- Records from tracking CalARP action items
- Injury and illness log for employees
- Evidence of communications of the CalARP program within and outside the company

Process Safety Information/Safety Information

* **PFD's or block flow diagrams**
- Process chemistry
- Maximum intended inventory
- Safe upper and lower limits for key operating parameters
- Evaluation of consequences of process deviations
- Materials of construction
- P&ID's
- Electrical classification
* **Process descriptions for covered processes**
- MSDS's for regulated substances
- Engineering documents that list/show:
  - codes and standards used in design and construction

  - ventilation system design for process buildings, control rooms, other areas where people may be located
  - relief system design and design basis (more detailed than just data sheets)
  - material and energy balances
  - safety systems (e.g., interlocks, detection and shutdown systems)
- Documentation that equipment complies with recognized and generally accepted good engineering practice (RAGAGEP)
* Damage Mechanism Reports
* Listing of names of operators
* Listing of names of engineers and areas of responsibility
* Listing of names of maintenance technicians and engineers and areas of responsibility

Process Hazard Analysis/Hazard Review

* Priority order for plant PHA's and documentation thereof
* Schedule for plant PHA's
* PHA manual or procedure
* Rationale for selecting PHA technique(s) used
- PHA reports (current and all previous)
- PHA worksheets (current and all previous) and associated supplementary data
* Listing of PHA team members with areas of expertise (may be part of PHA reports)
- Documentation of PHA training for team members and team leaders
* **Description of system used to manage PHA recommendations**
- Records from managing PHA recommendations

Operating Procedures

* Guidelines for generating, modifying and controlling operating procedures including format and content
* List of operating procedures for initial startup, normal operations, temporary operations, emergency shutdown, emergency operations, normal shutdown, startup following a turnaround, startup after an emergency shutdown
* List of safe work practices including lockout/tagout; lifting equipment over process lines; capping over ended valves; opening process equipment or piping; excavation; control over entrance into a facility by maintenance, contractor, or other support personnel
* List of safe work practices for contractors
- Annual certification of procedures
- Operating procedures

Training

* **Description of training program (initial and refresher)**
- Training materials (initial and refresher)
- Records of employee training (initial and refresher)
- Certification of training where appropriate
- Frequency of refresher training and documentation of employee consultation

Contractors

* **Contractor safety program**
- Records on contractor selection
- Records on contractor use
- Documentation of information communicated to contractors
* Safety Manual for contractors (both employer and contractor)
- Documentation of periodic contractor CalARP performance evaluation
- Documentation of periodic contractor CalARP training evaluation
- Documentation of actions taken to correct contractor deficiencies
- Documentation showing control of contractor plant entry and egress
- Injury and illness log for contract employees
- Records of training of contractors (from Contract Employer)
- List of names of contractor employees used

Pre-startup Review

* **PSR procedure**
* PSR checklists
- Completed PSR's

Mechanical Integrity/Maintenance

* **MI program management policy document or procedure**
* Rationale for exclusion of any systems, equipment, or instrumentation
- Relevant portions of manufacturers' manuals, codes and standards
* List of maintenance procedures
- Maintenance procedures
- Documentation on use of MI procedures
* Description of training program for process maintenance activities
- Training materials
- Records of employee training
- Training certification documents for employees where appropriate
- Inspection and test procedures (including instrumentation)
- Records, including results, of inspection and testing
- **Description of system used to track the mechanical integrity program**
- **Description of system used to track Safeguards identified in PHAs**
- Records on correction of deficiencies
* Quality assurance program and procedures for new plants and equipment
- Quality assurance records
* Procedures for control of spares and other equipment and materials

Hot Work Permit

* **Hot work permit procedure**
- Completed permits
* Description of training for hot work activities
- Records of employee training
- Training certification documents for employees where appropriate

- Documentation of communication to contractors on hot work permitting programs

Management of Change

* **MOC procedure**
- MOC records

Incident Investigation

* **Description of II procedure**
* Lists of names for any II teams, past and present
* Listing of incidents
- Incident investigation reports
* **Description of system used to manage II findings**
- Records from tracking II report findings
- Documentation on consultation with affected employees and contractors on II results

Compliance Audits

* **Audit procedure**
* Copies of any previous compliance audits (at least the two most recent audits)
* Action plans from any previous audits
* List of auditors and their areas of relevant expertise for previous audits
- Records from tracking compliance audit findings
- Triennial certification

Employee Participation

* **Employee Participation Plan**
- Records of employee participation in the prevention program elements of the CalARP program

Root-Cause Analysis – *ISO/RISO Regulated Sources* only

* Description of root-cause analysis method applied

Emergency Response Program

* **ER plans**
- Evidence of compliance with T8 CCR 5192 where applicable
* Designation of personnel who will respond to an emergency
- Training records for these personnel
* Designation of personnel who will assist with emergency evacuation
- Training records for these personnel
- Records documenting communication of ER plan to employees
* Description of alarm system
- Test and maintenance records for alarm system
- Debriefings on any ER plan activations
- Debriefings on any ER drills or exercises
- Documentation of inspection, testing, and maintenance of emergency equipment
- Copy of Consolidated Contingency Plan if applicable

APPENDIX D
OPENING MEETING AGENDA/REMARKS

I. Introductions
II. Assess compliance of programs with CalARP regulations and ISO/RISO & confirm accuracy of the RMP and Safety Plan.
    A. CalARP Program 4 Regulations
        1. Entire stationary source
    B. Safety Program (ISO/RISO)
        1. All of the process units
    C. May identify "non-compliance" findings and develop "non-mandatory" action items. These will be included in the report and begin with "consider". CalARP Program regulations requires that we provide the basis for all ensure action items
    D. If there is an action item that is resolved before the conclusion of the onsite audit, the action item will still be included in the report, but will be modified to identify it has already been resolved
III. Approach – standard audit using all abridged and New questionnaires
    A. NEW – All audit questionnaires were modified to incorporate CalARP Program 4 requirements along with ISO/RISO
    B. Conduct operating procedure and P&ID walk-downs
    C. Review documentation and meet with Key Personnel (To find out how the programs are designed/supposed to function)
        1. Schedule meetings with Key Personnel
    D. Verification of documentation
        1. Sample records – sample size will depend on number and importance of the records
        2. Conduct employee interviews – look for any trends
            a. Schedule/ random selection (different shifts, different jobs, various lengths of employment, etc.) – ideally 3-5%
            b. If any employees want to talk with us that are not selected, let them know they can schedule time with us
            c. Employees interviews are confidential – "no right or wrong answers"; the main purpose is to verify if employees were involved in certain tasks that are required by regulations such as incident investigations, PHA teams; no "trick questions"; we take notes but names are not written down; interviews usually lasts approximately 30 minutes
    E. Expected duration of the on-site portion of the audit is 4 weeks. CCHSHMP may take photographs in the field as part of the facility audit records
    F. Weekly debriefings to discuss findings
    G. Complete questionnaires (same format as RMP/SP completeness review)
    H. January 30, 2020 is the expected audit completion date and closing meeting
    I. Administrative Draft "Preliminary Determination" within four to eight weeks
    J. Facility will have fourteen days to review draft for factual inaccuracies
    K. "Preliminary Determination" issued and facility will have 90 days to submit proposed remedies and due dates to address any deficiencies
    L. Begin 45-day public notice period after CCHSHMP agrees to proposed remedies and due dates
    M. Schedule public meeting

ATTACHMENT B

Completed Questionnaires

A37 - CalARP Prevention Program: Process Safety Information (Program 4)

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A37-02	Program 4 CalARP & ISO	Did the PHA, HCA. SPA & DMR team members have access to the compiled PSI while conducting the studies? [T19 CCR §2762.1(a) & ISO Section 450-8.016(a)(1)(A)]	Abr	* Review the reports and interview members of the teams to ascertain whether PSI was made available during the studies. * "Process safety knowledge contains process safety information plus understanding or interpretation of the information". Verify that there is a system to collect and maintain the safety information. Verify that a system exists to ensure that data are accurate, reliable, and up-to-date, and that process safety information is available to all persons who need access to it. [Guidelines for Auditing Process Safety Management Systems, AIChE/CCPS]	CCHS reviewed the Process Safety Information Policy - P&P Manual Section 12.0-2 last reviewed 07/12/2019. Per this policy, a process safety information package (PSIP) must be developed for each facility process unit. The PSIP is defined as a standardized method to organize PSI into an electronic format available to affected individuals. Per a review of the PHA policy (P&P Manual Section 2.0-6), the PSI requirements are scattered throughout the policy but have not clearly specified that PSI documents must be developed/updated prior to conducting any process hazard analysis (PHA), Hierarchy of Control Analysis (HCA), Layer of Protection Analysis (LOPA) or Damage Mechanism Review (DMR). This requirement should be included in the PSI policy. Per the policy, the unit and system boundaries shall be consistent with those defined by the Refinery PHA Requirement Standard and Contra Costa County Industrial Safety Ordinance. CCHS reviewed three completed PHA reports associated with the following facilities: -- Unit 200: Coking, Relief and Blowdown -- Unit 215: Deisobutanizer and Caustic Trading System -- MP30 The above PHAs included P&IDs for the covered process PHA. All PSIP including P&IDs are also electronically available on intranet to the facility staff including operations and maintenance staff. Based on the review of the above PHAs and selected interview with the team members conducting PHAs and the	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					associated studies, CCHS confirmed that team members had access to the compiled PSI while conducting the studies.		
A37-04	Program 4 CalARP & ISO	Does the information pertaining to the hazards of the regulated substances include: a) California permissible exposure limits (PELs) b) ERPG values c) Acute RELs d) 8-hour exposure PELs? [T19 CCR §2762.1(b)(2&3) & ISO Section 450-8.016(a)(1)(A)(i)]	*New	1. This information is to include for regulated substances: American Conference of Governmental Industrial Hygienists (ACGIH) Emergency Response Planning Guideline values (ERPG), U.S. EPA Acute Exposure Guideline Levels (AEGLs), and the California Office of Environmental Health Hazard Assessment (OEHHA) acute and eight-hour Reference Exposure Levels (RELs). [T19 CCR §2762.1(b)(3)] 2. Current California Permissible Exposure Limits (available from CalOSHA website) as part of the PSI the facility can reference the link.	Per interview with the SME, the information pertaining to the hazards of the regulated substances includes California permissible exposure limits (PELs). For California permissible exposure limits (PELs), there is a link as part of each PSIP to the entire table that can be accessed by all Refinery employees. Per interview, Process Safety Manager annually checks to make sure the information is still current. Other information such as ERPG values or acute RELs are also available similarly on the facility intranet. Per interview with SME and live navigation of PSI data on the facility intranet, CCHS randomly selected and viewed PSIP for Unit 200 and 215. The information was current and included a link to PELs and other information in this question.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A37-06	Program 4 CalARP & ISO	Does the information pertaining to the hazards of the regulated substances include reactivity data? [T19 CCR §27621(b)(7)& ISO Section 450-8.016(a)(1)(A)(i)]	Abr	1. SDS's must be supplemented with process chemistry information, including runaway reaction and overpressure hazards, if applicable [OSHA 3133, PSM Guidelines for Compliance, 1994] or [29 CFR 1910.119 Appendix C].	The PSI Policy Section 3 addresses PSIP to include the following: -- Hazards of Materials - summarizes hazards that could result from inadvertent mixing of reactive chemicals -- Unit chemicals that shows reaction possibilities between binary mixtures of unit chemicals. -- Explanation of inadvertent mixing reactions -- The SDS information The information pertaining to the hazards of the regulated substances include reactivity data and this data is also available in Safety Data Sheets. The Safety Data Sheets (SDS) provide information on specific materials used in the plant including toxicity, permissible exposure limits, physical data, reactivity data, corrosivity data, thermal and chemical stability data, and hazardous effects of inadvertently mixing of different materials that could foreseeably occur. The refinery maintains Safety Data Sheets (SDS) Information in an Online SDS Library. This library also provides exposure limits and is linked in the SFR Refinery PSIP Index. Per interview with SME and live navigation of PSI data on the facility intranet, CCHS randomly selected and viewed PSIP for Unit 200 and 215. The information was current and included reactivity data.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A37-12	Program 4 CalARP & ISO	Does the information pertaining to the technology of the process include the maximum intended inventory? [T19 CCR §2762.1(c)(3) & ISO Section 450-8.016(a)(1)(A)(iii)]	Abr	1. Sources for vessel maximum capacity information could include a placard attached to the tank, documents from the manufacturer of the tank, log sheets, and the business plan. 2. Trade association or industry standard may recommend limiting the usable volume of a vessel (e.g., tank not to be filled to more than 85% capacity). [CCC CalARP Program Guidance Document]	The PSI Policy Section 1.5 addresses PSIP to include information on Maximum Intended Inventories. This is defined to be set at the point beyond which would be considered upset conditions and will include major equipment. Inventory in piping shall be included as a line item and is assumed to be 10% of the total inventory of all major equipment items or calculated if the scope of piping is large. CCHMP reviewed maximum intended inventory for Unit 200 (crude/Coker), and noted that inventories are reported for flammables, toxics, RMP flammables and RMP toxics and piping inventories were assumed to be 10% of the total major equipment inventory.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A37-13	Program 4 CalARP & ISO	Does the information pertaining to the technology of the process include safe upper and lower limits for process variables such as temperatures, pressures, flows, levels, and compositions? [T19 CCR §2762.1(c)(4) & ISO Section 450-8.016(a)(1)(A)(iii)]	Abr	Process variables from DMRs need to be extracted from reports and incorporated into appropriate locations for employees (e.g., integrity operating window). [CCHMP interpretation, 2762.1(a)(4)]	Safe upper and lower limits for process variables include such items as temperatures, pressures, flows, levels and/or compositions. These type of information are documented as SOLs (Safe Operating Limits) as part of the PSIP and are available to personnel on the facility intranet for each of the specific area/unit in the refinery. CCHS reviewed the SOL tables for Unit 200: Relief & Blowdown and the information tabulated included equipment description, normal range, upper and lower limits, consequence of deviation, probable cause, and corrective action. CCHS also reviewed ROL (Reliability Operating Limits) tables that provided upper and lower limits on instrument/analysis levels, consequence of deviations, and corrective actions required. CCHS reviewed ROL tables and confirmed that they are available to the operations staff on the intranet as part of the PSI for a given unit. The actions the refinery operators need to take in response to the ROL exceedances are specified on the ROL tables under corrective actions required.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A37-14	Program 4 CalARP & ISO	Does the information pertaining to the technology of the process include an evaluation of the consequences of deviations, including chemical mixing or reactions that may affect the safety and health of employees or the public? [T19 CCR §2762.1(c)(5) & ISO Section 450-8.016(a)(1)(A)(iii)]	Abr	1. A written evaluation should be made of the potential consequences that may result if the safe operating limits are violated. Typically an evaluation of consequences of deviation from safe operating limits is included in a PHA. [OSHA Training Material Reference Manual (Draft)] 2. An evaluation of the consequence of deviations for the process may or may not be the same as provided in the operating procedures. The consequence of deviation needs to be available for the PHA and the operating procedures. Sometimes the PHA is done prior to the operating procedures have been written. Since operating procedures are not listed as part of the PSI, this question is different than provided in the Operating Procedure questionnaire, A39-10. [CCHMP Interpretation]	As described in A37-06, PSIP includes an explanation of inadvertent mixing reactions. This is a structured method to explain every possible reaction that can occur in a unit. Examples of these reactions include an explosion, toxic gases evolved from the solution, etc. The Steps that need to handle the reaction are put in place. Examples include stopping the hydrocarbon flow to put out the fire, extinguishing with a chemical extinguisher, etc. PSIP is to include any safeguards in place either to prevent, control, or mitigate the situation, operating procedures and instrumentation that mitigated the reaction occurrence.	Y	None
A37-16	Program 4 CalARP & ISO	Does the information pertaining to the equipment in the process include materials of construction? [T19 CCR §2762.1(d)(1) & ISO Section 450-8.016(a)(1)(A)(iv)]	Abr	1. Materials of construction in the process needs to be consistent with the DMR report findings. [CCHMP interpretation] 2. Old/used equipment: analysis and/or testing appropriate to the new service with revised documentation of PSI is required. [OSHA co-sponsored PSM workshops in Spring, 1993] [OSHA Instruction CPL 2-2.45A CH-1 Appendix B - Clarifications and Interpretations of the PSM standard, September 13, 1994]	The PSI Policy Section 4.0 addresses PSIP to include design basis to provide operating and design information for process equipment and piping and to include a nominal list of the materials used to build the process equipment and a list that references all codes and standards used to design the facilities. The PSI Policy Section 4.4 addresses PSIP to include equipment list that lists fixed and rotating equipment including equipment number, service, materials of construction, design conditions and applicable code. During a live navigation of PSI for Unit 200 and 215, CCHS confirmed that the information pertaining to the equipment in the process include materials of construction.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A37-17	Program 4 CalARP & ISO	Does the information pertaining to the equipment in the process include piping and instrumentation diagrams (P&ID's)? [T19 CCR §2762.1(d)(2) & ISO Section 450-8.016(a)(1)(A)(iv)]	Abr	1. Complete and accurate P&ID's are essential for conducting a PHA. P&ID's are used to describe the relationships between equipment and instrumentation as well as other relevant information that will enhance clarity. P&ID's present useful information on process equipment, piping, valves, and instrumentation. Pressure, temperature and materials of construction are shown for major process equipment. Pipe size and material specifications are shown for main piping as well as the presence of insulation, heat tracing, corrosion monitors and other special piping equipment. [CCHMP interpretation]	The PSI Policy Section 2.0 addresses PSIP to include Piping and Instrumentation Diagrams (P&ID). These illustrate the piping, associated equipment, and instrumentation and control for the process. During a live navigation of PSI for Unit 215 and MP30, CCHS confirmed that the information pertaining to the equipment in the process include piping and instrumentation diagrams (P&ID's). CCHS conducted a field walk of two P&IDs and found some information missing on one of them. These should be corrected as follows: -- Unit 215 Gas Fractionation DIB & Reboiler, P&ID No. 0215-YD-001-002 st. 2 of 5, Rev. 11 -- Valve and blind not shown on drawing: Valve and blind outlet is located off the bottom of the 3" line F-705 & 1-1/3" F-703 line to F-705. -- Drawing is missing two sets of outlets and plug (caps) at E-703a on Line LS714-1-10 & at E-703a on Line LS703-1-3. -- Drawing is missing 1" outlet and plug off the 24" line from D-701 to E-703A between the TE750 and D-701.	Y	None
A37-18	Program 4 CalARP & ISO	Does the information pertaining to the equipment in the process include: a) Electrical classification; and b) Electrical supply and distribution systems? [T19 CCR §2762.1(d)(3 & 9) & ISO Section 450-8.016(a)(1)(A)(iv)]	New	* Verify the facility has electrical classification maps for the entire site and/or types of equipment. Review the basis for the their classification (API RP 500, API RP 505, or independent analysis). 1. Electrical classification of equipment applies to equipment in flammable/ combustible service.	The PSI Policy addresses the PSIP Section 4.3 to include Area Electrical Classification. These are available in specific drawings for each area of the plant and are included in the PSIP for each covered area. These classify each area of the plant with respect to its potential for causing an electrically generated fire as defined by NFPA. CCHS received and reviewed three area classicization's associated with the three P&ID walks for Unit 200, Unit 215 and the Wharf.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A37-19	Program 4 CalARP & ISO	Does the information pertaining to the equipment in the process include relief system design and design basis? [T19 CCR §2762.1(d)(4) & ISO Section 450-8.016(a)(1)(A)(iv)]	Abr	* Review PRV design and design basis as it needs to be consistent with the DMR report findings (e.g. material of construction limits that may impact relief capacity, etc.). [CCHMP interpretation] 1. PSV's are critical safety equipment and information that supports PSV design and specification are critical to maintain - simple data sheets are not enough, calculations or other detailed documents are required [OSHA co-sponsored PSM workshops in Spring, 1993] [OSHA Region VI presentation on PSM in January, 1994].	PSI Policy addresses the PSIP Section 4.2 to include Relief System Design and the minimum required information include: relief device number, relief device location description (e.g. vessel, exchanger or line number), where the device relieves to (e.g. flare, acid relief, atmosphere, or process), set pressure, required relief rate, maximum capacity of the relief device, the critical design basis (e.g. fire, blocked liquid outlet or steam failure), and relief device size and type. CCHS reviewed select relief system design information from the network for selected PSVs in Unit 200 and verified the set points, materials of construction, design basis (the relief case). This is a summarized information and additional information are also available in the relief system folders. PSIP will also include all the area PSV Data Sheets and a list of locked valves that safeguard the integrity of the relief system during normal operation.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A37-21	Program 4 CalARP & ISO	Does the information pertaining to the equipment in the process include design codes and standards employed, including design conditions and operating limits? [T19 CCR §2760.1(d)(16)(F) & ISO Section 450-8.016(a)(1)(A)(iv)]	Abr		PSI Policy addresses the PSIP Section 4.0 Design Basis to include operating and design information for process equipment and piping and reference codes and standards used to design the facilities. Section 4.4 provides equipment list that lists fixed and rotating equipment including equipment number, service, materials of construction, design conditions and applicable code. CCHS reviewed equipment list for Unit 200 and Unit 215 and the equipment list included: heater, pressure vessel, rotating equipment, heat exchanger, and tank. Example information listed for pressure vessel included equipment identification, design pressure, design temperature, materials of construction, design code (e.g. API 510), etc.; example information listed for rotating equipment included equipment identification, maximum suction temperature, flow, suction pressure, discharge pressure, specific gravity, head (@GPM), flange class and rating, materials of construction for pump case, design code (e.g. API 610), etc.	Y	None
A37-22	Program 4 CalARP & ISO	Does the information pertaining to the equipment in the process include material and energy balances for all processes? [T19 CCR §2762.1(d)(7) & ISO Section	Abr	1. ISO identifies material and energy balances are required for processes built after the ordinance was effective although P4 is more conservative by identifying this applies to all processes by 10/1/17. [T19 CCR §2762.1(d)(7) & ISO Section 450-8.016(a)(1)(A)(iv)]	PSI Policy addresses the PSIP Section 4.1 to include the Heat & Material Balance (H&MB) available for units and systems built after 5/26/1992. For units where the overall H&MB are available, it is included. Per live navigation of the PSIP, for units that H&MB was not available, a message stating that overall H&MB is not required for unit built prior to 5/26/1992. CCHS reviewed heat and material balance for Unit 200 and Unit 215. These tables include the stream and mass contribution of each component, energy content for the process input and output as well as the operating conditions.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A37-23	Program 4 CalARP & ISO	Does the information pertaining to the equipment in the process include safety systems (e.g., interlocks, detection, or suppression systems)? [T19 CCR §2762.1(d)(8) & Section 450-8.016(a)(1)(A)(iv)]	Abr		PSI Policy addresses the PSIP Section 5.0 to include the protective safety systems as follows: -- Section 5.1: Plot plans - All safety equipment not covered elsewhere e.g. firewater, hydrocarbon & H2S monitors, safety showers (but not relief devices), location of mechanical safety systems, ventilation systems or instrumented protective systems. -- Section 5.3: Mechanical protective system such as vibration detection system, turbine over speed trips, low lube oil pressure detection, critical check valves, etc. The description shall include the following: functional location, descriptions, protective device ID and description, Safety system, set point with units. Critical check valve list will also identify those check valves that are required for mitigating overpressure scenarios. -- Section 5.4 Instrumented Protective systems: This include Safety Instrumented Systems or interlocks designed to shutdown equipment or the unit, to auto-start equipment, close or open valves, etc.; Overpressure instrumented protective systems such as high integrity pressure protection systems (HIPPS) and emergency depressuring; or Independent Protection Layers (IPL) identified during Layers of Protection Analysis (LOPA). Instrumented protective system may be identified in a cause and effect diagram, if not, they should be described in tabular	Y	None
A37-27	Program 4 CalARP & ISO	Does the submitted RMP and Safety Plan accurately reflect the existing Process Safety Information Program at the stationary source? [T19 CCR §2745.2(d) & ISO Section 450-8.016]	Abr		The RMP submitted 9/13/2019 pages 16-20 and Safety Plan submitted 8/6/2018 pages 6-9 accurately reflect the existing Process Safety Information Program at the stationary source.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A37-28	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the stationary source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate 'repeat' for identical non-compliance, or use 'modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	There was one ensure action item associated with the previous CalARP/ISO audit that has been addressed.	Y	None

A38 - CalARP Prevention Program: Process Hazard Analysis (Program 4)

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A38-05	Program 4 CalARP & ISO	Did the stationary source use one or more of the following methodologies that are appropriate to determine and evaluate the hazards of the process being analyzed: a) What-If b) Checklist c) What-If/Checklist d) Hazard and Operability Study (HAZOP) e) Failure Modes and Effects Analysis (FEMA) f) Fault Tree Analysis g) An appropriate equivalent methodology approved by the department prior to conducting the PHA? [T19 CCR §2762.2(b) & ISO Section 450-8.016(d)(1)]	Abr	1. PHAs must cover all modes of operation as specified in §2762.3(a)(1) to include:-startup-normal operations-Temporary operations as the need arises-Emergency shutdown-Normal shutdown-startup following a turnaround, a planned or unplanned shutdown, or after an emergency shutdown. [T19 CCR §2762.2(a)]	CCHS reviewed policy title P&P 2.0-6 of "SFR [San Francisco Refinery] Process Hazard Analysis (PHA)" (dated 5/1/19), which describes the process for conducting Unit and Procedural PHAs and compliance with federal state and local regulations. Per section E.2.ii of the policy, HAZOP methodology shall be used for all PHA's revalidations and redo's for all units with the exception for Utilities which can use other options such as "What if scenarios" and "checklists". CCHS confirmed that the HAZOP methodology was used for the following three PHAs reviewed. -- Unit 215, report date October 5, 2018 -- Relief & Blowdown, report date July 19, 2018 -- MP30 report date Draft Per review of the HAZOP nodes, in additional to normal operation the facility evaluation, Start-up/shutdown scenarios and Abnormal Operation. CCHS notes that Unit 215 PHA study identified two consequence scenarios related to start-up or shutdown. Within the Global node loss of utilities were evaluated such as steam, nitrogen, cooling water chemical, air, etc. Per interview with the Process Safety Director, CCHS confirmed that the majority of the PHAs used HAZOP methodology and What-if Checklists are limited to just Utilities, storage facilities, and bulk filling process, which CCHS believes is appropriate for those processes. In the past five years the facility has performed approximately 10 QRAs on select deviation scenarios.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A38-07	Program 4 CalARP & ISO	Did the PHA report(s) address the following: a) Hazards of the process? [T19 CCR §2762.2(c)(1) & ISO Section 450-8.016(d)(1)] b) Damage Mechanism Review (DMR) reports and Hierarchy of Hazard Control Analysis reports that are applicable to the process units? [T19 CCR §2762.2(c)(3)&(4),(g)&(h)]	Abr	* Verify the DMR and HCA for that process unit was available to the team performing the PHA. [T19 CCR §2762.5(e)(4)] * Review a representative sample of process-related equipment to determine whether hazards have been identified, evaluated, and controlled (i.e., electrical classifications are consistent with flammability hazards, pressure relief valves are properly designed and discharge to a safe area, pipework is protected from impact). [CalOSHA Consultation, Guidelines for Process Safety Management, Part 1, June 1994] 1. Examples include: (a) failure of equipment to start, (b) operator stops equipment inadvertently, (c) valve mispositioned inadvertently, (d) possible exothermic reactions, (e) pressure relief, venting, or flare capacity inadequate or disabled, and (f) loss of utilities. 2. Hazard analysis "by action items only", where the PHA includes only those hazards for which recommendations are made for safety improvements, and hazard analysis "by exception", where the PHA includes only those hazards for which the team felt there were significant consequences (e.g., explosions, toxic releases) are not acceptable. [OSHA Training Material Reference Manual] 3. OSHA has not issued a clarification regarding "PHA by Exception"; however, OSHA Region VI issued a citation to Marathon Oil that used the specific phrase "HAZOP by Exception". 4. The following question was answered by OSHA in a Beaumont, Texas meeting: In our PHA program, we concentrate on very serious hazards with potentially catastrophic consequences. Other hazards with less serious, non-catastrophic consequences are not included in the study and recommendations are not made as part of the PHA. We have other safety programs that address these hazards. Is this OK? Answer: The key thing is that only "catastrophic" possibilities are covered. Other possibilities still need to be addressed and documented as	CCHS reviewed section E.2.iii which states, "[the PHA] shall include a Hierarchy of Hazard Control Analysis (HCA) on any recommendation made by the PHA team for each scenario that identifies the potential for a major incident." Similarly, the policy states, "[The PHA] shall include an ISS review where a Major Chemical Accident or Release (MCAR) could reasonably occur". The facility uses an ISS Matrix that aligns with ISO Guidance Document section D.1.7 definition could reasonably occur and applies it to SPA. Per interview with the Process Safety Director, the facility should complete HCA on all PHA and SPA (LOPA recommendations. However as indicated in A58-10 they have not performed HCA on qualifying recommendations. As discussed in question A58-10, an HCA was not performed on the process and therefore was not evaluated as part of the PHA process. However, CCHS does note that the Inherently Safety Checklist was completed for the three PHAs reviewed. CCHS reviewed section E.2.b of P&P 2.0-6 which states, "[The PHA] shall include a review of Mechanical Integrity issues and Damage Mechanism Review (DMR) reports". Per interview with the PHA SME, the DMR is reviewed during all the PHAs". CCHS notes that as part of the HazOp process there is a Node called "Fixed Equipment Mechanical Integrity Review" questionnaire that evaluates 25 criteria that are related to corrosion, various cycling of process equipment, and corrosion issues. CCHS confirmed that the MI Review Checklist was included in all three PHAs reviewed.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				to why they are not catastrophic. 5. Do observations of a representative sample of process-related equipment indicate that obvious hazards have been identified, evaluated, and controlled? (For example, hydrocarbon or toxic gas monitors and alarms are present, pressure relief valves are properly designed and discharge to a safe area). [OSHA Instruction CPL 2-2.45A CH-1 Appendix A]			
A38-08	Program 4 CalARP & ISO	Did the PHA report(s) address: a) Relevant publicly documented incidents in the petroleum refinery and petrochemical industry sector; and b) The findings of incident investigations relevant to the process. [T19 CCR §2762.2(c)(2),(c)(11), (h) & ISO Section 450-8.016(d)(1)]	Abr	* Look for documentation that these are evaluated in the PHA at the relevant node or at least discussed in a global node. 1. Catastrophic consequence is defined to be consistent with “catastrophic release” which means a major uncontrolled emission, fire, or explosion, involving one or more regulated substances that presents an imminent and substantial endangerment to public health and the environment. [T19 CCR §2735.3(m)] 2. OSHA believes that it would be extremely useful if incident investigation report findings and recommendations were reviewed in the subsequent update or revalidation of the process hazard analysis (or hazard review) of the process. [29 CFR 1910.119 preamble]	CCHS reviewed P&P 2.0-6 section E.iii., which states, "[The PHA] shall include a review of relevant process safety incidents / near misses that have occurred since the previous PHA (this should include relevant incidents and near misses across Phillips 66 and the industry)". Section E.d "Incident Review" of the policy, requires a review of all safety incidents since the last 5 year PHA, which are logged in the IMPACT incidents database and review of the RCA Library for publicly documented external events. CCHS confirmed the facility maintains the database and the PHA facilitator has access to them. The team documents includes a listing of incident in the PHA node. The Relief and Blowdown (dated July 19, 2018) PHA study included a review of 6 incidents that occurred at other sites. CCHS reviewed the other PHAs listed in A38-05 and found no issues.	Y	None
A38-10	Program 4 CalARP & ISO	Did the PHA report(s) address the potential consequences of failures of process equipment and include a qualitative evaluation of the types, severity, and likelihood of possible incidents that could result from such failures? [T19 CCR §2762.2(c)(6),&(c)(9), (g)&(h)]	Abr	1. PHA(s) must address the consequences of failure of engineering and administrative controls? [ISO Section 450-8.016(d)(1)]	Per review of the PHA Studies listed in A38-05, each used the HAZOP methodology which for each deviation/cause scenario a consequence is listed or referenced when applicable. Each consequence scenario is risk ranked based on the severity and likelihood. CCHS confirmed that the PHA process evaluated process equipment failures, such as over pressurization of process vessels, rotating equipment seal failures.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A38-11	Program 4 CalARP & ISO	Did the PHA report(s) address facility siting, including the placement of processes, equipment, buildings, employee occupancies and work stations in order to effectively protect employees and the public from process safety hazards? [T19 CCR §2762.2(c)(7), (h) & ISO Section 450-8.016(d)(1)]	New	1. The CalARP program regulations listed required facility siting for the stationary source to review. CCHMP has expanded this requirement to include a siting analysis/evaluation for the covered processes to include calculating effects of fire, explosion and toxic material releases and subsequent building designation. [CCHMP Interpretation]	The facility siting review is performed by completing a checklist titled "R-293", which is initially completed by the Operations representative assigned to the PHA. For "major" units with three or more operators assigned to a shift, the operator must consult with two additional Operations representatives, that meet the PHA qualifications. The R-293 checklist is focused on the following, spacing of process equipment, unit layout relative to adjacent areas, location of underground utilities, ignition sources, control rooms, emergency shutdown and isolation switches. The questions are formatted in such a way that a 'yes' answer does not require an action. CCHS reviewed the completed checklists R-293 for the PHA reports listed in A38-05 and there were six recommendations identified in the MP-30. There were no recommendations from the "Relief and Blowdown" and Unit 215. Training on the completion of the facility siting checklist was documented in R-506 form and included in the PHA.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A38-14	Program 4 CalARP & ISO	Did the PHA report(s) address potential effects of external events, including seismic events, if applicable? [T19 CCR §2762.2(c)(10), (h) & ISO Section 450-8.016(d)(2)] Did the seismic assessment conducted conform to Appendix B of the Contra Costa County CalARP Program Guidance Document? [Section D of the CCHMP Safety Program Guidance Document]	Abr	* Review written documentation of seismic review and compare against seismic guidelines. * Review external event considered (use of a checklist is acceptable). Documentation by exception is not sufficient. * Verify the facility performs a facility/equipment check after a seismic event to assess for potential damage. 1. External events include nearby pipeline accidents, releases of chemicals, sabotage, seismic activity, transportation accidents, maintenance activities, external flooding/landslides, extreme winds, fire, fog, high/low temperatures, internal flooding. [Section 7.3.4 of CCHMP's CalARP Guidance Document] 2. ISO regulated facilities, external events, including seismic, shall be considered for all covered processes containing a regulated substance, if a public receptor is within the distance to a WCS toxic or flammable endpoint. [ISO Section 450-8.016(d)(2) and 2019 CalARP Seismic Guidance Section 1.1]	The facility evaluates external events as part of a global node within the PHA. CCHS verified that earthquakes were evaluated for each PHA listed in A38-01. There were recommendations generated from these evaluations. The last Seismic report was dated December 2015, which was completed site-wide, and the next seismic report is due in five years or December 2020. CCHS notes that the last recommendation was completed on 7/13/18. The PHA team has access to the report as needed. CCHS further notes that 2015 seismic evaluation appears to comply with the CalARP Seismic Assessment Guidance, and added some additional findings that were outside of the typical Seismic Assessment.	Y	None
A38-16	Program 4 CalARP & ISO	Did the PHA team have experience and knowledge specific to the process being evaluated including at least one current operating employee from the unit? [T19 CCR §2762.2(d) & ISO Section 450-8.016(d)(1)]	Abr	1. The operating employee on the PHA team must currently work or provides training in the unit at the time of the PHA, and has experience and knowledge specific to the process being evaluated. [T19 CCR §2762.2(d)] 2. Excerpt from the FSOR: "However, Cal OES believes that the requirement that the refinery operating employee who currently works in or provides training in the unit be a member of the PHA team is critical to assist the team in understanding the specific process being evaluated and the current operating conditions." This is in response to a comment that the language be amended to read "…to include at least one refinery operating employee who currently works in or provides training in the unit, or has maintained current qualifications to operate the unit, and who has experience and knowledge specific to the process being evaluated."	Per Section E.2.a.iii of P&P 2.0-6, "the Operator or another full time Operations representative shall have 5 years experience working the process under review in the PHA and shall be familiar with the current operation. The Unit Operator shall be Lead / Head Operator, or someone trained on the control panel and be familiar with current operation." CCHS notes that all Lead and Head Operators all had over 5 years experience and are documented in the PHA. Employee representative confirmed that the experience listed in the PHA is accurate and were current on the board at the time of the PHA.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A38-17	Program 4 CalARP & ISO	Was the PHA performed by a team: a) With expertise in engineering and process operations; and b) Include consultation with individuals with expertise in damage mechanisms, process chemistry, and control systems as necessary? [T19 CCR §2762.2(d), (h) & ISO Section 450-8.016(d)(1)]	Abr	1. The team with expertise in engineering and process operations should have experience and knowledge specific to the process being evaluated. [T19 CCR §2762.2(d)] 2. "Consultations" do not have to be full time participants.	Per P&P 2.0-6 section E.2.a.iii, "The Process Engineer assigned to the PHA shall have at least 1-year process industry experience and be knowledgeable with the design process under review." The policy further states, "Other discipline experts may be assigned to the PHA full time or part time as appropriate". Per CCHS review of the PHA Study, CCHS confirmed that the experience of the engineer exceeded the stated criteria in their policy. Below is a list of experience of the engineers that participated in the PHA. -- Unit 215 - Operations Engineer 2.5 years experience -- Unit 215 - Materials Engineer 4 years experience -- MP-30 - Operations Engineer 10 years experience -- Relief and Blowdown Operations Engineer- multiple engineers ranging from 2.5 years to 10 years experience. -- Relief and Blowdown - Materials Engineer - 4 years experience	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A38-18	Program 4 CalARP & ISO	Did at least one member of the PHA team have knowledge in the specific PHA methodology used? [T19 CCR §2762.2(d), (h) & ISO Section 450-8.016(d)(1)]	Abr	1. For PHA team leaders, OSHA will look for documentation of formal training - course certificates are acceptable. [OSHA co-sponsored PSM workshops in Spring, 1993] 2. Non-team leader previous participation in a PHA would not qualify a team leader to lead an initial or update PHA. [OSHA co-sponsored PSM workshops in Spring, 1993] 3. For PHA team leaders, qualification gained through experience as a team leader is acceptable - OSHA might want to see examples of PHA reports led by a team leader qualified in this manner. [OSHA co-sponsored PSM workshops in Spring, 1993]	Per CCHS review, of Section E.2.ii of P&P 2.0-6, the "PHA leader shall have the following qualifications: 8 years of industry experience, a technical background such as process engineer, shall have participated in the at least two previous Phillips 66 process unit PHAs or have completed formal and documented PHA training, have successfully led a PHA a PHA under guide of experience PHA Leader, shall be trained in specific PHA methodology, trained in the California Safeguard Protection Analysis, and shall be familiar with ISS/HCA study methodology." CCHS reviewed the training qualifications listed in Table 2 of the PHA for the PHA Leaders of the Relief & Blowdown, MP30 Unit, and Unit 215. The PHA leader of Unit 215 had 10.5 years experience with expertise in PHA, LOPA, and ISS. The PHA facilitator for the Relief and Blowdown, was performed by a contractor which had 6 years experience in the current position and 39 years in industry.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A38-19	Program 4 CalARP & ISO	Has the owner or operator developed a documented corrective action work process to address findings and recommendations, including: a) Rejection of recommendations; b) Alternative safeguards; c) Written comments by team members on any rejected or changed findings and recommendations; and d) Final decision for each recommendation? [T19 CCR §2762.2(i), §2762.16(e) and ISO Section 450-8.016(d)(4)]	New	1. The team must provide to the owner or operator findings and recommendations at the earliest opportunity, but no later than 14 calendar days after recommendation and findings are complete. [T19 CCR §2762.16(e)(1)] 2. To reject a team recommendation, the owner or operator must demonstrate in writing that one of the following applies: a) The analysis upon which the recommendation is based contains material factual errors; b) The recommendation is not relevant to process safety; or c) The recommendation is infeasible; however, a determination of infeasibility shall not be based solely on cost. [T19 CCR §2762.16(e)(2)] 3. To change a team recommendation, the owner or operator must demonstrate in writing that an alternative safeguard would provide an equally or more effective level of protection. [T19 CCR §2762.16(e)(3)] 4. Any rejected or changed recommendation must be communicated to onsite team members and made available to offsite team members for comment. [T19 CCR §2762.16(e)(4)]	Per section E.2.i.viii of P&P 2.0-6, if a PHA recommendation is rejected, the PHA team shall be consulted and reason shall be documented in the Unit/System PHA Recommendation closure form R-295. The criteria for rejection should be based upon adequate evidence of one or more of the following: -- The analysis upon which the PHA recommendation is based contains material factual errors; -- The PHA recommendation is not relevant to process safety; -- An alternative measure would provide an equivalent or greater level of protection; or -- The PHA recommendation is infeasible (include basis, cannot be based solely on cost). Per interview with PHA SME, there were no rejections to the PHA recommendations. The facility has developed a form to document PHA and LOPA recommendation rejections.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A38-20	Program 4 CalARP	Has the owner or operator developed a system to prioritize and promptly complete corrective actions addressing process safety hazards to prevent the potential for a major incident and to document corrective actions implemented for each accepted recommendation including completion date and assignment of responsibility? [T19 CCR §2762.2(h) & §2762.16(e)(7, 9, 10) and ISO Section 450-8.016(d)(4)]	New	* Request all stationary sources to consider using a single system to track and document the resolutions of all recommendations resulting from PHAs, incident investigations, compliance audits, etc. 1. Interim safeguards are to be completed to address process safety hazards with potential major incident pending permanent corrections. [T19 CCR §2762.16(e)(10)] See A38-21. 2. This question is for tracking actions taken. 3. Any proposed change to a completion date shall be conducted through MOC per §2762.6. 4. Refineries must complete PHA actions within one year as specified by ISO and RISO (see A38-23). 5. Turnaround means a planned total or partial shutdown of a petroleum refinery process unit or plant to perform maintenance, overhaul or repair of a process and process equipment, and to inspect, test and replace process materials and equipment. Turnaround does not include unplanned shutdowns that occur due to emergencies or other unexpected maintenance matters in a process unit or plant. Turnaround also does not include routine maintenance, where routine maintenance consists of regular, periodic maintenance on one or more pieces of equipment at a refinery process unit or plant that may require shutdown of such equipment. [T19 CCR §2735(www)] 6. Corrective actions addressing process safety hazards to prevent the potential for a major incident may not be extended. (See clarifications in A38-23)	Per CCHS review of section E.2.h.vii., page 14 of P&P 2.0-6, states, "Category IV PHA recommendations require temporary/interim risk reduction measures within 30 days of identification to reduce the short-term risk to the equivalent of a Category III or lower, until the permanent risk reduction measure is implemented." CCHS notes that per review of the PHA Reports listed in A38-05, none of the HAZOP Recommendations were Category IV. Per interview with the Process Safety Director, recommendations are prioritized within the risk category but further granularity is not warranted since each recommendation within a risk profile are completed as soon as reasonably possible or within the regulatory time frame.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A38-21	Program 4 CalARP	For corrective actions not within the timeline listed in question A38-23, has the owner or operator implemented interim safeguards sufficient to prevent the potential for a major incident, pending permanent corrections, and documented: a) The rationale for deferring the corrective action(s); b) The documentation required under the MOC process; c) A timeline describing when the corrective action(s) will be implemented; and d) An effective plan to make available the rationale and revised timeline to all affected employees and their representatives? [T19 CCR §2762.16(e)(14)]	New	1.This applies to corrective actions that cannot be implemented in one year that did not require a process shutdown. [T19 CCR §2762.16(e)(11) and ISO Section 450-8.016(d)(4)]	Per section E.2.3.v, of P&P 2.0-6, the facility requires the Refinery Manager or a combination of the HSE Manager and one of the following: Maintenance Manager, Operations Manager, or the Technical Managers approval if they go beyond the regulatory requirements. Additionally, the policy requires any extension of the PHA target dates beyond the ISO, requires a demonstration to CCHS that the completion date is not feasible and an MOC is required. As a best practice, any recommendations that require CCHS approval for extension should be submitted at a minimum 2 weeks before the target date. CCHS notes that it does not grant extensions for recommendations going beyond the regulatory completion date and there is no guarantee that recommendation extensions will be reviewed within 2 weeks.	Y	None
A38-22	Program 4 CalARP & ISO	Has the stationary source made the PHA report available in the respective work area for review by any person working in that area and established a system to communicate the actions to operating, maintenance, and other employees whose work assignments are in the process and who may be affected by the recommendations or actions? [T19 CCR §2762.2(g) & ISO Section 450-8.016(d)(4)]	Abr	* Enquire during employee interviews the location of PHA binders/results. 1. Any person working in that area may include contractors. [CCHMP interpretation] 2. PHA availability: Merely placing a copy of the PHA results in a common location is not enough [to satisfy ISO requirements] - must provide "substantial communication". [OSHA Region VI presentations on PSM in January, 1994]	Per section e.2.c.iv of the Manual Section 2.0-6, "the list of IPLs shall be communicated to operations and maintenance groups so they can provide adequate testing of devices identified." Section E.2.j.k. states, "PHA Reports shall be available to all affected personnel upon the completion of the PHA report. The PHA will reside in the PHA section of Livelink and the link to this report will be provided in [an electronic shift communication program.]" Additionally the PHA recommendation resolution schedule and action plan are in IMPACT and published monthly. CCHS confirmed via Operator interviews that employees can access the PHA and LOPA studies via the network. CCHS also confirmed that board operators were able to locate critical alarms on the board and they are made aware of new alarms through the MOC process.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A38-23	ISO	Were recommended actions selected for implementation completed within one year after the completion of the PHA if shutdown was not required or during the first regularly scheduled turnaround if shutdown was required? [ISO Section 450-8.016(d)(4) and Section D.1.5 of the CCHMP Safety Program Guidance Document]	Abr	1. For corrective actions that do not require shut down, ISO/RISO only allows one year to complete corrective actions from PHA recommendations. P4 allows for 2.5 years for corrective actions that are not process safety hazards with potential major incident pending permanent corrections. 2. Timeline may be extended when Stationary Sources can demonstrate in writing to the satisfaction of CCHMP that such a schedule is infeasible.	Section E.2.i.iii, Tracking and Closing Recommendations, page 15 of P&P 2.0-6 states, "To comply with Contra Costa Industrial Safety Ordinance (ISO) requirements, all PHA recommendations must be mechanically complete and/or resolved within one year after completion of the PHA study." Per interview with Process Safety Director, PHA / LOPA reports need to be completed in 6 months from the start of the PHA study. As indicated in A38-26, two reports went beyond the six months. However the facility recognized they went over the six months to complete the PHA report and made all the recommendations due one year from the six month mark for all recommendations that did not require a shutdown. CCHS reviewed the recommendations from the A38-05, and confirmed that that no recommendations were past due.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A38-26	Program 4 CalARP & ISO	Has the PHA been updated and revalidated by a PHA team at least every five years after the completion of the initial PHA to assure that the PHA is consistent with the current process including a review of Management of Change documents for the process unit that was completed since the last PHA? [T19 CCR §2762.2(c)(5), §2762.2(j) & ISO Section 450-8.016(d)(2)]	Abr	1. At a minimum, PHA revalidations should address the following questions: (a) Does the current PHA reflect all of the changes made since the last PHA? (b) Have any new requirements, either voluntary or non-voluntary, emerged since the last PHA? (c) Did the last PHA contain any omissions? (d) Have there been any incidents since the last PHA in the process unit to be revalidated, or in other process units/areas that affected the process unit to be studied? (e) Were there any new information (i.e. inspection data, operational observations, etc.) that would alter either the frequency or the consequence of the scenario being evaluated? 2. The PHA team must meet the requirements of §2762.2.	Per interview with Process Safety Director, Phillips 66 has slightly modified their practice for scheduling and managing their 5-year PHA revalidations by establishing a date of when the PHA must start and are now required to be complete 6 months from the start date as indicated in Section E.2.k.i. which states, "PHA Reports shall be completed within six months of the start date of the PHA study." Once the PHA is complete the next PHA will be scheduled 5 years from the previous "start by" date. In summary if executed the PHA will be revalidated every five years. However per CCHS review of the PHA studies one of PHA reports exceeded the 6 months. -- MP-30 PHA session dates (4/18/2019 - 10/11/2019) final report not complete. -- Unit 215 ,PHA session dates (4/5/18 - 5/18/18) final report (10/5/18) -- Relief & Blowdown PHA session dates (2/5/18 - 2/9/18), final report (July 19, 2018). The facility needs to ensure the PHA report is issued 6 months from the start of the PHA study per their policy.	P	Ensure to complete the PHA report 6 months from the start of the PHA study per P&P 2.0-6.
A38-27	Program 4 CalARP & ISO	Has the owner or operator retained copies of the PHA's and updates and revalidations for each covered process for the life of the process? [T19 CCR §2762.2(k) and ISO Section 450-8.016(d)(4)]	Abr		The facility maintains copies of all the PHAs in pdf form on the network drive. CCHS viewed a live navigation of the directory with the Process Safety Director and confirmed the previous revalidations for the PHAs were archived on the network. The facility also provided start and stop dated for all the previous PHAs. CCHS reviewed the completion dates for the Units listed in A38-05 and confirmed that they were generally completed every five years.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A38-28	Program 4 CalARP & ISO	Has the owner or operator retained copies of the documented resolution of the recommendations as appendices to the report for the life of the process? [T19 CCR §2762.2(k), §2762.16(e)(15) & ISO Section 450-8.016(d)(4)]	Abr	1. "Appendices" applies to PHA conducted after Oct 2017. Recommendation resolutions have to be maintained for all PHAs. If the PHA report is maintained electronically, then all associated appendices must be maintained in the same location.	Corrective actions once completed need to appended to original PHA and SPA as indicated in §2762.16(e)(15). Per interview with PS Director, the action items are currently only being tracked and closed in KMS but they are not being appended to the completed PHA / SPA (LOPA) reports. An action item was given in Management System, A49-14, for the facility to append the completed action items to the corresponding report and update the 10.0-3 Cal ARP Program 4 Corrective Action Work Process (dated 9/1/18), to indicate the PHA and SPA corrective actions will be appended to the PHA / SPA report. CCHS notes that in this case updating policy 10.0-3, is recommended and not a regulatory deficiency. CCHS further notes that corrective action items can be appended to the report electronically by having an electronic copy of the completion action item within the same electronic folder.	R	None
A38-29	Program 4 CalARP & ISO	Does the submitted RMP and Safety Plan accurately reflect the existing Process Hazard Analysis Program at the stationary source? [T19 CCR §2745.2(d), ISO Section 450-8.016 and Section E.5 of the CCHMP Safety Program Guidance Document]	Abr		The submitted September 13, 2019 Risk Management Plan and the August 6, 2018 Safety Plan generally reflect the PHA program for this questionnaire.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A38-30	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the stationary source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate 'repeat' for identical non-compliance, or use 'modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	There were a total of three ensure action items given in the previous CalARP / ISO audit from the following questionnaires related to PHA A12, A26, A33. The recommendations were completed.	Y	None
A38-31	Program 4 CalARP	Did the owner or operator provide effective training to employees and employee representatives before serving on a PHA team sufficient to understand the methodology and tools expected to be used? [T19 CCR §2762.4(e)]	New	* Review training record related to the PHA program, i.e., HF, SPA and ISS/HCA if performed in the PHA. If there are issues with development and implementation of the training, coordinate with the auditor of A46-01 (Employee Participation). 1. CCHMP interprets "Program elements relevant to that team" to be the methodology and tools that are expected to be used by the team which may include study concepts, process hazards, results and conclusions training.	Per interview with the employee representatives, Operators that participate in the PHA and SPA (LOPA) receive all the necessary training in order to effectively participate in the study. CCHS confirmed through follow-up interviews with the Process Safety Director that PHA / SPA training is performed prior to starting the study. As indicated in A46-01, the facility did not perform HCAs on PHA recommendations. The facility should provide effective training to employees before serving on the HCA team and document the training. Because HCAs were not performed on the PHA Recommendations this is a consider item.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A38-33	Program 4 CalARP & ISO	Did affected operating and maintenance employees and employee representatives effectively participate, throughout all phases, in performing PHAs? [T19 CCR §2762.10(a)(1) & ISO Section 450-8.016(a)(3)]	New	1. The intent of "consult" is to exchange information, solicit input and participation from the employees and their representatives. It requires more than simply informing employees. [OSHA Instruction CPL 2-2.45A CH-1 Appendix B, September 1994]	Per Section E.2.a.iii of P&P 2.0-6, "the authorized collective bargaining unit (USW) may select employee(s) who meet unit operator qualifications to participate on the PHA team." Per interview with the employee representatives, Management allows them to select an Operator to participate in the PHA and SPA (LOPA) process and there are no issues employee participation. CCHS notes that the onsite hourly employees are represented by the same bargaining unit, including operators and maintenance personnel.	Y	None

A39 - CalARP Prevention Program: Operating Procedures (Program 4)

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A39-02	Program 4 CalARP & ISO	Are the written operating procedures consistent with the process safety information for the process? [T19 CCR §2762.3(a) & ISO Section 450-8.016(a)(2)(A)]	Abr	* Compare operating procedures to P&IDs, equipment data sheets, consequence of deviation, operating limits, etc.	CCHS reviewed approximately 15 operating procedures associated with Unit 215 and U-231. The facility lists equipment tag numbers in their Risk 3 procedures. CCHS reviewed P&IDs associated with the procedures and found that columns, heat exchangers, and vessels along with tag numbers matched those listed in the procedures reviewed.	Y	None
A39-03	Program 4 CalARP & ISO	Do the procedures address startup operations, including startup following a: a) Turnaround, b) Planned or unplanned shutdown, c) Emergency shutdown, or d) Partial shutdown? [T19 CCR §2762.3(a)(1)(A & F) & ISO Section 450-8.016(a)(2)(A)(i)]	Abr	1. Examples include: (a) preparation of utilities, process lines, and instruments (b) equipment preparation and testing (c) inerting/purging of equipment. [OSHA Training Material Reference Manual]	CCHS confirmed that P&P 6.1-1 (Operating Procedure Policy, last reviewed 9/14/18) identified that operating procedures are required for startup for: initial startup, startup following a turnaround, startup following an emergency shutdown. Per SME interviews, having startup procedures following a partial shutdown is typically not applicable. Instead, for situations when the entire plant does not need to be shut down. the facility uses emergency procedures to address the loss of equipment to position the plant to a safe state. After the problem with the equipment has been resolved, the facility has startup procedures to restart the down equipment and place it into service in the already operating process.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A39-04	Program 4 CalARP & ISO	Do the procedures address normal operations? [T19 CCR §2762.3(a)(1)(B) & ISO Section 450-8.016(a)(2)(A)(i)]		1. Examples include process conditions for steady state and means to identify parameters outside of normal or acceptable range. [OSHA Training Material Reference Manual]	P&P 6.1-1 identifies several types of normal operating procedures. Normal Operating Procedures (NOPs) are developed for each unit specific tasks performed on a routine basis while the system is operating in a steady state condition. Refinery Normal Operating Procedures (RNOPs) are procedures that are not plant-specific and can be applied across the refinery (e.g., pump isolation, fin-fan start/stop, standard sampling). CCHS reviewed the operating procedures associated with Unit 215, Unit MP-30 and the Flare Unit. All operating procedures use the same template procedure numbering for development of operating procedures. For example, procedures associated with heaters are denoted with 500 in the procedure number (e.g., NOP-503-MP). Normal heater procedures may be for starting the equipment up or shutting it down. Similarly for pumps, compressors, generators, exchangers, fin fans, vessels. CCHS confirmed that NOPs exist for a variety of equipment types in each of the units evaluated. In reviewing NOPs, CCHS confirmed that procedures included temperatures and pressures, for example, within the normal operating range of the equipment. CCHS notes that some of the procedures included cautionary statements that identified upper limits for operations to avoid.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A39-05	Program 4 CalARP & ISO	Do the procedures address temporary operations? [T19 CCR §2762.3(a)(1)(C) & ISO Section 450-8.016(a)(2)(A)(i)]	Abr	1. Examples may include special conditions where safeguards may be bypassed, loading/unloading of catalyst into/out of a reactor, sampling, and equipment bypassing. [OSHA Training Material Reference Manual]	P&P 6.1-1 identifies that temporary operating procedures (TOP) are for infrequent, non-repetitive or one-time-use operating tasks. The policy also identifies that "Step-Out" TOP procedures are used when an existing procedure must be modified slightly to accommodate a major or significant change. Per SME interviews, TOPs are maintained in a separate directory from NOPs. TOPs are developed under the MOC process and are only allowed to be valid for up to one year. Situations that typically call for a TOP include bypassing equipment that needs to be temporarily removed from service. In reviewing operating procedure directories for a number of units, only two TOPs were found.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A39-06	Program 4 CalARP & ISO	Do the procedures address emergency shutdown, including conditions under which emergency shutdown is required, provisions granting the authority of the qualified operator to shut down the operation or process, and the assignment of shutdown responsibility to qualified operators to ensure that emergency shutdown is executed in a safe and timely manner? [T19 CCR §2762.3(a)(1)(D) & ISO Section 450-8.016(a)(2)(A)(i)]	Abr	1. This question applies to emergency shutdown. See question A39-07 for emergency operations. Process conditions that exceed or are expected to exceed design limit require emergency shutdown.	P&P 6.1-1 identifies that Emergency Isolation Procedures (EIPs) are developed to allow a process unit to rapidly be shut down and brought to a safe state in an emergency. CCHS reviewed operating procedure manuals for Units 215 and MP-30. The manuals listed a variety of emergency operating procedures (EOPs). The facility also has emergency procedures that are not plant-specific and can be applied across the refinery and are called refinery emergency operating procedures (REOPs). CCHS found 18 emergency procedures have been written for Unit 215 and 29 have been written for MP-30. Most of the procedures have been written to shut down and isolate select equipment, and these are further described in A39-07. Unit 215 has three EOPs specifically designed to shut down the unit. MP-30 has one EOP specifically for shutting down the complex (i.e., three process units). CCHS reviewed EOPs from Units 215 and MP-30. Each EOP contained a purpose that identified the conditions when the procedure needs to be used. Per P&P 6.1, all qualified operators have the authority to initiate Emergency Procedures and Emergency Shutdowns procedures. Per interviews, the head operator typically is in charge of emergency shutdown activities.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A39-07	Program 4 CalARP & ISO	Do the procedures address emergency operations for each process, including any response to the over-pressurizing or overheating of equipment or piping, and the handling of leaks, spills, releases and discharges? [T19 CCR §2762.3(b) & ISO Section 450-8.016(a)(2)(A)(i)]	Abr	* Verify procedures exist to address complete and partial loss of power to the site/unit. 1. P4 states: “These procedures shall be consistent with the procedures developed as required by subsection (a)(1)(D) [emergency shutdown] and shall provide that only qualified operators may initiate these operations and that prior to allowing employees in the vicinity of a leak, release or discharge, the owner or operator shall at a minimum do one of the following: (a) Shutdown and depressurize all process operations where a leak, release or discharge is occurring; or (b) Isolate any vessel, piping, and equipment where a leak, spill or discharge is occurring; or (c) Follow established criteria for handling leaks, spills, or discharges that are designed to provide a level of protection that is functionally equivalent to, or safer than, shutting down or isolating the process.” [T19 CCR §2762.3(b)(1)(3)] 2. Examples include procedures for loss of a utility such as process air, instrument air, cooling water, steam, nitrogen, power, etc. 3. This question applies to Emergency Operation. See question A39-06 for emergency shutdown. Process conditions that exceed or are expected to exceed operating limits may require emergency operations.	P&P 6.1-1 identifies that Emergency Operating Procedures (EOPs) are developed to address a condition to bring the process unit to a safe and stable state without a complete shutdown of the process. Unit 215 and MP-30 EOP Manuals listed a variety of emergency operating procedures (EOPs). These include: emergency isolation, emergency plant shutdown, loss of a utility, and loss of equipment (e.g., pump, compressor, heat exchanger, fin fan). Per interviews, EOPs for losing equipment would be used if a leak occurs on that equipment or associated piping. Multiple EOPs may need to be used depending on the location of the leak. As described in A39-06, P66 has a number of EOPs to isolate and shut down specific pieces of equipment and to bring the unit into a stable condition. Depending on the unique situations involved with the emergency, one or more pieces of equipment may need to be shutdown (i.e., one or more EOPs may need to be used) to stabilize the unit. If the unit cannot be stabilized, then it would need to be shut down. P66 has developed Emergency Isolation Procedures (EIP) that define specific steps to completely isolate a process unit in an emergency situation. Such isolation may or may not be combined with a full unit shutdown. EIPs include drawings showing specific locations of emergency block and isolation valves. CCHS reviewed two emergency isolation procedures and noted multiple levels of communication, step detail, and visual aids (e.g., plot plans) showing the location of important equipment. As described in A39-06, all qualified operators have the authority to initiate	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					Emergency Procedures and Emergency Shutdowns procedures.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A39-10	Program 4 CalARP & ISO	Do the procedures address consequences of deviations and steps required to correct or avoid deviating set operating limits? [T19 CCR §2762.3(a)(2) and §2762.1(c)(5) & ISO Sections 450-8.016(a)(2)(A)(i) and 450-8.016(a)(1)(A)(iii)]	Abr	1. The consequences of deviating beyond the parameter ranges should be consistent with the results of the process hazard analysis. [OSHA Training Material Reference Manual]	P&P 6.1-1 identifies that Safe Operating Limits (SOLs) are developed for a critical operating parameter that defines the maximum or minimum value a process unit is allowed to operate. Reaching or exceeding a SOL requires immediate predetermined actions to be taken to bring equipment and process to a safe state. P&P 6.1-1 describes Reliability Operating Limits (ROLs) are developed for exceeding certain parameters that require notification to operations, reliability and/or inspection personnel that are not time critical. CCHS reviewed the following procedures that summarized the SOLs listed for a unit: -- EOP-001-215, Emergency Safe Operating Limits (SOL) for Unit 215, approved 2/15/16 -- EOP-001-MP, Emergency Safe Operating Limits (SOL) for MP-30 Complex, approved 2/4/19 -- EOP-001-FLRE, Emergency Safe Operating Limits (SOL) for 19C-1 and 19C-602 Flares, approved 7/8/19 -- Reliability Operating Limits (ROL) for MP-30, approved 3/11/19 -- Reliability Operating Limits (ROL) for Unit 215, approved 12/21/17 SOL procedures list "never to exceed" values, as once these values are exceeded the process needs to be immediately brought back to a safe state. The SOL procedures reviewed included tables that contained each SOL for the unit. Information included: instrument details, pre-alarm values, minimum or maximum SOL, required actions at pre-SOL alarm, required actions at SOL exceedance, consequences of deviation and technical basis. ROL procedures define equipment's outer bound operating envelope, that if exceeded, potentially impact the longevity	Y	None

of the equipment which may result in more frequent inspection intervals. The ROL procedures include operational steps for the operator to take to acknowledge certain alarm conditions on the board and notify the proper SME. Tables are included that list the parameter of concern, target values, duration limits, basis, possible consequences of deviation, and steps for the appropriate SME to take. For example (not a complete list), for high flue gas temperature, operator should reduce firing rates and excess air and corrosion engineer needs to evaluate long term exceedances for increased inspection or metallurgy upgrade.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A39-12	Program 4 CalARP & ISO	Do the operating procedures include safety and health consideration such as precautions necessary to prevent exposure, including engineering controls, administrative controls, and personal protective equipment? [T19 CCR §2762.3(a)(3)(B) & ISO Section 450-8.016(a)(2)(B)]	Abr	* Review training records to ensure that employees have been trained in proper use of PPE. 1. Engineering controls include passive and active safeguards and administrative controls include procedural safeguards. 2. SDS may be referred to or attached to satisfy the personal protective equipment portion of this requirement. If SDS are referenced in the operating procedures, the document containing the SDS will be required to be annually certified to be current and accurate per §2760.3(d). [CCHMP Interpretation]	All operating procedures use the same template that includes a section titled, "Health, Safety and Environmental Precautions". In reviewing NOPs for Unit 215 and MP-30, this section contained links to specific safety data sheets (SDS) for chemicals related to the process (e.g., Light Naphtha, Hydrogen Sulfide, Nitrogen). Per operator interviews, they can access procedures electronically so any links within the procedures can quickly be reached. Operators can also go into the MSDS program to search of safety data sheets. In reviewing operating procedures, CCHS observed discussion of special PPE to wear SCBA for "fresh air" work in the Health, Safety and Environmental Precautions section of the procedure (NOP-301-FLRE). A Warning was listed within the procedure preceding the steps when Fresh Air is necessary. Another procedure, NOP-503-MP, identified the need to wear proper PPE when lighting pilots/burners (i.e., "approved gloves, face shield and sealed eye protection in addition to normal refinery PPE"). A Warning statement was listed within the procedure preceding the lighting steps for the additional PPE. CCHS was informed that all safety data sheets (SDSs) are maintained within a MSDS database. This electronic system is managed in three different ways. Select contractors have been authorized to upload their new SDSs and remove their old SDSs from the system. Once targeted for upload/deletion, a note is sent to the P66 corporate office for approval. Upon approval, the SDS is added/removed. The Rodeo site also has a certified industrial hygienist that monitors the MSDS database and periodically contacts chemical suppliers to verify the most current data sheet is uploaded.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A39-16	Program 4 CalARP & ISO	Do the operating procedures include safety systems and their functions? [T19 CCR §2762.3(a)(4) & ISO Section 450-8.016(a)(2)(C)]	Abr		P&P 6.1-4 (Operating Procedures Formatting and Writing Elements, last reviewed 9/17/18) identified that "safety systems, instrumented and mechanical shutdown systems, and their functions shall be identified or referenced in operating procedures." In reviewing procedures, CCHS found examples of when safety systems were identified: -- SIS safety device bypass associated with device startup (NOP-503-MP) -- SIS activation in response to equipment shutdown (EOP-506-MP) CCHS also found examples of when an operating procedure listed a safety systems: -- "…VERIFY that the mini-flow controller automatically closes when the flow exceeds 6400 B/D" - NOP-602-MP -- Text listed within Warning statements, an increase in pressure could cause flare gas to bypass Flaring Logic and Sampling System.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A39-19	Program 4 CalARP & ISO	Did/does the owner or operator annually certify that the operating procedures are current and accurate? [T19 CCR §2762.3(d) & ISO Section 450-8.016(a)(2)(E)]	Abr	1. Sources are also to ensure that procedures are reviewed as often as necessary to assure that they reflect current safe operating practice (including changes that result in changes in process chemicals, technology, personnel, process equipment, or other changes to the stationary source. [T19 CCR §2762.3(d) & ISO Section 450-8.016(A)(2)(E)]	CCHS reviewed P&P 6.1-2 (Operating Procedure Development and Document Management, last reviewed 11/1/18). Section H describes the process used to annually certify that operating procedures are current and accurate. It also describes that plot plans drawings and unit isolation valve check lists in the Emergency Isolation Procedures (EIPs) are certified current and accurate. The review process is to include: -- Input from operators and SMEs -- Area Supervisors are responsible for certifying their Unit procedures -- Operation Superintendents are responsible for certifying REOPs -- Operation Supervisors are responsible for certifying RNOPs. CCHS reviewed a binder that contained annual certifications of operating procedures. The certifications are arranged by unit/complex. Designated operators sign off on individual procedures and then the Area Supervisor and Department Superintendent sign off on the package. As such, the process used to certify a unit's operating procedures takes months. CCHS reviewed certifications for all of the refinery's operating units and confirmed they were certified current and accurate for 2016, 2017, 2018 and 2019.	Y	None
A39-21	Program 4 CalARP & ISO	Does the submitted RMP and Safety Plan accurately reflect the Operating Procedures Program at the stationary source? [T19 CCR §2745.2(d) & ISO Section 450-8.016]	Abr		Section 1.4 of the RMP submitted to CCHS on 9/13/19 and pages 9-11 of the Safety Plan submitted to CCHS on 8/6/18 accurately describe the onsite Operating Procedures program.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A39-22	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the stationary source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate ‘repeat’ for identical non-compliance, or use ‘modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	The one ensure action item associated with CCHS' previous Operating Procedure audit has been completed.	Y	None

A40 - CalARP Prevention Program: Training (Program 4)

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A40-01	Program 4 CalARP & ISO	Has the owner or operator ensured that each employee presently operating a process, and each operating employee newly assigned to a process have been trained in an overview of the process and in the operating procedures provided in Section 2762.3? [T19 CCR §2762.4(a)(1) & ISO Section 450-8.016(a)(4)(A)]	Abr	* Review the source of training (e.g., equipment vendor) and training requirements (e.g., state regulatory requirement, industry-specific standard), content of training, training style (e.g., classroom, computer-based, OJT) to ensure that it is commensurate with the training content, and the means used to verify competency. 1. P4 and ISO identify the training shall include material on the specific safety and health hazards applicable to the employee's job tasks, procedures, including emergency operations and shutdown, and safe work practices applicable to the employee's job tasks [T19 CCR §2762.4(a)(1) & ISO Section 450-8.016(a)(4)(A)]. 2. On-the-job training (OJT) is acceptable, as long as the OJT program is documented. [OSHA Region VI presentation on PSM in January 1994]	Per interview with SME of training program, in order to become a qualified operator in a unit, a new operator must complete training which is broken down into four tiers. This training begins with onboarding (tier 1) and basic operator training (tier 2), before receiving training specific to the unit. After a new operator is assigned to a unit, they are assigned a mentor who is responsible for conducting one-on-one, classroom, and field training. Operators receive specific unit based training, including a process overview, in tier 3 (which takes approximately 1-3 weeks), and then receive job-specific training, including training on all operating procedures, in tier 4 (which takes approximately 8-12 weeks, depending on the complexity of the job). If an operator is assigned to a new unit, after already being qualified for a different unit, the operator must complete tier 3 training for the new unit and tier 4 training for the specific job in the unit. Tiers 1 and 2 do not need to be repeated. Additionally, if an operator is assigned a new job in a unit where they are qualified, they need only to complete the Tier 4 training specific to that job. Per the Site Operations Training Plan (Manual Section: 9.0-2, rev. 11/01/2018), tier 3 of the operator training, "Area Orientation and Process Overview", introduces a newly assigned operator to the unique aspects of the unit they have been assigned and tier 4 of the operator training provides "Job Specific Training." Section G.3.a.ii. requires that the trainer introduces "an overview of the process" to operator trainees and Section H.3.b.iii. requires that the operator trainee is qualified on all procedures associated with his/her job before being certified. The Area	Y	None

Supervisor is responsible for certifying that an operator trainee is qualified to operate a unit. The last step of this qualification generally involves a verbal and demonstration based field test before form R-79, "Documentation of Testing, Competency and Qualification", is signed by the Area Supervisor confirming the operator is qualified on all operating procedures and that all other training and testing requirements have been met.

CCHS reviewed training documentation for 5 operators from four units (MP-30, Unit 250, Flare & Blowdown, Unit 267) at the facility, and confirmed they had completed all the "tired" training as previously described. Among the training documentation CCHS reviewed was the completed final written test for qualification as an operator. The test included questions related to the process overview, responding to certain scenarios, functions of specific equipment, etc.

Additionally, CCHS reviewed the complete training requirements for select units. This information included tests, qualification forms, and listing and signoffs of all required trainings before an employee is certified to operate a process, see question A40-12 for details.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A40-03	Program 4 CalARP & ISO	Has refresher and supplemental training been provided at least every three years, and more often if necessary, to each employee operating a process to ensure that the employee understands and adheres to the current operating procedures of the process? [T19 CCR §2762.4(b)(1) & ISO Section 450-8.016(a)(4)(B)]	Abr	* Review documentation maintained at the stationary source to verify that refresher and supplemental training was conducted at least every three years. Documentation must be maintained by the stationary source to ensure compliance with this requirement. [CCHMP interpretation]	Per the training policy, the "Refresher Training Program" contains the training elements needed to stay qualified, one of which is a procedure review process. Each operator must review all operating procedures associated with each job qualification at least once every 36 months to remain qualified. Operators shall annually review PHA Critical Procedures and Emergency Operating Procedures (EOPs) associated with each job they are qualified on. This was confirmed in a follow up interview with the SME interview, and further indicated that the training is tracked using the Learning Management System (LMS). The training department requires that operators go over an assigned set of procedures each month, depending on the unit, and a compliance report is generated each month to ensure that training on specified procedures was completed. This compliance report is sent to the Area Supervisor who is responsible for ensuring that training is kept up to date. The other elements involve other job specific training and site-wide policy training. Per the Operating Procedure Development and Document Management Policy (Manual Section: 6.1-2, rev. 11/01/2018), "affected employees shall review and be qualified on new or modified Operating Procedures prior to the procedure implementation." Additionally, refresher training on procedures shall be provided every 3 years, and more often if necessary. Annual training will be provided on every PHA Critical and Emergency Procedure, in agreement with the training policy. To maintain job qualification, operators must work a job (or work in that job family, for similar jobs) for at least 12 hours every 6 months. If the operator becomes unqualified, in order to regain qualification they must review all job specific MOCs	Y	None

issued and complete any required training conducted during the absence. This process is documented on an R-79A form which verifies that all trainings, demonstrations, and testing was complete. This form is signed by the Area Supervisor.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A40-06	Program 4 CalARP & ISO	Does the owner or operator, after the initial or refresher training, prepare a certification record containing the identity of the employee, the date(s) of training, the means used to verify that the employee understood the training, and the signature(s) of the person administering the training? [T19 CCR §2762.4(c) & ISO Section 450-8.016(a)(4)(C)]	Abr	* Review documentation maintained at the stationary source to verify certification records are maintained. 1. An auditable training records system will include at a minimum: the name or description of any formal training undertaken by the employee; the date and duration of any formal training; the results of related tests and certification attained; the expiration date of any related certificate, license, etc.; and a copy of external certificates, licenses, etc. awarded. [Plant Guidelines for Technical Management of Chemical Process Safety, CCPS] 2. Federal OSHA includes the following as acceptable "means of understanding": written tests, oral exams, practical demonstrations, exercises/drills, or simulators as long as they are adequately documented. [OSHA Instruction CPL 2-2.45A CH-1 Appendix B-Clarifications and Interpretations of the PSM Standard September 13, 1994]	Per the training policy, the R-79 Documentation of Testing, Competency and Qualification form is signed by the trainer and employee at the onset of the initial training. At the completion of the training, the Area Supervisor signs off confirming that the operator has completed all of the necessary testing and training to be a qualified operator in the unit. Review of complete R-79 forms for five operators confirmed that this form documents the identity of the employee, the start and end dates for the training, different means of verifying that the employee understood the training (e.g. CBT, in-field verification, etc.), and includes the Area Supervisor's signature to certify that the employee is qualified. Per SME interview, the R-79 form is signed by the Area Supervisor at the end of tier 4 training to qualify the operator on a unit. Operators complete CBT training, as assigned monthly by the training department, on each procedure at least every 3 years. Completion of the training is documented in the LMS, and includes the procedure title, employee name, indication that the test was passed, and the completion date. The training department is responsible for informing the Area Supervisors of non-compliant employees each month. CCHS had a non-compliance report generated for the MP-30 Unit that indicated that all operators were in compliance with the current training. Additionally, training documentation for the 5 operators that were specifically reviewed showed they were all in compliance. Per SME, this is generally the case for all units, and exceptions are usually for employees on leave or not currently operating the unit. CCHS interprets the login to the system (which can only be done by the training	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					department) as the electronic signature of the training being administered.		
A40-07	Program 4 CalARP & ISO	Has the owner or operator trained each employee involved in maintaining the on-going integrity of process equipment in an overview of that process and its hazards? [T19 CCR §2762.4(a)(2) & ISO Section 450-8.016(a)(5)(C)]	Abr	1. Examples of training in "the hazards of the process" may be informing personnel about process temperatures and pressures, hot surfaces, pinch points, chemical used, areas with unique hazards, relevant ongoing process concerns or issues being addressed, and proper entrance and egress routes. 2. The same qualification criteria required for process operators under the training element of the PSM standard will apply to maintenance technicians, including the "grandfather" clause. [OSHA Region VI presentation on PSM in January 1994] 3. OSHA identified that without continual attention to training needs due to process changes and other changes, little assurance will exist that maintenance employees will perform their tasks safely. [federal OSHA PSM Preamble]	The Basic Maintenance Training schedule (rev.14) describes the required training that must be completed for new maintenance personnel. As part of the initial training for maintenance personnel the Tier 1 and Tier 2 training includes refining basics and chemical process overviews at the refinery, as well as a hazard recognition training. Per SME interview, maintenance employees will also be made aware of hazards of the process area they are working in or on from operations and the completion of a job safety analysis. The operations supervisor or a designee will assess all the hazards associated with work and will discuss these hazards with the maintenance personnel before the work commences. CCHS reviewed two "Training Needs Analysis" checklists for maintenance employees. The checklist documents all the different requirements for certification of a maintenance employee and is craft specific. Included on the checklist is the title or topic of the training, if the employee demonstrated proficiency, the method through which proficiency was demonstrated, and the method through which training was administered. The checklist contains approximately 80 requirements for training.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A40-08	Program 4 CalARP & ISO	Has the owner or operator trained each employee involved in maintaining the on-going integrity of process equipment in the procedures applicable to the employee's job tasks to assure that the employee can perform the job tasks in a safe manner? [T19 CCR §2762.4(a)(2) & ISO Section 450-8.016(a)(5)(C)]	Abr	* Review employee's (i.e., those employees doing nondestructive tests, welding on pressure vessels, etc.) training records for certifications, content of training, means to verify competency, etc. [OSHA 3133, PSM Guidelines for Compliance, 1994] 1. CCHMP expects that the facility has a process that assures maintenance employees understand and adhere to the facility's written maintenance procedures applicable to their job tasks. [CCHMP interpretation]	Per SME interview, the Maintenance training is broken up by crafts and is scheduled on a quarterly basis. Training on procedures is conducted in a classroom setting for all members of the craft who document their attendance on a sign-in sheet. This document lists what procedure will be trained on, if a test is required and the instructor in charge of the review. CCHS reviewed a schedule and completed sign-in sheets for machinist and equipment operator procedure reviews and confirmed that the courses were completed within the scheduled timeframe. Additionally, the facility maintains forms called "Training Needs Analysis" which lists all the requirements that a specific craft must complete in order to be qualified to work in that craft. These training requirements include both Basic Maintenance Training and more craft specific training that must be completed to certify the employee. The TNA includes the methodology used to teach the material (CBT, Instructor-led, or OJT) and the means used to verify competency (course test, skill check, or demonstration). CCHS reviewed the Training Needs Analysis for two maintenance employees which includes training documentation and testing on many maintenance job tasks.	Y	None
A40-09	Program 4 CalARP & ISO	Does the submitted RMP and Safety Plan accurately reflect the existing Training Program at the stationary source? [T19 CCR §2745.2(d) & ISO Section 450-8.016]	Abr		The Training sections of the submitted RMP (rev. 09/13/19, pgs. 25-28) and Safety Plan (rev. 08/06/18, pgs. 13-14) accurately reflect the existing Training Program at the facility.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A40-10	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the stationary source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate ‘repeat’ for identical non-compliance, or use ‘modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	There were no ensure items associated with this element in the previous CalARP audit for this questionnaire topic.	N/A	None
A40-11	Program 4 CalARP	Has the owner or operator provided refresher and supplemental training at least every three years, and more often if necessary, to each maintenance employee to ensure that the employee understands and adheres to the current maintenance procedures? [T19 CCR §2762.4(b)(2)]	New	* Review maintenance personnel refresher training on maintenance procedures.	CCHS reviewed the Maintenance Procedure Refresher Schedule for 2018-2020 and compared planned completion dates with actual completion dates and found that the refresher schedule was completed in accordance with the schedule. CCHS confirmed through SME interview, that every maintenance procedure that is used by the facility is included on the schedule that was reviewed. The refresher training on Maintenance procedures is tracked for each employee by the training department to ensure that each employee remains up to date in training on the current maintenance procedures.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A40-12	Program 4 CalARP	Has the owner or operator developed and implemented an effective written training program that includes: a) The requirements that an employee must meet in order to be designated as qualified; and b) Employee testing procedures to verify understanding and to ensure competency in job skill levels and work practices that protect employee and public safety and health? [T19 CCR §2762.4(d)]	New	* Review owner or operator training policy.	As discussed in question A40-01, new operator training consists of 4 tiers. Below is and overview summary of the tiers as presented in the policy. Tier 1: New Employee Site Orientation: The purpose of this training is to introduce new operators to Phillips 66 and, specifically, the Rodeo Refinery. The training takes approximately 2 days and includes instructor lead training classroom training and some computer-based training (CBT). Tier 2: Basic Operator Training: The purpose of this training is to give new operators a fundamental knowledge and skills related to refining processes and equipment. This training takes approximately 8 weeks and consists of a mix of classroom and field lessons. Tier 3 and Tier 4 training at the refinery are integrated into the initial unit operating training plan. This training is specific to a unit (Tier 3) and includes training for specific job qualifications (Tier 4). The Area Supervisor assigns trainees a dedicated trainer and mentor for the initial unit training. Tier 3: Area Orientation and Process Overview The purpose of this training is to introduce an operator to a newly assigned unit. Training will provide the operator with a process overview and other unit specific requirements. This approximately 1-week training, led by the Area Supervisor and Operator trainer, is a mix of classroom and field work. Tier 4: Job Specific Training The purpose of this training is to give the operator trainee specific knowledge and skills to safely operate process systems and equipment associated with his/her job	Y	None

assignment. The training consists of self-study, instructor lead training, and field application. Included within this tier of training is initial training on all procedures associated with the job. After all written and field performance tests are passed, the operator "cements" the concepts by working under direction of an experienced qualified operator for a minimum of 80 hours. Area Supervisors are responsible for final qualification.

Per the Operating Procedure Development and Document Management Policy, initial training on all current Operating Procedures shall be completed prior to the employee qualifying to work an operating position.

CCHS reviewed Unit 200, Unit 215, Unit 233, Unit 267, Unit 267 DIB, and MP-30 Outside Operator qualification tests which included questions requiring written answers on normal operating conditions, instrumentation, emergency situations, and safety related questions that operators must pass in order to become qualified for a particular unit. Additionally, CCHS reviewed blank forms for documenting the minimum training requirements for an operator in the following units: MP-30, Unit 215, and Unit 267 DIB. These forms included rows for each requirement to document that the training was completed, and included a section for trainer name and a certifying signature. For each requirement the form also indicated if a test was required and if the test was a CBT.

CCHS reviewed completed training packages for 5 operators which included the completed qualification tests with a passing score and documentation of the completion of all other training requirements.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A40-13	Program 4 CalARP	Has the owner or operator developed and implemented an effective training program to ensure that all affected employees are aware of and understand all Program 4 elements described in this Article? [T19 CCR §2762.4(e)]	New	1. P4 identifies for the owner or operator to complete the initial training required in this questionnaire before 10/1/2019. [T19 CCR §2762.4(e)] 2. P4 identifies that employees and employee representatives participating in a specialized team shall receive additional training in the Program elements relevant to that team. This specialized training will be covered in other questionnaires. [T19 CCR §2762.4(e)] 3. “Affected employees” includes more than	CCHS reviewed the CalARP Program 4 regulation training slide deck and reviewed training documentation for Units 200 and MP-30. The training deck included information on each different program element including how the facility meets the expectations and examples. At the end of the training deck was a multiple choice test used to verify understanding. The training documentation for Units 200 and MP-30 indicated that employees all received the training and completed the test between October 2019 and December 2019. Per SME interview, the training deck was not yet complete and that all employees did not receive the training until after the October 1st deadline. Additionally, CCHS was provided a status report for the entire refinery of who has received the Program 4 overview training, which showed that approximately 10-15% of refinery personnel still had not received the training as of the end of this CalARP audit (January 2020).	N	Ensure that all employees receive CalARP Program 4 Overview training as soon as reasonably possible.
A40-14	Program 4 CalARP	Did the owner or operator make sure that effective participation takes place with affected operating and maintenance employees and employee representatives in all phases of training in the CalARP Program? [T19 CCR §2762.10(a)(2) and §2762.4(f)]	New	1. Employee participation in “all phases” should be defined by the stationary source and should also include training in all of the CalARP Program elements. [T19 CCR §2762.10(a) and §2762.4(f)]	Per SME interview, employee participation has occurred in all phases of the training program, including development and maintenance of the program. Additionally, during interviews operators and union representatives indicated that employees were satisfied with their participation in and the implementation of the program.	Y	None

A41 - CalARP Prevention Program: Mechanical Integrity (Program 4)

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A41-01	Program 4 CalARP & ISO	Has the owner or operator developed, implemented and maintained effective written procedures to ensure the ongoing integrity of process equipment? [T19 CCR §2762.5(a) & ISO Section 450-8.016(a)(5)(B)]	Abr	1. P4 states “The procedures shall provide clear instructions for safely conducting maintenance activities on process equipment, consistent with the Process Safety Information.” [T19 CCR §2762.5(a)(1)] 2. P4 states “The procedures and inspection documents developed under this subsection shall be readily accessible to employees and employee representatives pursuant to section 2762.10.” [T19 CCR §2762.5(a)(2)] 3. “Process equipment” for purposes of P4, means equipment, including but not limited to: pressure vessels, rotating equipment, piping, instrumentation, process control, safeguard (except procedural safeguards), or appurtenance related to a process. [T19 CCR §2735.3(zz)] 4. “Mechanical integrity” means the process of ensuring that process equipment is fabricated from the proper materials of construction and is properly installed, maintained, and replaced to prevent failures and accidental releases. [T19 CCR §2735.3(jj)] 5. Mechanical Integrity applies to tanks and vessels that are not pressurized as well as those that are pressurized. [OSHA Instruction CPL 2-2.45A CH-1 Appendix B - Clarifications and Interpretations of the PSM Standard] 6. For ISO covered stationary sources, mechanical integrity includes the use of Industry Codes, Standards, and Guidelines, which are defined as "…the edition of the	CCHS reviewed a variety of procedures related to the mechanical integrity program. These include: -- Welding or Hot Tapping Equipment Containing Hydrocarbons, Hydrogen, Steam or Water, Procedure 2.07 -- Safe Line Opening Process, Procedure 2.52 -- Safe Assembly of Tubing Connections Guidelines, Procedure 2.53 -- PMI for Mechanical Equipment, Procedure 4.18 -- Inspection Checklist & Repair Report for Fin Fans, Procedure 5.03 -- Assured Equipment Grounding Conductor Program, Procedure 3.06 -- Guideline for the Preventive Maintenance of Critical Instrument Loops, Procedure 3.17 -- Instrument Mechanical Integrity, P&P 7.0-11 -- Bypassing Overpressure Protection of Unfired Pressure Vessels and Use of Block Valves in Relief Systems, P&P 6.2-28, describes how relief valves can be serviced while equipment is in operation. -- Critical Check Valve Inspection Program, ME&I 3.09 -- Piping Inspection Policy, ME&I 2.10 Per SME interviews and file reviews, the facility has a number of general maintenance procedures located on their company intranet associated with their maintenance services shop, instrumentation, electrical, machine repair shop, reliability, hazardous waste and tools. CCHS was informed that these maintenance procedures are reviewed every three-years if they are task-based; otherwise they are reviewed every 5 years. Nevertheless, CCHS was unable to confirm this in actual practice. CCHS reviewed Maintenance Procedure No. 0.00 (last reviewed 5/22/19), which is a table of contents of maintenance procedures that identified many procedures are overdue for their review. In total, 124 maintenance procedures out of 170 are beyond their review date. Regarding task-based maintenance procedures (subset of the total), a total of 33 out of 41 are beyond their review date. In reviewing the ME&I Procedural Manual, CCHS also	P	Ensure that maintenance and inspection procedures are reviewed at their appropriate frequency.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				codes, standards, and guidelines in effect at the time of original design or construction for the design, construction, alteration, maintenance, or repair of process units, industrial equipment, or other industrial facilities, structures, or buildings published by the American Petroleum Institute (API), the Chemical Manufacturers Association (CMA), the American Society of Mechanical Engineers (ASME) or the American National Standards Institute (ANSI), and meets recognized and generally accepted good engineering practices (RAGAGEP).” [Section 450-8.014(f)]	found a number of inspection procedures beyond their review date. A process has been started to review these procedures and eliminate those determined to be unnecessary.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A41-04	Program 4 CalARP & ISO	Is the frequency of inspections and tests of process equipment consistent with the following: a) Applicable manufacturer's recommendations, b) Recognized and generally accepted good engineering practices (RAGAGEP), or c) Internal practices that are more protective than a) or b)? [T19 CCR §2762.5(b)(2) & ISO Section 450-8.016(a)(5)(D)]	Abr	* Review and document the criteria used for inspection and test frequency, including trends and tracking methods. 1. P4 identifies, “Inspections and tests shall be conducted more frequently if necessary, based on the operating experience with the process equipment.” [T19 CCR §2762.5(b)(2)] 2. This includes frequencies recommended by applicable standards such as API, NACE, NFPA, etc., and through experience gained by on-site mechanical integrity personnel only if it is more stringent than the manufacturer’s recommendations and applicable standards. [CCHMP Interpretation] 3. If prior operating experience is used as the basis for testing and inspection frequencies, the past trends and experience must be documented to establish the justification for the frequencies used. [CCHMP Interpretation]	Per SME interviews, P66 develops best practices through a technical network business improvement group. Technical experts review the various codes and standards and company guidelines to develop practices to be used at all sites. The company requires compliance with all codes and adherence to standards, for example, annual high pressure boiler inspections. Frequencies for inspections and tests on process equipment typically are based on the best practices developed and are adjusted based on past inspection results through the site's risk based inspection (RBI) program. Equipment found to have more degradation (e.g., corrosion) than expected are looked at more frequently. Fixed pressure equipment is inspected following API 510: external every 5 years; internal at least every 10 years unless the previous inspection identifies a concern that shortens the interval - RBI can be used to shorten the inspection interval based on the equipment's remaining life. Atmospheric storage tanks are inspected following API 653; 5-year external and typically a 20-year internal. Piping circuits are inspected using the RBI process following API 570 and API 580. This typically involves external inspections every 5 years and non destructive examinations (NDEs) every 5 or 10 years depending on piping class for flammable service. P&P 7.0-4 (Rotating Equipment Mechanical Integrity Program policy, last reviewed 1/9/17) identifies that rotating equipment is removed from service and inspected based on OEM recommendations, service conditions, and operating/maintenance history. LDAR (leak detection and repair) and vibration monitoring systems are also factors for inspection intervals. Bypassing Overpressure Protection of Unfired Pressure Vessels and Use of Block Valves in Relief Systems, P&P 6.2-28, includes a reference section that lists a number of standards/codes, including: ASME Section VIII, API 520, API 521, API-2510A, API-2510.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					Per SME interview and review, inspection of safety instrumented functions (SIFs) associated with safety instrumented levels (SILs) within systems instrumented systems (SIS) are outlined in Instrument Mechanical Integrity P&P7.0-11, which lists ANSI/ISA-84.00.01-2004 (IEC 61511). A spreadsheet is maintained by the SIS engineer that identifies each system, testing frequency, last test date and projected next test date. Test dates are maintained whether the process is operating or not; partial testing takes place if equipment is onstream and complete testing occurs when process equipment is down.		
A41-05	Program 4 CalARP & ISO	Has the owner or operator retained a certification record to document that each inspection and test has been performed? [T19 CCR §2762.5(b)(3) & ISO Section 450-8.016(a)(5)(D)]	New	* Verify the facility has an official process to maintain the integrity of the data – need official gatekeepers for the data. 1. Documentation of tests and inspections does not mean certification or validation by a third party or by signature. [29 CFR 1910.119 preamble]	Per multiple interviews, the facility maintains a number of electronic databases that contain inspection or testing records. Each of the databases are maintained by P66 employees and gatekeepers have been assigned to ensure the integrity of the data. CCHS interviewed the rotating equipment database gatekeeper and was informed that a QC process is used to verify data entries are accurate and to flag items that need further review/verification. Fixed equipment inspections and tests are maintained electronically within SAP, Meridium and PCMS (plant condition management software). These databases are widely used for asset performance management and inspection management. Paper records are maintained in equipment files for older inspections. CCHS reviewed the inspection history for the following equipment: Unit 231: PSV-14, PSV-17, PSV-46, D-202, E-204; Unit 215: PSV-848, PSV-862, F-701; Tank 294. CCHS reviewed inspection and testing records maintained electronically on Live Link for the following rotating equipment: GB-101, CP-1476, C-0042, 80-PSV-1014. CCHS reviewed I&E inspection and testing records maintained electronically in SAP for the following instrumentation: 231PIC-260, 231TI-879, 215LAHH-735, 215LAHH-777.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A41-06	Program 4 CalARP & ISO	Does the inspection and testing certification record identify: a) The date of the inspection; b) The name of the person who performed the inspection or test; c) A description of the inspection or test performed; d) The results of the inspection or test; and e) The serial number or other identifier of the equipment on which the inspection or test was performed? [T19 CCR §2762.5(b)(3) & ISO Section 450-8.016(a)(5)(D)]	Abr	* Verify that the facility maintains read/write/access protection on the inspection and test records. * CCHMP interprets certification record to be electronic or wet signature and does not have to include “I hereby certify…”. 1. An electronic depository can be used if the following are met: (a) Implementation of a written policy that identifies the specific types of inspection and their depository of record. Multiple depositories are acceptable, for example, all Safety Instrumented Systems may be tracked in ProSYS, Piping inspections in Lloyds Register, Meridium, PCMS, SAP, etc.; (b) Clearly defined users access and edit rights to the depository; (c) Data entries that can be altered or edited need to have a method to track changes; (d) Official electronic depository cannot be stored, or hosted by a third party contractor (e.g. portals to vendor electronic information does not constitute certified record for that equipment).	CCHS reviewed a variety of mechanical integrity policies: -- Rotating Equipment Mechanical Integrity Program, P&P 7.0-4 -- Periodic Vibration Monitoring Program, P&P 7.0-5 -- SFR Mechanical Integrity Program, P&P 7.0-7 -- Instrument Mechanical Integrity, P&P 7.0-11 The above policies describe department, and in some cases, individual responsibilities to conduct inspections and tests on process equipment. Inspections and tests are performed by Operations, Maintenance and ME&I personnel depending on a number of factors. Inspection and testing records are maintained using a variety of databases as well as some paper files are still retained. All of the databases used are maintained by P66 and include assigned gatekeepers to control the data. Various levels of authorization have been established for read only and write access. As described in A41-05, CCHS reviewed a number of inspection and testing records associated with different maintenance activities and found each to contain the required information. Select databases store the records within various locations so there is not a one-page record although all the required	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A41-07	Program 4 CalARP & ISO	Has the owner or operator corrected deficiencies to ensure safe operation of process equipment by using repair methodologies consistent with RAGAGEP or more protective internal practices? [T19 CCR §2762.5(c) & ISO Section 450-8.016(a)(5)(E)]	Abr	1. P4 is more conservative than the previous ISO question, which related to correcting deficiencies in equipment that are outside of acceptable limits. 2. Equipment found operating outside acceptable limits does not have to be shut down if other protective measures and continuous monitoring are available, and the deficiencies are corrected in a "safe and timely manner." [OSHA Instruction CPL 2-2.45A CH-1 Appendix B - Clarifications and Interpretations of the PSM Standard]	The facility has a process to prioritize maintenance repairs by entering work orders, called Notifications, into SAP. Once the Notification is written, it is assigned a priority that ranges from emergency, high, medium, low, fix by a certain date, fix during shutdown, or fix during turnaround. Per SME interviews, if a simple issue is identified during a routine PM (preventive maintenance), it is typically addressed at the same time. For more complex issues, a separate Notification is written to properly address the problem based on the priorities previously described. Safety issues are always assigned an emergency designation and addressed as soon as possible or the equipment is shut down. Per SME interviews and file review, metrics are tracked to assess the effectiveness of the maintenance program. For example: number of work orders that take longer than 90 days; percentage of reactive work; volume of work; completing work on schedule. Quarterly metrics are trended and compared to sister sites. The list of planned backlog activities has been stable for the last year. Per SME interviews and file review, repair methods depend on the equipment. For example, compressor repairs must follow very specific criteria outlined within the OEM manual. The facility creates a field manual that contains pertinent details that must be followed for every repair. These field manuals are maintained in printed form for the life of the equipment. Some equipment repairs are less prescriptive (e.g., may only require that certain metallurgy of a certain thickness be used).	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A41-08	Program 4 CalARP & ISO	Does/did the owner or operator conduct regularly scheduled checks and inspections to ensure that all process equipment is suitable for the process application for which it is or will be used; and fabricated from the proper materials of construction? [T19 CCR §2762.5(d)(1 & 3) & ISO Section 450-8.016(a)(5)(F)]	Abr	* Review and document the criteria used that existing and new equipment is suitable. 1. P4 is more conservative than the previous ISO question, which related only to fabrication of equipment. 2. For new equipment, documentation could include providing the vendors with equipment performance and materials of construction requirements, and shop and field testing such as leak tests, hydro tests, operating curve tests, etc. [CCHMP Interpretation]	P&P 7.0-8 (Positive Materials Identification Program policy, last reviewed 9/30/19) identifies requirements for the fabrication of new equipment. The policy requires fabricators to submit PMI procedures and ITP for fabrication and construction as part of their QA/QC program to the facility for approval prior to performing any work. ME&I inspectors review and approve PMI procedures/ITP. Warehouse personnel receive training in marking, stamping, segregating, and cataloguing materials to comply with the PMI policy. Maintenance Procedure 4.18 (PMI for Mechanical Equipment, last reviewed 11/29/16) identifies PMI requirements for the machine shop to ensure proper repair or replacement of alloy mechanical equipment. Per SME interviews, the facility requires all materials to be PMI'd if it is anything other than straight carbon steel. Quality checks and inspection protocols apply to the fabrication of any equipment that is not ordered strictly out of a catalog. This process involves reviewing construction packages or bid packages to confirm fabrication will meet all design requirements. CCHS reviewed such a construction package and confirmed PMI test records were part of the package. Also included were (not a complete list): welding procedures, weld repair plan, material test reports, post weld heat treatment records, calculations, drawings, pressure testing, nondestructive procedures, nondestructive examinations. Per interviews and file reviews, the existing maintenance staff is able to complete the assigned work load in a timely manner.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A41-09	Program 4 CalARP & ISO	Does/did the owner or operator conduct regularly scheduled checks and inspections to assure that all process equipment is designed, constructed, installed, maintained, inspected, tested, operated and replaced in compliance with the manufacturer's and any other design specifications and all applicable codes and standards? [T19 CCR §2762.5(d)(1 & 3) & ISO Section 450-8.016(a)(5)(F)]	Abr	* Review and document the criteria used that existing and new equipment is in compliance. 1. P4 is more conservative than ISO since P4 includes "all process equipment" unlike Program 1-3 which is for construction of new plants and equipment. 2. P4 states, "If the owner or operator installs new process equipment or has existing process equipment for which no RAGAGEP exists, the owner or operator shall ensure and document that these are designed, built, installed, maintained, inspected, tested and operated in a safe manner." [T19 CCR §2765.5(d)(2)] 3. For new equipment, documentation could include project monitoring, field weld X-rays, system leak checks, system hydro tests, positive material identification, etc. [CCHMP Interpretation]	CCHS reviewed P&P 2.0-9 (Safety Integrity Level Selection and Verification Guidance Document, last reviewed 10/11/17). This policy describes that all safety instrumented systems (SIS), safety integrity levels (SIL) and safety instrumented functions (SIF) are designed and maintained in accordance with ISA 84.00.01 (2004). Per SME interviews and file review, CCHS was informed that Refining Engineering Practice (REP) design standards are used by P66 for all aspects of the refinery. These standards detail comprehensive requirements that must be met when building any process equipment at any Phillips 66 refinery; includes foundation, structural support, electrical, as well as process equipment. Once the equipment is built, it is required to be inspected and repaired and maintained in accordance with all of the refineries policies and procedures under the various departments (e.g., ME&I, General Maintenance, Rotating Equipment, Instrument & Electrical).	Y	None
A41-11	Program 4 CalARP & ISO	Does the submitted RMP and Safety Plan accurately reflect the Mechanical Integrity Program at the stationary source? [T19 CCR §2745.2(d) & ISO Section 450-8.016]	Abr		Section 1.6 of the RMP submitted to CCHS on 9/13/19 and pages 15-19 of the Safety Plan submitted to CCHS on 8/6/18 accurately describe the onsite Mechanical Integrity program.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A41-12	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the stationary source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate 'repeat' for identical non-compliance, or use 'modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	The one ensure action item associated with CCHS' previous Mechanical Integrity audit has been completed.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A41-13	Program 4 CalARP	Does/did the owner or operator establish a process for evaluating new or updated equipment codes and standards and implementing changes as appropriate to ensure safe operation? [T19 CCR §2762.5(d)(5]	New	* Review policy or interview with SME regarding this practice.	CCHS reviewed P&P 6.0-10 (Labeling of Piping, last reviewed 10/1/18). This policy identifies that "uniform methods of labeling of piping contents and routing are encouraged to promote greater safety, and lessen the chances of error, confusion or inaction, particularly in times of emergency." The policy primarily concerns identification of the contents of piping systems carrying hazardous materials or process streams that is miss-routed or released to the environment could cause an incident with health, safety, environmental or operational impact. The policy also identifies that piping systems need to be labeled with block style lettering or by tape or permanent markers. CCHS found that the policy does not mention the need for colored safety bands or to include additional details such as temperature, pressure, etc., as are necessary to identify the hazard as suggested in ASME A13.1 (2015). ASME developed the standard to address the lack of uniformity across the Process Industry. The standard identifies that numerous injuries to personnel and damage to property have occurred because of mistakes made in turning valves on, or disconnecting pipes at the wrong time or place, particularly when outside agencies, such as municipal fire departments, were called in to assist. Furthermore, there has been considerable confusion in the minds of those who change employment from one plant to another. In order to promote greater safety, lessen the changes of error, confusion, or inaction, especially in times of emergency, a uniform system for the identification of piping contents has been established to warn personnel when the piping contents are inherently hazardous. Per SME interviews, P66 develops best practice documents through a Technical Networks Business Improvement Group based out of Houston. Each technical discipline has experts involved and are typically part of various national standard committees and provide feedback to P66 to keep up with new standards and changes to existing standards.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A41-14	Program 4 CalARP	Does/did the owner or operator complete a Damage Mechanism Review (DMR) for each process for which a damage mechanism exists? [T19 CCR §2762.5(e)(1)]	New	1. P4 states, “Where no DMR is performed, the owner or operator shall document the rationale for the determination that no damage mechanism exists. The owner or operator shall determine and document the priority order for conducting the DMR based on process operating history, PHA schedule and inspection records. No less than 50 percent of the initial DMRs shall be completed within three (3) years of the effective date of this Article, and the remainder within five (5) years of the effective date of this Article. If the owner or operator has conducted and documented a DMR for a process unit within five (5) years prior to the effective date of this section, and that DMR includes the elements identified in paragraph (e)(8), that DMR may be used to satisfy the owner or operator’s obligation to complete an initial DMR under this paragraph.” [T19 CCR §2762.5(e)(1)] 2. The effective date of P4 is 10/1/17.	CCHS reviewed the facility's Damage Mechanism Review policy (P&P 7.0-15, issued 5/20/19). This policy accurately summarizes the DMR requirements listed in the CalARP regulations. CCHS was informed that this policy was written to summarize the damage reviews performed to satisfy the revised OSHA Refinery PSM and CalARP Program 4 requirements. Per SME interviews and file review, P66 has completed damage mechanism reviews for their refinery processes for years. The site follows their corporate strategy for assessing damage mechanisms. Site materials engineers are sent to corporate training (e.g., "boot camp") to learn the various damage mechanisms common for each process unit. These damage mechanisms are summarized for each process and Reliability Operating Limits (ROLs) are developed to effectively monitor the processes. ROLs are what P66 calls Integrity Operating Windows (IOWs). The facility develops ME&I Checklists that summarize all of the damage mechanisms for each process and these checklists are used for each PHA review. The process used to date on assessing various damage mechanisms onsite has been used to develop the various equipment inspections (e.g., daily, monthly, annual). The facility maintains a schedule for completing Damage Mechanism Reviews (DMRs) to comply with Cal OSHA Refinery PSM and CalARP Program 4 regulatory requirements. To date, P66 has completed 4 official DMRs. The details of the DMR reports are described in A41-18. CCHS reviewed a schedule that identified that a total of 16 DMRs (53%) will be completed by 10/1/2020 and all 30 DMRs are to be completed by 10/1/2022. Per interviews, all processes onsite have some type of damage mechanism so DMR reports will be developed for each process. CCHS was informed that even though only 4 DMRs have been completed to date, they are considered a subset of the work that is performed onsite related to damage mechanisms done to date related to the site processes. P66 verbally assured CCHS that they are track on completing 12 more DMRs in the next 9 months. Nevertheless, a consider item has been	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					issued to monitor this process.		
A41-15	Program 4 CalARP	Does/did the owner or operator ensure the DMR was updated at least once every five (5) years; and reports retained for the life of the process unit? [T19 CCR §2762.5(e)(2 & 12)]	New	* Look for this requirement in policy	Per SME interviews, P66 has been evaluating damage mechanisms for years for their various process units. To date, existing damage mechanism reviews have been re-evaluated every 3-5 years. Going forward, P66 intends to update their official DMR reports at least every 5 years. P66 also intends to maintain all DMR reports for the life of each associated process unit. Currently, there are no DMRs that qualify for their 5-year update yet so technically this question is not applicable. CCHS confirmed that the DMR policy, P&P 7.0-15, stipulates to update DMRs at least every five years.	N/A	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A41-16	Program 4 CalARP	Was the DMR performed by a team with expertise in engineering, operation of the processes under review, equipment and pipe inspection, and damage and failure mechanisms; and one member knowledgeable in the specific DMR method being used? [T19 CCR §2762.5(e)(5)]	New	* Review the DMR report to look for affected operating and maintenance employees and employee representative participation. [T19 CCR §2762.10(a)(2)] * Review the owner or operator policy regarding employee participation in this program. 1. The owner or operator shall provide for employee participation in all phases in the implementation of the DMR program. [T19 CCR §2762.10(a)(2)] (a) Employees participating in the DMR must receive appropriate training in the DMR methodology used; (b) Employees should be involved in developing recommendations and the final report.	Per SME interview and file review, the facility has completed 4 DMR analyses to comply with the CalARP Program 4 requirements. Each of these analyses were summarized in written reports that are described in more detail within A41-18. Each DMR was conducted with a team and each report identified the expertise and individuals involved. Per interviews, the Corrosion/Materials Engineer is required to be familiar with the process used to assess damage mechanisms for the process equipment. In reviewing the DMR reports, the team makeup included individuals with the following expertise: -- Corrosion/Materials Engineer -- Fixed Equipment Engineer -- Unit Inspector -- Unit Engineer -- Operations CCHS was informed that both the Corrosion/Materials Engineer and Fixed Equipment Engineer are involved with piping and equipment inspections. CCHS reviewed P&P 5.0-3 (PSM/CalARP Employee Participation Plan, last reviewed 6/1/18). This policy identified that the DMR team must have an operator knowledgeable in the operation of the unit. Per interviews with USW representatives, the current employee participation level within the DMR process has been acceptable. P&P 7.0-15 identifies minimum DMR team membership consistent with the question. It also identifies, at a minimum, the team must include: "one member knowledgeable with the DMR methodology being used, the Unit Engineer, the Unit Inspector, and an Operations representative. The authorized collective bargaining unit may select an employee to participate on the DMR team. Additional team members may be added for their expertise."	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A41-17	Program 4 CalARP	Does the DMR for each process include: a) Assessment of Process Flow Diagrams (PFDs); b) Identification of all potential damage mechanisms; c) Determination that the materials of construction are appropriate for their application and are resistant to potential damage mechanisms; d) A discussion of the conditions that cause the damage mechanism and how rapidly the damage may progress; e) Methods to prevent or mitigate damage; f) Review of operating parameters to identify operating conditions that could accelerate damage or that could minimize or eliminate damage; g) Assessment of previous experience with the process including inspection history and all damage mechanism data; and h) A review of new information available such as, inspection data, industry wide experience, and changes to applicable standards, codes and practices? [T19 CCR §2762.5(e)(6 & 8)]	New	* Review the DMR process to make sure it includes these items, i.e., not necessarily in the DMR report. 1. P4 identifies that, "…damage mechanisms include, but are not limited to:(A) Mechanical loading failures, such as ductile fracture, brittle fracture, mechanical fatigue, and buckling; (B) Erosion, such as abrasive wear, adhesive wear, and fretting; (C) Corrosion, such as uniform corrosion, localized corrosion, and pitting; (D) Thermal-related failures, such as creep, metallurgical transformation, and thermal fatigue; (E) Cracking, such as stress-corrosion cracking; and (F) Embrittlement, such as high-temperature hydrogen attack." [T19 CCR §2762.5(e)(7)]	Per SME interviews and file review, P66 has been evaluating damage mechanisms for years. The process used to evaluate damage mechanisms essentially has not changed since the adoption of the DMR requirement. Facility personnel use resources developed over time that summarize the damage mechanisms associated with each process. Each segment of the process is separated into nodes and evaluated using a variety of tools at their disposal (e.g., PFDs, P&IDs, injection points, spec breaks, equipment PSI, API RP 571, operating history, inspection history, corporate guidance, resident and corporate experts, etc.). Each node of the process equates to a separate set of damage mechanisms at work. Facility personnel use company standards written for each damage mechanism to ensure the equipment is built with proper materials of construction. Site personnel have access to experts to confirm all aspects of the damage review process. Over the years of evaluating damage mechanisms, the facility developed and refined their Reliability Operating Limits (ROLs). These are the Integrity Operating Windows (IOWs) that define the outer boundaries of where the processes should operate. CCHS confirmed that ROLs have been established for all process units. Exceeding ROLs trigger alarms and require notifications to be made to various personnel (e.g., operations, M&EI). Changes may need to be made to the inspection interval depending on the ROL exceeded, its peak value and its duration. ROLs were developed to include sufficient margin to properly respond to a damage mechanism (i.e., exceeding a ROL would not require an immediate shutdown for repairs).	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A41-18	Program 4 CalARP	Does the written DMR report include the following: a) The process unit(s) reviewed; b) Damage mechanisms analyzed; c) Results of the analyses conducted; d) Recommendations for temporary mitigation; e) Recommendations for prevention f) Completed corrective action items appended to the report? [T19 CCR §2762.5(e)(9) & §2762.16(e)(15)]	New		As described in A41-14, the facility has completed 4 DMR reports and has plans to complete 26 more by October 1, 2022. CCHS was informed that the DMR report format chosen by P66 was to explicitly cover the topics as outlined in the regulation. CCHS reviewed the 4 completed DMR reports. CCHS confirmed that each report contained sections a), b), d) and e) listed in the question. Each report was from 6-9 pages in length. Two areas of the DMR reports warranted further review: -- c) Results of the analyses conducted -- f) Completed corrective action items appended to the report. The DMR reports summarize the evaluations performed for the associated process units in a brief and concise manner. For example, one node of one DMR report listed under a General Prevention/Mitigation table column heading, the following was presented for sulfidation: "Material Selection, Sulfidation Service Equipment Required Standard, Special Emphasis Inspections, ROLs". Upon further review including SME interviews and file reviews, the content listed accurately complies with the Program 4 regulation for what constitutes a DMR report. Additional data is available in the ME&I Department that details the information described in A41-17. CCHS was unable to confirm that the DMR report included the completed corrective action items. Two of the four DMR reports (i.e., U240-1 and U240-2) included recommendations to be addressed. The one recommendation listed in U240-1 DMR report is not completed yet. The two recommendations listed in U240-2 DMR report have been completed: 1) add additional ROLs maximum temperature limits and 2) replace a heat exchanger with specific stainless steel cladding. CCHS was informed that the facility maintains closure documentation for these recommendations within IMPACT. Nevertheless, CCHS was unable to confirm that the completed corrective actions were appended to the DMR report as required. Similar issues were found for PHA and	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					SPA corrective actions so an ensure action has been listed under Management Systems A49-14.		
A41-19	Program 4 CalARP	Does/did the owner or operator resolve the DMR team's findings and recommendations, determine corrective action for implementation, track to completion, and document closeout? [T19 CCR §2762.5(e)(11)]	New	* Verify the Risk Based inspection program was updated if the recommendation included an updated inspection frequency to a damage mechanisms. * Verify consistency with A41-08 if the recommendation was to change alloy. * Verify PSI was updated if the recommendation was to operate at lower pressure, temperature and/or rates. 1. Action items shall follow a documented work process to address findings and recommendations including: (a) Rejection of recommendations; (b) Alternative safeguards; (c) Written comments by team members written comments on any rejected or changed findings and recommendations; and (d) Final decision for each recommendation [T19 CCR §2762.16(d & e)]	As described in A41-18, two DMR reports (dated March 2019) included recommendations to be addressed. CCHS was informed that all DMR recommendations are to be tracked to closure within IMPACT. CCHS confirmed that the two recommendations associated with DMR report U240-2 presented in A41-18 were entered into IMPACT on 1/29/20 although have not been identified as closed. Per SME interviews, one recommendation has been closed (replacement of heat exchanger). The U240-1 DMR recommendation has also been entered into IMPACT although the action is not due yet so remains open. CCHS reviewed the DMR policy, P&P 07.0-15, and was unable to confirm the policy identified that completed corrective actions were supposed to be appended to the final DMR report. CCHS reviewed P&P 10.0-3 (PSM - Cal ARP Program 4 Corrective Action Work Process, last reviewed 9/1/18) and was also unable to locate mention of appending corrective actions to the appropriate report. It is not a regulatory requirement for the various policies and procedures to include this statement although it may assist with compliance. Similar concerns were raised under other program policies so a consider action has been listed under Management Systems A49-14.	Y	None
A41-20	CalARP Program 4	Did the owner or operator provide effective training to employees and employee representatives before serving on a DMR team sufficient to understand the methodology and tools expected to be used? [T19 CCR §2762.4(e)]	New	1. CCHMP interprets "Program elements relevant to that team" to be the methodology and tools that are expected to be used by the team which may include study concepts, process hazards, results and conclusions training.	In reviewing P&P 7.0-15, CCHS was unable to locate mention of training DMR team members at the beginning of the DMR sessions. It is not a regulatory requirement for the DMR policy to include this information. Per SME interviews, the facility has completed four DMRs, one each for the four plants in Unit 240. Training was performed for the entire team involved. The training involved verbal discussion of the basis of process flow, piping circuits, damage mechanisms, mitigation techniques, linkage to ROLs, and how the study will be documented. At the conclusion of the training, a training form was completed and dated 3/25/19.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A41-21	Program 4 CalARP	Was the DMR report provided to and, upon request, reviewed with all operating, maintenance, and other personnel, whose work assignments are within the process unit covered in the DMR? [T19 CCR §2762.5(e)(10)]	New	* Ask the audit team members during employee interviews about the DMR review process when and how the DMR information was provided to affected plant personnel.	P&P 7.0-15 identifies that DMR reports are available to all employees on the facility's intranet. The facility set up their PSI page to link DMR reports, among other documents, so every employee can access items whenever they want. Since only 4 DMR reports have been issued, most of the DMR report links are empty. Associated with the four DMR reports issued for Unit 240, CCHS was unable to confirm all operating, maintenance, and other personnel, whose work assignments were within the associated process unit were provided the DMR report. CCHS was informed that a new notification was going to be included within the shift turnover process with links to the DMR reports. Since the DMR report was developed in March 2019 and the notification was not proposed until January 29, 2020, the ensure action item remains.	P	Ensure that DMR reports are provided to all operating, maintenance, and other personnel, whose work assignments are within the process unit covered in the DMR.

A42 - CalARP Prevention Program: Management of Change (Program 4)

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A42-01	Program 4 CalARP & ISO	Has the owner and operator developed, implemented and maintained written procedures to manage changes (except for "replacement in kind") to process chemicals, technology, process equipment, procedures and facilities; including requirements to use qualified personnel and appropriate methods for MOCs based upon hazard, complexity and type of change? [T19 CCR §2762.6(a & d) & ISO Section 450-8.016(a)(6)(A)]	Abr	* Review MOC policy to ensure the ISO stationary source has a process to conduct an ISSA for a “major change”, that could reasonably result in a MCAR. The policy should define what is considered a major change. Criteria for how site personnel would determine whether a change could reasonably result in a MCAR should also be included in policy. * Review MOC records for the ISO stationary source for any major changes and provide records to auditor doing A34 so ISS can be evaluated. 1. "Replacement in kind" means a replacement that satisfies the design specifications. [T19 CCR §2735.3(tt)] 2. Examples of changes in process technology include: (a) production rates (b) new equipment (c) change in catalysts (d) changes in operating conditions to improve yield or quality. [OSHA 3133, PSM Guidelines for Compliance, 1994] 3. Examples of changes in equipment include: (a) materials of construction (b) piping arrangements (c) alarms and interlocks. [OSHA 3133, PSM Guidelines for Compliance, 1994] 4. Examples of operating or maintenance procedure changes subject to MOC requirements include those that are beyond formatting, grammar, typographical errors, etc., and include changes, that are not associated with changes in process chemicals, technology or equipment. [CCHMP interpretation] 5. Procedure changes that are independent of other changes require either that the MOC procedure/policy or separate procedures/policies clearly indicate that changes require a minimum of a technical basis/analysis, a health and safety review, and documentation of the above along with	CCHS reviewed PNP Manual Section 2.0-5, MOC (Management of Change) Policy (reviewed 10/10/19) which describes both the MOC and PSSR policies at the facility. The policy requires that an MOC be completed for process, facility changes and utility modifications; replacement in kind changes; procedural modifications; feedstock changes; extension of turnaround frequency; major changes. Under Section 6, Major Changes, the policy states the need to do a Hierarchy of Hazards Controls Analysis (HCA)/Inherently Safer Systems (ISS) analysis for anything that would qualify as a Major Change. The facility defines Major Change as introducing a new process; new process equipment, or regulated substance that results in operational change outside of established safe operating limits; any alteration in a process, process equipment, or process chemistry that introduces a new hazard or increases an existing hazard. The policy, in Table 1, MOC Roles and Responsibilities and Required Documents, lists the MOC Task, Responsibility (responsible person), and Required Documents. For example, for IPS, the policy has the SIS (safety instrumented system) engineer as the responsible person and Modified/updated SIL (safety integrity level) documents under Required Documents. CCHS was informed by the Process Safety Director that there have not been any major changes that would have required an MOC at the facility since the last CalARP audit. Out of the 14 MOC's reviewed by CCHS, there was an MOC for a material piping change that was documented in MOC 20182959-001 for modifying the design of the inlet distributor to the reactor in Unit 231. The upgrade will be to	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				training and notification documentation, as appropriate. [CCHMP interpretation]	321 SS. Per interview, this material would be considered an upgrade to the original material.		
A42-04	Program 4 CalARP & ISO	Do the Management of Change procedures address the impact of the change on process safety, and safety and health prior to any change? [T19 CCR §2762.6(b)(2) & ISO Section 450-8.016(a)(6)(B)]	Abr	* Review PHA's, meeting minutes, or other reviews conducted to ensure that the impact of the change on safety and health and process safety was addressed.	Per CCHS review of P&P 2.0-5, some of the Evaluation Stages are Environmental Appraisal; Health & Safety Appraisal; ME&I review; Reliability review; Hazards analysis. CCHS reviewed the 14 MOC's from A42-01 and found that each had an evaluation completed by the MOC steward who would be the person who reviews the impact of the change on process safety, and safety and health prior to any change. Per P&P 2.0-5, the MOC steward (KMS Level 2) ensures that all MOC requirements are completed for the change. This person would be responsible for assigning all Pre- and Post-Startup action in KMS (Knowledge Management System) to the responsible person. CCHS reviewed an R-777C (MOC Technical Evaluation form) for M20194801-001 which was for temporary connections for turnaround. The MOC packet had a PSI update checklist, a Chemical/Material authorization request form (which required a health & safety representative to sign, and a technical evaluation form which includes a Health & Safety appraisal (which determines whether a more extensive H&S review (R-140a) would be required), an Environmental appraisal (which would also require a more extensive Environmental review). There was a more extensive H&S review which was attached to the back of the R-777C packet.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A42-05	Program 4 CalARP & ISO	Do the Management of Change procedures address modifications to and/or development of new operating and maintenance procedures prior to any change? [T19 CCR §2762.6(b)(3) & ISO Section 450-8.016(a)(6)(B)]	Abr		CCHS reviewed P&P 2.0-5 which describes the procedural modification policy as it relates to MOCs. The policy states: "Only changes made to unit or Refinery Wide operating procedures, with no other changes to the process, require a procedural MOC. This includes updates of existing normal or emergency operating procedures (NOP or EOP), or creation of new NOP or EOP or temporary operating procedures (TOP). " CCHS also reviewed P&P 6.1, Operating Procedures Policy (revised 9/14/18) which describes the MOC initiating process. CCHS reviewed M20176788-01 which required a procedure change. In KMS, there was a file that included the procedure that needed to be changed and the training on the procedure by the affected operators. A copy of the operating procedure was uploaded to KMS.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A42-06	Program 4 CalARP & ISO	Do the Management of Change procedures include provisions for temporary repairs, including temporary piping or equipment repairs; and address the necessary time period required for the change prior to any change? [T19 CCR §2762.6(a) and §2762.6(b)(4) & ISO Section 450-8.016(a)(6)(B)]	Abr	* Review records on how temporary changes are tracked and how the changes are restored to their original or design conditions. * Review the procedures and policies in place that address when a temporary change can be kept longer than specified in the MOC. 1. Time limits should be defined for all temporary changes and monitored. Since otherwise, without control, these changes may tend to become permanent. The MOC procedure must also address how equipment and procedures are restored to their original or design conditions at the end of a temporary change. [OSHA 3133, PSM Guidelines for Compliance, 1994]	CCHS reviewed P&P 2.0-5 which describes the use of Temporary MOCs. This was listed under section H., Special Circumstances which also includes Temporary/Permanent Repairs (Temporary Repairs and Clamps). For each temporary repair, the policy requires that there be a removal date. The facility defines a temporary as "a change that is not intended to be in service for the life of the equipment." The facility uses another category of temporary MOC's called Temporary/Permanent Repairs (Temporary Repairs and Clamps) MOC category which includes non-welded engineered box, clamps, non-metallic wraps, etc., CCHS reviewed the following MOC's which were classified as Temporary by the facility: -- M20181424 - Temp repair box on flange downstream of U231 -- M2018052 - Install a temporary repair on the 4" piping out of E-109 at U231. The facility uses KMS to track all MOCs and each of the temporary MOC's above had a "Temp Change Expiry" date and an Actual Completion date. The Temp Change date was the date that the temporary repair would expire; the actual was the date that it was completed. Both temporary repairs were closed out in the system with a closure date.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A42-08	Program 4 CalARP & ISO	Are employees involved in operating a process informed of, and effectively trained in the change in a timely manner, prior to implementation of the change? [T19 CCR §2762.6(f) & ISO Section 450-8.016(a)(6)(C)]	Abr	* Review training records or meeting minutes to show that affected employees were trained in the change prior to making the change. 1. P4 identifies that “Prior to implementing a change, the owner or operator shall inform all employees potentially affected by the change.” [T19 CCR §2762.6(l)]	CCHS reviewed Appendix D, Guidelines for Operator Training of P&P 2.0-05, which provides a table of training requirements for Temporary MOCs and Permanent MOCs. The Permanent MOC box has three levels, I, II, & III. Level 1 has night instructions/MOC log; level II, voting email or R-506; level III, formal training session with R-506 and means of understanding. Level I - minor changes with no change to TOP/NOP/EOP (metallurgy changes, alarm changes, instrument range change), changes to existing ROLs (reliability operating limits) /EOLs (environmental operating limits)/SOLs (safe operating limits), changes to PSI, piping changes. Level II - piping changes with valves or new connections, utility changes/new connections, new instrumentation, new SOLs/ROLs/EOLs, minor changes to existing rotating equipment, updating existing SIS Level III - major changes to existing rotating equipment that affects operators (seal plans, lubricating systems, etc.), new equipment (vessels, towers, exchanges, reactors, pumps, compressors, technology), major change in operation of existing equipment, major change or new SIS, revamp of unit, controls modernization, new unit. CCHS reviewed the 14 MOCs from A42-02 and found that 6 of the MOCs required either training or notification and for each the training was completed or the notification made before startup. CCHS went through a live navigation of the KMS system with the PS SME (Process Safety subject matter expert) and found that each of the MOCs reviewed had an attached sign in sheet for training. This was done before the implementation of the change and verified in the PSSR. There were also notifications made to the appropriate unit operators.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A42-09	Program 4 CalARP & ISO	Are maintenance employees whose job tasks will be affected by a change in the process informed of, and effectively trained in the change in a timely manner prior to the implementation of the change? [T19 CCR §2762.6(f) & ISO Section 450-8.016(a)(6)(C)]	Abr	* Review training records or meeting minutes to show that affected employees were trained in the change prior to making the change. 1. P4 identifies that “Prior to implementing a change, the owner or operator shall inform all employees potentially affected by the change.” [T19 CCR §2762.6(l)]	CCHS reviewed Appendix C, Guidelines for Maintenance Training/Notification of P&P 2.0- which provides a guide to how training is administered for maintenance employees. Maintenance receives training for the following -- New transmitter -- New type of control valve (manufacturer, model) -- New pump -- New compressor -- New exchanger (not replacement-in-kind) -- New filters Maintenance is notified for the following: -- Change in filter type -- Change to pump type -- Change to impeller size to pump -- Change range of flow indicator/controller (meter range or orifice size change) -- Minor utility changes/new connections -- Significant process control changes -- Updating SIS CCHS reviewed the 14 MOCs from A42-02 and only 1 MOC required notifying maintenance of the change. This was for M20181991-001 which was for correcting the ROLs for a piece of equipment that had the wrong ROLs assigned. The maintenance personnel was notified of the change.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A42-10	Program 4 CalARP & ISO	Does/did the owner or operator make the MOC documentation available to and require effective training in the change prior to implementation of the change for contractor and employees of contractors who are operating the process and whose job tasks will be affected by a change? [T19 CCR §2762.6(f) & ISO Section 450-8.016(a)(6)(C)]	New	* Review training records or meeting minutes to show that affected employees were trained in the change. 1. Contract owner or operator must inform its employees of the work practices necessary to safely perform his or her jobs, including the potential hazards related to their jobs; applicable refinery safety rules; and applicable provisions of the facility's emergency action plan. [T19 CCR §2762.12(b)(2)]	CCHS reviewed the MOC's from A42-02 and each had a section that addressed training for both maintenance and contractors. For most of the MOC's, this section had N/A which means that the changes would not have impacted maintenance or contractors. There was, however, one MOC, M20181991-001, that did have a note about maintenance and contractors being informed of a change that was made to the ROL (reliability operating limit) for one of the alarms that had been set incorrectly. This was for notification purposes only which was documented in KMS. Per CCHS interview with the PS SME, there are no contractors in the facility who would operate a process unit. However, if there were a change that affected contractors who were going to perform maintenance in the area, the work permit would include changes that have already been made. These contractors would not actually be provided with access to the MOC's.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A42-11	Program 4 CalARP & ISO	Does/did the owner or operator ensure that if a change results in a change to the PSI (§2762.1 or Section 450-8.016(A)(1)), that this information will be updated as soon as possible? [T19 CCR §2762.6(g) & ISO Section 450-8.016(a)(6)(D)]	Abr	1. Time requirements for PSI updates may differ depending on what documentation changes are required. Drawing updates (e.g., P&IDs) may take up to one year from construction completion to be finalized and published, depending on how often red-lined drawings are submitted to the drafting group. Other documentation (e.g., COD tables, equipment files, etc.) should be updated closer to the construction completion date.	CCHS reviewed P&P 2.0-5 which indicated that PSI data was to be "...archived and accessible in the owner controlled file within one year of PSI information being developed new or modified by the MOC process." For the 14 MOC's reviewed, the PSI updates included redlined drawings which allowed the facility to close out the MOC action items related to PSI but per plant policy, the MOC cannot be closed until drawings and procedures have been updated in the system. The policy under Closure Items lists items that can be closed after startup as follows: -- P&IDs, PFD, electrical/instrumentation drawing updates -- Equipment records update -- Inspection records update -- R-55 post-startup items completed prior to closing the MOC -- All master PSI documents -- All operators informed and trained -- For temporary MOCs: all temporary facilities have been returned back to their original state -- If temporary MOC must remain in service longer than originally intended target removal date, and R-261 must be filled out with proper approvals for extended target closure date -- Date equipment was placed in service. CCHS reviewed R-777C which is used to perform the technical analysis prior to the MOC being implemented. There were 8 of the 14 MOCs reviewed that required updates to PSI. Each of the 8 MOCs had the PSI update marked as complete in KMS and there is a brief description for each item and the appropriate marked up drawings or operating limits are uploaded to KMS. Per CCHS interview, the facility does not close an MOC until all PSI has been officially updated electronically and some of this takes place after the change has been made.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A42-12	Program 4 CalARP & ISO	Does/did the owner or operator ensure that if a change results in a change in the operating procedures or practices (§2762.3 or Section 450-8.016(A)(2)), and/or results in a change in the written procedures to maintain the ongoing integrity of process equipment required by Section 2762.5 that such procedures or practices are updated prior to the start-up of the process? [T19 CCR §2762.6(h) & ISO Section 450-8.016(a)(6)(E)]	Abr		CCHS reviewed the MOCs from A42-01 which included a question in the PSSR (pre-startup safety review) section of the MOC package that asked whether operating procedures needed to be updated. In the event that a procedure needed to be modified, the facility would complete R-405 Risk Assessment. None of the MOCs required an update to operating procedures. Per interview with the Process Safety SME, the operating procedures would be updated as part of the MOC package and rechecked before startup. These procedures would likely be redlined before startup and updated electronically after startup at which point, providing the other PSI had been updated, the MOC would then be closed out.	Y	None
A42-13	Program 4 CalARP & ISO	Do the submitted RMP and Safety Plan accurately reflect the Management of Change Program at the stationary source? [T19 CCR §2745.2(d) & ISO Section 450-8.016]	Abr		The 2019 RMP and the 2018 Safety Plan both accurately reflect the Management of Change Program at P66.	Y	None
A42-14	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the stationary source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate ‘repeat’ for identical non-compliance, or use ‘modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	There were 2 ensure action items from the previous CalARP/ISO audit and both have been addressed.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A42-15	Program 4 CalARP	Does/did the owner or operator review the Damage Mechanism Report or conduct a Damage Mechanism Review (DMR) as part of a major change on a process for which a damage mechanism exists, prior to approval of the change and document the findings in the MOC? [T19 CCR §2762.6(c), §2762.5(e)(3)]	New	1. P4 further states "If a major change may introduce a damage mechanism, a DMR shall be conducted, prior to approval of the change." [T19 CCR §2762.5(e)(3)]	CCHS reviewed the MOCs from A42-02 and determined that none of these met the definition of major change and thus would not have required a DMR. There was an MOC (M20182959-001) that was for a material change to the inlet distributor to a reactor which was an upgrade in material type. CCHS was informed by the process safety SME that there would not have been a DMR performed in this case; however, the corrosion engineer was part of the technical review early in the process when the material change was being considered.	N/A	None
A42-16	Program 4 CalARP	Does/did the owner or operator perform a Hierarchy of Hazard Control Analysis (HCA) as part of a major change on a process prior to implementation of the change and document the HCA recommendations in the MOC? [T19 CCR §2762.6(c)]	New	* Look for the criteria and trigger in MOC policy, HCA or ISS review will be documented in A59. 1. Major change "means: (a) introduction of a new process, or (b) new process equipment, or new regulated substance that results in any operational change outside of established safe operating limits; or (c) any alteration in a process, process equipment, or process chemistry that introduces a new hazard or increases an existing hazard." [T19 CCR §2735.3(hh)] 2. P4 requires an HCA to be performed associated with a major change regardless if the major change could reasonably result in a major incident. [T19 CCR §2762.13(b)(2-3)]	CCHS reviewed P&P 2.0-7, Inherently Safer System Analysis (revised 7/20/19) which describes the requirement of performing an ISSA whenever there is a major change. CCHS was informed by the Process Safety SME that the facility has not made any major changes that would have required doing an ISSA or HCA. CCHS determined that, in the Major Changes section of P&P 2.0-5, for a change that would meet the definition of a major change, an HCA/ISSA would be performed. CCHS reviewed the list of MOC's for the areas that were covered by the audit (Units 215, MP30, and Relief & Blowdown system) and did not find any that would have qualified as a major change. The facility's definition of a major change is consistent with the P4 definition that includes (a)-(c) from [T19 CCR §2735.3(hh)]. See A58-XX for more information on the HCA program at the facility.	N/A	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A42-17	Program 4 CalARP	Does/did the owner or operator provide for employee participation pursuant to the provisions of section 2762.10? [T19 CCR §2762.6(e)]	New	* Review the MOC documents to check for employee participation in “all phases” includes but is not limited to: (a) HSE review; (b) Determine the type of training needed to be effective for the MOC [T19 CCR §2762.10(a) and §2762.4(f)]	CCHS reviewed P&P 5.0-3, PSM/CalARP Employee Participation Plan (revised 6/01/18) which describes the employee participation program at the facility. The policy states that for MOCs, the authorized CBU (collective bargaining unit) representative may select operators to participate. Per CCHS interview with union representatives and operators, employees are a big part of the MOC process and are part of many of the MOC teams. CCHS looked at the training module Process Safety Management for Petroleum Refineries (P4) that is given to all operating and maintenance employees and part of the training is the MOC and PSSR process. The slides cover the KMS database used, the technical basis for change, the impact on safety and health, the modifications or development of new operating and maintenance procedures, the proposed time frame for the change, and the authorization requirements for the change. The P4 MOC training also covers the definition of Major Change and the roles and responsibilities of everybody involved with MOC's. At the end of the MOC section, the trainer goes over Rodeo specific examples of MOC and asks the group being trained questions to demonstrate understanding. Per CCHS review of training records, more than 10% of the operators had not received the P4 overview training as of the audit which would have included MOC training. See A40-13 for more information on operator training related to P4 overview. The union representative also said that even if employees are not directly impacted, a union representative has the option in many cases to attend. The union representatives made it clear that there is a lot of communication between the employees and the site leadership when it comes to process safety in general and MOC's in particular.	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					Per CCHS interviews with operators, the MOC's are sent out to affected units and the operators and maintenance staff who work in those areas review the MOC's as part of the shift turnover. This was verified during a live navigation of the KMS system with the SME which included Night Notes or shift turnover sheets. See A46 for more information on the Employee Participation program at the facility.		
A42-18	CalARP Program 4	Did the owner or operator provide effective training to all employees and employee representatives before serving on a MOC team sufficient to understand the methodology and tools expected to be used? [T19 CCR §2762.4(e)]	New	* Review training record related to the MOC program. Any development and implementation issues should be coordinated with the auditor of A46-01 (employee participation). 1. CCHMP interprets “Program elements relevant to that team” to be the methodology and tools that are expected to be used by the team which may include study concepts, process hazards, results and conclusions training.	Per CCHS interview with the PS SME, all operations and maintenance employees are trained on MOC's as part of the P4 overview. Employees do not usually serve as part of an MOC team but would provide input for items related to the process unit in which an operator works. See A42-17 for more information on the MOC training program at the facility.	R	None

A43 - CalARP Prevention Program: Pre-Startup Safety Review (Program 4

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A43-02	Program 4 CalARP & ISO	Does/did the owner or operator perform pre-startup safety reviews for: a) Modified processes if the modification necessitates a change in the process safety information, b) Partial and unplanned shutdowns, c) Turnaround work? [T19 CCR §2762.7(a) & ISO Section 450-8.016(a)(7)(A)]	Abr	* Review completed PSSR's and corresponding information. Employee interviews may identify changes to the regulated source which should have required a PSSR. * Definition of "partial shutdown" is to follow CalARP definition of "turnaround" without consideration for planned activities. * Consideration may be given for the use of startup procedures if they meet the PSSR requirements for addressing operational readiness 1. A PSSR is also required for modified stationary sources although P4's "modified processes" is more restrictive. [ISO Section 450-8.016(a)(7)(A)] 2. PSI must be modified before startup. [OSHA Instruction CPL2-2.45A CH-1 Appendix B - Clarifications and Interpretations of the PSM Standard, September 13, 1994]	CCHS reviewed P&P 2.0-5 which describes the PSSR (Pre-Startup Safety Review) process. The policy states that PSSR's are performed before placing modified or new equipment into service; for planned and unplanned shutdowns; for all process and facility changes made to process units, tanks, and for other systems that fall under MOC criteria. For each of the 14 MOCs from A42, there was a PSSR attached. This covered temporary MOCs, modified process that included PSI. These PSSRs included a review of operating procedures, PSI, In-Service field check, and whether training had been completed.	Y	None
A43-03	Program 4 CalARP & ISO	Does/did the stationary source confirm, as a verification check, independent of the management of change process, that prior to the introduction of regulated substances to a process that process equipment is maintained and operable in accordance with design specifications including construction, maintenance, and repair work performed? [T19 CCR §2762.7(b)(1-2) & ISO Section 450-8.016(a)(7)(B)]	New		CCHS reviewed the PSSR's for the MOCs from A42 and there is a question that asks "…the equipment been verified by operations as safe to operate and authorization is hereby given to start up the process/equipment that has undergone this change." This was for each of the MOC's and in the remarks section there is the following: "Approved for startup." For each of the PSSR's, the box was checked and the startup date given. The line between the MOC and the PSSR does not seem as clear as it should be. The facility should make sure that the actions to complete are done in the MOC and the verification check done in the PSSR.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A43-04	Program 4 CalARP & ISO	Does/did the owner or operator confirm, as a verification check, independent of the management of change process, that prior to the introduction of regulated substances to a process that effective safety, operating, maintenance, and emergency procedures are in place and adequate? [T19 CCR §2762.7(b)(3) & ISO Section 450-8.016(a)(7)(B)]	Abr		CCHS reviewed the Pre-Startup Safety Review (PSSR) section of P&P 2.0-5 which states that the PSSR checks for the following before the proposed changes are put in place -- Form R55 project in-service field safety check -- All process and facility changes made to process units, tanks, and other systems that fall under MOC criteria -- Maintenance procedures are updated and personnel trained on updated procedures -- Appropriate operators, maintenance, and contractors are informed of the changes. -- PHA & SIL issues are resolved -- Blind/bleed plug lists, locked valve lists, critical safety device list are updated -- Critical Safety Device Checklist is updated -- Actions completed from R-140A H&S review -- Red-lined PSI (R-767 PSI update checklist) is updated CCHS reviewed 14 MOCs and each had a PSSR that checked for updates to operations and maintenance procedures. None of the MOCs reviewed required an update to operation or maintenance procedures. However, CCHS reviewed several additional MOCs that did require updating the procedures and verified that these procedures had been updated.	Y	None
A43-07	Program 4 CalARP & ISO	Does/did the owner or operator confirm, as a verification check, independent of the management of change process, that prior to the introduction of regulated substances to a process that training of each operating employee and maintenance employee affected by the change has been completed? [T19 CCR §2762.7(b)(5) & ISO Section 450-8.016(a)(7)(B)]	Abr	1. All documents or information developed or collected by the owner or operator related to the PSSR should be accessible including information that might be subject to protection as a trade secret. [T19 CCR §2762.10(a)(3)]	CCHS reviewed the MOCs from A43-02 and found that the training for operations was listed as part of the PSSR. Per CCHS interview with the Process Safety SME, the training is performed as part of the PSSR which the facility considers to be a part of the MOC process and not a separate section. The training is assigned as part of the R-777C form and the training is verified by a separate person.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A43-08	Program 4 CalARP & ISO	Does the submitted RMP and Safety Plan accurately reflect the Pre-startup Review Program at the stationary source? [T19 CCR §2745.2(d) & ISO Section 450-8.016]	Abr		The 2019 RMP and the 2018 Safety Plant both reflect the PSSR program at P66.	Y	None
A43-09	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the stationary source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate ‘repeat’ for identical non-compliance, or use ‘modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	There were no ensure action items from the previous CalARP/ISO audit. This question does not apply.	N/A	None
A43-10	Program 4 CalARP	Did affected operating and maintenance employees and employee representatives effectively participate, throughout all phases, in performing PSSRs? [T19 CCR §2762.10(a)(1)]	New		Per CCHS interview with the PS SME, operating and maintenance employees typically participate in portions of the PSSR that are related to their areas of expertise, but not the entire PSSR. This is simply due to the nature of the MOC's being reviewed. The majority of MOC's reviewed during the audit would not have required a lot of input from operators or maintenance employees. But CCHS did review MOC's and PSSRs that would have required input from operators who were part of the review teams.	N/A	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A43-11	CalARP Program 4	Did the owner or operator provide effective training to employees and employee representatives before serving on a PSSR team sufficient to understand the methodology and tools expected to be used? [T19 CCR §2762.4(e)]	New	* Review training record related to the PSSR program. If there are issues with development and implementation of the training, coordinate with the auditor of A46-01 (employee participation). 1. CCHMP interprets “Program elements relevant to that team” to be the methodology and tools that are expected to be used by the team which may include study concepts, process hazards, results and conclusions training.	CCHS reviewed the Process Safety Management For Petroleum Refineries (including California PSM and CalARP Program 4) training slides which included MOC and PSSR as part of training. For PSSR, the training covered the following: -- When PSSR's are required (new unit, MOCs for changes before place equipment changes into service, shutdowns/turnarounds The training also covered PSSRs that should check the following: construction and equipment meet design specifications; appropriate tests have been performed to validate equipment/function; safety, operating, maintenance, and emergency procedures are in place; design information is updated (in at least redline format) and made available; risk assessment was completed and recommendations resolved; training of affected employees is complete. The training also lists the positions that would be involved with the PSSR (operations area supervisor, MOC steward (e.g. process engineer), and a qualified operator on the process under review. Other operations or maintenance personnel with expertise and experience in the unit may be asked to participate as well. CCHS reviewed the list of operators and maintenance employees who received the P4 training which was done between October 2019 and January 2020. More than 10% of the operators at P66 had not yet received the P4 overview training mentioned above that would have included PSSR. See A40-13 for more information on P4 training in the facility.	R	None

A44 - CalARP Prevention Program: Compliance Audits (Program 4)

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A44-01	Program 4 CalARP & ISO	Has the owner or operator conducted an effective compliance audit every three (3) years and certified that the owner or operator has evaluated the procedures and practices developed under this Article to verify that the procedures and practices are in compliance with the provisions of this Article, and are being followed? [T19 CCR §2762.8(a) & ISO Section 450-8.016(a)(8)(A)]	Abr	* Review the certified audit reports. 1. The effective date of the P4 compliance audit requirement was 10/1/2017 making the first P4 compliance audit due by 10/1/2020. Until then stationary sources are still required to conduct and certify compliance audits to comply with ISO requirements. [T19 CCR §2762.8(a) & ISO Section 450-8.016(a)(8)(A)] 2. The start point of the three-year compliance audit cycle under the RMP/CalARP program has the following effective dates: a) June 21, 1999 for stationary sources subject to the federal RMP program; b) June 21, 2002 for stationary sources subject to the state CalARP program, but not subject to the federal RMP program. [T19 CCR §2745.1 and CCHMP interpretation] 3. The first compliance audit for stationary sources that comply with the federal PSM standard, 29 CFR §1910.119 is required by May 26, 1995. [OSHA Instruction CPL 2-2.45A CH-1 Appendix B-Clarifications and Interpretations of the PSM Standard September 13, 1994] 4. CalOSHA''s PSM standard, T8 CCR §5189, does not specify a frequency for conducting the Injury and Illness Prevention Program audits. However, federal PSM specifies three years. CalOSHA uses the three-year frequency in their compliance checklist. 5. Employers must certify in writing that there has been a PSM compliance audit at least every three years. [OSHA Instruction CPL 2-2.45A CH-1 Appendix B-Clarifications and Interpretations of the PSM Standard September 13, 1994] 6. This Article refers to Program 4 requirements (Article 6.5).	CCHS reviewed the P&P Manual Section 14.0-6 : PSM/RMP Compliance Audit Process last reviewed 2/1/2018. Per this policy, the refinery H&S Audit Coordinator is responsible for confirming with the Corporate Lead Auditor that the scheduled audit start date falls within the site's required 3-year timeframe. The policy does not indicate that the refinery is required to conduct and certify compliance audits to comply with ISO requirements. CCHS reviewed the following three completed internal compliance audit reports: -- Internal Compliance Audit conducted on August 2-5, 2016 and issued on January 17, 2017 with certification by the site manager. -- Internal Compliance Audit conducted on September 10-19, 2013 and issued on December 17, 2013 with certification by the site manager. -- Internal Compliance Audit conducted on November 8-12, 2010 and issued on December 16, 2010 with a certification statement. Per interview, the most recent internal compliance audit was conducted from July 22 through August 1, 2019 by HSE corporate auditing team. A draft copy of this audit was made available to the refinery near the end of the CCHS CalARP audit but had not cleared the refinery legal review and was only shared with CCHS with limited observation of parts of the audit on 1/30/2020. This limited observation indicated that the audit included 3 members of the corporate auditing team and 8 other specialists from other	P	Ensure that every three (3) years the refinery conducts an effective compliance audit and certifies that the owner or operator has evaluated the procedures and practices developed under this Article to verify that the procedures and practices are in compliance with the provisions of this Article, and are being followed.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					refineries and the scope was to cover the requirements of Title 19 CCR 2735.1 through 2785.1 and the County ISO. The draft report identified a number of nonconformances presented in a table that included program category, risk ranking, nonconformances description and regulatory references. Per a review of the past two audits, there is thus a gap on complying with the requirement to complete a compliance audit and certify the audit every three years as the refinery had not formally issued their compliance audit report through the end of the current CalARP audit on 1/30/2020.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A44-03	Program 4 CalARP & ISO	Has the owner or operator prepared a written report of the compliance audit that includes the scope, methods used, questions asked to assess each program element along with findings and recommendations of the compliance audit? [T19 CCR §2762.8(c), §2762.16(e)(15) & ISO Section 450-8.016(a)(8)(C)]	Abr	* Review the compliance audit report, which must document completion date and assignment of responsibility for completion of each corrective action. [T19 CCR §2762.16(e)(7)]	The internal compliance audits completed in January 2017 and December 2013 were issued as a memorandum that included a brief executive summary, an attachment that identified the none-conformances found by the audit team and the signed audit compliance certification statements. The audit executive summary specifies compliance with the regulatory requirements PSM/RMP, identifies 11 and 9 audit team members that included members of HSE Auditing team and also members from other P66 refineries. The audits have been conducted using PSM and RMP self audit checklists prepared by corporate Auditing team. The audit summary states that the audit methods utilized during the audit included interviews of plant personnel, including process and mechanical personnel; observation of maintenance and operations; inspection of plant facilities; and review of documentation. Consistent with the findings from the past audit, CCHS was provided an audit report titled "Process Safety Management Audit Report of the CalARP and Contra Costa Health Services Industrial Safety Ordinance (ISO) Risk Management Programs, August 2016" prepared by a third party and the audit performed Aug 1-5, 2016. This report covered near 43% of the total CalARP/ISO topics. CCHS reviewed section 4.0 of the report which identified that the majority of the PSM elements were assessed by the P-66 corporate audit team and the ISO requirement and some CalARP non-PSM topics were addressed by the third party contractor. CCHS also reviewed a concurrent P-66 corporate audit that covered the PSM and RMP topics and the audit was conducted Aug 2-5, 2016. This was transmitted via an	P	Ensure that the facility prepares a written report of the compliance audit that includes the scope, methods used, questions asked to assess each program element along with findings and recommendations of the compliance audit (This is a modified repeat).

interoffice memorandum as referenced in A44-01 by a 11 member team from HSE auditing group and other refineries as well. The memo identified one non-conformance to be of significant risk.

CCHS was provided an electronic database of questions asked during the refinery July 2019 internal compliance audit that was conducted by corporate auditors and noted that the questions provided included the CalARP P4/ISO compliance audit questionnaires from CCHS audit. At this time, a written report of the compliance audit that includes the scope, methods used, questions asked to assess each program element along with findings and recommendations of the compliance audit were not fully available from the internal compliance audit that was reported to have been conducted in July 2019.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A44-04	Program 4 CalARP & ISO	Does/did the owner or operator after the completion of the compliance audit promptly determine and document an appropriate response to each of the findings of the compliance audit and complete the corrective action within one and one half (1.5) years or during the first regularly scheduled turnaround for items requiring a process shutdown? [T19 CCR §2762.8(d), §2762.16(e)(12-13) & ISO Section 450-8.016(a)(8)(D)]	Abr	1. The owner or operator must demonstrate in writing that it is not feasible to do so [complete the corrective action]. [T19 CCR §2762.16(e)(12) 2. Turnaround means planned total or partial shutdown of a petroleum refinery process unit or plant to perform maintenance, overhaul or repair of a process and process equipment, and to inspect, test and replace process materials and equipment. Turnaround does not include unplanned shutdowns that occur due to emergencies or other unexpected maintenance matters in a process unit or plant. Turnaround also does not include routine maintenance, where routine maintenance consists of regular, periodic maintenance on one or more pieces of equipment at a refinery process unit or plant that may require shutdown of such equipment. [T19 CCR §2735.3(www)]	As described in A44-03, the August 2016 internal compliance audit that was issued in January 2017 identified one nonconformance and that was considered to be of significant risk per the corporate risk matrix. This none conformance was addressed by modifying site MOC procedure to require reviews and approval of changes that occur after the review/assessment stage and to use existing work process to close overdue MOCs or get documented approval from management for extensions. Per a review of the Impact Report on this nonconformance, this action item has been addressed for all of the refinery units by June 2018, that is within 1.5 years from the issuance of the compliance audit. The September 2013 internal compliance audit identified 7 nonconformances and none were considered to be of high or significant risk per the corporate risk matrix. Per the review of the Impact Report, all none conformances have been addressed on a timely basis.	Y	None
A44-05	Program 4 CalARP & ISO	Does/did the owner or operator append the report with the actual completion dates when deficiencies were corrected? [T19 CCR §2762.16(e)(15) & ISO Section 450-8.016(a)(8)(D)]	Abr	* Review the documentation regarding tracking of changes to correct deficiencies, including how scheduled dates are changed. 1. The stationary source needs to document the final resolutions taken and actual completion dates when deficiencies were corrected. [CCHMP interpretation]	As described in A44-04, the Impact Report includes the identification and completion date for each of the corrective actions from the compliance audit reports. However, per the review of the internal compliance audit report issued on January 17, 2017, the refinery has not appended the report with the actual completion dates of the corrective actions when deficiencies were corrected. See a management ensure action in A49-14 that addresses this requirement.	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A44-06	Program 4 CalARP & ISO	Does the owner or operator retain the three most recent compliance audit reports? [T19 CCR §2762.8(e) & ISO Section 450-8.016(a)(8)(E)]	Abr	1. The effective date of the P4 compliance audit requirement was 10/1/2017 making the first P4 compliance audit due by 10/1/2020. Until then stationary sources are still required to maintain the two most recent compliance audits to comply with ISO requirements. [T19 CCR §2762.8(e) & ISO Section 450-8.016(a)(8)(E)]	As described in A44-01, the refinery retains the three most recent compliance audit reports.	Y	None
A44-07	Program 4 CalARP & ISO	Does the submitted RMP and Safety Plan accurately reflect the existing Compliance Audits Programs at the stationary source? [T19 CCR §2745.2(d) & ISO Section 450-8.016]	Abr		The RMP submitted 9/13/2019 Section 1.9 pages 39-40 and Safety Plan submitted 8/6/2018 page 23 generally reflect the existing Compliance Audits Programs at the stationary source. The facility should consider updating the RMP and Safety Plan to correct the number of past audits required to be retained from two to three.	Y	None
A44-08	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the stationary source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate ‘repeat’ for identical non-compliance, or use ‘modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	There were four ensures action items associated with the previous CalARP/ISO audit of which three have been addresses and one was not addressed and is reiterated in A44-03.	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A44-09	Program 4 CalARP	Has the owner or operator made the compliance audit report available to employees and employee representatives for review and comment? [T19 CCR §2762.8(c) & §2762.10(a)(3)]	New	* Review any written comments by employees and owner or operator responses on the compliance audit report. 1. Program 4 states that “The owner or operator shall respond in writing within 60 calendar days to any written employee or employee representative comments on the written audit report.” [T19 CCR §2762.8(c)]	Per interview and live navigation, employees and employee representatives have access to the compliance audit reports on the facility server. They get notified by email or during safety meetings.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A44-10	Program 4 CalARP	Has the owner or operator followed the corrective action work process documented in §2762.16(d) and (e) when developing the resolution and implementation of compliance audit recommendations? [T19 CCR §2762.8(d)]	New	1. As part of the ARP Management System, the owner or operator shall develop and document a corrective action work process to address findings and recommendations including: (a) Rejection of recommendations; (b) Alternative safeguards; (c) Written comments by team members; written comments on any rejected or changed findings and recommendations; and (d) Final decision for each recommendation [T19 CCR §2762.16(d & e)] 2. Program 4 states “The owner or operator shall develop and document corrective actions to implement each accepted recommendation, including documentation of a completion date and assignment of responsibility for completion of each corrective action. All target dates shall be consistent with the requirements of subsections (10) through (13) for completion of corrective action items.” [T19 CCR §2762.16(e)(7)] 3. Any proposed change to a completion date shall be conducted through MOC per §2762.6. [T19 CCR §2762.16(e)(9)]	CCHS reviewed the P&P Manual Section 10.0-3: PSM - CalARP Program 4, Corrective Action Work Process, last reviewed 9/1/2018. As part of the ARP Management System, the refinery has developed and documented a corrective action work process to address findings and recommendations including: (a) Rejection of recommendations; (b) Alternative safeguards; (c) Written comments by team members; written comments on any rejected or changed findings and recommendations; and (d) Final decision for each recommendation. The refinery Corrective Action Work Process is part of the refinery's Health, Safety, and Environmental Management System. This work process required all documentation for rejected or changed recommendations including team member comments and final decisions shall be attached to the IMPACT entry and added to the applicable PHA, DMR, HCA, SPA, compliance audit, or incident investigation report. As recommendations from the 2019 compliance audit have not yet been formally issued, CCHS does not have any evidence that this process is fully followed. Consistent with the findings in A44-05, See a management ensure action in A49-14 that addresses this requirement.	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A44-11	Program 4 CalARP	As part of performing the compliance audit, has the owner or operator consulted with operators with expertise and experience in each process audited and documented the findings and recommendations from these consultations in the audit report? [T19 CCR §2762.8(f)]	New		The effective date of the P4 compliance audit requirement was 10/1/2017 making the first P4 compliance audit due no later than 10/1/2020. The most recent internal compliance audit was reported to have been conducted from July 22 through August 1, 2019 by HSE corporate auditing staff but the audit report had not been issued yet during the CalARP audit (January 2020). Per interview with the employee representatives, they were invited to attend the initial meeting with the Corporate Auditing team, but have not been offered a chance to review to close out the findings for compliance audits.	N/A	None

A45 - CalARP Prevention Program: Incident Investigation (Program 4)

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A45-01	Program 4 CalARP & ISO	Has the owner or operator developed, implemented, and maintained effective written procedures for promptly investigating and reporting any incident that results in or could reasonably have resulted in a major incident, or catastrophic release of a regulated substance? [T19 CCR §2762.9(a) & ISO Section 450-8.016(a)(9)(A)] Does the Stationary Source ensure that a Root Cause Analysis is conducted for each Major Chemical Accident or Release (MCAR) and for each incident that resulted in or could have reasonably resulted in a major incident? [ISO Section 450-8.016(c)(1) and Section C of the CCHMP Safety Program Guidance Document]	Abr	* Review the Incident Investigation procedures to ensure they include an effective method for conducting a thorough RCA (see list in Section C of CCHMP Safety Program Guidance Document). Note: RCAs are only required for MCARs [ISO Section 450-8.016(a)(9)(A)] and incidents that resulted in or could reasonably have resulted in a major incident. [T19 CCR §2762.9(b)]. Catastrophic releases require an incident investigation [ISO Section 450-8.016(a)(9)(A)]. * Review the Incident Investigation policy to ensure the P4/ISO stationary source has a process to conduct an HCA/ISSA on recommendations from a major incident investigation or if the investigation recommends a “major change” that could reasonably result in a MCAR. Policy wording should also identify to complete HCA/ISSA as soon as administratively practicable after completion of the incident investigation report. [ISO Section 450-8.016(i)(1)(D)] * Review incident investigation records for any qualifying recommendations that trigger HCA/ISS and provide records to auditor doing A59 so HCA/ISS can be evaluated. * Review how the stationary source defines an "incident that could reasonably have resulted in a major incident or catastrophic release of a regulated substance" and how and when they	Phillips 66 has established P&P tilted, "Element 10.0: Non-conformance, Investigation and Corrective Action", dated 5/15/19, which aims to set up uniform procedures to manage incidents and near misses at the San Francisco Refinery, find root causes, develop appropriate recommendations, complete recommendations and communication to stakeholders. Per Section D.2 "Incident Classification and Risk Ranking" of the policy, all incidents are first risk ranked and then classified as one of the following types of incidents Community Issues, Environmental, Injury/Illness, Process Safety Event, Property Damage / Loss, Quality, Security, Vehicle, serious incident, RMP Incident, MCAR, Environmental Incident, Process Safety Event, Major Incident, catastrophic release. P66 uses the Corporate HSE Risk Matrix for assessing the relative importance of all incidents. The matrix is comprised of a 1 to 5 numerical scale for event likelihood and severity which produces a risk rank. Risk rank is categorized of a scale I-IV (I-low, II=Medium, III = significant, and IV-High). Major Incident is defined by both Cal OSHA 5189.1 and CalARP 2735.3. The facility has developed a flow chart for verifying if incidents meet Major Incident definition. The flow chart lays out the definition in facile form but it is based on Cal OSHAs definitions of Major Incident and not CalARP, which they are slightly different. Per the flow chart (and Cal OSHA), process events that include the Highly Hazardous Material that results in a Shelter in Place or Evacuations is a Major Incident, but technically per CalARP Major Incidents are only when the evacuation or shelter in place is "officially declared public shelter-in-place" or a "[officially declared public] evacuation order". Onsite evacuation and shelter in place alone does not qualify as a Major Incident. The facility should consider clarifying the flow chart to reflect the regulatory language. Per the policy, the most comprehensive investigative method is "Full Team", which is performed for all	Y	None

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				investigate these types of events. This may include "near misses". "Near misses" are an incident that has the potential for injury and/or property damage. [Guidelines for Auditing Process Safety Management Systems - CCPS] 1. Incident Investigations should occur no later than 48 hours after the incident. 2.Major incident: an event within or affecting a process that causes a fire, explosion or release of a highly hazardous material, and has the potential to result in death or serious physical harm (as defined in Labor Code Section 6432(e), or results in an officially declared public shelter-in-place, or evacuation order. Serious physical harm means any injury or illness, specific or cumulative, occurring in the place of employment or in connection with any employment, that results in any of the following: (1) Inpatient hospitalization for purposes other than medical observation; (2) The loss of any member of the body; (3) Any serious degree of permanent disfigurement; (4) Impairment sufficient to cause a part of the body or the function of an organ to become permanently and significantly reduced in efficiency on or off the job, including, but not limited to, depending on the severity, second-degree or worse burns, crushing injuries including internal injuries even though skin surface may be intact, respiratory illnesses, or broken bones. [T19 CCR §2735.3(ii) & Labor Code Section 6432(e)] 3. “Catastrophic release” means a major uncontrolled emission, fire,	incidents or near miss incidents with a risk ranked category III or IV, major incidents, near miss MCAR and MCAR. The "Full Team" investigative process uses a Root Cause Analysis Methodology, TapRoot or Cause Mapping. CCHS notes that TapRoot is a methodology that the county recognizes as including human factors to investigate MCAR or near miss MCARs. The facility has also developed a Human Factors Pre-Checklist (R-10.0-7) that is required for MCAR and near miss MCAR events. Per review of the incidents and through interviews, the facility has not had any MCAR events or Major Incidents dating back to the previous CalARP/ISO.		

				or explosion, involving one or more highly hazardous chemicals that presents serious danger to employees in the workplace and/or the public. [ISO Section 450-8.014(q)]			

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A45-03	Program 4 CalARP & ISO	Was an incident investigation team established and did it, at a minimum, consist of: a) A person with expertise and experience in the process involved; b) A contractor employee and contractor employee representative if the incident involved work of the contractor; c) A person with expertise in overseeing the investigation and analysis; d) Other persons with appropriate knowledge and experience to thoroughly investigate and analyze the incident; and e) A person with expertise in the owner or operator's incident investigation methodology? [T19 CCR §2762.9(d) & ISO Section 450-8.016(a)(9)(C) & Section C.2.2 of the CCHMP Safety Program Guidance Document] For Major Incidents, does the owner or operator provide effective training to employees and employee representatives before serving on a RCA team sufficient to understand the methodology and tools expected to be used? [T19 CCR §2762.4(e)]	New	* Review the II/RCA report to look for affected operating and maintenance employees and employee representative participation in all phases. [T19 CCR §2762.10(a)(2)] Note: should include related review such as DMR and HCA. Selected employee should not be person involved in the incident or presents a conflict of interest. 1. The incident investigation team must implement the owner or operator's root cause analysis method to determine the underlying causes of the incident. [T19 CCR §2762.9(e) 2. Stationary sources need to develop in-house capability to investigate incidents occurring in their facilities. This is optional, but should be considered. [29 CFR 1910.119 – Appendix C] 3. Investigation team members need training in investigation techniques including (a) conducting interviews of witnesses, (b) documentation of information, and (c) investigation report writing. This is optional, but should be considered. [29 CFR 1910.119 – Appendix C] 4. Core team members should receive training on the incident investigation methodology. Just in time training is sufficient. [Section C.2.2.2 of the CCHMP Guidance Document] 5. CCHMP interprets "Program elements relevant to that team" to be the methodology and tools that are expected to be used by the team which may include study concepts, process hazards, results and conclusions training.	For this CalARP ISO audit, CCHS first requested a list of all incidents investigated dating back to the last CalARP audit from Units 215, and Unit 230. CCHS also requested a listing of all incidents with the highest criticalities (high and significant) also dating back to the previous audit. From these lists CCHS randomly selected 14 incident investigation reports to complete a detailed review for this audit. Per policy, the Level of investigation determined the team makeup. Section D.2.e of the policy requires all Incidents that are classified as Significant and High, including all Major Incidents (P4) and MCAR (ISO) to be investigated using a "Full Team" investigation. Per policy, section D.3 page 11, the following investigation team members are required, Independent Department Head Leader, Represented Employee, H&S Representative, facilitator trained in the methodology, technical experts, and contractor representative. As indicated in A45-01, the facility did not have any MCAR or Major Incidents dating back to the previous CalARP / ISO audit. CCHS was provided a list of individuals that were trained in the RCA methodology and confirmed that that at least one team member from each investigation was trained in the methodology. CCHS confirmed with USW Representative through interviews that the facilitator provides training to Operators and operator representatives in the RCA methodology prior conducting the analysis.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A45-04	ISO	Did the stationary source promptly address and resolve incident report findings and recommendations and was a report prepared at the conclusion of every investigation? [ISO Section 450-8.016(a)(9)(D & E)]	Abr	1. This question applies to all non-RCA incident investigation reports. 2. Report shall include the date of the incident, date investigation began, description of the incident, factors that contributed to the incident, recommendations resulting from the incident, and if recommendation is applicable refinery-wide. 3. ISSA needs to be performed for any II recommended major change that could reasonably result in an MCAR.	Section D.3.a., page 11, of the policy establishes target closure dates for the incident investigation based on the assessment level. All Full Team investigations are targeted to be closed in less than 60 days, full team investigations applies to MCAR, Major Incident, Significant and High. All Small or Technical Team level target closure date is 30 days or less. Per CCHS review of the 14 incident investigations, Phillips 66 has completed the recommendations promptly and within their own policy timeframes.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A45-07	Program 4 CalARP & ISO	Does the RCA/ Incident investigation report include the following: a) Date and time of the incident; b) Date and time the investigation began; c) A detailed description of the incident; d) The factors that caused or contributed to the incident, including direct causes, indirect causes and root causes, determined through the root cause analysis; e) A list of any DMR(s), PHA(s), HCA(s), and Safeguard Protection Analyses (SPA(s)) that were reviewed as part of the Investigation; f) Interim recommendations to prevent a recurrence or similar incident [Section 2.2.3 of the CCHMP Safety Program Guidance Document]; g) Recommendations for permanent corrective action [T19 CCR §2762.9(i)] h) Whether the cause of the incident and/or recommendations resulting from the investigation are specific only to the process or equipment involved in the incident, or are applicable to other onsite processes or equipment? [ISO Section 450-8.016(a)(9)(D)]	New	* For non RCA incident investigations only a) through d) and f) and h) are required. * Review report to make sure that HCAs performed for recommendations resulting from a major incident are appended to the final investigation report. [T19 CCR §2762.9(g)]. Note: number of HCAs performed should be referred to A58-01 for review. * Verify the investigations were started within 48 hours of the incident. [T19 CCR §2762.9(c)] 1. The team shall develop recommendations to address the findings of the investigation. [T19 CCR §2762.9(g)] 2. CCHMP recommends the report include the information that is required in §2750.9(b) of the 5-year accident history: (a) Date, time, and approximate duration of the release, (b) Regulated substance(s) released, (c) Estimated quantity released in pounds, (d) Type of release event and its source, (e) Weather conditions if known, (f) Onsite impacts, (g) Known offsite impacts, (h) Initiating event and contributing factors if known, (i) Whether offsite responders were notified if known, (j) Operational or process changes that resulted from investigation of the release [T19 CCR §2750.9(b)]. 3. CCHMP Suggests the following topics and format (a) Table of Contents; (b) Executive Summary; (c) Introduction;	P66 has developed two report templates for documenting incident investigations, document R-10.0-4 Small/Technical Team Report and document R-10.0-5 Full Team Report Template. Both reports templates include the following information -- Date of the incident; -- Description of the incident -- Incident Causes -- List of recommendations Form R-10.0-4 template for small team does not include the date and time the investigation began, but per policy the investigation must begin in 48 hours and is included in the IMPACT report. CCHS confirmed that the full team investigations include the time and date the investigation begin. Per interview with SME all RCA investigations identify both root cause and contributing/indirect causes. Per review of the full team and small team investigation and IMPACT reports, they included the date and time of the incident. CCHS notes that as part of the industrial safety ordinance, all incidents which resulted in, or could reasonably have resulted in a catastrophic release (as defined by ISO not CalARP) of a regulated substance, the investigation reports, need to include a written summary to indicate whether the cause of the incident and/or recommendations resulting from the investigation are specific only to the process or equipment involved in the incident, or are applicable to other processes or equipment at the stationary source. The facility should consider updating both Incident Report Templates to describe whether the causes of the incident are specific to the process/equipment or are they applicable to other processes/equipment.	Y	None

(d) Scope of Investigation;
(e) Investigation team makeup;
(f) Description of the incident, including on-site and off-site affects;
(g) Brief description of the process involved;
(h) Facts, including a time line;
(i) Causal Factor Analysis, concluding with citing of underlying causes;
(j) Recommendations;
(k) Justification for not implementing recommendations, if any;
(l) Schedule for implementing recommendations; and
(m) Glossary. [Section C.2.2.3 of the CCHMP Safety Program Guidance Document]

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A45-10	Program 4 CalARP & ISO	Did/does the owner or operator address and resolve each corrective action from an RCA incident investigation including interim actions and document the final resolutions promptly but no later than one and one-half (1.5) years after the completion of the investigation unless the owner or operator demonstrates in writing that it is infeasible to do so? [T19 CCR §2762.9(g & I), §2762.16(e)(12)] Are recommendations from incident investigations promptly addressed and ISS addressed as required in subsection (i) of the ISO? Are resolutions and corrective actions documented? [ISO Section 450-8.016(a)(9)(E)]	Abr	1. Recommendations must include interim actions that will reduce the risk of recurrence or similar incident until final actions can be implemented. [T19 CCR §2762.9(g)] 2. The owner or operator may reject a team recommendation if the owner or operator can demonstrate in writing that one of the following applies: (a) The analysis upon which the recommendation is based contains material factual errors; (b) The recommendation is not relevant to process safety; or (c) The recommendation is infeasible; however, a determination of infeasibility shall not be based solely on cost. [T19 CCR §2762.16(e)(2)] 3. The owner or operator may change a team recommendation if the owner or operator can demonstrate in writing that an alternative inherent safety measure would provide an equivalent or higher order of inherent safety, or, for a safeguard recommendation, an alternative safeguard would provide an equally or more effective level of protection. [T19 CCR §2762.16(e)(3)] 4. Each corrective action requiring a process shutdown shall be completed during the first regularly scheduled turnaround of the applicable process, subsequent to completion of the incident investigation, unless the owner or operator demonstrates in writing it is not feasible to do so. [T19 CCR §2762.16(e)(13)]	CCHS notes that the facility has not had any Major Incidents. However, CCHS reviewed Manual Section 10.0-3 CalARP Program 4 Corrective Action Work Plan (reviewed 9/1/18), which states on pg. 3, "Each corrective action from a Major Incident investigation shall be completed within one and half years after the investigation unless the owner or operator demonstrates in writing that it is infeasible to do so." Per review of the incident investigation policy CCHS notes that in Section D.3.n, page 15 of the P&P 10.0-1 states, (ISSA, also called a Hierarchy of Controls Analysis, HCA)." Technically this is incorrect per Phillips 66 own policies which treats HCA and ISSA as two separate analysis, ISSA is defined by policy 2.0-7 (7/20/16) while HCA is defined by policy 2.0-14 (dated 6/30/19). During the audit the policy was redlined and an action item is not warranted.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A45-11	Program 4 CalARP	Has the owner or operator tracked each recommendation with a corrective action plan to completion and appended the documentation of completion with actual completion dates to the incident investigation report? [T19 CCR §2762.9(l), §2762.16(e)(9,15)]	New	1. The corrective action plan shall include review, and revalidation as necessary, of the appropriate portions of all relevant PHAs and DMRs. [T19 CCR §2762.9(l)] 2. Any proposed change to a completion date shall be conducted through MOC per §2762.6. [T19 CCR §2762.16(e)(9)]	Each recommendation is entered into the IMPACT database. Phillips 66 developed an IMPACT Incident Closure Tool (form) R-10.3-3, which is attached to the closure to the recommendations. CCHS notes that in addition, supporting documentation is attached to the recommendation to support the closure and the provide evidence of the actual completion date.	Y	None
A45-13	Program 4 CalARP	Are incident investigation reports retained for the life of the process unit? [T19 CCR §2762.9(m)]	New	1. ISO only requires reports to be maintained for five years so P4 is more conservative. [ISO Section 450-8.016(a)(9)(G)]	Report are maintained in electronic form on the IMPACT database, and are maintained for the life of the process.	Y	None
A45-14	ISO	Are incidents "tracked" in any way to identify "trends" that may lead to prevention/risk reduction?	Abr	1. "Tracking trends" is optional for stationary sources; however it would be beneficial if stationary sources implement similar "optional" activities.	Section 5, "Trending and Analysis of Investigations and Action Plans", Page 17, states, "HS&E Department shall issue monthly Status Reports with the following metrics: the number of open, closed and past due incident investigations, and closure rate." Additionally the HS&E Department shall issue quarterly Trend Report of incidents with the breakdown of incident types and Risk categories. This tracking is not intended to identify trends.	Y	None
A45-16	Program 4 CalARP & ISO	Do the submitted RMP and Safety Plan accurately reflect the existing Incident Investigation Program at the stationary source? [T19 CCR §2745.2(d) & ISO Section 450-8.016]	Abr		Both the submitted RMP, dated 9/13/19, and the Safety Plan, dated August 6, 2018, generally describes the Incident Investigation Program but do not include some of the key updates including a descriptions of Major Incident. The facility should update the RMP and Safety Plan to accurately describe Major Incident.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A45-17	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the stationary source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate 'repeat' for identical non-compliance, or use 'modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	There were no ensure action items associated with previous CalARP / ISO audit for this questionnaires equivalent in Program 3 (A19). This question is not applicable.	N/A	None
A45-18	Program 4 CalARP	Did the incident investigation team review the related DMRs that were performed and incorporate the applicable findings from these DMRs into the incident investigation? [T19 CCR §2762.9(f)]	New	1. P4 states, "As part of an incident investigation pursuant to section 2762.9, where a damage mechanism is identified as a contributing factor, the owner or operator shall review the most recent DMR(s) that are relevant to the investigation. If a DMR has not been performed on the processes that are relevant to the investigation, the owner or operator shall conduct and complete a DMR prior to implementation of corrective actions pursuant to section 2762.16(d) and (e)." [T19 CCR §2762.5(e)(3)]	As indicated in question A45-01, the facility did not have any qualifying major incidents therefore technically this question is not applicable. CCHS notes attachment 1 "Major Incident Investigation Requirements", to the P&P 10.0-1, states "the team will review (when applicable) Damage Mechanism Review (DMR)."	N/A	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A45-19	Program 4 CalARP	Did affected operating and maintenance employees and employee representatives effectively participate throughout all phases in the implementation of the incident investigation program? [T19 CCR §2762.10(a)(2)]	New	1. “All phases” may include employee participation in recommendation closure verification or other activities, check employee participation policy for details. *Review training record related to the Incident Investigation program. If there are issues with development and implementation of the training, coordinate with the auditor of A46-01 (Employee participation).	CCHS reviewed the list of participants in the Full Team investigations and confirmed that employee represented either participated in the investigation or designated a participant. Per interview with employee representative, they felt employees have been adequately involved in the full-team investigations. They are also involved with reviewing the incident investigation policy as needed. USW Representative can also conduct their own interviews of employees as needed to support the investigation.	Y	None
A45-20	Program 4 CalARP & ISO (RCA)	Does the Stationary Source periodically update CCHMP regarding the facts related to the MCAR incident/release and the status of the Root Cause Analysis during meetings with CCHMP? [Section 450-8.016(c)(1)] Are reports for Major Incidents provided to the department for posting on the website? [T19 CCR §2762.9(j)]	New	1. These meetings are to be coordinated with other agencies with jurisdiction over the Stationary Source to the extent possible. [ISO Section 450-8.016(c)(1)] 2. Reports from investigation of major incidents must be made available to the public by posting the final report on the Unified Program agencies website within 30 calendar days of receipt. [T19 CCR §2762.9(j)]	As indicated in question A45-01, the facility has not had a MCAR event nor a Major Incident since the last CalARP / ISO audit so technically this question is not applicable. Per Section D.3.r, page 15 of P&P 10.0-1, the San Francisco Refinery will follow Contra Costa County Hazardous Materials Incident Notification Policy. Page 24 pf the policy states that for all MCAR and Major Incidents that they will submit a final report to CCHS within 5 months of the incident.	N/A	None
A45-21	Program 4 CalARP & ISO (RCA)	Does the owner or operator ensure that the final report containing the Root Cause Analysis will be submitted to CCHMP consistent with the classification of the incident? [ISO Section 450-8.016(c)(1) & Section C.2.2.4 of the CCHMP Safety Program Guidance Document & T19 CCR §2762.9(h)]	New	1. For RCAs conducted for a near miss or MCAR, the facility has 30 days to submit the report to CCHMP from the completion of the Root Cause Analysis. [ISO Section 450-8.016(c)(1) & Section C.2.2.4 of the CCHMP Safety Program Guidance Document] 2. For RCAs conducted for Major Incidents, the facility has 90 calendar days from the date of the incident to submit the report to CCHMP. [T19 CCR §2762.9(h)]	As indicated in A45-20, the facility follows CCHS Incident Notifications Policy, for all MCAR events, which includes near miss MCARs. Per interview with the II SME, the facility has not had any near miss MCARs and MCAR incidents. In addition, CCHS requested a list of all events that were risk ranked significant and high consequence events and randomly reviewed incidents Impact reports and believes none met near miss MCAR nor Major incident. Attachment 1, "Major Incident Investigation Requirements", states that the facility will "Submit the written report to the UPA within 90 days. If additional time is needed, submit a status report within 90 days and every 30 days thereafter. A final report must be submitted within 5 months of the incident". The facility has not had any Major Incidents since the new regulations went into effect on October 1, 2017.	Y	None

A46 - CalARP Prevention Program: Employee Participation (Program 4)

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A46-01	Program 4 CalARP & ISO	Did the owner or operator develop, implement and maintain a written plan to effectively provide for employee participation in the Accidental Release Prevention elements in consultation with employees and employee representatives throughout all phases in the development, training, implementation and maintenance of the Accident Release Prevention elements? [T19 CCR §2762.10(a)(2) & ISO Section 450-8.016(a)(3)]	New	* Review documents such as meeting minutes that would demonstrate this consultation including how the program should be implemented. * Verify that both represented employees and non-represented employees are discussed in the employee participation policy; if not, verify that there are opportunities for non-represented employees to be selected for participation in team-based activities. 1. An authorized collective bargaining agent may select employee(s) to participate in overall CalARP program development and implementation planning and for employee(s) to participate in each team-based activity. [T19 CCR §2762.10(b) & ISO Section 450-8.016(a)(3)] 2. Employee participation in “all phases” as defined by the facility's policy should include, but is not limited to: (a) Initial, refresher and supplemental training provided to operators; (b) Refresher and supplemental training provided to maintenance employees; (c) Unit process hazards communicated to contract and maintenance personnel; (d) Operator training to remain qualified; (e) Operator training competency testing; (f) Training provided to all affected employees on the Program 4 elements;	CCHS reviewed the P&P Manual Section 5.0-3: PSM/CalARP Employee Participation last reviewed 6/1/2018. This policy has been updated to ensure effective employee participation in the process safety management (PSM) standard elements as defined by Cal OSHA Program 4 and those for CalARP Program 4, County ISO and EPA RMP. This plan includes provisions that provide for the effective participation of operations and maintenance employees and employee representatives throughout all phases of development, training, implementation, and maintenance of the PSM and CalARP elements. "PSM" includes "CalARP" when used in this plan. Per the Employee Participation policy, the employees and their representatives shall have access to all information that is developed to comply with the PSM and CalARP regulations. Information that may not be readily available can be obtained by the request to the employee's supervisor or any member of the H&S Department. Employees who participate in program development and team activities may be selected by the authorized collective bargaining unit. The USW PSM representative, Joint Labor-Management Health & Safety Committee, and USW Local 326 are consulted when programs are developed or revised and for selection of qualified employees for specific PSM teams or other program activities. Per interview and review of completed studies such as PHAs, SPAs, DMRs, MOCs, MOOCs, Compliance audits and Incident Investigations, employees and their representatives are consulted on the development of elements of PSM/CalARP. However they have not been involved with conducting HCAs for PHA recommendations that could have a scenario that has potential for a major incident.	P	Ensure that employees and representatives participate in conducting HCAs for PHA recommendations that could have a scenario that has potential for a major incident.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				(g) Training for specialized teams (e.g., PHA, DMR, HCA, MOC, MOOC, PSCA, SPA, PSSR, incident investigation/RCA); (h) Training provided to employees related to any CalARP Program (e.g., MOC, PSSR, Human Factors). [CCHMP interpretation of effective participation in all phases within T19 CCR §2762.10(a) and §2762.4(f)] 3. The owner or operator should consider forming safety and health committees with employees and management representatives. [29 CFR 1910.119 Appendix C]	CCHS reviewed the Joint Health and Safety Committee meeting minutes for the past one year. The Health and Safety Committee is comprised of employee representatives and management. Per review of the meeting minutes, the committee discusses various CalARP elements except for HCA which has not yet been conducted for the qualified PHA recommendations.		
A46-04	Program 4 CalARP & ISO	Did employees and employee representatives have access to all documents or information developed or collected by the owner or operator related to the PHA and SPA program including information that might be subject to protection as a trade secret? [T19 CCR §2762.10(a)(3) & ISO Section 450-8.016(a)(3)]		1. There must be no unreasonable delays in providing access. [OSHA Instruction CPL 2-2.45A CH-1, Appendix A, September 1994] 2. Time must be provided during working hours to access this information. [OSHA Instruction CPL 2-2.45A CH-1, Appendix A, September 1994] 3. The owner or operator may require an employee or employee representative to whom information is made available to enter into a confidentiality agreement. [T19 CCR §2762.10(d)]	Per interview and the policy as described in A46-01, the employees and employee representatives have access to all documents or information developed or collected by the owner or operator related to the PHA and SPA program including information that might be subject to protection as a trade secret.	Y	None
A46-05	Program 4 CalARP & ISO	Has the stationary source provided employees and their representatives with access to all information related to the Accidental Release Prevention program required to be developed under this Article? [T19 CCR §2762.10(a)(3) & ISO Section 450-8.016(a)(3)]		1. There must be no unreasonable delays in providing access. [OSHA Instruction CPL 2-2.45A CH-1, Appendix A, September 1994] 2. Time must be provided during working hours to access this information. [OSHA Instruction CPL 2-2.45A CH-1, Appendix A, September 1994]	Per interview and the policy as described in A46-01, the refinery provides employees and their representatives with access to all information related to the Accidental Release Prevention program required to be developed under Cal OSHA Program 4, CalARP Program 4 and the County ISO regulatory requirements.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A46-06	Program 4 CalARP & ISO	Do the submitted RMP and Safety Plan accurately reflect the Employee Participation Program at the stationary source? [T19 CCR §2745.2(d) & ISO Section 450-8.016)]	Abr		The RMP submitted 9/13/2019 pages 44-47 and Safety Plan submitted 8/6/2018 pages 11-12 accurately reflect the Employee Participation Program at P66.	Y	None
A46-07	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the Stationary Source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate 'repeat' for identical non-compliance, or use 'modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	There were no ensure action items associated with the previous CalARP/ISO audit of this questionnaire. This question is not applicable.	N/A	None

A47 - CalARP Prevention Program: Contractors (Program 4)

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A47-01	Program 4 CalARP & ISO	When selecting a contractor, does the owner or operator obtain and evaluate information regarding the contract owner or operator's safety performance and programs and ensure that the contractors and subcontractors use skilled and trained workforce pursuant to HSC Section 25536.7? [T19 CCR §2762.12(b)(1) & ISO Section 450-8.016(a)(11)]	Abr	* Look for skilled and trained workforce as it is defined as one that consists of registered apprentices or skilled journeypersons as described in HSC 25536.7 section 2(b)(9): (A) The worker either graduated from an apprenticeship program for the applicable occupation that was approved by CalOSHA or has at least as many hours of on-the-job experience in the applicable occupation that would be required to graduate from an apprenticeship program. (B) The worker has completed within the prior two calendar years at least 20 hours of approved advanced safety training for workers at high hazard facilities. This applies only to work performed on or after July 1, 2018. (C) For contracts awarded, extended or renewed as of January 1, 2014, at least 30 percent of the skilled journeypersons are graduates of an apprenticeship program for the applicable occupation that was either approved by the chief pursuant to Section 3075 of the Labor Code or located outside California and approved for federal purposes pursuant to the apprenticeship regulations adopted by the federal Secretary of Labor. As of January 1, 2015, at least 45 percent, and as of January 1, 2016, at least 60 percent. [SB54_Section 25536.7, SEC 2 (b)] 1. This section applies to contractors performing maintenance or repair, turnaround, major renovation, or specialty work on or adjacent to a covered process. It does not apply to contractors providing the incidental services which do not influence process safety such as janitorial work, food and	CCHS reviewed P&P 6.3, SFR Contractor Safety Management Program (revised 4/01/19) which describes the "HSE aspects of the contractor procurement process and the associated recordkeeping." The facility uses the Safety Approval Contractors Status (SACS) list which is a list of contractors that have been assessed and approved by the H&S Department. For contractors that do not meet the criteria for SACS, the facility uses the Alternate Contractor Safety Approval Process which would be as follows: -- Contract company has conditional approval on the SACS list -- Contract company does not meet the established criteria but facility does not have viable alternative -- Unusual circumstances exist that require the use of Contract company that cannot provide the information required by ISN on the H&S department to fully access their safety programs and performance. -- (Note: Alternate approval under these circumstances not to extend for more than 3 months.) CCHS interviewed the contractor safety coordinator who elaborated on the contractor approval process that is used by the three P66 sites in California, including SFR (San Francisco Refinery or P66 in Rodeo). The facility uses ISNet to collect documentation for the safety performance metrics and to ensure that the contractors meet the requirements of HSC 25536.7 in terms of having a skilled and trained workforce. The facility has worked with OSHA to ensure that the training provided by OSCA met the 20 hour requirement and each contractor that the facility uses has been vetted by ISNet which included	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				drink services, laundry, delivery or other supply services. [T19 CCR §2762.12(a)]	meeting the 20 hour requirement.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A47-04	Program 4 CalARP & ISO	Does/did the owner or operator periodically evaluate and document the evaluation of the performance of the contract owner or operator in fulfilling their obligations as specified in T19 CCR §2762.12(c)? [T19 CCR §2762.12(b)(5-6) & ISO Section 450-8.016(a)(11)]	Abr	1. The employer must ensure through periodic evaluations, that the training provided to contractor employees by the contract employer is equivalent to the training required for direct hire employees [OSHA Instruction CPL 2-2.45A CH-1 Appendix A, September 1994] 2. Employers must periodically audit contractor's performance in the field. A records review alone is not acceptable. [OSHA Region VI presentations on PSM in January, 1994]	CCHS reviewed P&P 6.3 which describes the responsibilities of the different contractor holders. In the case of field auditing of contractors, the contractor safety coordinator monitors the contract company work and safety performance. Per CCHS interview with the contractor safety coordinator, the contractors who come onsite regularly are audited quarterly. CCHS reviewed the spreadsheet that is used to track the field audits that are performed for each of the contractors onsite and monitored by the contractor safety coordinator. The spreadsheet has the names of the contractors and the frequency of the field audits. The facility gives a Risk ranking to contractors of 1-4. The contractors who are given a Risk ranking of 3 or 4 are those contractors who work in or around a process unit. There are 157 contractors who are Risk ranked either 3 or 4. Some of these contractors come on site infrequently. Per the contractor safety coordinator, any contractor that comes onsite for more than 2 weeks must have a field safety evaluation. The contractor coordinator indicated that there are 6-8 office audits of contractors per year. Given there could be 157 contract companies subject to this evaluation each year, the number of evaluations typically performed each year is not adequate. The facility needs to develop a system to increase the number of periodic evaluations per year to be appropriate for all contractors risk ranked 3 and 4 such that applicable contracting companies are evaluated in a reasonable amount of time. Such a system should apply to all contractors who come onsite who work on or adjacent to a covered process regardless of size of contract workforce or duration. The scope should	P	Ensure that the contractor auditing program is modified to increase the number of annual periodic evaluations to assess whether contract owners are assuring that contract employees are properly trained in the work practices necessary to safely perform his or her job. Ensure that the contractor auditing program is modified to include all contractors risk ranked 3 or 4 regardless of the size of their contract workforce, frequency onsite or duration onsite.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					be tailored to evaluate whether contract employees are trained in the work practices necessary to safely perform his or her job.		
A47-05	Program 4 CalARP & ISO	Does/did the contract owner or operator assure that each contract employee is trained in the work practices necessary to safely perform his or her job including, but not limited to, the following: a) Potential hazards related to their job; b) Applicable refinery safety rules; c) Applicable provisions of the owner or operator's emergency action plan; and d) Requirements of HSC Section 25536.7? [T19 CCR §2762.12(c)(1) & ISO Section 450-8.016(a)(11)]	Abr	* Review contractor training records to determine whether there is documentation that contract employees have been trained in the work practices necessary to perform their jobs safely. [CalOSHA Consultation, Guidelines for Process Safety Management, Part 1, June 1994] 1. The facility should be knowledgeable in how the contract owner trains contract employees. [CCHMP Interpretation] 2. The facility should request/review documentation from the contract owner to ensure that only properly trained contractors work on or near covered processes. Owner or operators do not have to maintain the actual training records on site, but should maintain at least a record of the review process. [CCHMP Interpretation]	CCHS reviewed the contractor audits that were performed by the contractor safety coordinator at different contractor sites. A checklist was used to evaluate each of the contractors. Per CCHS interview, there is a checklist that is used by the contractor safety coordinator as well as documents generated by the contractors that contain the pictures of each contractor employee, the background verification, and the training topics. For example, one of the training records covered the following: principles of petroleum refining, refinery safety overview, safety as it pertains to crafts, and P66 Rodeo SFR (San Francisco Refinery) contractor site specific orientation. Per interview with the contractor safety coordinator, ISNet culls only those contractors who meet the requirement of the 20 hr training for HSC 25536.7. CCHS confirmed that on the checklists reviewed, the P66 auditor looked for the 20 hours of training for each of the contractors audited. This was in addition to the requirements that P66 had placed on the contractors available via ISNet.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A47-08	Program 4 CalARP & ISO	Does/did the contractor owner or operator maintain a record for each contract employee that has successfully completed the training required by this section identifying: a) Each employee who has received training, b) The date(s) and subjects(s) of training, and c) The means used to verify that the employee understood the training? [T19 CCR §2762.12(c)(2) & ISO Section 450-8.016(a)(11)]	Abr	* Review the records maintained by the facility that document that the contract owner maintains these training records. This may be an audit process by the facility. If it is an audit process, we need to ensure that the training records are being audited. The operator can also keep these records onsite. If this is being done, we need to audit this record keeping. 1. The facility should be knowledgeable in how the contract owner trains contract employees. Some of the topics that may be covered in training: LOTO, PPE, Emergency situation, plant safety, hot work, line breaking, confined space entry, elevated work, hazardous materials communication, live electrical hazards. [CCHMP Interpretation] 2. The facility should request/review documentation from the contract owner to ensure that only properly trained contractors work on or near covered processes. Owner or operators do not have to maintain the actual training records on site, but should maintain at least a record of the review process and records reviewed. [CCHMP Interpretation]	CCHS reviewed the contractor audits from 2018 & 2019 and each had a list of employees who are used in the facility with training documentation that included the name of the employee, the date and subject of training, and verification of training. The training covered hole watch, fire watch, and safety attendant. CCHS reviewed records of contractors that were evaluated by the facility in 2018 (7 contractors) & 2019 (5 contractors). These training packages included lists of training topics (for example, proper safety attendance turnover, supervisor training, hydrogen sulfide awareness, stop work authority, confined space) that had been completed along with the designation of Pass, a percent such as 80 or 70, and letters A or B; for example, hands on agility would receive a letter grade. These were under the heading of Score indicating the results of tests taken after receiving training. There was also, as part of status verification, a sheet for each employee that had OSCA High Hazard Training.	Y	None
A47-11	Program 4 CalARP & ISO	Does the submitted RMP and Safety Plan accurately reflect the Contractors Program at the stationary source? [T19 CCR §2745.2(d) & ISO Section 450-8.016]	Abr		The 2019 RMP and the 2018 Safety Plan both accurately reflect the Contractors program at P66.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A47-12	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the stationary source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate ‘repeat’ for identical non-compliance, or use ‘modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	There was one ensure action item from the previous CalARP audit which has been repeated in A47-04. See A49-28 for the repeat Ensure action items identified during the audit.	R	None

A48 - CalARP Emergency Response Program (Programs 1,2,3,4)

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A48-07	Responding - Program 4 CalARP & ISO	Does the emergency response plan include procedures for informing and interfacing with the public and local emergency response agencies about accidental releases, emergency planning, and emergency responses? [T19 CCR §2765.2(a)(1)(A) & ISO Section 450-8.016(a)(12)(A)(i)]	Abr	1. Stationary sources in California that respond to an accidental release of regulated substances must have an emergency response program consistent with T19 CCR §2765.2 and T8 CCR §5192. 2. This requirement partially corresponds to T8 CCR §5192(q)(2)(A) and §5192(q)(2)(I).	CCHS reviewed coordination between the facility, county hazmat and local fire regarding emergency response planning and drills at various times between 2017 to 2019. This coordination included table top exercises such as responding to oil spills into San Pablo Bay (an annual exercise) and included the Coast Guard, Contra Costa Hazmat, Bay Area Air Quality Management District, Rodeo-Hercules Fire District, Contra Costa Fire Department, Contra Costa OES, Solano County, and other local refineries. Some examples of this coordination include a drill conducted involved responding to a worst-case crude spill into San Pablo Bay and a meet and greet with Rodeo-Hercules Fire District in order to familiarize the crew with the coker unit at the facility and discuss potential scenarios that could happen. CCHS reviewed the facility Emergency Response Plan (ERP) which included procedures for Public Evacuation (Section II Part 2.2.2.2), Community Shelter-in-Place (Section II Part 2.2.3.2), and notification policies for Regulatory Agencies (Section II Part 2.2.4.1). The public evacuation plan states "Evacuation of any segments of the general public in response to a refinery emergency will be at the direction of local agencies. It is the refinery's responsibility to notify the Contra Costa County Health Services Department about the emergency and provide necessary information to support their determination efforts. Local law enforcement is responsible for managing a public evacuation." The community Shelter-in-Place plan references the Community Warning System (CWS) as the means to inform the public to Shelter-in-place. Section II Part 2.2.4.1 on notification of regulatory agencies lists Contra Costa County Health Services, Rodeo-Hercules Fire District (RHFD), Crockett-	Y	None

Carquinez Fire Department, Bay Area Air Quality Management District, and Contra Costa County Office of Emergency Services as agencies that must be contacted by the Incident Commander and listed on the IC Notification Log.

Per SME interview (and supported by documentation), coordination with RHFD occurs throughout the year. The RHFD consists of only 20 firefighters who come to the refinery throughout the year for training. The facility ensures that each of the RHFD crews (three crews total) coordinates with each of the refinery brigade teams (four crews total) annually. The yearly table top oil spill drill conducted by the facility encourages participation by the government agencies, and in recent years has had an emphasis on integrated community air monitoring.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A48-10	Responding - Program 4 CalARP & ISO	Does the emergency response program include procedures for the use of emergency response equipment and for its inspection, testing, and maintenance? [T19 CCR §2765.2(a)(2) & ISO Section 450-8.016(a)(12)(A)(ii)]	Abr	* Review documentation of inspection, testing, and maintenance of emergency response equipment. [ISO Section 450-8.016(a)(12)(A)(ii)] * Review annual flow test SCBA-face pieces/regulator (by NFPA/manufacturer recommendation), 5-year hydrotesting on SCBA tanks (w/ stamp). 1. Stationary sources in California that respond to an accidental release of regulated substances must have an emergency response program consistent with T19 CCR §2765.2 and T8 CCR §5192. 2. This requirement partially corresponds to T8 CCR §5192(q)(2)(K) and §5192(g). 3. This includes fire water piping systems and hydrants, fire water pumps and drivers, fire trucks, SCBA, fire extinguishers, etc. [CCHMP Interpretation]	Section II Part 2.4 of the ERP contains the Response Procedures. In Section 2.4.2.1, the facility lists all of the fixed response systems, such as water storage tanks, fire hydrants, deluge systems, etc. Section II Part 2.4.2.2 details the mobile fire equipment such as fire engines, mobile command posts, and portable pumps. Also included in the mobile fire equipment section is the inspection, and maintenance requirements for all mobile apparatus. This includes a pre-trip inspection for every shift, quarterly detailed inspections on response vehicles, quarterly inspections on all mobile water and foam pumps, automotive maintenance every 90 days on fire engines, and annual preventative maintenance on all type 1 engines. Any deficiencies are either fixed at the time of the inspection, or, if that is not possible, they are forwarded to the emergency response coordinator who ranks the priority of the items. Per the First Aid, Safety, and Fire equipment policy (Manual Section 8.0-10) section D, the following equipment is listed, along with its inspection, testing and maintenance requirements: Fire Extinguishers (inspected weekly in operating areas, monthly in maintenance areas, labs and elsewhere, and serviced annually), Fire Hydrants (annual), Fire Monitors (annual), Fixed Deluge and sprinkler systems (annual), Self-contained Breathing Apparatus (SCBAs) (weekly inspection, monthly testing), and Level A Hazmat suits (tested when received, after each use, or annually per ASTM requirements). Per Emergency Response SME interview, the facility follows NFPA 25 guidelines for testing, inspection, and maintenance of fire response equipment. The facility staffs two fire inspectors whose primary focus is to inspect and ensure the fire equipment is maintained. The facility maintains a spreadsheet that lists all the different types of fire response equipment that needs to have preventative maintenance performed (extinguishers, hydrants, engines, etc.) and the frequencies of	Y	None

					this maintenance. This maintenance is also tracked using the SAP system for generating work orders. Operators are responsible for conducting weekly inspections on extinguishers and other equipment within the process units. The tool room within the maintenance shop, checks out and performs inspections, upkeep, and testing for tools, respirators, fall protection harnesses, SCBA tanks, etc. For SCBA tanks, the 5 year hydrotesting schedule is maintained using the preventative maintenance spreadsheet, and is supported by the contractors who check equipment at the tool room. Each time a tank is checked out or returned, the hydrotest date is confirmed.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A48-11	Responding - Program 4 CalARP & ISO	Does the emergency response program include training for all employees in relevant procedures and relevant aspects of the Incident Command System? [T19 CCR §2765.2(a)(3) & ISO Section 450-8.016(a)(12)(A)(iii)]	Abr	* Review the training requirements and their completion for fire brigade members to start and remain qualified. * Inquire how the stationary source staffs and plans for emergency response personnel coverage. 1. Stationary sources in California that respond to an accidental release of regulated substances must have an emergency response program consistent with T19 CCR §2765.2 and T8 CCR §5192.2. This requirement corresponds to T8 CCR §5192(q)(6), (7), and (8).	Per the ERP Section III Annex 5.2.6, members of the fire brigade will receive their "initial fire fighter training as specified in OSHA Fire Brigades California Code of Regulations 3411." Per SME interview, the facility has 4 different fire brigade crews. Each year two of the crews are required to train at an off-site fire school and the other two crews receive an on-site training. All members of the Emergency Response Team (ERT) receive training on the ICS, as part of their training to become certified Hazmat technicians. Fire Brigade leaders, and shift supervisors (who fill in as the Initial Incident Commander) have a qualification checklist that must be satisfied to fill the role as Incident Commander. Per the ERP and SME, the Incident Management Team will receive general training on the ICS annually, and quarterly training on section specific roles. New personnel in ICS roles will typically shadow a role during the drill before they take over the position. Per SME Interview, the fire brigade consists of 9 permanent employees, and is supplemented by on-call operations staff throughout the refinery units. Approximately 15 employees have pre-designated roles to fill when an emergency occurs (IC, driving fire engine, etc.), and approximately 1/4 of the operations at any given time is on-call to respond to an emergency. The facility spreads out qualified ERT members throughout the units so that units can still be safely operated in the event of an emergency that will require help from the on-call members.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A48-12	Responding - Program 4 CalARP & ISO	Does the emergency response program include procedures to review and update, as appropriate, the emergency response plan to reflect changes at the stationary source and ensure that employees are informed of changes? [T19 CCR §2765.2(a)(4) & ISO Section 450-8.016(a)(12)(A)(iv)]	Abr	1. Stationary sources in California that respond to an accidental release of regulated substances must have an emergency response program consistent with T19 CCR §2765.2 and T8 CCR §5192. 2. Stationary sources need to have a program to periodically review and update their emergency response program. Relying on using the MOC process to make changes may not satisfy this requirement since the MOC process covers only what is being changed. The MOC process may not result in a complete or very frequent review of the response plan. [CCHMP Interpretation]	Per ERP Section I Part 3.1, employees will be notified of changes to the ERP "at the following times: · When the Emergency Response Plan is initially developed. · Whenever the employee's responsibilities or designated actions under the Emergency Response Plan change. · Whenever the Emergency Response Plan is significantly changed." Section I Part 3.2 includes the procedures for updating the ERP, stating that the plan will be updated at least annually or when changes occur that necessitate an update to the plan. Review of the history of updates show that since the previous CalARP/ISO audit (January 2017) updates to the ERP are for the annual review and only contained name changes and updated phone numbers. Per SME interview, the facility ranks changes to the ERP on a 4-tier system. The lowest priority changes do not require any notification to personnel and typically involve things like fixing typos and other non-impactful changes. The next tier of changes involve minor changes that will be communicated to any affected personnel, but do not require any training. Examples of this type of change might be a change in a contact name or phone number within the policy. The next level of changes require both notification to affected personnel and an associated CBT. Examples of this type of change might be an updated standard that must be followed, but shouldn't require complete training. The last type of change is when a substantive change occurs to the plan. All affected personnel will attend a formal face-to-face training to inform them of the new changes and ensure they understand new responsibilities and requirements and gives an opportunity to ask questions.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A48-15	Program 4 CalARP & ISO	Does the submitted RMP and Safety Plan accurately reflect the Emergency Response Program at the stationary source? [T19 CCR §2745.2(d) & ISO Section 450-8.016]	Abr		Review of the emergency response sections of the submitted RMP (rev. 09/13/19, pgs. 58-62) and Safety Plan (rev. 08/06/18, pgs. 31-35) accurately reflect the Emergency Response Program at the facility.	Y	None
A48-17	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the stationary source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate 'repeat' for identical non-compliance, or use 'modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	There were no ensure action items associated with the previous CalARP/ISO audit for this program element.	N/A	None

A49: Section A - Management Systems

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A49-01	Program 4 CalARP & ISO	Does the policy and procedure include job descriptions of management positions with roles and responsibilities for each program and how staff members are assigned overall responsibility to oversee compliance for the Safety Program, safety goals that support continuous improvement and include an organizational chart? [T19 CCR §2762.16(a), §2762.16(b)(1-2) & Section A.1.1 of the CCHMP Safety Program Guidance Document]	Abr	1. The senior Stationary Source manager should be described as the person with authority and responsibility for compliance. 2. This may be documented in Stationary Source senior staff job function descriptions or competency models, the goals and responsibilities documented during regular performance reviews, etc. [Section A.1.1 of the CCHMP Safety Program Guidance Document]	CCHS reviewed P&P 1.0-11 (California Accidental Release Prevention (CalARP) Program Management System, last reviewed 7/1/18). This policy identified that the Refinery Manager has overall authority for CalARP compliance. The policy also included an organizational chart for the CalARP program that lists responsible parties for each of the ISO and CalARP Program 4 requirements. Establishing safety goals is a requirement listed in P&P 15.0-2 (Health, Safety, and Environmental Management System (HSEMS, PSM, RMP, CalARP, ISO), last reviewed 12/20/18). The facility's management system is comprised of 15 elements. CalARP and ISO requirements are subsets of these elements. Each of the element owners are required, among other things, to develop goals for their element and conduct annual reviews. The 15 HSEMS Elements are: 1. Policy and Leadership 2. Risk Assessment 3. Legal Requirements & Standards of Operation 4. Strategic Planning, Goals & Objectives 5. Structure & Responsibility 6. Programs & Procedures 7. Asset & Operating Integrity 8. Emergency Preparedness 9. Awareness, Training, & Competency 10. Non Conformance, Investigation, and Corrective Action 11. Communications 12. Document Control & Records 13. Measures and Monitoring 14. Audits 15. Review. CCHS was informed that the facility requires that role responsibilities be	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					identified within the various process safety policies and procedures (P&P) policies. The facility has over 20 P&Ps associated with the CalARP program. CCHS confirmed that the facility has at least one P&P for every CalARP program element. In reviewing a number of P&Ps, CCHS confirmed that each contains a section for Responsibilities, which details the individuals responsible for specific actions. For example, the Operating Procedures Policy (P&P 6.1-1) contains unique responsibilities for the following: all employees, all operators, Operations Manager and Operations Department Superintendents, Operations Training Supervisor, Procedure Owners, Procedure Writers, Procedure Reviewers, Procedure Approvers, Operations Training Group.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A49-04	ISO	Does the management systems program address: a) How senior Stationary Source staff is held accountable for their Health and Safety Program record, and b) How the rewards and penalties compare to those for production performance? [Section A.1.1 of the CCHMP Safety Program Guidance Document]	Abr	1. This may be documented in the senior Stationary Source staff normal performance reviews, or Stationary Source's "score card" or "performance indicators", etc. [Section A.1.1 of the CCHMP Safety Program Guidance Document]	Per interviews with senior staff, P66 uses Scorecards to track metrics for each department. These metrics can be both general and specific. Common metrics include injury rates and overdue activities (e.g., inspections; recommendations from MOCs, PHAs, incident investigations). Others may include process safety events or rates or items more specific to the department. The facility's HSEMS program, see A49-01, requires that Element 13 have a process in place to measure and monitor HSE performance. P&P 13.0-1 (Measuring and Monitoring Program, last reviewed 12/1/19) includes leading and lagging indicators (i.e., Scorecards) that are supposed to be tracked to assist in this assessment process. Leading indicators include, but are not limited to: -- Internal/external audits -- MOC/PHA action items -- Open action items -- Mechanical integrity inspections, reports, metrics -- Quarterly PSM metrics Lagging indicators include, but are not limited to: -- Incident reporting -- Notice of Violation response -- Routine regulatory report submittals -- DCA alarms -- Safety work order process Per senior management interviews, the facility has a bonus program that is structured to provide equal input from safety performance, net income and operating expenses. Poor performance in any of the three areas would result in lower multipliers for those areas, decreasing the annual bonus. Safety performance includes process safety	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					incidents (i.e., API Tier 1 and 2 incidents), personnel safety and environmental performance. Good safety performance has a higher potential bonus multiplier than allowed for good production performance.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A49-05	ISO	Does senior Stationary Source staff address how the Stationary Source promotes “safety first” approach? [Section A.1.1 of the CCHMP Safety Program Guidance Document]	Abr	1. This should be apparent in the safety program policies and documents. [Section A.1.1 of the CCHMP Safety Program Guidance Document]	Per SME interviews, much of the "safety first" discussion starts with the company's Stop Work policy. Employees and contractors are instructed to pay attention to their surroundings and to stop any work if they are unsure. During the audit, CCHS attended a monthly contractor safety meeting where the Refinery Manager informed the audience, approximately 400 contractors, to follow the site's Stop Work process adding that he will pay them to stop any work if they feel something seems unsafe or if they are unsure. CCHS was informed that the Refinery Manager or HSE Manager present at these monthly meetings as well as every turnaround contractor orientation to discuss safety. P66 has 10 Life Saving Rules that all employees and contractors must follow. Some of these rules are discussed at contractor orientations. CCHS was also informed that senior management has held Town Hall events to deliver safety messages to employees and contractors. CCHS reviewed the facility's fatigue policy, which applies to all employees and contractors. P&P 1.1-22 (Fatigue Management Standard Policy, last revised 11/22/19) describes the maximum number of hours per day and consecutive work shifts that can be worked (based on an 8, 10, or 12 hour normal work shift). The policy is consistent with API RP 755. The site's fatigue process allows for workers to exceed the maximum values as long as a documented Exception Report is filed. CCHS reviewed spreadsheets used to track overtime worked by employees along with Exception Reports documented for the same time period. CCHS was unable to confirm that P66 is	P	Ensure that Exception Reports are completed as identified within the Fatigue Management Standard Policy P&P 1.1-22. (modified repeat)

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					generating the proper number of Exception Reports. For example, in March 2019, records indicate there were 8 Exception Reports completed although below the 39 that should have been completed. CCHS looked at other months within 2019 and also found discrepancies. CCHS' previous audit issued a similar ensure action item for the facility to follow their corporate fatigue management process so the current action item is listed as a modified repeat.		
A49-06	ISO	Does senior Stationary Source staff periodically, but at least every three years, review the Safety Program management system, for: a) Continuing appropriateness; b) Adequacy; and c) Effectiveness? [T19 CCR §2762.16(a) & Section A.1.1 of the CCHMP Safety Program Guidance Document]	Abr	1. Documentation of these reviews may be in meeting minutes, study reports, etc. [Section A.1.1 of the CCHMP Safety Program Guidance Document]	CCHS was informed that the facility requires monthly reviews of the various HSEMS elements (listed in A49-01). Each element owner must report to the site's Safety Leadership Committee so they are apprised of any ongoing issues and monitor the status of the element. Metrics are used by each element owner to gauge compliance during the year. These metrics are referred to as the element owner's scorecard (described further in A49-04). Once a year, each element owner is required to provide a detailed review of their element to senior management. During these annual meetings, each element owner summarizes their performance goals and how they achieved them for the year including how they addressed any action items they were previously asked to complete. Part of the summary is to benchmark their performance with other P66 refineries as well as industry to assess how their objectives were met. The annual meeting also requires each element owner to describe their plan for compliance for the upcoming year. By the end of the annual meeting, additional goals are established typically along with new actions items that must be met.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A49-10	ISO	Does senior Stationary Source staff ensure that there is expertise available in each of the different Safety Program elements, including Human Factors? [Section A.1.1 of the CCHMP Safety Program Guidance Document]	Abr	1. This includes proper training and background experience. [Section A.1.1 of the CCHMP Safety Program Guidance Document]	CCHS was informed that the facility uses the metrics established for their HSEMS process to assess the adequacy of staffing for the various ISO Safety Program elements. For example, if metrics show there are overdue recommendations (e.g., PHA, SPA, incident investigations), evaluations are made to determine whether additional resources need to be brought in to get things done on time. The facility has a Management of Personnel Change (MOPC) process to make sure an assessment is performed that ensures a new person taking over an existing role has the proper skills to do the job. The process is described in P&P 5.0-4 (SFR Management of Organizational Change (MOOC) policy, last reviewed 9/30/18). The MOPC assessment process requires a gap analysis be conducted, and if gaps are found, interim actions are developed.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A49-11	ISO	Does senior Stationary Source staff allocate time and resources for the different Safety Program elements? [Section A.1.1 of the CCHMP Safety Program Guidance Document]	Abr	1. Documentation of allocated resources may include budget line items, sufficient personnel assigned to develop and implement the Safety Program elements, etc. [Section A.1.1 of the CCHMP Safety Program Guidance Document]	P66 has structured their Health, Safety, Environmental Management System (HSEMS) to position senior staff as Element Owners assigned overall responsibility for the various safety programs. Specifically, this includes the requirements of the ISO and CalARP program 4. As described in A49-04 and A49-06, meetings are held with senior staff to review various aspects of their applicable elements. Refinery Leadership Team members are expected to have two engagements per week when they visit the field. These can be attending Tool Box meetings, incident reviews, conducting audits or inspections, or asking teams about their job safety assessments. These engagements are designed to start with positive reinforcements of good habits being performed.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A49-13	Program 4 CalARP	Does the management system have written procedures to ensure effective communications of safety, operations, and maintenance information among and across process and maintenance personnel, contractors, support personnel, supervisors and senior management? [T19 CCR §2762.16(b)(3)]	New	1. The program should address two-way communication, reporting lines, information exchange, and employee involvement. [Section A.1.2.1 of the CCHMP Safety Program Guidance Document]	Per P&P 7.0-3 (Shift Relief Rules, last reviewed 2/1/17), the facility has a formal process for operational shift turnover to ensure that process conditions and operational issues are effectively communicated between crews and management. The process includes maintaining operating logs of items that happened during the shift so adequate communication can be made to incoming shift personnel. Per P&P 6.2-5 (Safe Practice #5 Work Authorization Permitting, last reviewed 7/22/19), the facility has a process to communicate maintenance activities between operations and maintenance (includes employee maintenance and contractor maintenance). Per interviews, every contractor foreman is required to have a radio to maintain communicate between their crew and P66 personnel. Per P&P 10.0-2 (Safety Hazard / Concern / Near Miss / Good Catch Program policy, last revised 12/28/17), a process has been established to communicate minor concerns anonymously. This is further described in A49-30. CCHS was also inform the facility has a telephone hotline number that goes directly to USW representatives to report concerns. Per P&P 1.0-9 (Stop Work Authority Policy, last reviewed 12/28/17), all employees and contractors are expected to ask others to pause work if someone believes something may be unsafe. This is further described in A49-05 and A49-29.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A49-14	Program 4 CalARP & ISO	Does the Program policies and procedure ensure that the findings, recommendations, and corrective actions for all ARP programs such as PHA's, DMRs, HCAs, SPAs, incident investigations, compliance audit and MOC's are communicated effectively to the employees and employee representatives? [T19 CCR §2762.16(b)(4) & Section A.1.2.1 of the CCHMP Safety Program Guidance Document]	New	1. Check to make sure policies and procedures in each program effectively provided for employee participation as outlined in A46 and A55. [T19 CCR §2762.16(b)] 2. The program should address two-way communication, reporting lines, information exchange, and employee involvement. [Section A.1.2.1 of the CCHMP Safety Program Guidance Document]	The facility's employee participation plan (described in A46-01) outlines how employees are involved with the various CalARP program 4 elements. CCHS was informed that the employees who participate within the various safety programs are the means used to effectively communicate findings, recommendations and corrective actions. Program 4 also requires the owner or operator to track each corrective action item to completion and append the documentation of completion to the applicable PHA, DMR, HCA, SPA, compliance audit, or incident investigation report [T19 CCR §2762.16(e)(15)]. Based on CCHS' review of these program elements, CCHS was unable to confirm that completed corrective actions associated with PHAs (see A38-28), DMRs (see A41-18), or SPAs (see A51-13) were appended back to the official written reports. If the official reports for these studies are maintained electronically, CCHS believes that completed corrective action items need to be placed within the same electronic directory as the study. As described in A58-01 and A58-06, CCHS was unable to locate any HCAs performed. As described in A45-01 and A45-10, there have been no qualifying major incidents. As described in A44-01, CCHS was unable to review the 2019 compliance audit so is unaware whether any corrective actions were issued or completed to be appended back into the report. Also, it is unclear to CCHS that completed corrective actions would be appended back into any of the following study reports given the lack of clarity in the associated program policies: PHA, DMR, HCA, SPA, or compliance audit. Incident investigations are reported through IMPACT so any investigations associated with a major incident would	P	Ensure that copies of the completed corrective action items are appended back into the appropriate study reports (e.g., PHA, DMR, HCA, SPA, or compliance audit reports).

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					automatically append the closed-out recommendations to the report. CCHS also reviewed P&P 10.0-3 (PSM - Cal ARP Program 4 Corrective Action Work Process, last reviewed 9/1/18) and was unable to locate mention of appending corrective actions to the appropriate report. It is not a regulatory requirement for the various policies and procedures to include this statement although it may assist with compliance.		
A49-15	ISO	Does the Safety Program address the communications between appropriate personnel in the organization (such as between shifts)? [Section A.1.2.1 of the CCHMP Safety Program Guidance Document]	Abr		As described in A49-13, the facility has various policies and procedures to ensure proper communication between departments and personnel, especially between operational shifts. Per interviews with senior staff, although the facility has a defined structure for shift communications within P&P 7.0-3 (Shift Relief Rules, last reviewed 2/1/17), any employee can contact any other employee within the organization, including senior staff to discuss concerns or other matters. The facility has a process for ensuring proper communication between operating shifts during shift turnover. An electronic shift communication program called OIS (is required to record select information that happened that shift to so the incoming shift personnel is aware. A verbal discussion also takes place at every shift change. Set topics are included within the turnover to provide consistency and to make sure nothing is missed (e.g., whether any safety systems were bypassed, environmental limits exceeded, equipment issues, maintenance issues, major activities performed that shift).	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A49-17	ISO	Do the Safety Program elements include the Stationary Source's personnel's specific responsibilities for managing Safety Program elements development and implementation? [Section A.1.2.2 of the CCHMP Safety Program Guidance Document]	Abr		As described in A49-01, two policies have been developed to link facility roles and responsibilities to the various CalARP program 4 and ISO requirements. These are: -- P&P 1.0-11 (California Accidental Release Prevention (CalARP) Program Management System, last reviewed 7/1/18) -- P&P 15.0-2 (Health, Safety, and Environmental Management System (HSEMS, PSM, RMP, CalARP, ISO), last reviewed 12/20/18). Per SME interviews, most CalARP/ISO programs were developed decades ago and employee participation levels were documented within the facility's employee participation policy (P&P 5.0-3). After the adoption of the CalARP Program 4 requirements in 2017, discussions were held with USW representatives to determine how represented employees would participate in the modification of existing programs and development of new ones. Similar discussions were done with management personnel to ensure they continue to be involved with the development and ongoing implementation of the safety programs. These discussions resulted in the modification and update of P&P 1.0-11	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A49-19	ISO	Are the job descriptions collectively reviewed to be sure that there are no gaps in coverage? [Section A.1.2.2 of the CCHMP Safety Program Guidance Document]	Abr	1. Job descriptions include job function descriptions. 2. Competency models or task assignments could be considered job function descriptions.	Per SME interviews, most job descriptions for the site are written to summarize high-level duties assigned to any particular role. As described in A49-01, the facility has a number of policies and procedures that include specific job duties and position responsibilities to ensure required safety programs are maintained. As described in A49-10, the facility has a process to make sure an assessment is performed that ensures a new person taking over an existing role has the proper skills to do the job. The MOPC assessment process requires a gap analysis be conducted, and if gaps are found, interim actions are developed, and training is completed to close any perceived gaps. Per SME and USW interviews, the facility uses temporary and step up role assignments to ensure that there are no gaps in coverage to handle promotions and departure of personnel. As personnel are moved to new assignments, new gaps are opened that are also backfilled, which are ultimately resolved through the hiring and training of new personnel. Per interviews with the Operations Manager, operations staffing is monitored as well as forecasts are made to when a new batch of employees should be added. Over the last few years there has been a new hire class about once per year to add new employees to the workforce.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A49-20	Program 4 CalARP & ISO	Has the owner or operator developed and reported to Cal OES annually a certified written report by June 30 of each year the following site-specific Common Process Safety Performance Indicators: a) Past due inspections for piping and pressure vessels; excluding relief devices, instrumentation, instrument air receivers, boilers, furnaces, atmospheric tanks, or rotating equipment; b) Past due PHA corrective actions and seismic corrective without approved UPA extensions; c) Past due Incident Investigation corrective actions reported for major incidents; d) Number of major incidents that have occurred since October 1, 2017; e) Total number of temporary piping and equipment repairs installed on hydrocarbon and high energy utility systems and total number of piping and equipment past the planned permanent replacement date? [T19 CCR §2762.16(h)(1 & 2) & Sections A.1.2.3 and A.1.2.8 of the CCHMP Safety Program Guidance Document]	Abr	* Review for the initial baseline and check with selected auditor to verify the data for the indicators. 1. The January 1 to December 31 data must be submitted by June 30 of the following year beginning June 30, 2019. 2. Pressure vessels include but are not limited to: heat exchangers, columns, spheres, bullets as defined by CA Safety Order and U-stamped (or treated as such). 3. The scope of the inspections for this reporting include external visual, condition monitoring location (CML) and nondestructive examination (NDE), and internal visual for pressure vessels and piping (as defined by circuits). 4. Past due is defined as overdue by the requirements listed in CCR T8 §6857, API 510 and API 570. Deferral/extension when used shall follow the requirements contained within the above code and recommended practices. 5. Report of piping inspection must include the total number of circuits at the stationary source and the total number of annual planned circuit inspections for that year to provide context. 6. The owner or operator shall document, but not report, the date the temporary piping repair was installed, and the date for the permanent repair to be complete. 7. Past due item is an item	CCHS was copied in the correspondence of the Common Process Safety Performance Indicator report sent to Cal OES. The report was submitted via email prior to June 30, 2019. The report included the items listed in the question. Per SME interviews and file reviews, the facility did not have any major incidents, nor any overdue PHA recommendations, nor any overdue piping inspections for the reporting year. CCHS reviewed metrics maintained onsite regarding temporary piping repairs and was unable to confirm there were any temporary repairs that remained open. The report submitted to Cal OES mistakenly identified there were four temporary repairs not replaced with permanent repairs and one was identified as a repeat. Per file review, one of these lines was taken out of service, one extended to 2022, one was not even a temporary piping repair applicable to the reporting requirements, and the last was resolved permanently through the MOC process. The facility maintains a variety of site-specific process safety performance indicators. These are included within the scorecards maintained by each department. Every department's scorecard is posted on the facility's intranet and available to site employees. Scorecards contain KPIs to be reviewed by each department. Some KPIs are monthly (e.g., Tier 1 or 2 events), some are quarterly (e.g., overdue training), some are annual.	Y	None

				that is not completed by the end of the month during the month that is due. Each month an item that is past due shall be counted overdue. If the item is continued from the prior month then it is also counted as a repeat item. 8. Site-specific indicators are required by March 30, 2018. 9. Stationary Sources should implement effective leading and lagging process safety metrics consistent with those identified in Section A.1.2.8 of the CCHMP Safety Program Guidance Document and/or API RP 754. 10. The Stationary Source should develop metrics that promote broad awareness of process safety concerns, some of which may not be related to an actual or potential catastrophic incident. [Section A.1.2.8 of the CCHMP Safety Program Guidance Document]			

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A49-21	Program 4 CalARP & ISO	Does the owner or operator track and document all changes to the accident release prevention (ARP) and ISO Program elements policies and procedures? [T19 CCR §2762.16(c)] & [Section A.1.2.4 of the CCHMP Safety Program Guidance Document]	New		Per SME interviews and file review, each policy and procedure is required to include a Revision History (required by P&P 12.0-1, Policy & Procedure Manuals - Access, Revisions and Distribution, last reviewed 7/1/19). CCHS reviewed many of the P&Ps associated with the CalARP Program 4 and ISO programs and confirmed each contained such a section (e.g., P&P 1.1-22, 5.0-3, 6.2-3, 15.0-2). P&P 12.0-1 identifies activities that must be completed if a P&P is revised that essentially follow a MOC process (e.g., making draft changes, explaining the change, forwarding the change to impacted personnel, obtaining comments, modifying the document, training personnel on the changes, and publishing the document). P&P 1.0-11 (California Accidental Release Prevention (CalARP) Program management System) requires that all changes to policies associated with implementing the program elements must be documented.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A49-22	ISO	Are changes to the different Safety Program elements policies and procedures based on the following: a) Evaluation process of the management systems; b) The auditing of the Safety Program; and c) Input from the employees? [Section A.1.2.4 of the CCHMP Safety Program Guidance Document]	Abr	1. The management system should have written policies and procedures for review of Safety Program elements policies that ensure effectiveness of the program. This may be included in the Management of Change process.	Per SME interviews, changes are made to various policies and procedures based on a wide range of factors, some of which include: -- P66's HSEMS process -- Regulatory changes -- Internal audits -- External (agency) audits -- Incidents and associated investigations -- Corporate changes -- Reviews performed on the P&P. CCHS was informed that the adoption of the CalARP Program 4 regulations required a number of changes to be made to company P&Ps. One of these changes resulted in asking for additional input from employees on proposed P&P changes. USW representatives are now copied on all process safety P&Ps changes to make sure they have the opportunity for input as well as during the normal review cycle of the P&P. Employees in general also have the opportunity to provide their input at any time by contacting USW or by providing their input through joint health and safety committee (JHSC) meetings. CCHS reviewed copies of JHSC meeting minutes held in 2019. These meetings are typically held eight to ten times per year.	Y	None
A49-26	ISO	Has the Stationary Source worked with CCHMP in preparing for public meetings associated with the Industrial Safety Ordinance and participated with CCHMP in these meetings as requested? [Section A.1.2.7 of the CCHMP Safety Program Guidance Document]	Abr		When requested by CCHS, Phillips 66 has assisted with public meetings associated with the CalARP and Industrial Safety Ordinance. CCHMP has not made any official requests in recent years although P66 personnel did attend a public meeting held during the public notice process in Crockett in August 2018.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A49-27	ISO	Does the submitted RMP and Safety Plan accurately reflect the existing management system at the Stationary Source? [T19 CCR §2745.2(d), ISO Section 450-8.016 and Section E.2 of the CCHMP Safety Program Guidance Document]	Abr		Section 1.17 of the RMP submitted to CCHS on 9/13/19 and pages 36-37 of the Safety Plan submitted to CCHS on 8/6/18 accurately describe the onsite Management Systems program.	Y	None
A49-28	Audit Follow-Up	Have all ensure action items associated with the previous ISO audit of the Stationary Source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate 'repeat' for identical non-compliance, or use 'modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	The previous audit identified one ensure item to adhere to the corporate fatigue management process. As described in A49-05, a similar issue was found during this audit and a modified repeat action item was issued. As described in several questionnaires within this audit, several issues have been found during CCHS' previous audit that have not been entirely resolved. New ensure action items have been identified and have been marked as "repeat" or "modified repeat" action items within the following questions: A44-03, A47-04, A49-05, A55-05. As a result, CCHS requires additional oversight and communication to make sure that such items are effectively resolved. It is expected that, at a minimum, face-to-face meetings and document reviews take place in order to confirm the issues have been resolved.	P	Ensure that Phillips 66 begins meeting with CCHS by September 1, 2020 to confirm that any "repeat" or "modified repeat" ensure action items are properly resolved.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A49-29	CalARP Program 4	Does the owner or operator implement and document an effective Stop Work Procedure that ensures: a) Employees, and employees of contractors has authority to refuse to perform a task where doing so could reasonably result in death or serious physical harm; b) Employees, and employees of contractors has authority to recommend to the operator in charge of a unit that an operation or process be partially or completely shut-down, based on a process safety hazard; and, c) The authority of the qualified operator in charge of a unit to partially or completely shut-down an operation or process, based on a process safety hazard? [T19 CCR §2762.16(f)(1) & (g)]	New	1. This must be developed including employees and employee representatives' participation and implemented by Dec. 29, 2017.	CCHS reviewed P&P 1.0-9 (Stop Work Authority Policy, last reviewed 12/28/17) that is two pages in length. The policy identified it was created on October 1, 2017. Per interviews with USW personnel, the policy and practice of pausing work when something may appear odd has been well received by all workers at the refinery from front line personnel to senior management. The message communicated to the workforce is to please "Stop When Unsure". This wording allows a young workforce to feel less intimidated to bring up something they are not sure about to more senior personnel.	Y	None
A49-30	CalARP Program 4	Does the owner or operator implement and document an effective Stop Work Procedure that ensures: a) Employees, and employees of contractors has right to anonymously report hazards; b) Hazards that present the potential for death or serious physical harm are prioritized, promptly respond to and corrected? [T19 CCR §2762.16(f)(2) & (g)]	New	* Verify that the owner or operator responded in writing within 30 calendar days to written hazard reports submitted. 1. This Stop Work Procedure must be developed with employees and employee representatives' participation and implemented by Dec. 29, 2017.	CCHS reviewed P&P 10.0-2 (Safety Hazard / Concern / Near Miss / Good Catch Program policy, last revised 12/28/17). Per this policy and USW interviews, the facility has a Near Miss Good Catch program that allows individuals to report hazards anonymously. Reporting can be accomplished by filling out a "Green Card" (for employees) and dropping them off in designated mail boxes. Employees can also speak to a USW representative anonymously about a concern. Employees can also contact USW representatives by telephone in what is called a "safety hotline". Contractors can complete "RAPP Cards" and drop them off in designated mail boxes. The H&S Department reviews all Green Cards and RAPP Cards and develops corrective actions. Reports are developed summarizing the status of all hazards reported twice per month. These reports are available online and are posted in select locations at the refinery for all personnel to see.	Y	None

A50: HFP (P4) and Latent Conditions

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A50-02	Any Method – Program 4 CalARP & ISO	Did the owner or operator's human factors analysis use an effective method in evaluating the following: a) Staffing levels; b) Shift work; c) Overtime; d) The complexity of tasks; e) The length of time needed to complete tasks; f) The level of training, experience, and competency of employees; g) The human-machine and human-system interface; h) The physical challenges of the work environment in which the task is performed; i) Employee fatigue, including contractor employees and other effects of shiftwork and overtime; j) Communication systems; and k) The understandability and clarity of operating and maintenance procedures? [T19 CCR §2762.15(c) and ISO Section 450-8.016(b)(3)]	Abr	* P4 - Evaluate whether each item in the question was effectively evaluated. 1. Prior to Program 4 requirements, staffing, shiftwork and overtime may have been addressed simply through a facility-wide or management system latent conditions checklist. [ISO Section 450-8.016(b)(3)] 2. The County's 2011 LCC may not be sufficient to evaluate items listed in the question(e.g., contractor fatigue, complexity of tasks).	CCHS reviewed San Francisco Refinery (SFR) Policies and Procedures Manual, Manual Section 3.0-2, Human Factors Program - ISO, PSM, CalARP (revised 7/16/19). The Human Factors (HF) Program addresses HF in PHA; human systems as causal factors in incident investigation for MCAR (major chemical accident or release) or for an incident that could reasonably have resulted in an MCAR; training of employees in HF; consideration of HF in development of operations and maintenance procedures; MOOC prior to staffing changes for changes in permanent staffing levels/reorganization in operations, maintenance, health and safety or emergency response (staffing changes longer than 90 days are considered permanent); consultation with employees and their representatives in the development and continuous improvement of HF program; the ongoing evaluation of management issues such as staffing, shiftwork and overtime. CCHS also reviewed P&P 1.1, Fatigue Management Policy (revised 11/22/19) which describes the requirements for the Fatigue Management Program. The policy states that the facility will use its own standards unless there is a state, local, or federal standard that is more stringent. In section P&P 1.1-22, the policy lists the maximum hours that an operator can work (this includes extended shifts), the number of consecutive days that a person can work during normal operations and outages, and the minimum time off that an operator must have before the next work-set. CCHS reviewed the checklist used by the	P	Ensure that the human factors analysis includes an evaluation of contractor fatigue as appropriate.

facility which is the County's Latent Conditions Checklist from June 2011. CCHS also reviewed the Human Factors Checklist Training (no date) slides that were used to train the operators on the use of HF/LCC checklist for PHA's. None of the checklists included complexity of task or contractor fatigue.

Per CCHS interview with the Process Safety (PS) SME, the facility does perform an analysis on the complexity of tasks whenever an issue comes up during an operating procedure, maintenance procedure, or wherever else a human factors evaluation is needed. However, there is nothing written in the HF checklist indicating an evaluation of complexity of task. There is also nothing on any of the HF checklists reviewed by CCHS indicating an evaluation of contractor fatigue would be part of the HF analysis. CCHS was informed by the SME that the facility expects the contractor companies to monitor the work hours and to follow the fatigue management policy but the facility does not currently review this data as part of the contractor fatigue management program.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A50-06	LCC Method – ISO	Does the Stationary Source ensure that personnel applying the latent conditions checklist are trained to understand that the intent of the checklist isn't to identify their errors, but rather to identify latent conditions that could cause them to make an error and are truly contemplating each question (i.e., not simply checking boxes)? [Section B: Chapter 3.2 of the CCHMP Safety Program Guidance Document]	Abr	1. Personnel applying the latent conditions checklist should be trained to view the checklist indicators or questions as examples to lead the thought process. [Section B: Chapter 3.2 of the CCHMP Safety Program Guidance Document] 2. The checklist should be used as a “tool” to prompt further discussion. [Section B: Chapter 3.2 of the CCHMP Safety Program Guidance Document] 3. Stationary Sources should consider requiring personnel applying the checklists to provide justification or supporting examples for all answers. Since personnel not involved with the original analysis may review checklists sometimes years later, documentation of supporting examples or justification will remove some of the subjectivity of applying the checklist. [Section B: Chapter 3.2 of the CCHMP Safety Program Guidance Document]	CCHS reviewed P&P 3.0-2 which describes the specialized training on the different LCC's used for PHAs, incident investigations, MOOC, operating and maintenance procedures, and management issues. It states that the training provided to the employees applying the LCC's "…will include the specific reason for each question, the relative importance of the different questions and the degree to which items fail to meet the criteria. The training will also ensure that those applying the checklist understand the intent isn't to identify errors but to identify latent conditions that could cause them to make an error." The policy also states that specialized refresher training is provided on an as-needed basis to employees who will serve on a PHA team, an incident investigation team, or a MOOC team. PHA: CCHS reviewed the HF checklist training slides that were used to provide training to operators and maintenance personnel who are going to participate in a HF evaluation as part of a PHA. CCHS reviewed the human factors checklist that was completed for each of the PHAs (Units 215, Relief & blowdown, MP30). Operating Procedures: CCHS reviewed R-403, Human Factors Checklist, from P&P 06.01-04, Operating Procedure Formatting and Writing (updated 4/18/19) which provided a blank HF checklist (34 questions, the last 10 for emergency procedures) that is to be used to evaluate human factors as part of the development of operating procedures. There is no revision date for the checklist specifically.	P	Ensure that the maintenance staff involved in writing maintenance procedures receive initial or just in time specialized training and 3-year refresher on writing effective procedures and applying LCCs. (This is a carryover recommendation from the previous audit due to the changes that were made to maintenance management during the audit which made verifying documentation difficult.)

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					Maintenance Procedures: CCHS reviewed the Maintenance Department Procedures Manual (revised 5/22/19) which lists all of the maintenance procedures in the facility. Per CCHS interview with the SME, the department has only performed LCC's on a few maintenance procedures which are the procedures that have been reviewed since 2018. CCHS also noticed that many of the maintenance procedures were past the date for the next review, some over 3 years. CCHS reviewed the checklists that were completed for some of the maintenance procedures. Per CCHS interview with SME, only those maintenance procedures that are marked as "Task procedure" would require an LCC. There are 41 Task procedures. Per CCHS interview with the SME, only those procedures that have been reviewed since 2018 would have LCC's. 5 of these procedures were completed since 2018. CCHS reviewed the LCC's (HSE-170, revised 12/15/15) that were completed for 2.11 Piping Pressure Test Guidelines and for 4.52 In Service Testing of Relief Valves. Attached to the LCC's were the Maintenance Procedure Risk Based Assessment sheet (R-118, revised 2/02/17) which classifies the procedure Task complexity and Task frequency. On the horizontal axis is Reasonable Potential Consequence and categories of Low, Moderate, and Severe. The combined risk are from 1-3 with 3 requiring the user of the procedure to have a copy "in-hand" with step by step sign off required. A 2 only requires same day prior review, and a 1 is No written work instruction required. On the bottom there are 4 lines for people to sign who completed the form and a note (min two people required, one must be a Subject		

Matter Expert).

CCHS reviewed the sign-in sheet that was used to document training of writer's, reviewers, and approvers on maintenance procedure development. There were 13 names on the list but only 9 were signed. CCHS was unable to verify that the remaining 4 employees on the list were trained. Due to very recent changes in management, CCHS was unable to verify that the 9 people had also received LCC training.

Incident Investigations:

There were no incidents that would have met the definition of an MCAR or near-miss MCAR since the last CalARP audit. See questionnaire A52 for more information on incident investigations at the facility.

CCHS reviewed P&P 10.0-1, Incident Management Policy (revised 5/15/19) which specifies the requirements of the investigation based on the severity of the incident. For MCAR's or incidents that could have resulted in MCAR's, the facility would complete R-10.0-7 which is the Human Factors Pre-checklist. The facility would use Taproot as the RCA (root cause analysis) tool which has human factors as part of the causal factors that are reviewed.

Facility-Wide:

Per CCHS interview with the PS SME, the facility does not do a facility wide LCC but instead performs individual LCC's based on PHAs, operating procedures, incident investigations, and other areas. The SME believes that evaluating so many different process safety programs covers the equivalent of a facility-wide LCC.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A50-08	LCC Method – ISO	Does the Stationary Source ensure that employees who completed the latent conditions checklist AND appropriate members of management review and sign off that the checklist was appropriately applied? [Section B: Chapter 3.2 of the CCHMP Safety Program Guidance Document]	Abr	1. CCHMP does not consider the definition of management to be simply defined by whether a position receives a salary versus receiving hourly compensation. 2. To satisfy the management sign off requirement, a Stationary Source should specifically authorize individuals who have sufficient knowledge of applying latent conditions checklists, and have been trained in this application, to assume the role of management to approve the application and completion of checklists. 3. If multiple employees participated on a latent conditions checklist team, sign offs do not need to include each employee individually; a representative of the employees is sufficient.	PHA: CCHS reviewed the checklists that were completed as part of the PHAs. These checklists had a signature page for operators as the final page and a header with the review date and prepared by. The checklist is R-296 and covers the following topics: -- Manually operated valve and other equipment -- Field instrumentation -- Control room instrumentation - board layout and design -- Alarms -- Control room instrumentation - other (which includes emergency shutdown switches protected from inadvertent operation) -- Unit emergency situation -- Job tasks -- Procedures -- Lighting and noise -- Communications (normal and emergency) -- Equipment (radio, telephone, etc.) -- PPE On the bottom of R-296 is a box that contains three boxes for operating signatures and dates and another for process area signature and date. Per CCHS interview with the PS SME, the LCC's for PHAs are reviewed by the PS Director or designee and approved. There are only 3 people in the facility who are authorized to approve LCC's for PHAs. CCHS did a live navigation with the PS SME and verified that the LCC's were approved electronically by one of the authorized site leaders. The unit superintendent would also need to sign off on the LCC but the unit superintendent is not considered to be a final approver of the LCC.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					Operating Procedures: Per CCHS interview with a unit supervisor, there are a limited number of people (3 people total) who can generate operating procedures and approve LCC's for the unit. The supervisor would be the person who would approve both the operating procedure and the LCC. CCHS did a live navigation of KMS with the supervisor where operating procedures and LCC's are stored. For the 6 operating procedures reviewed, each had LCC's that were created by the same person and approved by the supervisor. Maintenance Procedures: CCHS reviewed LCC's that were completed for several maintenance procedures. These were signed off by either a maintenance supervisor or the engineer. The LCC's were also reviewed by a mechanic. Incident Investigations: There were no incidents that would have met the definition of MCAR the fore there were no LCC's completed as part of incident investigations. If an incident were to be either an MCAR or near-miss MCAR, the facility would use Taproot which evaluates human systems. Facility-Wide: Per CCHS discussion with SME, the facility does not do a LCC for the entire facility.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A50-09	LCC Method – ISO	Does the Stationary Source ensure that each latent conditions question receiving a "No" answer is thoroughly analyzed and a recommendation developed and implemented for resolution of the problem? [Section B: Chapter 3.2 of the CCHMP Safety Program Guidance Document]	Abr	1. The analysis should be conducted with appropriate members of operations and maintenance as well as supervisory positions and members of management. 2. Each question is an indicator of a program deficiency relating to a tangible item that can be observed.	PHA: CCHS reviewed the LCC's for the PHAs for Unit MP30, Unit 215, and Relief and Blowdown. Each of the LCC action items for those questions marked "No" were put into Impact. Some of the LCC action items were still open due to the date of completion of the PHA. There were no overdue action items for LCC's. Operating Procedures: Per CCHS interview with the SME, there would not be an instance where an LCC question was marked "No" and not corrected or dispositioned immediately. Thus, there is no need to track LCC recommendations for operating procedures. CCHS also interviewed a unit supervisor who confirmed that this was the case and did a live navigation with CCHS that included LCC's that were performed on existing operating procedures and there weren't any that would have required action items. Maintenance Procedures: CCHS reviewed the LCC for maintenance procedure 4.52 which had two No answers requiring action items. CCHS was unable to determine how these action items were tracked due to a change in leadership for the maintenance department. Incident Investigations: The facility uses TapRoot to investigate incidents that meet the definition of MCAR or near-miss MCAR which has a module that covers human factors. There have not been any qualifying incidents or near misses at the facility and thus there have not been any LCC's generated as part of an incident investigation.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					Facility-Wide: Per CCHS interview with the process safety SME, the facility does not do a separate facility wide evaluation for LCC's.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A50-10	LCC Method – ISO	Does the Stationary Source ensure a formal "feedback" loop is developed to inform personnel of the recommendations from the checklist and to ensure that the recommendations developed will adequately address the concerns? [Section B: Chapter 3.2 of the CCHMP Safety Program Guidance Document]	Abr	1. A feedback loop is expected to promote a two-way communication with affected personnel on the corrective action proposed to resolve a human factors latent condition. 2. It is not the intent of the feedback loop to require the Stationary Source to formally respond to or address all of the comments received, but appropriate comments should be given adequate consideration. 3. Instructing affected personnel that PHA recommendations are available for review without describing the latent conditions deficiency recommendations is unacceptable.	CCHS reviewed P&P 3.0-2 which describes the feedback that must be given to and received by affected personnel. LCC's that contain deficiencies are to be forwarded to the H&S department for review. PHA: CCHS reviewed the LCCs (R-296) for the PHAs reviewed during the audit (Unit 215, 231, and MP30). Once the checklist has been completed by a team that usually includes a member of the PHA team, the PHA team will review the LCC as part of the PHA in order to be able to get an understanding of how the LCC could impact any of the nodes. The LCC results are documented in a node towards the end of the PHA. However, the LCC results are not necessarily reviewed as the first step in the PHA. In some cases, CCHS noticed that the LCC was not reviewed for several weeks after the PHA was started. See A51-01 for more information on the use of LCC's within a PHA. Action items are tracked to completion within Impact. In order to be closed out, a person must check that personnel have been informed of the deficiencies as appropriate. Operating Procedures: Per CCHS interview with a unit supervisor, the LCC's are reviewed by the unit supervisor as part of the review of the operating procedure changes or whenever a new procedure is created. The unit supervisor will often be the person who assigns the action to a procedure writer who would then get feedback from the operators. This would include performing an LCC. The results of the LCC are provided to the	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					Maintenance Procedures: The facility uses Impact to track action items. This allows the facility to assign responsibility for each of the action items which would include a notification to team members. There have only been a few LCC's performed on operating procedures since the last audit. See A50-06 for more information on maintenance procedures and LCC evaluations. Incident Investigations: The facility uses Taproot which has a human factors evaluation built-in. Per CCHS interview with the process safety SME, if there were any action items, they would be communicated to all affected parties which would allow feedback. However, there have not been any incidents that would have required an RCA since the last audit. Facility-Wide: The facility has not done a facility wide LCC as it believes that the individual LCC's would cover the same territory as a facility wide LCC.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A50-11	LCC Method – ISO	Does the Stationary Source have a formal tracking mechanism to ensure that latent conditions checklist recommendations are resolved in a timely fashion? [Section B: Chapter 3.2 of the CCHMP Safety Program Guidance Document]	Abr	1. ISO Section 450-8.016(d)(3) identifies schedule requirements for PHA recommendations. If the checklist is applied as part of the PHA process, the recommendations will be under the same requirements (i.e., one year unless a shutdown is required, then during the next shutdown unless the source can demonstrate infeasibility to CCHMP). 2. LCC action items identified in a PHA are subject to the same PHA actions requirement. Stationary Sources must send CCHMP a request for extension before PHA actions related to LCC become overdue if they cannot be addressed within 1 year and a turnaround is not applicable. [Section B, Chapter 3.2 of the CCHMP Safety Program Guidance Document]	CCHS reviewed P&P 3.0-2, Human Factors Program - ISO, PSM, CalARP (revised 7/16/19) which describes the tracking mechanism that used by the facility to track recommendations from LCC. PHA: Per CCHS interview with the process safety SME, the LCC is tracked the same way that PHA action items are tracked in Impact. There are completion dates assigned as well as responsible persons for completing different tasks. There is a report generated monthly that lists open PHA action items which would include LCC action items if any remained open. CCHS reviewed some of the LCC action items from the PHAs and found that they were in fact being tracked in Impact. Operating Procedures: Per CCHS interview with the operations SME, if a recommendation is identified during the LCC for an operating procedure, the recommendation would need to be addressed immediately. There would be no tracking mechanism for LCC action items simply because the facility does not publish operating procedures that have not been properly reviewed for human factors issues and those issues closed out. This was confirmed by an operations SME as well. Incident Investigations (II): For incident investigations, the LCC action items would be tracked as other II	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A50-12	LCC Method – ISO	Does the Stationary Source routinely audit and revise the latent conditions checklists to reflect the current situation within the Stationary Source? [Section B: Chapter 3.2 of the CCHMP Safety Program Guidance Document]	Abr	1. Since the initial compilation of the LCC checklist, other checklists have been developed (e.g., AIChE's CCPS's Human Factors Methods for Improving Performance in the Process Industries, Copyright 2007). Stationary Sources are encouraged to review this and other checklists to update their tools to uncover existing latent conditions.[Section B, Chapter 3.1 of the CCHMP Safety Program Guidance Document] 2. CCHMP added additional questions for evaluation of latent conditions that may help improve the overall human factors program in 2010. Stationary Sources are encouraged to review Attachment A of the CCHMP Safety Program Guidance Document and augment their own latent conditions checklists.	CCHS reviewed P&P 3.0-2 which describes the audit requirement of the latent conditions checklists for PHA, operating and maintenance procedures, and incident investigations. Under the section Periodic Assessment, the policy describes the LCC review as being "…on a 3 year basis coinciding with the policy update utilizing a team which will include representative employees to determine if the checklists reflect current conditions and if revisions are necessary." PHA: CCHS reviewed the LCC's that were used to check latent conditions for the PHAs for Units 215, 231, MP30, and Relief and Blowdown. The checklist was last revised in October 2013. Per Interview with the PS SME, the facility has not updated the LCC since 2013 and that it would be put on the schedule for review. See A55-05 for additional information on the employee participation program that includes being part of the review and update of LCC's. Operating Procedures: CCHS reviewed the LCC used for operating procedures which was included in the Operating Procedure writing manual that was last revised in 2019. There is no revision date for the LCC specifically. Maintenance Procedures: CCHS reviewed LCC's that were used for the maintenance procedures and these were revised Dec 2015. This LCC needs to be part of the LCC review program. Incident Investigations: For MCAR or near-miss MCAR's, the	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					facility uses TapRoot as the RCA tool. This includes a module for human systems.		
A50-13	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the Stationary Source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate ‘repeat’ for identical non-compliance, or use ‘modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	There was one ensure action item from the previous CalARP/ISO audit. This was for A50-06 and has been carried over to the next audit.	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A50-14	Any Method – Program 4 CalARP	Did the owner or operator include a written analysis of human factors where relevant in the design phase of a major change, MOOCs, HCAs, incident investigations and PHAs? [T19 CCR §2762.15(b)]	New	* Document the human factors analysis method (e.g., LCC and/or Alternate Method) used for each of these items and the criteria for their use. 1. The analysis shall include a description of selected methodologies and criteria for their use [T19 CCR §2762.15(b)]. 2. This question is similar to A50-03, although that question is focused on discovering latent conditions using a LCC for PHA, incident investigations, procedures and facility-wide only (i.e., does not cover design phase of major change, MOOC, HCA).	Design Phase of a Major Change: There have not been any major changes in the facility since the previous audit. MOOCs: The facility uses a human factors checklist to analyze the impact of any organizational changes. This checklists has been tailored to fit the MOOC process. CCHS reviewed the MOOC for Board Consolidation of East Bulk and MTC which was completed in 2018. The HF evaluation of the MOOC included 5 questions that ranged from monitoring critical controls and alarms to alarm volume to control loop management, roles and responsibilities of operators and supervisor, and the role of the field operator in monitoring the unit. HCAs: The facility has not performed any HCA's as of the audit Jan 2020. See A58-01 for more information on the HCA plant program. Incident Investigations: There has not been a qualifying incident that would have required a human factors evaluation since the previous audit. PHAs: CCHS reviewed each of the PHAs (Unit 215, 231, and MP30) that were the main focus of the audit. Each had an LCC that was completed and included in the PHA with the results copied into nodes that were typically towards the end of the PHA.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A50-15	Any Method – Program 4 CalARP	Did the owner or operator's human factors analysis of process controls include the following areas: a) Error proof mechanisms; b) Automatic Alerts; and c) Automatic System Shutdowns? [T19 CCR §2762.15(c)]	New	* Evaluate how process controls were evaluated. * Review whether LCCs used onsite include questions related to alerts and error proofing. 1. The County's LCC includes the following questions related to alerts and error proofing (not a complete list): 2.43, 2.44, 2.45, 2.47, 2.51, 2.53, 3.2, 3.7, 3.8, 3.11, 3.12, 3.23, 3.24, 3.27 - 3.35, 3.37.1, 3.37.2, 3.38 - 3.40, 3.44, 3.45, 3.51.	CCHS reviewed the LCC that is used by facility which is the County's 2011 LCC. This LCC is tailored to focus on the area of concern. The HF analysis for process controls includes the evaluation of error proof mechanisms, automatic alerts, and automatic system shutdowns. CCHS reviewed P&P06.01-04, Human Factors (Operating Procedure Formatting & Writing (updated 4/18/19) which lists 34 total questions (10 of which are related to emergency procedures): -- Q29 is for operator response time -- Q30 is for shutdown switches and other controls required for emergency operation readily accessible to the operator from a safe location. -- Q32 is for implementation of emergency procedure even if operator is unable to determine what is causing the issue -- Q33 proper response to alarm indicators -- Q34 indicators and controls available to place unit in safe and stable condition, or safely shutdown the unit, in case of emergency.	Y	None
A50-16	Program 4 CalARP & ISO	Does the submitted RMP and Safety Plan accurately reflect the existing Human Factors Program at the stationary source? [T19 CCR §2745.2(d), ISO Section 450-8.016(b)(4) and Section E.3 of the CCHMP Safety Program Guidance Document]	New		The 2019 RMP and the 2018 Safety Plan both accurately reflect the existing Human Factors program at P66.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A50-17	Program 4 CalARP	Does the owner or operator make sure that effective participation takes place with affected operating and maintenance employees and employee representatives in all phases of implementation of the Human Factors Program? [T19 CCR §2762.10(a)(2) and §2762.15(g)]	New	* Verify employees effectively participated in the HF program. * If there are issues with development and implementation of the training coordinate with the auditor of A46-01. 1. This question covers participation in "implementation" only as A46-01 is to evaluate "development, training and maintenance". 2. Participation in "all phases" of implementation should be defined by the stationary source. [T19 CCR §2762.10(a)(2) and §2762.15(d)]	CCHS reviewed P&P 5.0-3, PSM/CalARP Employee Participation Plan (revised 6/01/18) which includes a description of the human factors as it is applied to operating and maintenance procedures, PHA, HCA, Incident Investigation, MOOC's, and staffing, fatigue, and overtime. Employees use LCC's (and other methods) to identify and correct human factors issues. CCHS reviewed the HF program at the facility and found that employee participation through LCC's to be apparent.	Y	None

A51: Section B - PHA's SPA

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A51-01	ISO	Did the Stationary Source elect to complete the applicable questions of the Latent Conditions Checklist prior to conducting the PHA? If so: a) Were PHA team members provided with copies of the completed checklist prior to the PHA meeting; b) Were the PHA team members provided with all of the action items or recommendations formulated to resolve the latent conditions and the status of each; c) Did the PHA team evaluate the consequences of implementing action items or recommendations from the latent conditions review; and d) Did the PHA team leader use the results of the latent conditions checklist to focus the PHA revalidation (similar to MOC and II) to consider the effects of existing latent conditions on the frequency of and consequences associated with any active failure or unsafe act? [ISO Section 450-8.016(b)(1) and Section B: Chapter 4.2.1 of the CCHMP Safety Program Guidance Document]	Abr	1. Stationary Sources may elect to apply the Latent Conditions Checklist prior to the PHA (question A51-01), apply the Latent Conditions Checklist during the PHA (question A51-02), or apply a different approach after consulting with CCHMP (question A51-03). 2. The requirements of this protocol apply to PHAs performed on existing systems, PHA revalidations, and PHAs performed during the design of a new process. 3. The latent condition checklist (or other method used to identify existing latent conditions) is designed to be a “brainstorming tool” to prompt personnel into further discussion.	Per section E.2.e, page 10, of Manual Section 2.0-6 SFR Process Hazard Analysis (PHA) dated 5/1/19, which states, "Human Factor and Facility Siting checklists are initially prepared by Operations representative assigned to the PHA. The policy further states, "the human factors and facility siting checklists must be completed prior to the initial start date of the existing PHA. If the Human Factors checklist has not been completed at the time of the first PHA meeting, it will be done as the first activity. Per interview with Process Safety Director, CCHS confirmed that the Human Factors checklist should be completed prior to starting the PHA study meeting then reviewed by the PHA Facilitator and distributed to the Team members prior to starting the PHA. The PHA team will review the Human Factors Recommendations after the PHA nodes are complete. Per review of the PHAs and Human factors Checklist, the Checklists were completed after the PHA was started. -- MP30 (Checklist completed on 10/11/19; PHA started on 7/8/19); -- U215 (Checklist completed on 5/4/18; PHA started on 4/30/18) The facility needs complete Human factors Checklist prior to conducting the PHA and provide PHA team members with copies of the completed checklist prior to the PHA meeting.	P	Ensure to complete the Human Factors Checklist prior to conducting the PHA and provide PHA team members with copies of the completed checklist at the beginning of the PHA.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A51-02	ISO	Did the Stationary Source elect to complete the applicable questions of the Latent Conditions Checklist during the PHA? If so: a) Did the PHA team analyze and document "why" employees would execute each active failure or unsafe act resulting in a potentially hazardous scenario; and b) Do PHA revalidations include a review of each active failure or unsafe act resulting in a potentially hazardous scenario; and c) Did the PHA team consider the effects of existing latent conditions on the frequency and consequences associate with any active failure or unsafe act? [ISO Sections 450-8.016(b)(1) and Section B: Chapter 4.2.2 of the CCHMP Safety Program Guidance Document]	Abr	1. Stationary Sources may elect to apply the Latent Conditions Checklist prior to the PHA (question A51-01), apply the latent conditions checklist during the PHA (question A51-02), or apply a different approach after consulting with CCHMP (question A51-03). 2. The requirements of this protocol apply to PHAs performed on existing systems, PHA revalidations, and PHAs performed during the design of a new process. 3. The PHA team should identify the latent conditions for each individual active failure, or elect to group active failures with the potential for similar latent conditions.	The facility opted to complete a human factors checklist prior to conducting the PHA as described in A51-01. This question is not applicable.	N/A	None
A51-03	ISO	Did the Stationary Source elect to develop and implement as a part of their PHA program a system to evaluate latent conditions other than those programs described in Section B: Chapter 4 of the Guidance Document? If so, did the Stationary Source consult with CCHMP? [ISO Sections 450-8.016(b)(1) and Section B: Chapter 4 of the CCHMP Safety Program Guidance Document]		1. This question refers to developing a process to evaluate latent conditions in a process before or during the PHA of the process without using the Latent Conditions Checklist methods described in questions A51-01 and A51-02.	The facility opted to complete a human factors checklist prior to conducting the PHA. This question is not applicable.	N/A	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A51-04	ISO	Did the Stationary Source perform Procedural PHAs to evaluate potential active failures or unsafe acts in the procedure such as missed or out of sequence steps and including raising questions regarding the availability of personnel to perform a task as specified in the procedure? [ISO Sections 450-8.016(b)(1) and Section B: Chapter 4.3 of the CCHMP Safety Program Guidance Document]	Abr	1. Stationary Source should screen all activities performed in their processes using established criteria (e.g., frequency, criticality, emergency or temporary procedures, large equipment startup/shutdown procedures, consequences of failure, etc.). [Section B: Chapter 4.3 of the CCHMP Safety Program Guidance Document] 2. Stationary Sources should also raise questions during the procedural PHA if there is adequate time to perform all the required tasks.	CCHS reviewed section B.4 of P66's PHA policy which states the Procedural HAZOP is performed using the following 2 guideword approach: -- Step not performed; -- Step performed wrong Per policy, procedural PHAs are performed on normal or emergency operating procedures classified (via risk rank) as "PHA Critical" which is the highest criticality described in their policy P&P 6.1-3. The policy also states, "A procedural HAZOP will be performed on the Unit 200 (Coker) Drum Switching Procedure (NOP-900-200-1 through NOP-900-200-5) and all steps of the SPP and Butane Handling /Transfer Procedures (MTC). CCHS received a list of all the procedures that have had a Procedural HAZOP completed. Per interview with Process Safety Director, P66 has not performed a Procedural PHA in the past three years. The facility also does not revalidate the Procedural PHA. CCHS notes that there is not a regulatory requirement to revalidate Procedural PHAs.	Y	None
A51-06	ISO	Did the Stationary Source identify latent conditions that may exist at the Stationary Source through the PHA process? [ISO Sections 450-8.016(b)(1) and Section B: Chapter 4.1 of the CCHMP Safety Program Guidance Document]	Abr	* Verify by sampling some of the applicable latent conditions and confirming how the Stationary Source addressed the issues. 1. This question applies to those latent conditions applicable during a PHA (i.e., some management questions may not be appropriate for a unit's PHA).	CCHS reviewed the HazOp study nodes for the three PHAs reviewed and determined that latent conditions were identified as part of the deviation scenarios. Per review of the PHAs listed in A51-01, one example was operators opening a valve more than required which can lead to an increase in flow. CCHS notes that latent conditions that are identified as part of the completion of the human factors checklist is tracked in the IMPACT database as described in A50-11. CCHS notes that Human Factors checklist is transcribed into PHA Pro, and the PHA team will comment on the completed checklist.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A51-09	ISO	Do the submitted RMP and Safety Plan accurately reflect the PHA Program at the Stationary Source? [T19 CCR §2745.2(d) and ISO Section 450-8.016(b)(4) and Section E.3.1 of the CCHMP Safety Program Guidance Document]	Abr		The submitted September 13, 2019 Risk Management Plan and the August 6, 2018 Safety Plan generally reflect the PHA program for this questionnaire.	Y	None
A51-10	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the Stationary Source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate ‘repeat’ for identical non-compliance, or use ‘modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	There were a total of three ensure action items given in the previous CalARP / ISO audit from the following questionnaires related to PHA A12, A26, A33. Two of the recommendations were completed and a repeat modified action was given in A38-26.	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A51-11	Safeguard Analysis – Program 4 CalARP & ISO	Did the owner or operator have a safeguard protection analysis (SPA) team perform a written SPA to determine a) The effectiveness of existing individual safeguards; b) Combined effectiveness of all existing safeguards for each failure scenario in the PHA; c) Individual and combined effectiveness of safeguards recommended in the PHA; and d) Individual and combined effectiveness of additional or alternative safeguards that may be needed? [T19 CCR §2762.2.1(a) and ISO Section 450-8.016(j)(1)	New	1. The safeguard protection analysis (SPA) must use a quantitative or semi-quantitative method, such as Layer of Protection Analysis (LOPA) or an equally effective method approved by CCHMP. [T19 CCR §2762.2.1(c) and ISO Section 450-8.016(j)(1)] 2. Program 4 requires that this is done for all scenarios where the PHA identifies the potential for a major incident, which is more conservative than ISO since ISO states it is only to reduce the probability and/or severity of a catastrophic release. [T19 CCR §2762.2(e) and [ISO Section 450-8.016(j)(1)] 3. The risk reduction obtainable by each IPL shall be based on site-specific failure rate data, or in the absence of such data, industry failure rate data for each device, system, or human factor. [T19 CCR §2762.2.1(c)] 4. All independent protection layers (IPLs) for each failure scenario shall be independent of each other and independent of initiating causes. [T19 CCR §2762.2.1(b)] 5. This was effective as of September 30, 2014. Stationary Sources have until June 30, 2019 to complete all such analyses. (ISO) 6. The analyses may be done with the PHA or as a standalone evaluation (ISO)	Per review of the available LOPA studies, CCHS confirmed that P66 San Francisco Refinery (SFR) reviewed the effectiveness of existing individual safeguards and the combined effectiveness of all existing safeguards for qualifying PHA scenarios. Section E.2.c.iii of P&P 2.0-6 states, "LOPA/SPA is performed for each scenario in the PHA that identifies the potential for a major incident." In addition the policy says LOPA /SPA shall be performed for safety and environmental scenarios that have "severity" 4 & 5 (not to be confused with "risk"). CCHS reviewed the "SFR Unit PHA Risk Matrix R-298 dated 12/4//2012 and determined that Major Incident as defined by the regulation falls within the "severity" 4 & 5 category. CCHS notes that some of the LOPA safeguards listed in the studies that require operator actions simply list the alarm and not the operator actions that needed to be taken: -- Unit 215, Node 4, Scenario 1 & 4, both identified a low flow alarm as an IPL. However the alarm alone is not an effective safeguard, which would require some action to recover the process such as operator actions. Per follow-up interview with LOPA SME, this is P66 convention not to document the Operators actions. However, per interview with multiple Operators they have confirmed that IPL Critical alarms are communicated to them. CCHS notes that page 7 of the HSE-93-RS-3 LOPA standard, established criteria that must be met in order to consider Operator Response to an alarm an IPL. The alarm must be independent from the initiating event and other credited IPLs, the operator must always be present at the alarm location. CCHS confirmed for all the LOPAs	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					reviewed, a LOPA was performed on all PHA scenarios with a Safety and Environmental with severity ranking of 4 and 5. CCHS notes that the LOPA worksheets clearly identify the non-IPL safeguards that were identified in the PHA, Conditional Modifiers, enabling conditions and initiating events frequency. Per review of the worksheets, the facility appropriately applied the use of enabling conditions in one scenario, which requires a piece of equipment to be actuated in order to the scenario to be realized, which was also independent from the initiating event.		
A51-12	Safeguard Analysis-Program 4 CalARP & ISO	Was the SPA performed by a team with expertise in engineering and process operations and include: a) At least one employee who has experience and knowledge specific to the process being evaluated, b) One member who has experience and knowledge specific to the safeguards, c) One member who is knowledgeable about the specific SPA method used; and, d) Consultation with individuals with expertise in damage mechanisms, process chemistry, or an engineer specializing in controls systems and instrumentation as necessary? [ISO Section 450-8.016(j)(3) & T19 CCR §2762.2.1(e)]	Abr	1. The PHA team may perform the SPA if the PHA team meets the requirements in the question. [T19 CCR §2762.2 (e)] 2. Employees and employee representatives must be allowed to effectively participate throughout all phases in performing SPAs. [T19 CCR §2762.10(a)(1)]	Per interview with PHA SME, the SPA (LOPA) team is made up of the same personnel as the PHA team and these members meet the CalARP Program 4 SPA team composition and qualification requirements. Per interview with employee representatives, management includes them to participate throughout all phases in performing the SPA. The facility is currently using P66 Corporate personnel to facilitate the LOPA process.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A51-13	Safeguard Analysis – Program 4 CalARP & ISO	Did the Stationary Source prepare a written report including: a) Potential initiating events and their likelihood and possible consequences, including equipment failures, human errors, loss of flow control, loss of pressure control, loss of temperature control, loss of level control, excess reaction or other conditions that may lead to a loss of containment; b) The risk reduction achieved by each IPL for each initiating event; c) Necessary maintenance and testing to ensure that all IPLs function as designed; d) Recommendations to address any deficiencies identified by the SPA; and e) SPA performed is in accordance with the standard of practice applicable to the type of analysis conducted? [T19 CCR §2762.2.1(f) & ISO Section 450-8.016(j)(4)]	New	1. The Stationary Source will complete the report within 30 days after the completion of the safeguard protection analysis and make the report available to CCHMP during an audit or inspection and upon request. [ISO Section 450-8.016(j)(4)] 2. The SPA findings, recommendations and completed corrective actions shall be appended to the PHA report. [T19 CCR §2762.2(e), §2762.2.1(g) and §2762.16(e)(15)] 3. Documentation to show the "necessary maintenance and testing to ensure that all IPLs function as designed" can be a reference in the report to specific databases or programs which house this information for the facility. [CCHMP interpretation]	Within each LOPA scenario, the facility identifies the initiating event frequency, which appears to confirm to CCPS LOPA guidance. The facility clearly identifies which safeguards are identified "IPLs" and the risk reduction achieved. Section E.2.k.i, page 17, of policy 2.0-6 states, "SPA (LOPA) Reports shall be completed within 30 days of completion of the LOPA analysis." The SPA technically consists of LOPA study completed by the team and independently review by a SIS engineer and an independent management review. Per interview with Process Safety Director, once the independent reviews are complete the SPA / PHA report is issued in a combined report to management for final approval. The facility should consider documenting the date the independent SIS review was complete and the independent management review within the PHA report. An ensure action item was given in A38-26 to complete the PHA /LOPA reports in a timely manner. Per interview with SIS Engineer and LOPA SME, the SIS based IPLs are verified using methods described in ISA 84.00.01. As discussed in further details in questions A41-04 & A41-09, SIL verifications is maintained in a database, that includes each element of the system. The facility's should consider documenting within the LOPA report a verification that includes the SIL rating, and other applicable information such as voting scheme, Probability of Failure, demand mode, and targeted verification schedule.	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A51-14	Safeguard Analysis – ISO	Did the Stationary Source update and revalidate the safeguard protection analysis at least once every five years and maintain all SPA documentation for the life of the process? [ISO Section 450-8.016(j)(2) and T19 CCR §2762.2.1(i)]	Abr	1. P4 requires that SPA findings and recommendations shall be appended to each PHA report. [T19 §2762.2.1(g) and CCHMP interpretation]	CCHS notes that the 5-year revalidations under Program 4 is not yet applicable since the regulation went into effect October 1, 2017. In practice the LOPA process is completed following the PHA and will follow the same schedule however this is not documented in the PHA policy. The facility should consider updating the PHA policy 2.0-6 to indicate the SPA will be completed following the PHA. Section E "Policy Requirements" page 3, states "PHA and Safeguard Protection Analysis (SPA) documentation, including resolution of the recommendations, shall be retained for the life of the process." Per interview with SME the recommendations are being tracked in IMPACT database and being appended to the report. The facility needs to append the completed PHA and LOPA recommendations to the report. Since the PHA / LOPA reports are managed in electronic form the recommendations could be either attached to the electronic document or archived in the same electronic depository. An ensure action item was given in A49-14.	N/A	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A51-15	Safeguard Analysis – Program 4 CalARP	Did the Stationary Source complete all SPAs for the PHA within 6 months of completion of the PHA? [T19 §2762.2.1(d)]	New		Per interview with the Process Safety Director, the Safeguard Protections Analysis are completed immediately following the PHA Study, however this is not spelled out in the PHA policy. CCHS notes that the PHA and SPA (LOPA) were presented in one combined report. CCHS reviewed the activity tracking log within the PHA report and compared that to the LOPA report date and determined that the LOPA was complete within 6 months of the PHA Study. -- Relief & Blowdown PHA completion 2/9/18, LOPA report date July 19, 2018. -- Unit 215 PHA completion on 5/16/18, LOPA report date October 2018. The facility should consider updating their PHA policy, to state the SPA (LOPA) will be completed within six months of the completion of the PHA to meet the CalARP regulation. Alternatively the facility may also consider updating their PHA policy to indicate the combined PHA SPA (LOPA) study will be complete 6 months after the start of the PHA to align with their own intended practice.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A51-17	Safeguard Analysis – Program 4 CalARP	Has the owner or operator developed a documented corrective action work process to promptly complete all corrective actions that includes the following: a) Final decision for each recommendation; b) Corrective actions implemented for each accepted recommendation including completion date and assignment of responsibility; c) Rejection of recommendations; d) Any alternative safeguards; e) Team members written comments on any rejected or changed findings and recommendations; f) Whether an SPA was promptly revalidated or updated if prompted by a PHA, HCA, DMR or another SPA corrective action; g) Prioritize the completion of corrective actions to address process safety hazards to prevent the potential for a major incident; h) Corrective actions to be completed within 2.5 years after the SPA; or i) Corrective actions to be completed during the first regularly scheduled turnaround? [T19 CCR §2762.2.1(h) & §2762.16(e)]	New	1. The team must provide to the owner or operator findings and recommendations at the earliest opportunity, but no later than 14 calendar days after recommendation and findings are complete. [T19 CCR §2762.16(e)(1)] 2. To reject a team recommendation, the owner or operator must demonstrate in writing that one of the following applies: (A) The analysis upon which the recommendation is based contains material factual errors; (B) The recommendation is not relevant to process safety; or (C) The recommendation is infeasible; however, a determination of infeasibility shall not be based solely on cost. [T19 CCR §2762.16(e)(2)] 3. To change a team recommendation, the owner or operator must demonstrate in writing that an alternative safeguard would provide an equally or more effective level of protection. [T19 CCR §2762.16(e)(3)] 4. Any rejected or changed recommendation must be communicated to onsite team members and made available to offsite team members for comment. [T19 CCR §2762.16(e)(4)] 5. Interim safeguards are to be completed to address process safety hazards with potential major incident pending permanent corrections (if not implemented within 2.5 years or first regularly scheduled turnaround). Corrective action from a SPA performed in a PHA must be completed within one year per ISO. [T19 CCR §2762.16(e)(10)] 6. This question is for tracking actions taken. 7. Any proposed change to a completion date shall be conducted through MOC per §2762.6. [T19 CCR §2762.16(e)(9)] 8. CCHMP may grant PHA recommendation due date extensions if	Per section E.2.i.iii, of P&P 2.0-6, "To comply with CalARP Program requirements, Safeguard Protection Analysis (SPA) or LOPA recommendations must be mechanically complete/or resolved within 30 months after the competition of the SPA." As discussed in A38-26, the PHA reports were completed 11 months after the start of PHA, nevertheless the facility still completed the PHA recommendations within 1 year from the target completion of the PHA study and not the actual. Per interview with the Process Safety Director, they did not want to reward themselves extra time because they were late on the PHA study. -- MP-30 Session dates (4/18/2019 - 10/11/2019) final report not complete. -- Unit 215 Session dates (4/5/18 - 5/18/18) final report (10/5/18) -- Relief & Blowdown Session dates (2/5/18-2/9/18) final report (July 19, 2018) CCHS reviewed section D of Policy and Procedure 10.0-3, PSM - Cal ARP Program 4, Corrective Action Work Process (dated 9/1/18). Findings and recommendations are to be reviewed by management at the earliest opportunity, but no later than 14 calendar days after recommendation and findings have progressed through the teams' review process and are published in the report for management review.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				requested at least two weeks in advance. [Section D of the CCHMP Safety Program Guidance Document modifications approved by stakeholders October 2019]			
A51-18	Program 4 CalARP	Did the owner or operator provide effective training to employees and employee representatives before serving on a SPA team sufficient to understand the methodology and tools expected to be used? [T19 CCR §2762.4(e)]	New	* Review training record related to the SPA program. If there are issues with development and implementation of the training, coordinate with the auditor of A46-01 (Employee Participation). 1. CCHMP interprets “Program elements relevant to that team” to be the methodology and tools that are expected to be used by the team which may include study concepts, process hazards, results and conclusions training.	Per interview with the Process Safety Director, training is administered by a facilitator to the team members before the SPA (LOPA) process begins. Per interview with Employee Representative, they confirmed that PHA and LOPA training was administered. They further clarified that if there is any questions regarding the process employees are encouraged to ask for clarifications. CCHS notes that although the facility has not documented training, through interview with employees there is sufficient evidence to suggest it is being completed. CCHS, recommends for the facility to consider documenting the just-in-time PHA / SPA (LOPA) training in a R-506 form and include it in the final SPA report.	Y	None

A52: Section B - Incident Investigation

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A52-01	Program 4 CalARP & ISO	Are Human Systems considered as causal factors in the incident investigation process for Major Incident, Major Chemical Accidents or Releases (MCAR), or for incidents that could reasonably have resulted in a Major Incident or MCAR? [T19 CCR §2762.15(b)&(c) & ISO Section 450-8.016(b)(1)(B)]	Abr	1. Human factors analysis of process controls include the following areas: a) Error proof mechanisms; b) Automatic Alerts; and c) Automatic System Shutdowns [T19 CCR §2762.15 (c)] 2. Human systems are discussed in Section B: Chapter 5.1.1 of the CCHMP Safety Program Guidance Document. Latent conditions are discussed in Section B: Chapters 2 and 3 of the guidance document. See A50-02 for detailed discussion. 3. A root cause analysis is required for incidents that could reasonably have resulted in a Major Incident and is not required for a near miss MCAR, but an incident investigation, including human factors considerations, is required for a near miss MCAR.	Per interview with SME, the San Francisco Refinery maintains copies of the TapRoot investigation tool as well as trained facilitators that can be used to investigate MCAR related incidents. CCHS notes that per policy all MCAR events are investigated using full-team investigation, which allows for Causal Mapping or TapRoot. Per interview with the II SME, Phillips 66 (P66) corporate has moved to a Causal Mapping method and the San Francisco Refinery has moved to a Causal Mapping for non MCAR events. In addition, P66 has developed a human factors checklist that can be applied to evaluate Human Systems as causal factors as part of the Causal Mapping investigation. If the facility intends to investigate MCAR events, including near miss MCARs, with RCA methodology that is not listed in the ISO Guidance Document they must seek CCHS approval.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A52-03	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the Stationary Source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate 'repeat' for identical non-compliance, or use 'modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	There was one ensure action items associated from the previous CalARP / ISO audit for these questionnaires (A27 & A32). The action item was addressed.	Y	None
A52-04	Program 4 CalARP & ISO	Does the owner or operator have a process in place to identify incidents that could reasonably have resulted in a Major Incident or MCARs? [T19 CCR §2762.9(a), ISO Section 450-8.016(b)(1) & Section B: Chapter 5 of the CCHMP Safety Program Guidance Document]	Abr	1. Stationary Sources must have a system in place to identify incidents that could reasonably have resulted in a Major Incident or MCARs. [Section B: Chapter 5 of the CCHMP Safety Program Guidance Document and CCHMP interpretation]	Per interview with II SME, they are responsible for screening Cat II, III, and IV potential and actual incidents identified to see if they meet the criteria for could reasonably have resulted in a Major Incident or MCARs.	Y	None
A52-05	Program 4 CalARP & ISO	Does the submitted RMP and Safety Plan accurately reflect the Incident Investigation Program at the Stationary Source? [T19 CCR §2745.2(d), ISO Section 450-8.016(b)(4) and Section E.3.2 of the CCHMP Safety Program Guidance	Abr		Both the submitted RMP, dated 9/13/19, and the Safety Plan, dated August 6, 2018, generally describes the Incident Investigation Program as it relates to human factors.	Y	None

A53: Section B - Procedures

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A53-02	ISO	Has the Stationary Source: a) Determined which tasks require written procedures; b) Verified that they have written procedures for every task deemed necessary; and c) Augmented vendor or manufacturer procedures to ensure information includes appropriate level of detail to match facilities' worker competency? [Section B: Chapter 6.1.2.1 of the CCHMP Safety Program Guidance Document]	Abr	1. Stationary Sources should address routine activities as well as infrequent tasks, shared tasks, or tasks requiring assistance from operators from other areas or assistance from other craft. 2. Task analysis (e.g., hierarchical task analysis, tabular task analysis, and timeline analysis) is one method to develop comprehensive task descriptions and procedures. Stationary Sources should also remember to consider all operating modes including non-routine and maintenance activities in the task analysis. 3. Training Needs Assessments, Process Hazard Analysis, and Job Safety Analysis are examples of resources for identifying tasks that should have written procedures. 4. Factors that should be considered when determining whether a written procedure is necessary include: (a) Frequency; (b) Criticality; (c) Complexity; and (d) Regulatory requirements. 5. Stationary Sources may find it beneficial to review existing work instructions, training matrices, and the most hazardous or unreliable processes (e.g., high risk work). 6. For uniformity in procedure development, written criteria that defines levels of frequency, criticality, complexity and procedure requirements is encouraged. 7. If the consequence of not performing a task or performing a task in an arbitrary manner is acceptable, an official written	CCHS reviewed P&P 6.1-2 (Operating Procedure Development and Document Management, last reviewed 11/1/18) and P&P 6.1-3 (Operating Procedure Assessment, last reviewed 11/1/18). These policies describe the process for evaluating operational tasks and determining whether a written procedure is necessary. The facility classifies tasks into one of four risk levels (i.e., Risk 1-4) based on a matrix of task complexity, frequency and potential consequences. Tasks ranked Risk 1 require only "Job Aid/Work Instruction" and do not need to be written. Tasks ranked Risk 2 are classified as "Reference" and require a general written procedure that can be a refinery-wide reference procedure to be used for multiple similar tasks. Tasks ranked Risk 3 are classified as "Critical" and require the written procedure to be in-hand in the field and each step must be signed-off. Tasks ranked Risk 4 are assigned "PHA Critical", have similar requirements as Risk 3 as well as must go through a procedural PHA. CCHS was informed that all existing operating procedures were evaluated using these risk evaluation tools in the past. Each operating procedure includes it's risk score on the front page of the procedure. All new operating procedures must go through the same risk evaluation during the procedure development/MOC process. CCHS was informed that a maintenance procedure assessment tool (R-118) was developed several years ago that used the operating procedure assessment tool as a guide. The tool uses criteria based on frequency, consequence and	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				operating procedure is probably not required.	complexity to rank tasks 1, 2 or 3. Risk 1 tasks do not require a written procedure. Risk 2 tasks require a procedure to be developed. Risk 3 tasks require a written procedure as well as signature signoff for each task. Maintenance Procedure 1.01 describes the process on how to use the tool. CCHS reviewed Maintenance Procedure No. 0.00 (last reviewed 5/22/19) that is a table of contents for the Maintenance Department procedures. The procedure listed a total of 170 maintenance procedures that included 41 task-based (Risk 3) procedures. CCHS reviewed select maintenance procedures and found the tool was used if the procedure was reviewed within the last several years. A number of procedures were found to be past their next review date. This is further described in A53-10.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A53-06	ISO	Has the Stationary Source ensured that interrelated procedures are reviewed and that gaps and overlaps are eliminated? [Section B: Chapter 6.1.2.3 of the CCHMP Safety Program Guidance Document]	Abr	1. If the Stationary Source elects to eliminate an existing procedure, a separate methodology, such as a procedure needs assessment, should be developed by the Stationary Source to document the assessment process. Such assessment should include a rationale for elimination of the procedure and should include review and considerations by existing trained and qualified personnel satisfying employee participation requirements. 2. It is important to review boundary operations and shared resources and equipment. 3. A gap analysis is a tool for creating procedures and eliminating overlaps/redundancies within procedures, not for eliminating procedures. [Section B: Chapter 6.1.2. CCHMP Safety Program Guidance Document]	CCHS has reviewed this topic in past audits and has confirmed that P66 has evaluated both operating and maintenance tasks to determine whether there were any gaps or overlaps between procedures. The last such evaluation took place in 2009. Per SME interviews, the facility developed P&P 6.1-3 (Operating Procedures Assessment, last reviewed 11/1/18) so they would have a process to evaluate operating tasks to determine whether a written procedure is necessary. If new equipment is added or existing equipment is modified, Operations personnel would use the MOC process and P&P 6.1-3 to evaluate whether existing procedures need to be modified or new procedures are necessary. Experienced operating personnel, familiar with existing operating procedures, are used to make these evaluations. CCHS was also informed that operators are required to review existing operating procedures on a set frequency. Procedures are marked up if they are found to be inaccurate. As described in A53-02, a maintenance procedure assessment tool (R-118) has been used to verify that the existing set of maintenance procedures need to be task procedures or more general administrative procedures. SME interviews from previous audits confirmed that maintenance tasks were evaluated to identify whether the task was already covered within a procedure or whether a new procedure needs to be developed. CCHS reviewed a number of maintenance procedures and found some records included procedure assessment documentation and some did not. Based on past audits, CCHS believes this is more of a historic documentation issue. CCHS confirmed that new tasks or	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					revised tasks are evaluated using the assessment tool and R-118 is completed and documented. CCHS was informed that the process for storing the completed R-118 forms is currently being enhanced.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A53-09	ISO	Has the Stationary Source trained employees responsible for developing and maintaining the procedures in rules for writing effective instructions? [Section B: Chapter 6.1.2.5 of the CCHMP Safety Program Guidance Document]	Abr	1. Stationary Sources should consider developing written guidelines that summarize the accepted manner in which procedures are to be written, reviewed, revised, and maintained. 2. Stationary Sources should identify the frequency for refresher training of appropriate personnel in rules for writing effective instructions (e.g., at least every three years, just in time) to be consistent with Section B: Chapter 9.3 of the CCHMP Safety Program Guidance Document.	OPERATING PROCEDURES: CCHS was informed through SME interviews that general guidelines for operating procedures have been listed in P&P 6.1-4 (Operating Procedures Formatting and Writing Elements, last reviewed 9/17/18). This policy identifies that certain rules for writing operating procedures have been incorporated into the procedure templates. Per SME interviews, two types of training have been developed. One for the procedure writing tool used onsite, MobilOps, and one for the site's operating procedure guidelines. CCHS reviewed the MobilOps Manual, dated April 2019, and the Operating Procedure Risk Assessment & Procedure Writing guideline, dated 4/18/19. Per SME interviews, select operators have been assigned as procedure writers as an additional duty (i.e., not a stand-alone or temporary assignment). Typically, there is one procedure writer at each process unit. Initial training is provided for each procedure writer on the Mobil Ops software and on the facility's procedure writing policies. CCHS reviewed training records (class sign-in sheets) for procedure writers and confirmed that many operators have been trained in the last three years. Per SME interviews and records review, CCHS was unable to confirm a system has been maintained to track who needs this training after the previous training SME retired. MAINTENANCE PROCEDURES: CCHS was provided with training records for personnel trained on writing maintenance procedures. Maintenance procedures are not located within Mobil Ops so no training for that program was required. Records provided were sign-in sheets. Similar to above, CCHS was	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					unable to confirm a system exists to track maintenance employees who received this training.		
A53-10	ISO	Has the Stationary Source developed programs to review and approve procedures to ensure that they are accurate, current, and that the effects of procedural errors are fully understood, and appropriately documented? [Section B: Chapter 6.1.3 of the CCHMP Safety Program Guidance Document]	Abr	1. This ISO question is similar to CalARP audit questions A39-18 and A39-19, as well as ISO question A51-04. 2. Stationary Sources may elect to have employees observing other employees performing the task, identifying any discrepancies between the written procedure and the actual practice. 3. Stationary Sources may elect to combine the procedure review and refresher training by requiring personnel to "walkthrough" the procedure with their supervisors. 4. Stationary Sources may elect to conduct a formal error analysis such as barrier analysis, work safety analysis, and/or human error HAZOP. 5. Include general observations or trends from CCHMP procedure walkdown here.	OPERATING PROCEDURES: Per Operating Procedure SME interview, emergency procedures (EOPs) are reviewed annually in each processing unit. These reviews are done by each crew and are documented on training forms R-506. CCHS reviewed quarterly training provided in select units (e.g., U240, SPP) and the associated R-506 forms that documented the training. CCHS was informed that if a change is found to be needed on one of these procedures, the procedure is redlined and routed to supervision for approval. CCHS reviewed training forms associated with operators reviewing EOPs. Normal operating procedures are reviewed through computer based training (CBT). Operators receive an email each month with a list of procedures that need to be reviewed in the company's Learning Management System (LMS). Per SME interviews, the process for reviewing each operating procedure is managed with a spreadsheet to ensure that each operator reviews each applicable procedure every three years. In reviewing this spreadsheet, unit positions are listed for each month of the year. The spreadsheet was designed to list all operating positions. CCHS was also informed that operators have the opportunity to comment on any of the operating procedures as they are used. Such a review process would include marking up the procedure and providing feedback to the unit supervisor. If the change has merit, the MOC process is started to make the change. MAINTENANCE PROCEDURES: This item is discussed under A41-01.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A53-12	CalARP Program 4 & ISO	Does the Stationary Source ensure that only current, approved versions of procedures are accessible to employees and any other person who works in or near the process area or who maintains a process? [T19 CCR §2762.3(b & c) & ISO Section 450-8.016(a)(2)(D)]	Abr	1. Stationary Sources that maintain both electronic and printed procedures need to have a program to ensure that both contain only current and approved versions of procedures. 2. Emergency operating procedures must be easy to access and clear to understand. Options may include: (a) Stationary Sources may elect to use different color paper or a separate brightly colored binder for emergency procedures. (b) Clarity in understanding may be enhanced by using larger type than usual, or by using lists in conjunction with simplified drawings or flow diagrams. (c) Decision aids (flow charts, decision trees) may be used to assist the operator in making correct decisions. [Section B: Chapter 6.4 of the CCHMP Safety Program Guidance Document]	OPERATING PROCEDURES: P&P 6.1-2 (Operating Procedure Development and Document Management, last reviewed 11/1/18) identifies that controlled electronic copies of all procedures are maintained accessible online through LiveLink. The facility maintains binders of printed operating procedures to be used in case of a power outage and the electronic copies are not available. These binders are maintained by the Training Group. Per SME interviews and review, electronic operating procedures are the official versions. Prior to performing a task, each operator is asked to print out the applicable procedure to take out into the field. CCHS was informed that the footer of each procedure is supposed to identify when the procedure was printed. CCHS reviewed over 20 operating procedures and found the date within the footer to be inaccurate for at least 9 of them (e.g., RNOP-603-OPS, ROL-001-MP, ROL-001-215, EIP-001-215, EIP-001-MP, NOP-705-MP, EOP-001-FLRE, EOP-001-MP, EOP-001-215). CCHS verified that paper copies of emergency procedures are maintained within binders within the central control room. MAINTENANCE PROCEDURES: Similar to operating procedures, only electronic copies of maintenance procedures are official. Maintenance procedures are accessible to all maintenance crafts and their supervisors.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A53-14	ISO	Has the Stationary Source incorporated the following into normal procedures and emergency operating procedures: a) Procedure title and number (if appropriate) should be easy to locate; b) The last step of the procedure should be identified; c) Temporary procedures should be clearly identified; d) Each procedure should be written for the procedure user (i.e., engineer, operators, health and safety staff, level of experience); e) Each step should be written as a command; f) Use common words; g) Avoid vague terms (i.e., leave no room for guessing or interpreting word meaning); h) Spell out first use of acronyms and abbreviations; i) Each step should include only one action. This will help to ensure that employees will not “overlook” an assumed but unwritten step; j) Steps that should be performed in a particular sequence should be numbered and listed sequentially; k) Critical step sequencing should be preceded by a caution or warning; l) Whenever possible, the procedures should reference equipment or instrumentation by unique number or name; m) Page layout (i.e., line spacing, length of lines, and font size) should not negatively affect readability; n) Procedures should neither reference steps from nor excessively reference other procedures or documents; o) Precautionary statements (e.g., warning, caution) should be clearly defined and placed immediately before the step to which they apply;	Abr	1. The intent of this question is not to dictate the content and format of procedures but some of these general elements of effective procedures should be incorporated. [Section B: Chapter 6.2 of the CCHMP Safety Program Guidance Document] 2. Flow charts can aid in understanding complex procedures with parallel paths.	P&P 6.1-4 (Operating Procedures Formatting and Writing Elements, last reviewed 9/17/18) identifies minimum requirements within the facility's operating procedures. This policy references a Procedure Guidebook. CCHS reviewed both the policy and the 52-page guidebook (dated 4/18/19) and both describe the required formatting of procedure writing that are consistent with the items listed within the question. The guidelines included steps to take for the following: assessing human factors, accessing Mobile-Ops, creating a new procedure, modifying a procedure, deviating from a procedure, defining action verbs. CCHS reviewed copies of operating procedures and found consistent compliance with the policy and guidelines.	Y	None

p) Precautionary statements should stand out from procedure steps;
q) Procedure “branching” (e.g., return to step 3) should be minimized;
r) Sign off should be required for verifying critical steps of a procedure;
s) Steps within procedures to be performed by multiple employees should be clearly indicated and possibly require checklists or signoffs;
t) Complex procedures or procedures that require more than one shift to perform should require check-off or sign-off;
u) Steps that require contingencies or criteria to assist the employee should precede the action (i.e., if the temperature is above XX, set the flow rate to the following range YY-YYY);
v) Formulas or tables should be included when procedures require calculations (i.e., minimize “in your head” calculations);
w) Incorporate feedback loops as appropriate in the procedure so that employees can verify that their activities were correct;
x) Non-routine personal protective equipment necessary to complete the procedure should be listed at the beginning of the procedure and immediately before the step to which they apply (alternatively a step to don or use the PPE);
y) Instructions and conditions when by-passing shutdown systems or interlocks is allowed should be specified; and
z) Write all steps necessary for the operating task (e.g., do not list “startup compressor” if there is more than a simple push-button to press)? [Section B: Chapters 6.2 and 6.4 of the CCHMP Safety

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
		Program Guidance Document]					
A53-17	Program 4 CalARP & ISO	Does the submitted RMP and Safety Plan accurately reflect the Procedures Program at the Stationary Source? [T19 CCR §2745.2(d), ISO Section 450-8.016(b)(4) and Section E.3.3 of the CCHMP Safety Program Guidance Document]	Abr		Section 1.4 of the RMP submitted to CCHS on 9/13/19 and pages 9-11 of the Safety Plan submitted to CCHS on 8/6/18 accurately describe the onsite Procedures program.	Y	None
A53-18	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the Stationary Source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate ‘repeat’ for identical non-compliance, or use ‘modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	CCHS's previous audit developed one ensure action item for this regulatory topic, which has been resolved.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A53-19	ISO	Has the Stationary Source incorporated the following into maintenance procedures: a) Elements listed in A53-16; b) List the craft or personnel to which the procedure is applicable; c) Labeled graphics should be included for the user's benefit; d) Sufficient detail must be used to reduce interruptions (i.e., times that the user must stop the procedure or put the procedure down); e) The procedure should include the Scope and Purpose; f) Special tools and equipment necessary to complete the job should be listed at the beginning of the procedure; g) Specific or unique cleaning supplies should be noted; h) Appropriate health and safety information should be included or referenced; i) The personal protective equipment necessary to complete the procedure should be listed at the beginning of the procedure and immediately before the step to which they apply; j) Should include required follow-up actions or tests and identify the user who must be notified as appropriate; k) Consider identifying critical maintenance tasks; and l) Consider including self-checks that should be used during maintenance activities? [Section B: Chapter 6.3.1 of the CCHMP Safety Program Guidance Document]	Abr	1. The intent of this question is not to dictate the content and format of procedures but some of these general elements of effective procedures should be incorporated. [Section B: Chapter 6.3 of the CCHMP Safety Program Guidance Document]	CCHS reviewed select maintenance procedures that are more task-based (versus administrative). The procedures included command style steps, sign-offs and special tool discussion. Sections of the procedure were the same (e.g., purpose, responsibility, special training or qualifications, health safety and environmental precautions, required parts/special materials, procedure). Procedures reviewed included: Maintenance Procedure No. 2.07, 2.19, 2.52, 2.53, 4.18, 5.03.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A53-20	ISO	Has the Stationary Source incorporated the following into safe work practice procedures: a) Elements listed in A53-19; b) Steps to drain, purge, or clean the equipment, if applicable; c) Safeguards to protect against the hazards, for example, isolation of energy sources and process materials; d) Required monitoring of worksite conditions and worker performance; and e) A method to formally turn over control of the equipment from operations to the group responsible for the maintenance work? [Section B: Chapter 6.3.2 of the CCHMP Safety Program Guidance Document]	Abr	1. The intent of this question is not to dictate the content and format of procedures but some of these general elements of effective procedures should be incorporated.	Most of the facility's safe work practice procedures are written more with include general terms than specific tasks line items (e.g., P&P 6.2 Safe Practice #28, Bypassing Overpressure Protection of Unfired Pressure Vessels and Use of Block Valves in Relief Systems, last reviewed 4/30/17; P&P 6.2 Safe Practice #3, Preparing Equipment for Opening, Cleaning, repairing, Servicing and/or Adjusting Lock/Tag/Try (LTT)). CCHS believes that such general procedures may not be specific enough to benefit from a human factors evaluation. The facility also developed two more detailed LTT procedures. -- RNOP-100T-OPS (approved on 12/21/19) is a normal refinery-wide operating procedure for Lock Tag Try for newer operators. A human factors evaluation was performed on this procedure and the individual steps require sign off. The procedure is a level 3 risk procedure. The procedure contains many of the expected items listed in A53-14. -- RNOP-100-OPS (approved 2/21/19) is a checklist procedure to be used for LTT for experienced operators. The procedure contains many of the expected items listed in A53-14.	Y	None

A54: Section B - MOC for Organizational Changes

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A54-01	Program 4 CalARP & ISO	Has the owner or operator developed, implemented and maintained a written procedure for conducting MOC's on the: a) Reduction in the number of positions, or number of personnel; b) Reduction of classification levels of employees; c) Changing shift duration; d) Substantive increase in the responsibilities of personnel at or above 15%? [T19 CCR §2762.6(a), §2762.6(i) & Section B: Chapter 7 of the CCHMP Safety Program Guidance Document]	Abr	1. MOOC is required for changes affecting operations, engineering, maintenance, health and safety or emergency response. 2. Owner or operators can incorporate MOC for organizational changes into their MOC process, or can develop a separate Management of Organizational Change (MOOC) process. 3. MOOC requirements also apply to contractors in permanent positions. [T19 CCR §2762.6(j) & ISO 450-8.016(b)(1)(F)] 4. Reduction in the number of positions, substantive increase in duties, and changes in responsibilities refer to changes in permanent staffing levels/reorganizations. Staffing changes that last longer than 90 calendar days are considered permanent. [T19 CCR §2762.6(j) & ISO 450-8.016(b)(1)(F)]	Per the SFR Management of Organizational Change (MOOC) Policy (Manual Section: 5.0-4, rev. 09/30/2018), the following changes would require the application of MOOC: (a) Reduction/Increases in permanent (>90 days) staffing levels (b) Substantive increase in duties (e.g. addition of equipment or instrumentation, which significantly adds to the complexity of the system, >15%) (c) Changes in the responsibilities of positions (d) Consolidation or dividing of departments, such as changes in number or designation of functional areas (e) Moving duties from one department to another (f) Reorganization of departments (g) Temporary changes associated with strike preparations (h) Individuals are required to take on new responsibilities requiring skills and competencies unconnected with those previously required The MOOC policy applies to employees with positions in operations, maintenance, emergency response, process safety, mechanical integrity, and other positions with HSE responsibilities. Attachment 1 of the MOOC policy explicitly lists all positions that are subject to the requirements. The policy also states that "Contractors who may fill one of the positions listed in Attachment 1 are included in the requirements of this policy." Per the Refining Required Standard: MOC for Organizational and Personnel Change (rev. 5/18/09), MOOCs "require a formal risk-based, controlled decision-making process." This process for the Rodeo facility involves completing	Y	None

forms R-761 (Understanding the Organizational Change) and R-765 (Management of Organizational Change Procedure). Form R-761 is completed by the Refinery Leadership Team (RLT) to notify the HSE Manager of any proposed changes to personnel or organizational structure. The HSE Manager is then responsible for determining if the change requires application of the MOOC procedure (R-765). R-765 documents responsibilities of the position(s) to be changed, and to which positions those responsibilities will be transferred if the change occurs. The form also contains a section to assess the impact of the change on different areas (see A54-07 for more information).

Per interview of the MOOC SME, the facility defines a substantive increase in duties (>15%) on a case by case basis. For example, if the facility determines that a major change to the process will require an increase in tasks, the facility will discuss and decide if that constitutes the need for an MOOC. The facility does not use a specific metric to trigger an MOOC for an increase of 15%.

This MOOC policy also defines Management of Personnel Change (MOPC) as "the movement of individual personnel into or out of an existing position or new responsibilities requiring new skills and competencies assigned to an existing position." MOPCs do not require
the complete analysis used for MOOCs, but are instead completed using form R-768 (MOPC Review and Approval Form) which is a simple checklist ensuring that critical functions of the position are transferred between personnel and, if applicable, covered for the interim period until a replacement is hired.
CCHS reviewed all 3 of the MOOCs and the 1 MOPC completed since the last

audit (January 2017).

MOOCs:
-- "Rodeo Refinery Security reporting change" 09/18
-- "Board Consolidation of East Bulk and MTC" 02/18
-- "Transfer of the Laboratory from Tech Services to Optimization" 07/19

MOPC:
-- "Temporary MOPC for Rodeo Process Safety Specialist position."

Of the 3 MOOCs completed, only one ("Board Consolidation…") is subject to the requirements of CalARP/ISO. The two other MOOCs do not affect operations, engineering, maintenance, health and safety, or emergency response. CCHS learned on the final day of the audit that the Board Consolidation MOOC was, at the closing of the audit, still in progress and hadn't yet been implemented.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A54-02	ISO	Has the Stationary Source developed criteria or guidance to assist appropriate personnel in determining "when" an MOC for an organizational change should be initiated? [Section B: Chapter 7 of the CCHMP Safety Program Guidance Document]	Abr	1. The MOC for organizational changes or MOOC should occur prior to the change although this may not always be possible (for example, an employee abruptly leaving on their own accord). 2. If the MOOC takes place after the change is made, the MOC Policies or procedures shall state when the MOC will be complete for this organizational change. 3. MOOC requirements also apply to contractors in permanent positions in operations and maintenance and temporary changes associated with strike preparations. [T19 CCR §2762.6(j) & ISO Section 450-8.016(b)(1)(F)] 4. Process changes may impact the way personnel interact with the process and should be examined as possible candidates for MOOC analysis. 5. Stationary Sources are encouraged to develop a documented screening process to briefly review all pending changes in positions of operation, maintenance, emergency response, and health & safety to determine whether the change would be subject to a full MOOC evaluation. [Section B: Chapter 7 of the CCHMP Safety Program Guidance Document]	Per the MOOC policy, the Refinery Leadership Team (RLT) is responsible for notifying (using Form R-761: Understanding the Organization Change) the HSE Manager of any proposed personnel changes (except to refinery operator or craft work positions which are managed under a formal qualification and training program) and changes to organizational structure and staffing levels. If the HSE Manager determines that the identified change requires application of the MOOC procedure, as per the requirements outlined in question A54-01, a MOOC team will be organized. If the change is not determined to require the application of the MOOC procedure, the HSE Manager will complete a Negative Declaration. The MOOC will be completed before the change actually occurs, unless this is not possible (e.g. employee leaves without warning), and the team will prepare an action plan based on required actions identified in the MOOC process. The team will specify which actions must be completed before enacting the change and which actions can be done after implementation of the change.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A54-03	Program 4 CalARP & ISO	Does the owner or operator provide for affected employees and their representatives participation in the MOOC? [T19 CCR §2762.6(k)(2) & Section B: Chapter 7 of the CCHMP Safety Program Guidance Document]	Abr	* Review MOOC documentation to verify affected operation or maintenance employees and their representative participated in all phases. All other types of employees just need to be consulted. [T19 CCR §2762.10(a)(2) & Section B: Chapter 7 of the CCHMP Safety Program Guidance Document]	Per the MOOC policy, the MOOC team will include at least 2 individuals (often more, depending on the complexity of the review). One individual should be a non-supervisory representative of the group that is affected by the change, including engineers, H&S, emergency response, operators, or maintenance. The other required individual for the MOOC team is a management employee, such as a supervisor, superintendent, or other manager. Additionally, the MOOC team is responsible for ensuring that affected employees and their representatives are consulted in the process. CCHS review of the 3 MOOCs completed since the last audit indicates that the facility provides for affected employee participation in the MOOC team. Each MOOC included members from each affected group (both from the position being changed/eliminated and the position(s) where responsibilities were being transferred).	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A54-05	Program 4 CalARP & ISO	Has the owner or operator developed and implemented a method to ensure that they clearly understand their existing situation prior to making the organizational change including performing a human factors analysis? [T19 CCR §2762.15(c) & Section B: Chapter 7.2 of the CCHMP Safety Program Guidance Document]	Abr	1 Owner or operator must do a human factors assessment as part of the MOOC analysis and as identified in A50-02. [T19 CCR §2762.6(k)(3) & §2762.15(c)] 2. Owner or operators may elect to conduct a job task analysis to clearly understand the responsibilities of each position. 3. Written job function descriptions must be current and accurate for all positions affected by the change. [T19 CCR §2762.6(k)(1)] 4.Prior to conducting the MOOC, owner or operators need to evaluate job tasks and any “other” activities that an individual performs to effectively account for the existing situation. 5. Job tasks and any “other” activities that an individual performs need to be evaluated to effectively account for the existing situation. 6. All positions that may be reduced or eliminated as well as those positions that may have an increase in duties and/or responsibilities associated with the change must be assessed. 7. Owner or operators are encouraged to develop a process to attempt to capture the knowledge and experience from personnel before they change positions or vacate their position even if there are no proposed changes. The MOOC process may be used to document such information. [Section B: Chapter 7 CCHMP Safety Plan Guidance Document]	CCHS reviewed form R-765 "Management of Organizational Change (MOOC) Procedure" which is to be completed when it is determined that an MOOC is appropriate for the organizational change. Page 2 of form R-765 is the "Safety and Environmental Responsibility Mapping Chart". This chart is a checklist for analyzing the position being changed and ensures that responsibilities are fully understood for the position and indicates where these responsibilities will be transferred when the organizational change occurs. Pages 3-4 of form R-765, "Identifying Potential Safety, Health, and Environmental Impacts", lists the positions which are identified on page 2, gives a brief description of each, identifies the potential safety impact of the increase/change in responsibilities, and ranks the priority of the change (high, medium, low). For potential safety impacts that are medium or high priority, the team must complete the impact assessment on pages 5-13 to fully analyze the impact that the change will have on responsibilities, including human factors. Per SME interview, in order to determine the existing situation the facility relies on documenting tasks and responsibilities for positions by asking personnel who filled the affected positions to discuss these tasks and responsibilities. Unsuccessful attempts have been made in the past to keep updated job descriptions, but the facility has found it more beneficial to discuss the job tasks and descriptions at the time of the review. MOOCs reviewed by CCHS indicate that the R-765 form has been properly filled out to address the existing situation and the impact for the two MOOCs which are not subject to CalARP/ISO requirements, but the impact assessment section for the "Board Consolidation" MOOC did not	P	Ensure that job tasks for affected positions are compiled prior to conducting the MOOC and included within the MOOC package. (modified repeat)

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					properly document where safety and environmental responsibilities would transfer and did not document associated action items when a potential impact was identified. Per CalARP Program 4 regulations, prior to conducting an MOOC the facility is required to evaluate the current job function descriptions for all affected positions. Review of the "Board Consolidation" MOOC, indicates that job function descriptions were not available to the team before the facility began conducting the MOOC. An ensure item was given during the last audit to "Ensure the MOOC team clearly understands the existing situation prior to making the organizational change by reviewing the job responsibilities/tasks for the affected personnel, complete all 'Impact Assessments', complete all appropriate signoffs and maintain the documentation." CCHS review of policy and SME interviews do not indicate that the facility appropriately documents the job tasks of the affected positions. The "Safety and Environmental Responsibility Mapping Chart" (Page 2 of form R-765) and the "Identifying Potential Safety, Health, and Environmental Impacts" (pgs. 3-4) contains generic checklists to evaluate job tasks and allocation during the MOOC, but this does not meet the CalARP Program 4 regulatory requirement of having job function descriptions before the MOOC is conducted. Additionally, CCHS asks that the facility consider prioritizing the job tasks identified for an MOOC and specifically allocate these tasks to new or existing positions.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A54-07	Program 4 CalARP & ISO	Has the owner or operator developed, implemented, and maintained a method for assessing the impact that the change in staffing will have on operations, engineering, maintenance, health and safety, and emergency response? [T19 CCR §2762.6(j) & Section B: Chapter 7.4 of the CCHMP Safety Program Guidance Document]	Abr	1. This ISO question is similar to CalARP question A16-04, but is focused on staffing changes. 2. Owner or Operators may elect to conduct a modified PHA to assess the impact of the change on safety and health. 3. Owner or Operators may elect to complete a time sequencing analysis to outline all of the tasks that must be performed during critical and emergency situations. 4. Owner or Operators may elect to conduct field verification of the time/task analysis for the identified scenarios, as appropriate. 5. Owner or Operators must stop and redefine the situation if the health and safety evaluation discovers additional position(s) that are affected that are not being evaluated. [Section B: Chapter 7.4 of the CCHMP Safety Program Guidance Document]	The MOOC team identifies all the different positions in Operations, H&S, Emergency Response, Maintenance, Environmental, and "other" that will be affected by a proposed organizational change on Page 3 of form R-765, "Identifying Potential Safety, Health, and Environmental Impacts", and assigns a priority (high, medium, low) to each depending upon the extent of the changes. High and medium priority changes require the MOOC team to make a detailed assessment of the impacts. The "MOOC Impact Assessment" (Form R-765, pages 5-13) addresses the following topics that might be affected by the change: operations and safety, safety and health management, safe work practices, process safety management programs, contractor safety, emergency response, regulatory compliance, occupational health, unit operability and safety. Specifically, the unit operability and safety questions in the impact assessment address issues related to ensuring that changes in staffing levels will not affect the ability to safely operate the process and respond to emergency situations. Page 4 of form R-765, "Operating and Maintenance Procedure Checklist", provides a method for analyzing the impact that an MOOC might have on procedures, PSI, Equipment Changes, and Training.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A54-13	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the Stationary Source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate 'repeat' for identical non-compliance, or use 'modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	An ensure action item associated with question A54-05 has been included as a modified repeat in this questionnaire. Refer to question A49-28 regarding resolution of this action item.	R	None
A54-14	Program 4 CalARP & ISO	Does the submitted RMP and Safety Plan accurately reflect the MOOC Program at the Stationary Source? [T19 CCR §2745.2(d), ISO Section 450-8.016(b)(4) and Section E.3.4 of the CCHMP Safety Program Guidance Document]	Abr		The MOOC program section in the submitted Safety plan (rev. 08/06/18, pgs. 43-35) accurately reflects the MOOC Program at the facility. The submitted RMP (rev. 09/13/19) includes a statement on the MOOC Program in Section 1.7.	Y	None
A54-15	Program 4 CalARP	Has the stationary source manager, or designee, certified based on information and belief formed after reasonable inquiry that the MOOC assessment is accurate and that the proposed organizational change(s) meets the regulatory requirements? [T19 CCR §2762.6(k)(4)]	New		Per Section E.5.f. of the MOOC policy, "after communication of the results of the MOOC and completion of the required action items, a document package consisting of the MOOC Procedure Checklist, R-765 and all attachments is provided to the HSE Manager. The HSE Manager's signature on page 1 of the R-765 acknowledges the MOOC policy was properly applied and approved." No CalARP/ISO MOOCs have been completed since the last audit, so CCHS cannot verify this requirement.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A54-16	Program 4 CalARP	Did the owner or operator provide effective training to employees and employee representatives before serving on a MOOC team sufficient to understand the methodology and tools expected to be used? [T19 CCR §2762.4(e)]	New	* Review training record related to the MOOC program. If there are issues with development and implementation of the training, coordinate with the auditor of A46-01 (employee participation). 1. CCHMP interprets “Program elements relevant to that team” to be the methodology and tools that are expected to be used by the team which may include study concepts, process hazards, results and conclusions training.	Per Section E.4.c of the MOOC policy, team members will be provided training from the H&S department on the Human Factors Latent Conditions checklist questions and a review of the MOOC process. The training will include the importance of the team understanding the existing situation prior to the change and completing the documentation of all "Impact Assessments", and completing the required sign-offs on the MOOC forms. This training is supposed to be documented on an R-506 form that is to be included in the MOOC documentation file. Review of the only applicable MOOC did not include any documentation of training prior to the team serving on the MOOC team as stated in the policy. Per SME Interview, the only training that is conducted is prior to the MOOC beginning, the team goes over the R-765 MOOC Procedure. At a minimum this training should be documented, but CCHS encourages the facility to create a more formal training process so that all MOOC teams apply the procedure in the same manner.	N	Ensure that training on the methodology and tools expected to be used is provided to employees and employee representatives before serving on a MOOC team and this is documented.

A55: Section B - Employee Participation

ID#	*Category*	*Question*	*Type*	*Clarifications*	*Findings*	*Answer*	*Actions*
A55-05	ISO	Does the Stationary Source ensure that employees and their representatives review the written human factors program on an established frequency and that any necessary revisions are incorporated? [Section B: Chapter 8.2 of the CCHMP Safety Program Guidance Document]	Abr	1. Continuous improvement of the human factors program should be documented and may include, but is not limited to the following activities: periodic review of completed latent conditions checklists (LCC) for accuracy and appropriateness; periodic review of the various LCC questions or customized checklists for adequacy of use; field evaluations/spot checks on human factors issues; verification of human factors issues and assurance that subsequent recommendations were properly addressed; human factors training needs assessment for employees; and periodic review of the Stationary Source's written	CCHS reviewed P&P Manual Section 3.0-2: Human Factors Program - ISO, PSM, CalARP, last reviewed on 07/16/2019. Per this policy, "the Latent Conditions Checklist will be reviewed on a 3-year basis coinciding with the policy update utilizing a team which will include representative employees to determine if the checklists reflect current conditions and if revisions are necessary." Per CCHS review, the policy was previously updated 04/01/2016 which would make the next policy update due on 04/01/2019. However, the policy was updated on 7/16/2019. More important was that per CCHS review and interview, a team which includes a represented employee has not reviewed the LCCs for necessary updates per the Human Factors Policy. Per a review of the MP-30 PHA which was conducted in 2019, the LCC template completed was revised on 10/11/2013 and has not been updated since. This was also an ensure item from the previous two CalARP/ISO audits. The MOOC checklist was last updated in 12/2016 and CCHS could not confirm if the LCCs for operating procedures was updated beyond 2013.	P	Ensure that the Latent Conditions Checklists (LCCs) are reviewed and updated on a 3-year basis per P&P Section 3.0-2 and the review includes a represented employee. (This is a second time repeat ensure item).
A55-07	ISO	Does the Stationary Source ensure that employees and their representatives participate in maintaining the written human factors program current and accurate? [Section B: Chapter 8.2 of the CCHMP Safety Program Guidance Document]	Abr		Per interview and a review of the Human Factors Program Policy last revised 07/16/2019 as referenced in A55-05, the employee representatives participated in maintaining the written human factors program current and accurate.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A55-10	ISO	Does the Stationary Source ensure that employees and their representatives are included in the incident investigation team, and are involved with evaluating latent conditions during the investigation? [Section B: Chapter 8.2.3 of the CCHMP Safety Program Guidance Document]	Abr	1. This ISO question is a follow-up to question A45-03.	CCHS reviewed the incident investigations completed since the last CalARP/ISO audit and confirmed that employees and their representatives are included as part of the incident investigation teams. See A52 questionnaire for a discussion of latent conditions evaluations during incident investigations.	Y	None
A55-11	ISO	Does the Stationary Source ensure that employees and their representatives participate in developing, reviewing, finalizing, and maintaining procedures, including identification of latent conditions existing within the procedures that could cause or exacerbate an active failure? [Section B: Chapter 8.2.4 of the CCHMP Safety Program Guidance Document]	Abr	1. This ISO question is a follow-up to questions A53-07 and A53-10.	Per a review of the procedures review program, employees and their representatives are included in reviewing and maintaining procedures including identification of LCCs in procedures. See A53 questionnaire for a discussion of latent conditions evaluations during the procedures review program.	Y	None
A55-12	ISO	Has the Stationary Source developed a human factors committee to assist in the development and implementation of the human factors program; or maintain documentation of employee participation in continuous improvement of the human factors program? [Section B: Chapter 8.2 of the CCHMP Safety Program Guidance Document]	Abr	1. Optional to have a formal human factors committee, but recommended. 2. Typical activities in continuous improvement of the human factors program could include, but are not limited to: periodically reviewing completed latent conditions checklists (LCC) for accuracy and appropriateness; periodic review of the various LCC questions or customized checklists for adequacy of use; performing field evaluations/spot checks on human factors issues; ensuring recommendations are properly addressed; and assessing human factors training needs for employees.	Per document review and interview, the employee participation is documented in the reports from various activities employees are a part of. Examples include PHAs, SPAs, DMRs, MOOCs and Incident Investigations.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A55-13	Program 4 CalARP & ISO	Does the submitted RMP & Safety Plan accurately reflect the Employee Participation Program at the Stationary Source? [T19 CCR §2745.2(d) & ISO Section 450-8.016(b)(4) and Section E.3.5 of the CCHMP Safety Program Guidance Document]	Abr		The RMP submitted 9/13/2019 pages 44-47 and Safety Plan submitted 8/6/2018 pages 11-12 reflect the Employee Participation Program at the refinery.	Y	None
A55-14	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the Stationary Source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate 'repeat' for identical non-compliance, or use 'modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	There was one ensure action item associated with the previous CalARP/ISO audit of the refinery which has not been addressed and is repeated in A55-05.	R	None
A55-15	Program 4 CalARP	Does the owner or operator make available and provide on request a copy of the written Human Factors Program to employees and their representatives, and to affected contractors, contractor employees, and contractor representatives? [T19 CCR §2762.15(h)]	New	* Verify the policy allows for affected contractors and contractor representatives to have access to the Human Factors Program.	Per interview and live navigation , a copy of the written Human Factors Program is available on the refinery intranet as part of the refinery policies and the employees and their representatives have access to them. CCHS also confirmed that affected contractors, contractor employees, and contractor representatives can request a copy of the Human Factors Program from the P66 Contractor Safety Coordinator for access.	Y	None

A56: Section B - Training

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A56-05	ISO	Does the Stationary Source maintain training documentation (e.g., curriculum, instructor qualifications, course duration, course participants, and means used to ensure participants understood training) for: a) Basic awareness of human factors initial training; b) Overall human factors program; and c) Specialized training (e.g., completion of Latent Conditions Checklist)? [Section B: Chapter 9.2 of the CCHMP Safety Program Guidance Document]	Abr	1. Training on the application and completion of the latent condition checklists is required for users of the checklist if the facility uses latent condition checklists, see the Human Factors questionnaire A50 (i.e., Stationary Sources have the option of developing an alternate method other than applying the latent conditions checklist to identify existing latent conditions).	Per the Human Factors Program policy (Manual Section 3.0-2, rev. 07/16/2019), all existing employees received training on Human Factors with the initial training course "Basic Awareness of Human Factors". This training is provided to all new employees (for operators, as part of the tier 1 on-boarding training, see A40-01 for more information on initial training). Advanced Human Factors training is provided to employees who have a role in Human Factors components of PHAs, Incident Investigations, MOOC, Operating Procedures, Maintenance Procedures, and Management Issues as part of the overall training requirements for each of those activities. Specialized training would be provided as a just-in-time training for personnel serving on a team. Training for employees applying a Latent Conditions Checklist will include "the specific reason for each question, the relative importance of the different questions and the degree to which items fail to meet the criteria." Form R-47 documents the Tier 1 On Boarding New Hire/ Transfer training for a new operator. On this form the instructor signs and dates that each requirement has been met, and one of the requirements is the basic awareness initial training of human factors. CCHS reviewed completed R-47 forms for 5 operators and confirmed that each operator met the initial HF training requirement. Complete training packages were reviewed for the operators and each received training on the human factors program specific to the facility. Specialized training on Human Factors is to be conducted and documented as part of the individual program elements to	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					which the training applies. The training is documented on R-506 forms which are to be included in the relevant documentation. This training should be conducted before applying human factors considerations for PHAs, Incident Investigations, and MOOCs. This training was documented in completed PHAs reviewed by CCHS, was not documented for the qualifying MOOC (see A54-16 for associated ensure), and no qualifying incidents have occurred since the last audit to require training for incident investigation.		
A56-06	Program 4 CalARP & ISO	Does the facility provide employees and their representatives with basic awareness and overall human factors refresher training every three years, and more often if necessary? [T19 CCR §2762.15(f) & Section B: Chapter 9.3 of the CCHMP Safety Program Guidance Document]	Abr	1. Program 4 states, “The owner or operator shall train all of their employees that have process and process equipment responsibilities on the Human Factors Program.” P4 does not specifically require HF training every three years. [T19 CCR §2762.15(f)] 2. ISO is more conservative as all employees must receive human factors training. [Section B: Chapter 9.2.2 of the CCHMP Safety Program Guidance Document] 3. This training may be an extension of the material provided in the initial basic awareness and overall training curriculums.	Per the Human Factors Program policy, employees will be provided a general Human Factors refresher training every three years, and more often if necessary, via CBT. Per ISO requirements, this training is provided to all employees. CCHS reviewed the Human Factors training slide deck (rev. Aug 2019) and required CBT questions to verify understanding. This training included a basic awareness section on the Human Factors as a topic, and an overview in areas where Human Factors is considered within the facility programs (e.g. MOOC, procedures, etc.). CCHS reviewed the training documentation for three experienced operator which indicated that the personnel have received refresher training on the basic human factors and for facility specific human factors program training.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A56-07	ISO	Does the facility provide employees and their representatives with specialized refresher training on an as needed basis? [Section B: Chapter 9.3 of the CCHMP Safety Program Guidance Document]	Abr	1. In general, the minimum frequency employees should receive specialized refresher training on completing latent conditions checklists is every three years. For those employees who do not routinely complete a latent conditions checklist, refresher training should occur prior to applying the checklist. 2. Individuals learn at different rates using different means. Please refer to the Safety Program Guidance Document for additional training considerations.	Per the Human Factors Program, "advanced training in Human Factors is required when individuals have a role in specific Human Factors components requiring specialized training." The policy includes PHAs, Incident Investigations, MOOCs, Operating Procedures, Maintenance Procedures, and Management issues as activities requiring such training. Additionally, training for personnel applying the latent conditions checklist will include "the specific reason for each question, the relative importance of the different questions and the degree to which items fail to meet the criteria." CCHS reviewed "R-10.0-7 Root Cause Investigation - Pre-Checklist for Human Factors" which includes the training material for human factors as a part of incident investigations of incidents that did or could reasonably have resulted in a Major Chemical Accident of Release (MCAR). No such incidents occurred since the last audit and therefore no documentation of training exists. CCHS reviewed the training slide deck for "Human Factors Checklist Training" and confirmed it contained information regarding the overall intent of the checklist, how it is used, information on each section of the checklist and a placeholder for reviewing the specific questions in the checklist. Per SME, this training is given as specialized training for PHA members. Only the person applying the checklist receives this training. The team members who review the findings of the completion of the checklist, generally only receive the basic and overall training on human factors. Per MOOC SME, training for Human Factors as it relates to MOOC is that the team goes over the MOOC procedure prior to conducting the MOOC and this procedure includes human factors as part of a checklist that the team completes.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A56-08	Program 4 CalARP & ISO	Does the submitted RMP and Safety Plan accurately reflect the Training Program at the Stationary Source? [T19 CCR §2745.2(d), ISO Section 450-8.016(b)(4) and Section E.3.6 of the CCHMP Safety Program Guidance Document]	Abr		The Training sections of the submitted RMP (rev. 09/13/19, pgs. 25-28) and Safety Plan (rev. 08/06/18, pgs. 13-14) accurately reflect the existing Human Factors Training Program at the facility.	Y	None
A56-09	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the Stationary Source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate ‘repeat’ for identical non-compliance, or use ‘modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	There were no ensure action items associated with the previous CalARP/ISO audit for this program element.	N/A	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A58-01	PHA, Major Change, Incidents - Program 4 CalARP & ISO	Does the owner or operator conduct a Hierarchy of Hazard Control Analysis (HCA) / Inherently Safer Systems Analysis (ISSA) for: a) PHA recommendations; b) Whenever a major change is proposed as part of a MOC review in a timely manner; c) On recommendations listed in a RCA investigation report issued by the owner or operator or the department associated with a major incident in a timely manner or MCAR as soon as administratively practicable; d) On recommended major change from an incident investigation report that could reasonably result in a MCAR as soon as administratively practicable? [T19 CCR §2762.13(b)(1-3) and ISO Sections 450-8.016(c)(1), 450-8.016(c)(4), 450-8.016(i)(1)(B-E)]	New	1. New process HCA/ISS is discussed in A58-04. 2. Existing process HCA/ISS is discussed in A58-04, A58-10 and A58-11. 3. ISO requires ISSA on PHA recommendations for MCAR potential and HCA is required under P4 for Major Incidents. 4. Prior to P4 (Oct 2017), ISO required ISSAs for major changes proposed that could reasonably result in a MCAR. After adoption, P4 became more stringent as it applies regardless of incident potential. [ISO Section 450-8.016(i)(1)(C)] 5. Major incident “means an event within or affecting a process that causes a fire, explosion or release of a highly hazardous material, and has the potential to result in death or serious physical harm (as defined in Labor Code Section 6432(e)), or results in an officially declared public shelter-in-place, or evacuation order.” [T19 CCR §2735.3(ii)] 6. Major change “means: (1) introduction of a new process, or (2) new process equipment, or new regulated substance that results in any operational change outside of established safe operating limits; or (3) any alteration in a process, process equipment, or process chemistry that introduces a new hazard or increases an existing hazard.” [T19 CCR §2735.3(hh)] 7. P4 requires an HCA to be performed associated with a major change (as part of MOC) regardless if the major change could reasonably result in a major incident. [T19 CCR §2762.13(b)(2)] 8. Inherently Safer Systems is defined in CCHMP’s Industrial Safety Ordinance to mean feasible alternative equipment, processes, materials, layouts, and procedures meant to eliminate, minimize,	CCHS reviewed the following two policies: -- P&P Manual, Section 2.0-7: Inherently Safer System Analysis (ISS) , dated 7/20/2016. -- P&P Manual Section 2.0-14: Hierarchy of Hazard Control Analysis (HCA), dated 6/30/2019. Per interview, the ISS policy was originally developed in November 1999 to satisfy the county ISO requirements. The new HCA policy was issued in June 2019 to satisfy the requirements for P4 CalARP regulations. Per the ISS Policy, the scope includes the following: -- ISS analysis of new covered processes. -- ISS analysis of existing process units in conjunction with the Process Hazard Analysis revalidation. -- Mitigation of recommendations resulting from the Process Hazard Analysis Revalidation of existing processes. -- Determining ISS feasibility for situations, such as a major change or a recommendations from an incident investigation report, where a Major Chemical Accident or Release (MCAR) could reasonably occur (corresponds to a scenario resulting in a Level 2 incident in the Community Warning System (CWS) or on-site property damage initially estimated at $500,000 or more) -- ISS recommendations -- Recording ISS studies The HCA policy adds the definition of Major Change as : 1) Introduction of a new process, or 2) new process equipment, or new regulated substance that results in any operational change outside of established safe operating	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				or reduce the risk of a Major Chemical Accident or Release by modifying a process rather than adding external layers of protection. [ISO Section 450-8.014(g)]	limits; or 3) any alteration in process, process equipment, or process chemistry that introduces a new hazard or increases an existing hazard. The HCA policy also adds the definition of Major Incident as: An event within or affecting a process that causes a fire, explosion or release of a highly hazardous material and has the potential for causing a major incident or death or serious physical harm.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A58-05	HCA Team - Program 4 CalARP & ISO	Does the owner or operator ensure that the HCA team documents: a) Written recommendations to eliminate process safety hazards to the greatest extent feasible using first order inherent safety measures; b) Written recommendations to reduce any remaining process safety hazards to the greatest extent feasible using second order inherent safety measures; c) If necessary, the team shall also document written recommendations to address any remaining risks in the following sequence and priority order: 1) Effectively reduce remaining risks using passive safeguards; 2) Effectively reduce remaining risks using active safeguards; 3) Effectively reduce remaining risks using procedural safeguards; d) The individual rationales for the inherent safety measures and safeguards recommended for each process safety hazard? [T19 CCR §2762.13(f) and §2762.13(g)(5) and Section D.1.4 of the CCHMP Safety Program Guidance Document]	New	1. P4 established the following prioritized prevention and control measures to eliminate or minimize a hazard: first order inherent; second order inherent; and passive, active and procedural protection layers. The county's SP Guidance document currently only identifies four levels for risk reduction for ISS in order of decreasing reliability (the first is the most reliable) as follows: Inherent, Passive, Active, and Procedural. These are defined within A58-03. 2. P4 is more conservative as it requires all HCAs performed to follow the order listed in the question; whereas, the county's SP Guidance document identifies that Stationary Sources must consider moving up through the four levels, from Procedural to Inherent, only when evaluating PHA recommendations and mitigations. 3. New processes, new process units, and new facilities and existing process HCAs/ISSAs must focus on inherent (i.e., first order inherent safety measures and second order inherent safety measures) and passive safeguards only. [Sections D.1.1 and D.1.2 of the CCHMP Safety Program Guidance Document] 4. At least one risk control category should be identified as being used when developing recommendations and mitigations from PHA's for scenarios that	CCHS reviewed the ISS analysis presented in the three PHAs for the following processes: -- PHA for Unit 200: Relief and Blowdown System, completed July 19, 2018 -- PHA for Unit 215: Deisobutanizer and Caustic Trading System, completed October 5, 2018 -- PHA for Unit MP30, completed October 11, 2019 Based on CCHS review of the ISS Node in each of these PHAs, only a few actions were identified from the ISS node. The questions addressed are based on the County ISO requirements rather than P4 new CalARP requirements. The refinery should update the ISS Node in the PHA to address HCA approach to evaluate inherently safer systems. The refinery should also consider conducting the HCA analysis as a stand alone report as required by Program 4 CalOSHA requirement and the facility HCA policy. The HCA policy specifies that "HCAs must be performed within 6 months for each PHA recommendation for scenarios that have the potential to cause a major incident." However, per a review of the above PHAs and their recommended actions, CCHS noted that an HCA was not performed for each recommendation for scenarios that have the potential to cause a major incident. This is also required by P4 regulations and needs to be addressed for the PHAs that have been completed after October 1, 2017 to date and for all PHAs completed after October 1, 2020.	P	Ensure that the HCAs are performed by the HCA team for each PHA recommendation for scenarios that have the potential to cause a major incident and this needs to be addressed for all PHAs that have been completed since October 1, 2017 and all new PHAs.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A58-06	New Process – Program 4 CalARP & ISO	Does the owner or operator use a review process for new processes, new process units, and new facilities, and their related process equipment that includes an Inherently Safer System review / Hierarchy of Hazard Control Analysis at different phases of the design process? [T19 CCR §2762.13(b)(4) and Section D.1.1 of the CCHMP Safety Program Guidance Document]	New	1. ISO Guidance defines a new process as: the addition of a process that did not previously exist or a major revamp of an existing process resulting in a substantial change in the process configuration or process chemistry. 2. P4 does not define new process although does define 'process' as: "activities involving a highly hazardous material, including use, storage, manufacturing, handling, piping, or on-site movement". 'Process equipment' is defined as: "equipment, including but not limited to: pressure vessels, rotating equipment, piping, instrumentation, process control, safeguard, except procedural safeguards, or appurtenance related to a process". Although 'new facilities' is not defined, CCHMP interprets it to mean a new stationary source. 3. P4 identifies that an HCA report prepared for a new process, new process unit, and new facilities, and their related process equipment shall be provided to the department, who will make these HCA reports available to the public by posting them on the department's website within 30 calendar days. [T19 CCR §2762.13(b)(4)] 4. Inherently Safer Systems should be reviewed early in the development phase of a new covered process and then reviewed throughout the different project design phases. 5. Project design phases may vary by project and by Stationary Source. Typical project design phases include (but are not limited to): chemistry forming (synthesis); facilities design scoping and development; and basic design phase. 6. Stationary Sources should develop criteria for when a new process would require ISS. 7. Stationary Sources should not use proprietary technology to by-pass needing to apply ISS and/or conducting an ISS analysis. [Section D of the	The facility has not had a new process or a new facility in the past three years. Per interview, it is only every few years that they may have new processes, new process units, and new facilities. The facility believes that that is the best time to apply HCA. The current ISS/HCA policy was addressed in A58-01 and specifies the requirements specified in this question.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				CCHMP Safety Program Guidance Document]			
A58-07	HCA Team - Program 4 CalARP & ISO	For all Inherently Safer System / Hierarchy of Hazard Control Analyses does the owner or operator employ teams with expertise in engineering and process operations including an operator currently working the unit and one member knowledgeable in the ISS/HCA method used to perform, update and document the analyses? [T19 CCR §2762.13(d) and Section D.1.1 of the CCHMP Safety Program Guidance Document]	New	1. P4 identifies that the operator involved shall have experience and knowledge specific to the process being evaluated. [T19 CCR §2762.13(d)] 2. P4 identifies the team shall consult, as necessary, with individuals with expertise in damage mechanisms, process chemistry, and control systems. [T19 CCR §2762.13(d)]	The PHA teams that reviewed the three PHAs from A58-05 included operations representatives. Per the PHA policy (P&P Manual 2.0-6 dated 5/1/2019), the PHA leader shall have at least 8 years of process industry experience, trained in PHA/LOPA methodology and be familiar with ISS/HCA study methodology. Per interview with the SME, the management ensures that the PHA leader is familiar with ISS/HCA study methodology. Per interview, the stand alone HCAs that are planned to be completed by September 29, 2020 will also invite an operations representative and one member knowledgeable in the ISS/HCA method used.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A58-08	New Process – ISO	Does the Stationary Source adequately document their Inherently Safer Systems analysis for new processes for each phase? Documentation maintained should include, as applicable, but is not limited to: a) ISS team makeup, responsibilities, qualifications and experience; b) Criteria used to require an ISS review for the process; c) The relevant ISS questions asked and answered (e.g., can quantities be reduced, can other chemicals be used, can different equipment be used, etc.); d) The information available during the ISS assessment (e.g., chemical compatibility matrix, chemical properties, material and energy balances, PFD, P&ID, etc.); e) How process improvements were reviewed and the determination of the process that was determined to be the inherently safest process; f) The process used to determine that the equipment sizes are minimized and the results of this determination; g) The process used to determine the minimum inventories needed and the results of this determination; h) The process used to simplify the covered process, if applicable, and the results of this process; i) The process used to reduce the waste made from the project and the results of the determination; j) Applicable items considered from the ISS checklist in Attachment C of the SP	Abr	* If no new processes have gone through an ISS assessment, review the system in place to evaluate Inherently Safer Systems for new processes. 1. Not all of this documentation is required as each phase of an ISSA for a new process has specific documentation requirements as identified within the ISO ISS guidance. 2. P4 requires specific HCA documentation for all HCA analyses, see A58-12 for details. 3. P4 identifies that an HCA report prepared for this purpose shall be provided to the department, who will make these HCA reports available to the public by posting them on the department's website within 30 calendar days. [T19 CCR §2762.13(b)(4)]	CCHS reviewed the facility's ISS policy, P&P Manual 2.0-7, last reviewed 7/20/2016. This policy identified for new ISS analyses the documentation will be consistent with that performed in a PHA HAZOP and include a post-study report. Section E.5. of the P&P specifies that ISS evaluations associated with a new process needs to be documented for each phase of the new process (i.e., chemistry forming, design and scoping, basic design). The ISS policy Section E.3. specifies that the ISS team needs to include: "i. ISS team leader with formal training and/or experience in the ISS methodology; ii. An engineer with experience in the process technology; iii. An operator with recent operating experience on the process (for new processes, the operator should have experience on similar types of processes); iv. Operations Supervisor who is familiar what facility-wide operations and the inter-relationship with other processes. The team member may be an Operations Area Supervisor, Shift Superintendent or Shift Supervisor."	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
		Guidance Document; and k) For applicable items from the ISS checklist in Attachment C of the SP Guidance Document that were not considered, the Stationary Source should document why each item was not considered. [Section D.1.1 of the CCHMP Safety Program Guidance Document]					

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A58-10	Existing Process – Program 4 CalARP & ISO	Does the owner or operator perform and document Inherently Safer System analyses / Hierarchy of Hazard Control Analyses for existing processes through a method independent from a PHA? [T19 CCR §2762.13(a) and Section D.1.2 of the CCHMP Safety Program Guidance Document]	Abr	1. P4 requires HCAs for all existing processes regardless of incident potential. [T19 CCR §2762.13(a)] 2. P4 identifies that HCAs for existing processes shall be performed in accordance with the following schedule and may be performed in conjunction with the PHA schedule: a) No less than 50% of existing processes by 9/29/2020; b) Remaining processes by 9/30/2022. [T19 CCR §2762.13(a)] 3. Cal OSHA 5189.1 identifies to conduct an HCA as a standalone analysis for all existing processes; for the team to review the PHA while conducting the HCA; and the HCA may be performed in conjunction with the PHA schedule. [T8 CCR §5189.1(l)(1)] 4. Stationary Sources can perform an independent ISS analysis that is done in addition to a process PHA, or an ISS analysis that is incorporated into a PHA. 5. The ISS analysis should review the covered processes for ways to eliminate or reduce hazards that are present as well as risks that are present in the covered process. This may be achieved by using a checklist (provided in Attachment C of the SP Guidance Document) or guideword analysis (provided in Attachment D of the SP Guidance Document) . 6. If the Stationary Source decides to do the ISS analysis as part of the PHA, a N/A should be the answer for this question. 7. If the Stationary Source decides to use some other ISS checklist or other methods to evaluate ISS, these must be approved by CCHMP prior to their use.	Currently the facility performs and documents Inherently Safer System analyses for existing processes as a node evaluated as part of the PHA. This question is not applicable. Per interview, the facility is planning to complete 50% of the stand alone HCAs for existing processes by September 29, 2020.	N/A	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A58-11	Existing Process – Program 4 CalARP & ISO	Does the owner or operator perform and document Inherently Safer System analyses / Hierarchy of Hazard Control Analyses for existing processes through the existing PHA review? [T19 CCR §2762.13(a) and Section D.1.2 of the CCHMP Safety Program Guidance Document]	Abr	1. P4 requires HCAs for all existing processes regardless of incident potential. [T19 CCR §2762.13(a)] 2. P4 identifies that HCAs for existing processes shall be performed in accordance with the following schedule and may be performed in conjunction with the PHA schedule: a) No less than 50% of existing processes by 9/29/2020; b) Remaining processes by 9/30/2022. [T19 CCR §2762.13(a)] 3.Cal OSHA 5189.1 identifies to conduct an HCA as a standalone analysis for all existing processes; for the team to review the PHA while conducting the HCA; and the HCA may be performed in conjunction with the PHA schedule. [T8 CCR §5189.1(l)(1)] 4. This would require that each covered process in its entirety have an initial ISS analyses conducted. Incorporating the ISS analysis into a revalidated PHA may not be sufficient if the whole process is not evaluated. 5. The ISS analysis should review the covered processes for ways to eliminate or reduce hazards that are present as well as risks that are present in the covered process. This may be achieved by using a checklist (provided in Attachment C of the SP Guidance Document) or guideword analysis (provided in Attachment D of the SP Guidance Document). 6. If the Stationary Source performs an independent ISS analysis, a N/A should be the answer for this question.	As stated in A58-10, currently the facility performs and documents Inherently Safer System analyses for existing processes as a node evaluated as part of the PHA. CCHS recommends that the facility develops an HCA schedule so that 100% are complete by 9/22/2022.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A58-12	Written Report - Program 4 CalARP & ISO	Does the owner or operator within 30 days of completing the HCA/ISS adequately document their analysis in a report, including: a) A description of the composition, experience, and expertise of the members of the team [HCA]; b) A description of the inherently safer systems analyzed {ISSA}; c) A description of the methodology used by the team [HCA/ISSA]; d) A description of each process safety hazard analyzed by the team, including identifying, characterizing and prioritizing process safety hazards [HCA]; e) Identification and description of the inherent safety measure(s) and safeguards analyzed by the team, including publicly available information on inherent safety measures and safeguards identified and analyzed [HCA]; f) The conclusions of the analysis [ISSA]; g) The rationale for the conclusions [ISSA]; h) The rationale for the inherent safety measures and safeguards recommended by the team for each process safety hazard, including documenting first and second order inherent safety measures and remaining risks (passive, active, procedural) [HCA]; i) An action plan, including a timeline to implement the recommendations [ISSA]? [T19 CCR §2762.13(g), ISO Section 450-8.016(i)(2) and Section D.1.2 of the CCHMP Safety	New	1. This question applies to every HCA/ISSA report developed. 2. P4 identifies that the HCA team is to complete an HCA report within 90 calendar days following development of the recommendations. ISO is more conservative as a report is required within 30 days of completing the analysis. [T19 CCR §2762.13(g) and ISO Section 450-8.016(i)(2)] 3. If Attachment C – ISS checklist of the SP Guidance Document was used, stationary sources are to document applicable items considered, and why for any item not considered. 4. P4 identifies that the HCA team is to: (a) Include all risk-relevant data for each process or recommendation, including incident investigation reports associated with any incident that results in or could reasonably have resulted in a major incident. P4 does not require this data to be included within the HCA report. (b) Identify, analyze, and document all inherent safety measures and safeguards (or where appropriate, combinations of measures and safeguards) in an iterative manner to reduce each hazard to the greatest extent feasible. [T19 CCR §2762.13(e)] 5. P4 identifies for relevant, publicly available information on inherent safety measures and safeguards, “This information shall include inherent safety measures and safeguards that have been: (A) achieved in practice by for the petroleum refining industry and related industrial sectors; or, (B) required or recommended for the petroleum refining industry, and related industrial sectors, by a federal or state agency, or local California agency, in a regulation or report.” [T19 CCR §2762.13(e)(3)] 6. Implementing only one ISS option to address identified hazards may not be adequate to address the greatest hazard reduction or elimination. However, it is not necessary to implement more than	The facility has not had any new process or an MOC or an incident that would require completing the HCA/ISS since the past CalARP/ISO audit of this facility. The facility is planning to complete 50% of the stand alone HCAs by September 29, 2020.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
		Program Guidance Document]		one ISS if the implementation of a second ISS does not add any significant hazard reduction or has been documented as infeasible. 7. Verify that the HCA/ISS policy specifies the report to be developed within 30 days of completing the HCA/ISS, if not give a consider to have it in the policy. Policy should also specify that HCA is the last date of the analysis/session.			

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A58-13	Written Report - ISO	Does/did the Stationary Source document for Inherently Safer Systems identified as infeasible and those considered and not implemented the basis for this conclusion in meaningful detail? [ISO Section 450-8.016(i)(3) and Section D.1.4 of the CCHMP Safety Program Guidance Document]	Abr	1. “If a stationary source concludes that implementation of an inherently safer system is not feasible, the stationary source shall document the basis for this conclusion in meaningful detail. The documentation shall include sufficient evidence to demonstrate to the department’s satisfaction that implementing the inherently safer system is not feasible and the reasons for this conclusion. A claim that implementation of an inherently safer system is not feasible shall not be based solely on evidence of reduced profits or increased costs.” [ISO Section 450-8.016(i)(3)] 2. “Feasible” means capable of being accomplished in a successful manner within a reasonable period of time taking into account health, safety, economic, environmental, legal, social, and technological factors. [T19 CCR §2735.3(v)] 3. Section D.1.4 of the CCHMP Safety Program Guidance Document defines feasibility. 4. The documentation should include what Inherently Safer Systems were considered and why they were determined infeasible and rejected. 5. The documentation maintained by the Stationary Source shall include sufficient evidence to demonstrate to CCHMP’s satisfaction that implementing the ISS is impractical, and the reason for this conclusion.	Per interview, if the refinery concludes that implementation of an inherently safer system is not feasible, the refinery will document the basis for this conclusion in meaningful detail. This question is not applicable. Per interview, each PHA recommendation is required to be closed out using a “Unit/System PHA Recommendation Closure” form. This form is to identify ISS design considerations and consists of the following sections: -- Recommendation Description -- Did Recommendation Result in a project or an MOC -- Recommendation Resolution -- Justification and/or Supporting Information CCHS reviewed three closure forms associated with the Unit 200 Relief and Blowdown PHA and four closure forms for Unit 215 PHA and consistently found multiple ISS options were listed along with an explanation of which ISS was selected and why. CCHs found it clear why one alternative was selected over another in reviewing the ISS alternatives listed. The recommendations included use of existing and new alarms and controls and mitigating the hazard with a SIL 1 rated trip. Since the last audit the facility has not evaluated any "new process" for ISS as described in A34-08 . The PHA closure forms included discussions of various ISS options and the rationale why some options were deemed more appropriate than others based on various risk evaluations. The documentation maintained adequately described the feasibility determination.	N/A	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A58-14	Existing Process – Program 4 CalARP & ISO	Does the owner or operator revalidate the Inherently Safer System analysis / Hierarchy of Hazard Control Analysis for existing processes at least once every five years, in conjunction with the PHA schedule? [T19 CCR §2762.13(c), ISO Section 450-8.016(i)(1)(A) and Section D.1.2 of the CCHMP Safety Program Guidance Document]	Abr	1. P4 identifies that HCAs for existing processes shall be performed in accordance with the following schedule and may be performed in conjunction with the PHA schedule: (a) No less than 50% of existing processes by 9/29/2020; (b) Remaining processes by 9/30/2022. [T19 CCR §2762.13(a)] 2. If the 5-year revalidation for an Inherently Safer System analysis is not yet due, the Stationary Source is expected to have a system or policy in place to perform the revalidation at least once every five years.	The refinery revalidates the Inherently Safer System analysis for existing processes at least once every five years, in conjunction with the PHA schedule. The refinery is planning to complete 50% of the stand alone HCAs for existing processes by September 29, 2020.	Y	None
A58-15	Existing Process – ISO	Does the Stationary Source adequately document and maintain their Inherently Safer System analyses revalidations to include: a) Incorporation of improvements made in the ISS method since the last review was conducted or selection of a new method to perform the ISS analyses; b) ISS review for all changes that have been made since the last ISS analysis; c) Review of all MCARs or potential MCARs that occurred at the process under review; and d) Review for any new and existing technologies not previously reviewed that can be incorporated that will make the process under review inherently safer. [Section D.1.2 of the CCHMP Safety Program	Abr	1. This documentation is in addition to the documentation requirements listed in A58-05 and A58-12. 2. Regardless of whether the 5-year revalidation for an Inherently Safer System analysis has been completed yet, the Stationary Source is expected to have a system or policy in place to maintain this documentation.	As described above in answering the previous questions, the existing process ISS evaluations are documented as a node within the process PHA. Currently ISS evaluations for existing processes are revalidated along with the PHA every five years. CCHS confirmed that this has been done during the PHA and ISS evaluation for the three PHAs reviewed (completed in the past three years and identified in A58-05). Per CCHS review, documentation of the ISS revalidation is contained within the ISS node in the PHA report and includes the information listed in the question. Per interview, past changes made to the process are reviewed as well as past relevant incidents during the PHA and ISS evaluations. In addition, process engineers work with corporate experts in their area and discuss upcoming technologies and potential implementation to existing operations. The facility has not changed the method used to evaluate ISS for existing processes yet. Per interview, the facility is planning to complete 50% of the standalone HCAs for existing processes by September 29, 2020.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A58-16	Training - Program 4 CalARP & ISO	Does the owner or operator provide effective training to employees and employee representatives before serving on an HCA team sufficient to understand the methodology and tools expected to be used including: a) Identification and use of first order inherent levels, then second order inherent and then address remaining risk using passive, active and procedural risk reduction categories; b) Use of the different categories of risk reductions; c) Approaches to apply ISS including minimization, substitution, moderation, and simplification? [T19 CCR §2762.4(e), §2762.13(f) & Section D.1.3 of the CCHMP Safety Program Guidance Document]	Abr	* Review training record related to the HCA program. If there are issues with development and implementation of the training, coordinate with the auditor of A46-01 (employee participation). 1. CCHMP interprets “Program elements relevant to that team” to be the methodology and tools that are expected to be used by the team which may include study concepts, process hazards, results and conclusions training. 2. First order inherent, second order inherent and risk reduction categories (passive, active and procedural) are defined in A58-03. 3. Approaches for consideration of ISS (minimization, substitution, moderation, and simplification) are defined in A58-02. 4. The Stationary Source is expected to document that these elements are incorporated into their ISSA program.	The three PHAs reviewed confirmed that the PHA/ISS team received just in time training on ISS during the PHA and before completing ISS node in each of the PHAs. CCHS reviewed the ISS questions used in the ISS Node that currently use the approach from the CCHS ISO Process Safety Guidance document. The refinery management should consider updating the just in time training for operator representatives and process engineers that are planning to participate in conducting 50 percent of HCAs for the existing processes to complete them by September 29, 2020.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A58-19	Corrective Actions - Program 4 CalARP & ISO	Has the owner or operator developed a documented corrective action work process to promptly complete all corrective actions that includes the following: a) Final decision for each recommendation; b) Corrective actions implemented for each accepted recommendation including completion date and assignment of responsibility; c) Rejection of recommendations; d) Any alternative safeguards; e) Team members written comments on any rejected or changed findings and recommendations; f) Whether an HCA was revalidated or updated if prompted by a PHA, HCA, DMR or SPA corrective action; g) Prioritize the completion of corrective actions to address process safety hazards to prevent the potential for a major incident; h) Corrective actions to be completed within 2.5 years after the HCA; and i) Corrective actions to be completed during the first regularly scheduled turnaround? [T19 CCR §2762.13(h) & §2762.16(e) and Section D.1.5 of the CCHMP Safety Program Guidance Document]	New	1. The team must provide to the owner or operator findings and recommendations at the earliest opportunity, but no later than 14 calendar days after recommendations and findings are complete. [T19 CCR §2762.16(e)(1)] 2. To reject a team recommendation, the owner or operator must demonstrate in writing that one of the following applies: (A) The analysis upon which the recommendation is based contains material factual errors; (B) The recommendation is not relevant to process safety; or (C) The recommendation is infeasible; however, a determination of infeasibility shall not be based solely on cost. [T19 CCR §2762.16(e)(2)] 3. To change a team recommendation, the owner or operator must demonstrate in writing that an alternative safeguard would provide an equally or more effective level of protection. [T19 CCR §2762.16(e)(3)] 4. Any rejected or changed recommendation must be communicated to onsite team members and made available to offsite team members for comment. [T19 CCR §2762.16(e)(4)] 5. Interim safeguards are to be completed to address process safety hazards with potential major incident pending permanent corrections. [T19 CCR §2762.16(e)(10)] 6. This question is for tracking actions taken. 7. ISSA/HCA actions formulated through the PHA process must be completed within one year or during the next scheduled turnaround if a shutdown was required. Stationary Sources must send CCHMP a request for extension before PHA actions (including other studies and analysis related to the PHA) become overdue when they cannot be addressed within 1 year and a turnaround is not applicable. [Section D.1.5 of CCHMP Safety Program Guidance Document]	Per interview, each PHA recommendation is required to be closed out using a "Unit/System PHA Recommendation Closure" form. This form is to identify ISS design considerations and consists of the following sections: -- Recommendation Description -- Did Recommendation Result in a project or an MOC -- Recommendation Resolution -- Justification and/or Supporting Information CCHS reviewed three closure forms associated with the Unit 200 Relief and Blowdown PHA and four closure forms for Unit 215 PHA and consistently found multiple ISS options were listed along with an explanation of which ISS was selected and why. CCHS found it clear why one alternative was selected over another in reviewing the ISS alternatives listed. The recommendations included the use of existing and new alarms and controls in mitigating the hazard with a SIL 1 rated trip. The recommendations reviewed were completed/closed out timely within one year. However, an HCA evaluation of the completed qualified PHA action items have not been done. See A58-03 for an ensure action to address this issue. The corrective action work process to address both PHA action items as described in A38-17 & 19 and incident investigation action items described in A45-10 should include HCA as appropriate. Since the last audit the facility has not evaluated any "new process" for ISS as described in A34-08 . The PHA closure forms included discussions of various ISS options and the rationale for why some options were deemed more appropriate than others based on various risk evaluations. The documentation maintained adequately described the	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				8. Any proposed change to a completion date shall be conducted through MOC per §2762.6. [T19 CCR §2762.16(e)(9)]	feasibility determination.		
A58-21	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the Stationary Source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate ‘repeat’ for identical non-compliance, or use ‘modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	There was one ensure action item associated with the previous CalARP/ISO audit that has been addressed within this prevention program questionnaire.	Y	None
A58-22	RMP/SP - Program 4 CalARP & ISO	Do the submitted RMP and Safety Plan accurately reflect the Inherently Safer Systems/HCA Program at the Stationary Source? [T19 CCR §2745.2(d) and ISO Section 450-8.016 and Section E.5 of the CCHMP Safety Program Guidance Document]	Abr		The RMP submitted 9/13/2019 Section 1.14 page 52 and Safety Plan submitted 8/6/2018 page 71 reflect the Inherently Safer Systems/HCA Program at the Stationary Source. The facility should update the RMP to correct Section 1.14 page 52 to indicate that HCA analysis also needs to be conducted to meet the CalARP Program 4 requirements.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A58-23	Participation - Program 4 CalARP	Did affected operating and maintenance employees and employee representatives effectively participate throughout all phases in performing HCAs? [T19 CCR §2762.10(a)(1) and §2762.13(d)]	New	* Verify employees and their representatives were part of the HCA team and involved with all aspects of the HCA. 1. Participation in “all phases” should be defined by the stationary source. [T19 CCR §2762.10(a)(1), §2762.13(d), §2762.16(e), and CCHMP interpretation]	An operator has been involved in the PHAs and the ISS analysis conducted within each PHA. Per interview, the refinery also plans to invite the affected operating and maintenance employees and employee representatives to participate throughout all phases in performing ISSA. However, employees and their representatives have not yet been involved as a part of the HCA team and should be involved in HCAs for addressing qualified PHA actions. See an ensure action associated with employee participation in the HCA team in A46-01.	R	None
A58-24	Written Reports - Program 4 CalARP	Does the owner or operator retain all HCA/ISSA reports for the life of each process? [T19 CCR §2762.13(i)]	New		Per interview, the facility maintains all of their ISS reports and will maintain all of their HCA analysis as part of the PHA for life of the process.	Y	None
A58-25	Interim Safeguards - Program 4 CalARP	For corrective actions not within the timeline listed in question A58-19, has the owner or operator implemented interim safeguards sufficient to prevent the potential for a major incident, pending permanent corrections, and documented: a) The rationale for deferring the corrective action(s); b) The documentation required under the MOC process; c) A timeline describing when the corrective action(s) will be implemented; and d) An effective plan to make available the rationale and revised timeline to all affected employees and their representatives? [T19 CCR §2762.16(e)(14)]	New	1. For applicable corrective actions that cannot be implemented in two and half years that did not require a process shutdown. [T19 CCR §2762.16(e)(11)]	Per interview, there have not been any applicable corrective actions that could not be implemented in two and half years. For corrective actions not within this timeline, the refinery will implement interim safeguards sufficient to prevent the potential for a major incident, pending permanent corrections, and document as specified in this question.	Y	None

A59: Process Safety Culture Assessment

ID#	*Category*	*Question*	*Type*	*Clarifications*	*Findings*	*Answer*	*Actions*
A59-01	Program 4 CalARP & ISO	Has the owner or operator conducted an effective Process Safety Culture Assessment (PSCA) or Safety Culture Assessment (SCA) and produced a written report? [T19 CCR §2762.14(b) & ISO Section 450-8.016(h)]		1. P4 requires the owner or operator to produce a written report and action plan by April 1, 2019. [T19 CCR §2762.14(b)] 2. P4 and ISO would allow the owner or operator to count an initial PSCA if conducted and documented between April 1, 2016 and April 1, 2019 if that PSCA includes the elements identified in A59-05. [T19 CCR §2762.14(b)] 3. The ISO requires stationary sources to complete the SCA by November 2010 and document it in a report. [County Industrial Safety Ordinance Section 450-8.016(h)]	CCHS reviewed P&P 15.0-1, Safety Culture Assessment (last reviewed 9/30/18) which describes the Safety Culture Assessment program at the facility. CCHS reviewed the most recent PSCA and found that it had been completed in 2015. This is outside the dates given by regulation which states that a previous SCA would have needed to be performed between April 1, 2016 and April 1, 2019. CCHS reviewed the SCA documentation of the previous 2 SCA's and per process safety (PS) SME, the next SCA is scheduled to be completed by the end of 2020 due to impacts of COVID-19.	N	Ensure that an SCA is completed as soon as possible.
A59-02	ISO	Has the Stationary Source used at least one of the following methodologies to perform the safety culture assessment: a) Written Survey, b) Interview, c) Observation, d) Focus Group, e) An equivalent method as approved in advance by CCHMP? [ISO Section 450-8.016(h) and Section F.5 of the CCHMP Safety Program Guidance Document]		1. Stationary Sources may use more than one methodology to perform the assessment of the entire site. [ISO Section 450-8.016(h)]	CCHS reviewed the 2015 PSCA report which used a written survey to evaluate the safety culture at the facility. P&P 15.0-1 states that the Safety Culture Assessment (SCA) must address the following: management commitment and leadership; individual performance and accountability; peer perception and accountability; and safety program performance. The policy lists the roles and responsibilities for members of the leadership team that includes the HSE manager, the H&S department, the refinery leadership team, and the SCA action team.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A59-03	ISO	Did the Stationary Source establish a methodology for evaluating work groups? [Section F.3 of the CCHMP Safety Program Guidance Document]		1. Stationary Sources MUST establish their assessment process and state the methodology selected for each work group. 2. The work groups assessed should at a minimum include: employees in management, supervisors, operators, maintenance, engineering, health and safety personnel and resident and applicable transient contractors. [Section F.3 of the CCHMP Safety Program Guidance Document]	P&P 15.0-1 states that the SCA is to include management, supervisors, operators, maintenance, engineering, health and safety personnel, and applicable contractors. In another section the policy states that the target population groups are established by using employees work schedules, the organization chart, and a pre-survey of contractor companies. The 2015 SCA was reviewed during the previous audit.	R	None
A59-04	ISO	Does documentation exist to show that an appropriate participation level target was chosen and achieved for each selected work group? [Section F.3 of the CCHMP Safety Program Guidance Document]		1. While 100% participation is difficult to attain, Stationary Sources should ensure they have the maximum participation from each work group. 2. 2007 Baker Panel report achieved a 70% response rate. 3. CCHMP believes that a low participation rate may be an indicator of safety culture issues.	CCHS reviewed P&P 15.0-1 which set the target participation level at 70% for all work groups. This was in response to an action item given in the previous audit. The participation level for employees and contractors in the previous 2015 SCA was over 80% and only one of the groups was below 70%. Per CCHS interview with SME, the facility will try to reach a higher participation rate for the next SCA, individually and in the aggregate.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A59-05	Program 4 CalARP & ISO	Did the Process Safety Culture Assessment address the following components: a) Safety Program Performance, b) Individual Performance and Accountability, c) Peer Perception and Accountability, d) Management Commitment and Leadership, e) Hazard reporting program, f) Response to reports of hazards, g) Procedures to ensure that incentive programs do not discourage reporting of hazards, and h) Procedures to ensure that process safety is prioritized during upset or emergency conditions? [T19 CCR §2762.14(b) & Section F.6 of the CCHMP Safety Program Guidance Document]		1. The assessment must address all the listed components. Stationary Sources should consider addressing topics listed in F.6.1 through F.6. 4 of the Safety Culture Guidance Document. [Section F.6 of the CCHMP Safety Program Guidance Document] 2. Items listed in question a) through d) are from ISO and items d) through h) are from P4. 3.Auditors should review site's PSCA policy to see if it identifies that prior to conducting a PSCA that the questions to be asked are mapped to the required components to verify proper coverage. If the policy does not addresss this a consider item should be issued.	See A59-02 for information regarding the SCA for the facility.	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A59-06	ISO	Does the Stationary Source also maintain the following records for each Safety Culture Assessment: a) Criteria for rejection of any results or findings, b) Criteria used for determining if no actions will be taken on assessment results or recommendations, c) Rationale for prioritization of action items, d) Documentation of communications to work force, e) Qualitative and quantitative comparisons in subsequent assessments of whether improvement plans affected observable safety behavior or culture? [Section F.8 of the CCHMP Safety Program Guidance Document]		1. Auditors should review the site's PSCA policy to see if it outlines how to categorize, reject and prioritize PSCA issues. If the policy does not address this a consider items should be issued.	CCHS reviewed P&P 15.0-1 which states that recommendations are developed for action items and that the recommendations must be approved by the RLT (refinery leadership team). It also states: "Recommendations may be rejected with the approval of an RLT member but must have documentation explaining the reason." The policy states that the review team by consensus sets the items of priority from all deficient areas. The completed report is to be shared with all employees and contractors. CCHS was unable to locate mention in the policy that the facility will document that the report was shared.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A59-07	Program 4 CalARP	Was the written PSCA report: a) Meeting the CalARP requirements developed within 90 calendar days of completion of the assessment; b) Developed with employee participation pursuant to the employee participation program; c) Made available and communicated with the action plan to employees, their representatives and participating contractors within 60 days of the completion of the report? [T19 CCR §2762.14(d & h)]		1. This question applies to PSCA performed after October 1, 2017. See clarification 4 in this question for PSCA performed prior to effective date of P4. 2. PSCA report shall include: (1) the method(s) used to assess the process safety culture; (2) the conclusions of the process safety culture assessment; (3) the rationale for the conclusions; and (4) the recommendations to address the findings from the PSCA [T19 CCR §2762.14(d)] 3. P4 identifies that the three year interim assessment must also be communicated and made available to employees, their representatives and participating contractors within 60 days of the completion of the report. [T19 CCR §2762.14(h)] 4. ISO requires the stationary source to both develop the report and present it to management and the workforce within 6 months of data collection. The written report shall also include the action plan. [Section F.8 of the CCHMP Safety Program Guidance Document] 5. Stationary must discuss in advance with CCHMP reports that are not completed and communicated within 9 months of data collection. [Section F.8 of the CCHMP Safety Program Guidance Document]	CCHS reviewed the last SCA which was completed in 2015. See A59-01 for more information on the status of the SCA. The SCA policy does not address some of the items in this section e.g., the need to develop a written report within 90 days of the completion of the assessment. The facility should make sure that the policy includes the topics (a)-(c) of the question [T19 CCR §2762.14(d & h)].	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A59-08	ISO	Has the owner or operator developed a written improvement plan with a clear list of corrective actions to be implemented within 3 months of the report presentation along with identifiable milestones? [Sections F.7 and F.8 of the CCHMP Safety Program Guidance Document]		1. Stationary Sources MUST establish goals and metrics for the improvement of safety culture at the site. These goals should encompass the state of the group values, attitudes, perceptions, competencies and patterns of behavior. The improvements must be made into a plan of action designed with metrics to assess its effectiveness in achieving the Stationary Source's stated goals. 2. Stationary Sources need to track the progress made for items in their improvement plan. [Section F.7.2 of the CCHMP Safety Program Guidance Document] 3. Section F.7.1 of the CCHMP Safety Program Guidance Document states “It may be necessary to conduct shorter interim assessments to ensure that the action plan is on track to achieve the defined objectives.” The P4 requirement to complete interim assessments within three years, T19 CCR §2762.14(f), should assist in keeping the action plan on track; see question A59-15.	The most recent SCA was performed in 2015. See A59-01 for more information on the SCA program at P66.	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A59-09	ISO	Has the Stationary Source developed metrics from the improvement plan to monitor the effectiveness in achieving the facility's stated goals for the safety culture program? [Section F.7.2 of the CCHMP Safety Program Guidance Document]		1. Stationary Sources MUST establish goals and metrics for the improvement of safety culture at the site. These goals should encompass the state of the group values, attitudes, perceptions, competencies and patterns of behavior. The improvements must be made into a plan of action designed with metrics to assess its effectiveness in achieving the Stationary Source's stated goals. 2. Stationary Sources need to track the progress made for items in their improvement plan. [Section F.7.2 of the CCHMP Safety Program Guidance Document] 3. Section F.7.1 of the CCHMP Safety Program Guidance Document states "It may be necessary to conduct shorter interim assessments to ensure that the action plan is on track to achieve the defined objectives." The P4 requirement to complete interim assessments within three years, T19 CCR §2762.14(f), should assist in keeping the action plan on track; see question A59-15	The facility has not done an SCA since the last audit. See A59-01 for more information about the status of the SCA.	R	None
A59-10	Program 4 CalARP & ISO	Has the Safety Culture been reassessed at least once every 5 years? [ISO Section 450-8.016(h) & T19 CCR §2762.14(b)]		1. Program 4 states that "The owner or operator shall conduct an effective PSCA and produce a written report and action plan within eighteen (18) months following the effective date of this Article and at least once, every five (5) years thereafter." [T19 CCR §2762.14(b)] 2. P4 wording links due dates for subsequent PSCAs to the initial assessment. 3. After the initial assessment, Stationary Sources must perform safety culture assessments at least every 5 years. [ISO Section 450-8.016(h)]	CCHS reviewed the dates of the previous SCA's which were completed in August 2010 and November 2015. The next SCA is scheduled to be performed in April 2020. The facility is following the 5 year requirement. However, the most recent report was not performed by April 2019 per the new P4 regulation. See A59-01 for more information on the timeline for the next SCA.	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A59-11	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the Stationary Source been addressed within this prevention program questionnaire?		* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. * Indicate 'repeat' for identical non-compliance, or use 'modified repeat' if it is the same question but a different issue identified as non-compliance. For proposed remedies that are not yet due, repeat the ensure and indicate as a 'carryover'. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	The facility has not done an SCA since April 2015. There were 3 ensure action items from the previous audit, 2 of which cannot be closed until a new SCA report is completed. These are for A59-07 and A59-09.	N/A	None
A59-12	ISO	Does the submitted RMP and Safety Plan accurately reflect the Safety Culture Assessments performed at the Stationary Source? [T19 CCR §2745.2(d) & Section E.10 of the CCHMP Safety Program Guidance Document]		1. The Safety Plan must include: (a) A description of what Safety Culture means to the Stationary Source; (b) The purpose and overall objectives of safety culture assessments; (c) A discussion of the type of data gathering technique(s) used (written survey, interviews, etc.) and rationale; (d) A description of how the Stationary Source ensures that the Safety Culture Assessment is performed as expected and how the results will be evaluated for their site; and (e) Plans for future revalidations. [Section E.10 of the CCHMP Safety Program Guidance Document]	The 2019 RMP accurately reflects the Safety Culture Assessment at the facility. The 2018 Safety Plan refers to the SCA that was performed in 2015. However, the Safety Plan should be updated to reference the P4 requirement of completing the SCA by April 2019 and to follow the 5 year cycle from April 2019.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A59-13	Program 4 CalARP	Has the owner or operator developed, implemented and maintained an effective Process Safety Culture Assessment (PSCA) program with participation from affected operating and maintenance employees and employee representatives throughout all phases of in the implementation of the PSCA program? [T19 CCR §2762.14(a) & §2762.10(a)(1)]	New		The facility has not performed an SCA since April 2015. The next SCA is scheduled for April 2020. See A59-01 for more information on the SCA program at P66.	R	None
A59-14	Program 4 CalARP	Was the PSCA conducted or overseen by a team: a) That includes at least one person knowledgeable in refinery operations and at least one employee representative; b) Consistent with the employee participation program; c) That consulted with at least one employee or another individual with expertise in assessing process safety culture in the petroleum refining industry? [T19 CCR §2762.14(c)]	New	1. Program 4 states that "The owner or operator shall provide for employee participation in the development and implementation of the PSCA, report, and recommendations, pursuant to section 2762.10." [T19 CCR §2762.14(c)]	The facility has not done an SCA since 2015. See A59-01 for more information on the status of the SCA. Per CCHS interview with the PS SME, an SCA would be overseen by a team that would include an operator, employee representative. It would need to be consistent with the employee participation program at P66.	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A59-15	Program 4 CalARP	Did the PSCA team conduct a written interim assessment of the implementation and effectiveness of each PSCA corrective action within three (3) years following the completion of the PSCA report? [T19 CCR §2762.14(f)] If a corrective action is found to be ineffective, did the owner or operator implement changes necessary to ensure effectiveness in a timely manner not to exceed six months? [T19 CCR §2762.14(f)]	New	* Verify in A59-07 that the three year interim assessment was communicated and made available to employees, their representatives and participating contractors within 60 days of the completion of the report. [T19 CCR §2762.14(h)]	The facility has not done an SCA since 2015. See A59-01 for more information on the status of the SCA.	R	None
A59-16	Program 4 CalARP	Did the stationary source manager, or his or her designee, serve as signatory to all process safety culture assessment reports and corrective action plans? [T19 CCR §2762.14(g)]	New		The facility has not done an SCA since 2015. See A59-01 for more information on the status of the SCA.	R	None
A59-17	Program 4 CalARP	Did employees and employee representatives have access to all documents or information developed or collected by the owner or operator related to the PSCA program including information that might be subject to protection as a trade secret? [T19 CCR §2762.10(a)(3)]	New		The facility has not done an SCA since 2015. See A59-01 for more information on the status of the SCA.	R	None

S01R - Hot Work Permit (Program 4)

ID#	*Category*	*Question*	*Type*	*Clarifications*	*Findings*	*Answer*	*Actions*
S01-01	Hot Work Permit	Does/did the stationary source develop and implement a written procedure for the issuance of hot work permits? [T19 CCR §2762.11(a), ISO Section 450-8.016(a)(10) & T8 CCR 5189(k)]	Abr	1. P4 requires the owner or operator to issue a hot work permit for hot work operations conducted on or near a covered process. [T19 CCR §2762.11(a)] 2. The permit shall certify that the applicable portions of the fire prevention and protection requirements contained in Sections 4848 and 5189 have been implemented prior to beginning the hot work operations. [T19 CCR §2762.11(b) & T8 CCR 5189(k)]. 3. Per discussion with CalOSHA (Dec 07), a hot work program that incorporates all the provisions of Sections 4848 and 6777 including training of personnel, on-the-job hazard identification and signature on the permit constitutes "certification".	CCHS reviewed the following two policies related to hot work: - P&P Manual Section 6.2: Safe Practices, last reviewed 8/3/2018. - P&P Manual Section 6.2-5: Safe Practices #5, Work Authorization Permitting, last revised 7/22/2019. Policy 6.2 specifies that the Safe Practices Committee (SPC) is responsible for development, revision, audit and interpretation of the refinery Safe Practices. Members of the SPC shall be representative of both management and labor and have broad refinery-wide experience. Policy 6.2-5 specifies the work authorization permit process that applies to all employees and contractors performing Low and High Hazard Work including Hot Work within process units and non-operating areas in the plant and applies to routine activities, turnarounds, and capital projects. Per a review of these policies and interview, the refinery has developed and implemented a written procedure for the issuance of hot work permits and authorization of the permit before the work can begin. CCHS reviewed 29 completed high energy hot work permits from Unit 215, 200 and MP30 in the past year. All permits reviewed included the appropriate authorization and specification required by the permits.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
S01-03	Hot Work Program	Has management designated an individual responsible for authorizing cutting and welding operations in areas not specifically designed or approved for such processes? [T8 CCR §4848(a) via ANSI/ASC Z49.1-94, 3.2.1.3] Does the facility ensure that before welding or cutting is begun, inspection and authorization by a designated management representative is required? [T8 CCR §4848(a) via ANSI/ASC Z49.1-94, 6.3 and 3.2.2.3]	Abr	1. This includes inside tank farms, process units, etc.; and any activity that may potentially generate a spark; i.e., cutting, welding, grinding, working with pyrophoric iron, hot taps, etc. [CCHMP Interpretation] 2. Secure the authorization for the cutting or welding operations from the designated management representative [T8 CCR 4848(a) via ANSI/ASC Z49.1-94, 3.2.2.3] 3. Before hot work operations begin in a nondesignated location, a written hot work permit by the permit-authorizing individual shall be required. [T8 CCR §4848(a) via NFPA 51B 3-3.1] 4. Management must require that a supervisor or contractor supervisor be responsible for ensuring that cutting and welding are so scheduled that plant operations that might expose combustibles to ignition are not started during cutting or welding? [29 CFR §1910.252(a)(2)(xiv)]	Per the policy, the responsible Operator, Maintenance or Construction Craft Lead and HS&E Representative shall cosign and authorize the work authorization permit prior to high energy hot work commencing. A work authorization permit is considered approved when all of the necessary authorization signatures have been obtained. All work authorization permits are to be issued at the specific job site. Before authorizing the hot work permit, the HSE representative verifies proper isolation of equipment, inspects the equipment and surrounding area for hazards and combustible materials, and ensures control measures including PPE and respiratory protection are in place and conducts atmospheric monitoring and confirms who is responsible for monitoring the continuous LEL at the job site prior to hot work commencing. All permits reviewed and referenced in S01-01 indicated authorizing signatures from operations, maintenance and the HSE representative.	Y	None
S01-07	Hot Work Permit	Has the stationary source determined and documented that the flammable gas or vapor content is less than 20% of the LEL before the hot work permit is issued? [T8 CCR §6777(b)]	Abr	1. This includes testing with well-maintained and calibrated portable measuring devices. [CCHMP Interpretation]	As described in S01-03, before authorizing the hot work permit, the HSE representative conducts atmospheric monitoring and confirms who is responsible for monitoring the continuous LEL at the job site prior to hot work authorization and commencing. Section 9 of the Work Authorization Permit documents the atmospheric testing results and it states this is required for low energy work, vehicle entry & hot work. Per a review of the hot work permits referenced in S01-01, the refinery has properly determined and documented that the flammable gas or vapor content is less than 20% of the LEL before the hot work permit is issued. CCHS reviewed the completed Work Authorization Permits referenced in S01-01 and confirmed that the flammable gas or vapor content is less than 20% of the LEL	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
S01-08	Hot Work Permit	Do the hot work permits require that suitable fire extinguishing equipment be maintained ready for use when working with a source of ignition? [T8 CCR §6777(d)]	Abr	1. Fire extinguishing equipment shall be ready for instant use [29 CFR §1910.252(a)(2)(ii) 2. Before a hot work permit is issued, the permit-authorizing individual must verify that fully charged and operable fire extinguishers that are appropriate for the type of possible fire shall be available immediately at the work area. [T8 CCR §4848((a) via NFPA 51B 3-3.2(j)] 3. Sufficient fire extinguishing equipment must be ready for use where welding and cutting work is being done; management must assure that proper personal protective and fire protection equipment is used; and assure that fire protection and fire extinguishing equipment are properly located at the site. [T8 CCR §4848((a) via ANSI/ASC Z49.1-94, 6.2.1.1 and 3.2.2.4] 4. These requirements should also be stated in a policy/procedure. [CCHMP Interpretation]	Per a review of the completed hot work permits referenced in S01-01, CCHS noted that Section 7 of the permit is for "Description of High Hazard Work and includes checks for fire protection and assistance" This includes checks for fire watch, hole watch, bottle watch, standby, spotter, extinguisher, fire hose, contain sparks, fire blanket, weld closure, no open fuel, combustible cleared 35 ft. All completed permits reviewed included checked boxes for fire hose and extinguisher present at the location.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
S01-09	Hot Work Program	Does the facility ensure that where practical, the work is moved to a designated safe location? [T8 CCR §4848(a) via ANSI/ASC Z49.1-94, 6.1.2] Does the facility ensure that if the object to be welded or cut cannot readily be moved, all movable fire hazards in the vicinity are taken to a safe location? [T8 CCR §4848(a) and ANSI/ASC Z49.1-94, 6.1.3]	Abr	1. Check that where objects to be welded or cut are not movable and where fire hazards cannot be removed, guards are used to confine the heat, sparks, and slag, and to protect the immovable fire hazards and nearby personnel [T8 CCR §4848(a) via NFPA 51B 3-3.2(l) and ANSI/ASC Z49.1-94, 6.1.4] 2. The requirement for first assessing whether the object to be welded or cut could be moved to an approved hot work area to perform the work should be in a hot work policy/procedure [CCHMP Interpretation] 3. Additional precautions should be taken if combustible metals are in the area or will be the focus of the hot work. This includes equipment or piping constructed of magnesium, titanium, or zirconium. Examples include welding or cutting on titanium heat exchangers. [CCHMP Interpretation] 4. Document that safety precautions were met on the permit, and/or must be met within the hot work policy. If only stated in the policy, the stationary source should document on the permit that the policy was followed. [CCHS Interpretation] 5. Supervisors shall ensure that materials are not exposed to ignition by taking one or more of the following actions: have the work moved to a location free from combustibles and away from hazardous areas; have the combustibles moved a safe distance from the work or properly shielded against ignition if the work cannot readily be moved; or schedule welding and cutting so that such materials are not exposed during welding and cutting operations. [T8 CCR §4848(a) and ANSI/ASC Z49.1-94, 3.2.2.2]	CCHS reviewed the policy describing the "Hot work Plan" which is a required supporting document that is confirmed by a checkbox in Section 4 of the Work Authorization Permit. This plan provides justification for field hot work including: -- Cold work methods maximized: Can hand tools be used? Can cold cutting methods be used? -- Cannot relocate to shop or weld bay: Can items be measured in the field and worked in a shop? -- Cannot relocate outside Process Ares: Can items be moved to roadways or outside process area?	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
S01-11	Hot Work Program	Does the permit authorizing individual require a fire watch and ensure precautions are taken to prevent ignition of combustibles when performing hot work: a) In a location where other than a minor fire might develop; b) When combustible materials in building construction or contents are closer than 35 feet to the point of operation; c) When combustible materials are more than 35 feet away but are easily ignited by sparks; d) When wall or floor openings within a 35 feet radius expose combustible materials in adjacent areas, including concealed spaces in walls or floors; or e) When combustible materials are adjacent to the opposite side of partitions, walls, ceilings, or roofs and are likely to be ignited (by conduction or radiation)? [T8 CCR §4848(a) via NFPA 51B 3-4.1 & 3-3.2(g)], ANSI/ASC Z49.1-94, 3.2.2.4, and 6.2.2]	Abr	1. Additional firewatchers shall be posted where it is necessary to observe areas that are hidden from the view of a single firewatcher (e.g., other side of partitions, walls, ceilings, etc.) if combustible materials could be ignited. [T8 CCR 4848(a) via NFPA 51B 3-4.3 and ANSI/ASC Z49.1-94, 6.2.3] 2. Welding shall not be attempted on a metal partition, wall, ceiling or roof having a combustible covering nor on walls or partitions of combustible sandwich-type panel construction [T8 CCR §4848(a) via NFPA 51B 3-3.2(h)] 3. Cutting or welding on pipes or other metal in contact with combustible walls, partitions, ceilings, or roofs shall not be undertaken if the work is close enough to cause ignition by conduction [T8 CCR §4848(a) via NFPA 51B 3-3.2(i)] This includes ignition by convection, conduction and radiation. This includes hot taps [CCHMP Interpretation] 4. If hot work is done near walls, partitions, ceilings, or roofs of combustible construction, fire-retardant shields or guards shall be provided to prevent ignition. [T8 CCR §4848(a) via NFPA 51B 3-3.2(f)] 5. Document that safety precautions were met on the permit, and/or must be met within the hot work policy. If only stated in the policy, the stationary source should document on the permit that the policy was followed. [CCHMP Interpretation]	Per the hot Work Policy, Section 1-F, a fire watch is required whenever welding, grinding or flame cutting is performed in a location where a potential for a fire might develop. A fire watch is required whenever welding, grinding or flame cutting is performed in a location where a potential for a fire might develop and to remain in the area for 30 minutes after completion of the hot work to detect and extinguish possible smoldering fires. The policy identifies that it is the responsibility of the Operating Supervisor in charge of the area and the HSE Representative to determine whether the services of a fire watch are required. The duties of the fire watch are listed as well. Of the 29 permits reviewed 28 indicated fire watch was required. CCHS noted that the policy Appendix 1, Section D.5 Parts a-f specified the items b-e in this question.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
S01-12	Hot Work Program	Has the stationary source ensured that the fire watch is maintained for at least ½ hour after the completion of the hot work operation to detect and extinguish smoldering fires; and that fire watchers are qualified individuals, knowledgeable about fire reporting procedures, and emergency rescue procedures, who are assigned duties to detect and prevent spread of fires? [T8 CCR §4848(a) via NFPA 51B 3-4.2 and ANSI/ASC Z49.1-94, 6.2.2 and 6.2.4]	Abr	1. Verification of fire watch qualifications may be from training documentation, or listing the requirements on the back of the permit. [CCHMP interpretation] 2. Fire watch shall be trained in the use of fire extinguishing equipment, familiar with facilities for sounding an alarm in the event of a fire, watch for fires in all exposed areas, try to extinguish them only when obviously within the capacity of the equipment available, or otherwise sound the alarm. [T8 CCR §4848(a) via ANSI/ASC Z49.1-94, 6.2.4] 3. Document that safety precautions were met on the permit, and/or must be met within the hot work policy. If only stated in the policy, the stationary source should document on the permit that the policy was followed. [CCHMP Interpretation]	As described in S01-11, the policy specifies that a fire watch is required whenever welding, grinding or flame cutting is performed in a location where a potential for a fire might develop and to remain in the area for 30 minutes after completion of the hot work to detect and extinguish possible smoldering fires. The fire watchers are specified to be qualified individuals, knowledgeable about fire reporting procedures, and emergency rescue procedures, who are assigned duties to detect and prevent spread of fires. The duties and responsibilities of the fire watch are listed in Appendix F of the policy and include the following: -- Knowledge and understanding of Work Authorization Permit and Hot Work Plan procedures, plus specific requirements applicable for the job; -- Knowledge of the location of fixed and or portable fire extinguishing equipment and practical knowledge of its proper use. -- Knowledge of the use and locations of local emergency notification systems and proper procedures for reporting emergencies.	Y	None
S01-18	Hot Work Program	Are all welding and cutting equipment inspected as required to assure it is in safe operating condition? When equipment is found to be incapable of reliable safe operation, is the equipment repaired by qualified personnel prior to its next use or withdrawn from service? [T8 CCR §4848(a) via ANSI/ASC Z49.1-94, 3.1.1]	Abr		Per interview, contractors conduct a majority of hot work in the field and inspect their equipment prior to use. CCHS reviewed a maintenance procedure No. 2.08: Welding Environment and Worker safety last reviewed 8/13/2012 that specified in Section D: "Welding cables and gas hoses shall be inspected for cuts, leaks, breaks and insulation damage, prior to starting any welding or cutting job. The use of pre manufactured sleeves used for splicing welding cable or like materials will be used. Electrical tape will not be equivalent or adequate in most cases." CCHS also noted that there are two additional policies which provide further requirements on hot work and they are listed below: -- Maintenance Procedure 2.06: Contractor Welding, last revised 9/9/2013. -- Maintenance Procedure No. 2.07: Welding or Hot Tapping Equipment Containing Hydrocarbons, Hydrogen, Steam or Water, last reviewed 5/10/2016.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
S01-20	Hot Work Program	Does the facility ensure that the area is inspected by the permit-authorizing individual at least once per day while the hot work permit is in effect to ensure that it is in a fire-safe area? [T8 CCR §4848(a) via NFPA 51B 3-3.4]	Abr	1. The permit-authorizing individual shall determine the length of the period for which the hot work permit is valid. [T8 CCR §4848(a) via NFPA 51B 3-3.3] 2. Document that safety precautions were met on the permit, and/or must be met within the hot work policy. If only stated in the policy, the stationary source should document on the permit that the policy was followed. [CCHMP Interpretation]	Per Section J of the policy, a Work Authorization Permit is issued for a specific date and time period up to 12 hours with a maximum of 24 hours with extension. Section H of the policy specifies a joint job walk by the operations and maintenance representative is mandatory prior to the issuance of a work authorization permit. To extend the permit, the operator representative, his/her relief and the maintenance representative shall revalidate the original permit conditions and conduct a joint job walk and initial the permit to acknowledge the extension. Section C.2.c. of the policy specifies operations personnel and equipment owners are responsible to periodically review on-going work within their area of responsibility to have an awareness of the work and to provide correction and updates as needed. Per interview with SME, operators will visit the work site during their normal rounds to ensure conditions have not changed.	Y	None
S01-21	Hot Work Program	Does the submitted RMP and Safety Plan accurately reflect the Hot Work Permit Program at the stationary source? [T19 CCR §2745.2(d) and ISO Section 450-8.016]	Abr	1. P4 allows the stationary source up to 24 months to update the RMP, or until September 30, 2019. [T19 CCR §2745.1(a)]	The RMP submitted 9/13/2019 pages 47-48 and Safety Plan submitted 8/6/2018 pages 28-29 accurately reflect the Hot Work Permit Program at the stationary source.	Y	None
S01-22	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the stationary source been addressed within this prevention program questionnaire?	Abr	1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP. * Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due.	There was no ensure action items associated with the previous CalARP/ISO audit of the stationary source to be addressed within this prevention program questionnaire. This question is not applicable.	N/A	None

S03c - Lockout/Tagout (Program 4)

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
S03-08	Hazardous Energy Control Procedure	Does/did the stationary source develop and use a written energy control procedure, which clearly and specifically outlines the following: a) The scope, purpose, authorization, rules, and techniques to be used for the control of hazardous energy; b) The means to enforce compliance including, but not limited to a statement of the intended use of the procedure; c) The means to enforce compliance including, but not limited to the procedural steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy; and d) The means to enforce compliance including, but not limited to the procedural steps for the placement, removal, and transfer of lockout devices and tagout devices and the responsibility for them? [T19 CCR §2760.3(d)] [T8 CCR §3314(g)]	Abr	1. The energy control procedure applies when employees are engaged in the cleaning, repairing, servicing or adjusting of prime movers, machinery, and equipment [T8 CCR §3314(g)] 2. Energy source is any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy [OSHA §1910.147(b)]	CCHS reviewed Section 6.2-3 of the Policies and Procedures Manual "Safe Practice #3 Preparing Equipment for Opening, Cleaning, Repairing, Servicing and/or Adjusting Lock/Tag/Try (LTT)" (rev. 08/15/19). This policy defines the scope, purpose, and authorization requirements for LTT related work. Operators are required to follow all provisions of the Lock, Tag, & Try procedure (RNOP-100T-OPS) which provides a list of 18 different approved isolation devices, including Air Gaps, Blinds, Single Block and Bleed, Double Block and Bleed, Plugs, etc. The operator is required to complete an Equipment Isolation Device (EID) Log as part of the LTT package, which will document the isolation devices used. Per interview, while all provisions of RNOP-100T-OPS must be followed, qualified operators use a condensed version of the procedure (RNOP-100-OPS). RNOP-100T-OPS is used by operators who are still in the "cementing" phase of their training and have not been certified as qualified by the operations supervisor. The intended use of the procedure is "to protect workers by ensuring that equipment being opened or isolated for servicing or maintenance activities is put into safe condition by eliminating the potential for the unexpected energizing, start-up, or release of stored energy and hazardous materials." The scope (Section B) states minimum requirements for the preparation of equipment and establishes when the procedure is to be used. The policy includes a section (E.3) for shutting down and isolating equipment from all energy and hazardous materials sources	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					and other sections (E.2 and F) for establishing the procedural steps for placement and locking of isolation devices and associated tags (e.g. "do not operate", "try point", etc.).		
S03-09	Hazardous Energy Control Procedure	Does the energy control procedure clearly and specifically outline the means to enforce compliance including, but not limited to the requirements for testing a machine or equipment, to determine and verify the effectiveness of lockout devices, tagout devices and other energy control devices? [T19 CCR §2760.3(d)] [T8 CCR §3314(g)]	Abr	1. The energy control procedure applies when employees are engaged in the cleaning, repairing, servicing or adjusting of prime movers, machinery, and equipment [T8 CCR §3314(g)] 2. Energy source is any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy [OSHA §1910.147(b)]	Section G of the LTT Policy, "Zero Energy Verification and Equipment Opening Criteria Testing", details the requirements for verifying that a machine or equipment is properly isolated. This process includes a Field walk to ensure proper documentation and application of Locks and Tags and a test of each "Try Point" on the EID Log to ensure that no hazardous stored energy is present. When equipment is to be opened the following hazards must be tested: LEL << 10%, H2S < 50 ppm, VOCs < 500 ppm, Temperature < 150 F, Pressure < 1 psig, and all hazardous liquid has been drained. Only if these conditions are met, the line can be opened.	Y	None
S03-12	Energy Control Procedure	Does the stationary source ensure that where lockout is used for energy control, the periodic inspection includes a review, between the inspector and authorized employees of their responsibilities under the hazardous energy control procedure being inspected; stationary source certifies that the periodic inspections have been performed; and the periodic inspection certification includes the following: a) Identifies the machine or equipment on which the energy control procedure was being utilized; b) The date of the inspection; c) The employees included in the inspection; and d) The person performing the inspection? [T19 CCR §2760.3(d)] [T8 CCR §3314(j)]	Abr	1. Energy source is any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy [OSHA §1910.147(b)] 2. The periodic inspections shall be conducted to correct any deviations or inadequacies identified. [OSHA §1910.147 (c)(6)(B)] 3. A periodic inspection of the energy control procedure(s) must occur at least annually. [T8 CCR §3314(j)]	CCHS reviewed LTT audit results on the facility's SharePoint for approximately 10 different LTT jobs and confirmed that the inspection results include the machine or equipment, the date of the inspection, and the person performing the inspection. The inspection reports are available for review by all employees so personnel involved in the inspection are not listed, but the inspection report is tied to a specific LTT package that includes operators and maintenance employees if management wants to follow up on results of an inspection. CCHS viewed some inspection reports that were flagged for "nonconformance", but did not recognize any trends. The facility stated that if certain issues become more common, training will be adjusted to emphasize that part of the procedure. Additionally, the facility performs an annual review of the LTT procedure to look for deficiencies and opportunities for improving the procedure.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
S03-21	Audit Follow-Up	Have all ensure action items associated with the previous CalARP/ISO audit of the stationary source been addressed within this prevention program questionnaire?	Abr	* Complete the status column in the previous CalARP/ISO audit's Summary of Action Item table for this prevention program. * Identify a new action item along with periodic written updates to CCHMP (e.g., monthly) to complete outstanding action items or proposed remedies identified that are past due. 1. This question is only applicable to stationary sources that have had prior CalARP/ISO audits by CCHMP.	No ensure action items associated with the previous CalARP/ISO audit were given for this safety program element. This question is not applicable.	N/A	None

ATTACHMENT C

Summary of Action Items

Summary of Action Items and Proposed Remedies

ID#	*Question*	*Findings*	*Actions*	*Proposed Remedy*	*Due Date*
A38-26	Has the PHA been updated and revalidated by a PHA team at least every five years after the completion of the initial PHA to assure that the PHA is consistent with the current process including a review of Management of Change documents for the process unit that was completed since the last PHA? [T19 CCR §2762.2(c)(5), §2762.2(j) & ISO Section 450-8.016(d)(2)]	Per interview with Process Safety Director, Phillips 66 has slightly modified their practice for scheduling and managing their 5-year PHA revalidations by establishing a date of when the PHA must start and are now required to be complete 6 months from the start date as indicated in Section E.2.k.i. which states, "PHA Reports shall be completed within six months of the start date of the PHA study." Once the PHA is complete the next PHA will be scheduled 5 years from the previous "start by" date. In summary if executed the PHA will be revalidated every five years. However per CCHS review of the PHA studies one of PHA reports exceeded the 6 months. -- MP-30 PHA session dates (4/18/2019 -10/11/2019) final report not complete. -- Unit 215 ,PHA session dates (4/5/18 - 5/18/18) final report (10/5/18) -- Relief & Blowdown PHA session dates (2/5/18 - 2/9/18), final report (July 19, 2018). The facility needs to ensure the PHA report is issued 6 months from the start of the PHA study per their policy.	Ensure to complete the PHA report 6 months from the start of the PHA study per P&P 2.0-6.	Policy 2.0-6 SFR Process Hazard Analysis will be revised to include the six-month completion timeframe in the E.1.PHA Protocol section to ensure the time frame is followed.	12/15/21
A40-13	Has the owner or operator developed and implemented an effective training program to ensure that all affected employees are aware of and understand all Program 4 elements described in this Article? [T19 CCR §2762.4(e)]	CCHS reviewed the CalARP Program 4 regulation training slide deck and reviewed training documentation for Units 200 and MP-30. The training deck included information on each different program element including how the facility meets the expectations and examples. At the end of the training deck was a multiple choice test used to verify understanding. The training documentation for Units 200 and MP-30 indicated that employees all received the training and completed the test between October 2019 and December 2019. Per SME interview, the training deck was not yet complete and that all employees did not receive the training until after the October 1st deadline. Additionally, CCHS was provided a status report for the entire refinery of who has received the Program 4 overview training, which showed that approximately 10-15% of refinery personnel still had not received the training as of the end of this CalARP audit (January 2020).	Ensure that all employees receive CalARP Program 4 Overview training as soon as reasonably possible.	Completed. Remaining employees received the PSM CalARP Program 4 training.	9/15/21

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A41-01	Has the owner or operator developed, implemented and maintained effective written procedures to ensure the ongoing integrity of process equipment? [T19 CCR §2762.5(a) & ISO Section 450-8.016(a)(5)(B)]	CCHS reviewed a variety of procedures related to the mechanical integrity program. These include: -- Welding or Hot Tapping Equipment Containing Hydrocarbons, Hydrogen, Steam or Water, Procedure 2.07 -- Safe Line Opening Process, Procedure 2.52 -- Safe Assembly of Tubing Connections Guidelines, Procedure 2.53 -- PMI for Mechanical Equipment, Procedure 4.18 -- Inspection Checklist & Repair Report for Fin Fans, Procedure 5.03 -- Assured Equipment Grounding Conductor Program, Procedure 3.06 -- Guideline for the Preventive Maintenance of Critical Instrument Loops, Procedure 3.17 -- Instrument Mechanical Integrity, P&P 7.0-11 -- Bypassing Overpressure Protection of Unfired Pressure Vessels and Use of Block Valves in Relief Systems, P&P 6.2-28, describes how relief valves can be serviced while equipment is in operation. -- Critical Check Valve Inspection Program, ME&I 3.09 -- Piping Inspection Policy, ME&I 2.10 Per SME interviews and file reviews, the facility has a number of general maintenance procedures located on their company intranet associated with their maintenance services shop, instrumentation, electrical, machine repair shop, reliability, hazardous waste and tools. CCHS was informed that these maintenance procedures are reviewed every three-years if they are task-based; otherwise they are reviewed every 5 years. Nevertheless, CCHS was unable to confirm this in actual practice. CCHS reviewed Maintenance Procedure No. 0.00 (last reviewed 5/22/19), which is a table of contents of maintenance procedures that identified many procedures are overdue for their review. In total, 124 maintenance procedures out of 170 are beyond their review date. Regarding task-based maintenance procedures (subset of the total), a total of 33 out of 41 are beyond their review date. In reviewing the ME&I Procedural Manual, CCHS also found a number of inspection procedures beyond their review date. A process has been started to review these procedures and eliminate those determined to be unnecessary.	Ensure that maintenance and inspection procedures are reviewed at their appropriate frequency.	All maintenance and ME&I procedures will be evaluated to see if the criteria of "ongoing integrity of process equipment" is applicable. All procedures evaluated as applicable will be reviewed at an appropriate frequency.	12/1/21

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A41-21	Was the DMR report provided to and, upon request, reviewed with all operating, maintenance, and other personnel, whose work assignments are within the process unit covered in the DMR? [T19 CCR §2762.5(e)(10)]	P&P 7.0-15 identifies that DMR reports are available to all employees on the facility's intranet. The facility set up their PSI page to link DMR reports, among other documents, so every employee can access items whenever they want. Since only 4 DMR reports have been issued, most of the DMR report links are empty. Associated with the four DMR reports issued for Unit 240, CCHS was unable to confirm all operating, maintenance, and other personnel, whose work assignments were within the associated process unit were provided the DMR report. CCHS was informed that a new notification was going to be included within the shift turnover process with links to the DMR reports. Since the DMR report was developed in March 2019 and the notification was not proposed until January 29, 2020, the ensure action item remains.	Ensure that DMR reports are provided to all operating, maintenance, and other personnel, whose work assignments are within the process unit covered in the DMR.	Policy 7.0-15 Damage Mechanism Review will be revised to include a detailed description of how each completed DMR Report is communicated to operating, maintenance, and other personnel with job assignments within the process unit and reviewed with personnel upon request.	12/15/21

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A44-01	Has the owner or operator conducted an effective compliance audit every three (3) years and certified that the owner or operator has evaluated the procedures and practices developed under this Article to verify that the procedures and practices are in compliance with the provisions of this Article, and are being followed? [T19 CCR §2762.8(a) & ISO Section 450-8.016(a)(8)(A)]	CCHS reviewed the P&P Manual Section 14.0-6 : PSM/RMP Compliance Audit Process last reviewed 2/1/2018. Per this policy, the refinery H&S Audit Coordinator is responsible for confirming with the Corporate Lead Auditor that the scheduled audit start date falls within the site's required 3-year timeframe. The policy does not indicate that the refinery is required to conduct and certify compliance audits to comply with ISO requirements. CCHS reviewed the following three completed internal compliance audit reports: -- Internal Compliance Audit conducted on August 2-5, 2016 and issued on January 17, 2017 with certification by the site manager. -- Internal Compliance Audit conducted on September 10-19, 2013 and issued on December 17, 2013 with certification by the site manager. -- Internal Compliance Audit conducted on November 8-12, 2010 and issued on December 16, 2010 with a certification statement. Per interview, the most recent internal compliance audit was conducted from July 22 through August 1, 2019 by HSE corporate auditing team. A draft copy of this audit was made available to the refinery near the end of the CCHS CalARP audit but had not cleared the refinery legal review and was only shared with CCHS with limited observation of parts of the audit on 1/30/2020. This limited observation indicated that the audit included 3 members of the corporate auditing team and 8 other specialists from other refineries and the scope was to cover the requirements of Title 19 CCR 2735.1 through 2785.1 and the County ISO. The draft report identified a number of nonconformances presented in a table that included program category, risk ranking, nonconformances description and regulatory references. Per a review of the past two audits, there is thus a gap on complying with the requirement to complete a compliance audit and certify the audit every three years as the refinery had not formally issued their compliance audit report through the end of the current CalARP audit on 1/30/2020.	Ensure that every three (3) years the refinery conducts an effective compliance audit and certifies that the owner or operator has evaluated the procedures and practices developed under this Article to verify that the procedures and practices are in compliance with the provisions of this Article, and are being followed.	The Rodeo Refinery will revise the Compliance Audit policy, 14.0-6, to complete the certification statement at the closeout meeting, after the conclusion of each audit.	12/15/21

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A44-03	Has the owner or operator prepared a written report of the compliance audit that includes the scope, methods used, questions asked to assess each program element along with findings and recommendations of the compliance audit? [T19 CCR §2762.8(c), §2762.16(e)(15) & ISO Section 450-8.016(a)(8)(C)]	The internal compliance audits completed in January 2017 and December 2013 were issued as a memorandum that included a brief executive summary, an attachment that identified the none-conformances found by the audit team and the signed audit compliance certification statements. The audit executive summary specifies compliance with the regulatory requirements PSM/RMP, identifies 11 and 9 audit team members that included members of HSE Auditing team and also members from other P66 refineries. The audits have been conducted using PSM and RMP self audit checklists prepared by corporate Auditing team. The audit summary states that the audit methods utilized during the audit included interviews of plant personnel, including process and mechanical personnel; observation of maintenance and operations; inspection of plant facilities; and review of documentation. Consistent with the findings from the past audit, CCHS was provided an audit report titled "Process Safety Management Audit Report of the CalARP and Contra Costa Health Services Industrial Safety Ordinance (ISO) Risk Management Programs, August 2016" prepared by a third party and the audit performed Aug 1-5, 2016. This report covered near 43% of the total CalARP/ISO topics. CCHS reviewed section 4.0 of the report which identified that the majority of the PSM elements were assessed by the P-66 corporate audit team and the ISO requirement and some CalARP non-PSM topics were addressed by the third party contractor. CCHS also reviewed a concurrent P-66 corporate audit that covered the PSM and RMP topics and the audit was conducted Aug 2-5, 2016. This was transmitted via an interoffice memorandum as referenced in A44-01 by a 11 member team from HSE auditing group and other refineries as well. The memo identified one non-conformance to be of significant risk. CCHS was provided an electronic database of questions asked during the refinery July 2019 internal compliance audit that was conducted by corporate auditors and noted that the questions provided included the CalARP P4/ISO compliance audit questionnaires from CCHS audit. At this time, a written report of the compliance audit that includes the scope, methods used, questions asked to assess each program element along with findings and recommendations of the compliance audit were not fully available from the internal compliance audit that was reported to have been conducted in July 2019.	Ensure that the facility prepares a written report of the compliance audit that includes the scope, methods used, questions asked to assess each program element along with findings and recommendations of the compliance audit (This is a modified repeat).	The Rodeo Refinery will revise the Compliance Audit policy, 14.0-6, to include that the specific items listed in Title 19 §2762.8(c) will be included in a draft compliance audit report when delays are encountered with the corporate audit report.	12/15/21

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A46-01	Did the owner or operator develop, implement and maintain a written plan to effectively provide for employee participation in the Accidental Release Prevention elements in consultation with employees and employee representatives throughout all phases in the development, training, implementation and maintenance of the Accident Release Prevention elements? [T19 CCR §2762.10(a)(2) & ISO Section 450-8.016(a)(3)]	CCHS reviewed the P&P Manual Section 5.0-3: PSM/CalARP Employee Participation last reviewed 6/1/2018. This policy has been updated to ensure effective employee participation in the process safety management (PSM) standard elements as defined by Cal OSHA Program 4 and those for CalARP Program 4, County ISO and EPA RMP. This plan includes provisions that provide for the effective participation of operations and maintenance employees and employee representatives throughout all phases of development, training, implementation, and maintenance of the PSM and CalARP elements. "PSM" includes "CalARP" when used in this plan. Per the Employee Participation policy, the employees and their representatives shall have access to all information that is developed to comply with the PSM and CalARP regulations. Information that may not be readily available can be obtained by the request to the employee's supervisor or any member of the H&S Department. Employees who participate in program development and team activities may be selected by the authorized collective bargaining unit. The USW PSM representative, Joint Labor-Management Health & Safety Committee, and USW Local 326 are consulted when programs are developed or revised and for selection of qualified employees for specific PSM teams or other program activities. Per interview and review of completed studies such as PHAs, SPAs, DMRs, MOCs, MOOCs, Compliance audits and Incident Investigations, employees and their representatives are consulted on the development of elements of PSM/CalARP. However they have not been involved with conducting HCAs for PHA recommendations that could have a scenario that has potential for a major incident. CCHS reviewed the Joint Health and Safety Committee meeting minutes for the past one year. The Health and Safety Committee is comprised of employee representatives and management. Per review of the meeting minutes, the committee discusses various CalARP elements except for HCA which has not yet been conducted for the qualified PHA recommendations.	Ensure that employees and representatives participate in conducting HCAs for PHA recommendations that could have a scenario that has potential for a major incident.	The PHA and HCA policies will be revised to include details concerning the documentation of HCAs on PHA recommendations to ensure that contract covered employees are participating in these PSM Program 4 activities.	3/15/22

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A47-04	Does/did the owner or operator periodically evaluate and document the evaluation of the performance of the contract owner or operator in fulfilling their obligations as specified in T19 CCR §2762.12(c)? [T19 CCR §2762.12(b)(5-6) & ISO Section 450-8.016(a)(11)]	CCHS reviewed P&P 6.3 which describes the responsibilities of the different contractor holders. In the case of field auditing of contractors, the contractor safety coordinator monitors the contract company work and safety performance. Per CCHS interview with the contractor safety coordinator, the contractors who come onsite regularly are audited quarterly. CCHS reviewed the spreadsheet that is used to track the field audits that are performed for each of the contractors onsite and monitored by the contractor safety coordinator. The spreadsheet has the names of the contractors and the frequency of the field audits. The facility gives a Risk ranking to contractors of 1-4. The contractors who are given a Risk ranking of 3 or 4 are those contractors who work in or around a process unit. There are 157 contractors who are Risk ranked either 3 or 4. Some of these contractors come on site infrequently. Per the contractor safety coordinator, any contractor that comes onsite for more than 2 weeks must have a field safety evaluation. The contractor coordinator indicated that there are 6-8 office audits of contractors per year. Given there could be 157 contract companies subject to this evaluation each year, the number of evaluations typically performed each year is not adequate. The facility needs to develop a system to increase the number of periodic evaluations per year to be appropriate for all contractors risk ranked 3 and 4 such that applicable contracting companies are evaluated in a reasonable amount of time. Such a system should apply to all contractors who come onsite who work on or adjacent to a covered process regardless of size of contract workforce or duration. The scope should be tailored to evaluate whether contract employees are trained in the work practices necessary to safely perform his or her job.	Ensure that the contractor auditing program is modified to increase the number of annual periodic evaluations to assess whether contract owners are assuring that contract employees are properly trained in the work practices necessary to safely perform his or her job. Ensure that the contractor auditing program is modified to include all contractors risk ranked 3 or 4 regardless of the size of their contract workforce, frequency onsite or duration onsite.	The Rodeo Refinery will revise the Contractor Safety policy, 06.03-1 to modify the contractor auditing program to include the auditing of contractor training records in the quarterly field audit checklists. The Rodeo Refinery will revise the Contractor Safety policy, 06.03-1 to modify the contractor auditing program to include all high intensity contractors regardless of the size of their contract workforce, frequency onsite or duration onsite.	3/15/22

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A49-05	Does senior Stationary Source staff address how the Stationary Source promotes “safety first” approach? [Section A.1.1 of the CCHMP Safety Program Guidance Document]	Per SME interviews, much of the "safety first" discussion starts with the company's Stop Work policy. Employees and contractors are instructed to pay attention to their surroundings and to stop any work if they are unsure. During the audit, CCHS attended a monthly contractor safety meeting where the Refinery Manager informed the audience, approximately 400 contractors, to follow the site's Stop Work process adding that he will pay them to stop any work if they feel something seems unsafe or if they are unsure. CCHS was informed that the Refinery Manager or HSE Manager present at these monthly meetings as well as every turnaround contractor orientation to discuss safety. P66 has 10 Life Saving Rules that all employees and contractors must follow. Some of these rules are discussed at contractor orientations. CCHS was also informed that senior management has held Town Hall events to deliver safety messages to employees and contractors. CCHS reviewed the facility's fatigue policy, which applies to all employees and contractors. P&P 1.1-22 (Fatigue Management Standard Policy, last revised 11/22/19) describes the maximum number of hours per day and consecutive work shifts that can be worked (based on an 8, 10, or 12 hour normal work shift). The policy is consistent with API RP 755. The site's fatigue process allows for workers to exceed the maximum values as long as a documented Exception Report is filed. CCHS reviewed spreadsheets used to track overtime worked by employees along with Exception Reports documented for the same time period. CCHS was unable to confirm that P66 is generating the proper number of Exception Reports. For example, in March 2019, records indicate there were 8 Exception Reports completed although below the 39 that should have been completed. CCHS looked at other months within 2019 and also found discrepancies. CCHS' previous audit issued a similar ensure action item for the facility to follow their corporate fatigue management process so the current action item is listed as a modified repeat.	Ensure that Exception Reports are completed as identified within the Fatigue Management Standard Policy P&P 1.1-22. (modified repeat)	The Fatigue Management policy will be revised to add additional responsibilities to ensure exception reports are generated, approved, and appropriately filed and retained per company document retention policies.	3/15/22

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A49-14	Does the Program policies and procedure ensure that the findings, recommendations, and corrective actions for all ARP programs such as PHA's, DMRs, HCAs, SPAs, incident investigations, compliance audit and MOC's are communicated effectively to the employees and employee representatives? [T19 CCR §2762.16(b)(4) & Section A.1.2.1 of the CCHMP Safety Program Guidance Document]	The facility's employee participation plan (described in A46-01) outlines how employees are involved with the various CalARP program 4 elements. CCHS was informed that the employees who participate within the various safety programs are the means used to effectively communicate findings, recommendations and corrective actions. Program 4 also requires the owner or operator to track each corrective action item to completion and append the documentation of completion to the applicable PHA, DMR, HCA, SPA, compliance audit, or incident investigation report [T19 CCR §2762.16(e)(15)]. Based on CCHS' review of these program elements, CCHS was unable to confirm that completed corrective actions associated with PHAs (see A38-28), DMRs (see A41-18), or SPAs (see A51-13) were appended back to the official written reports. If the official reports for these studies are maintained electronically, CCHS believes that completed corrective action items need to be placed within the same electronic directory as the study. As described in A58-01 and A58-06, CCHS was unable to locate any HCAs performed. As described in A45-01 and A45-10, there have been no qualifying major incidents. As described in A44-01, CCHS was unable to review the 2019 compliance audit so is unaware whether any corrective actions were issued or completed to be appended back into the report. Also, it is unclear to CCHS that completed corrective actions would be appended back into any of the following study reports given the lack of clarity in the associated program policies: PHA, DMR, HCA, SPA, or compliance audit. Incident investigations are reported through IMPACT so any investigations associated with a major incident would automatically append the closed-out recommendations to the report. CCHS also reviewed P&P 10.0-3 (PSM - Cal ARP Program 4 Corrective Action Work Process, last reviewed 9/1/18) and was unable to locate mention of appending corrective actions to the appropriate report. It is not a regulatory requirement for the various policies and procedures to include this statement although it may assist with compliance.	Ensure that copies of the completed corrective action items are appended back into the appropriate study reports (e.g., PHA, DMR, HCA, SPA, or compliance audit reports).	The requirements of T19 CCR §2762.16(e)(15) will be incorporated into the PHA, DMR, HCA, SPA, Compliance Audit, and Incident Investigation policies to ensure that the completion of each corrective action is documented and a link is included within the applicable	6/15/22

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A49-28	Have all ensure action items associated with the previous ISO audit of the Stationary Source been addressed within this prevention program questionnaire?	The previous audit identified one ensure item to adhere to the corporate fatigue management process. As described in A49-05, a similar issue was found during this audit and a modified repeat action item was issued. As described in several questionnaires within this audit, several issues have been found during CCHS' previous audit that have not been entirely resolved. New ensure action items have been identified and have been marked as "repeat" or "modified repeat" action items within the following questions: A44-03, A47-04, A49-05, A55-05. As a result, CCHS requires additional oversight and communication to make sure that such items are effectively resolved. It is expected that, at a minimum, face-to-face meetings and document reviews take place in order to confirm the issues have been resolved.	Ensure that Phillips 66 begins meeting with CCHS by September 1, 2020 to confirm that any "repeat" or "modified repeat" ensure action items are properly resolved.	Phillips 66 received the revised audit report from Hazardous Materials Program on October 1, 2020. Meetings with CCHS will be done by mutual arrangement beginning July 13, 2021. Next meeting on August 17, 2021.	12/15/21

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A50-02	Did the owner or operator's human factors analysis use an effective method in evaluating the following: a) Staffing levels; b) Shift work; c) Overtime; d) The complexity of tasks; e) The length of time needed to complete tasks; f) The level of training, experience, and competency of employees; g) The human-machine and human-system interface; h) The physical challenges of the work environment in which the task is performed; i) Employee fatigue, including contractor employees and other effects of shiftwork and overtime; j) Communication systems; and k) The understandability and clarity of operating and maintenance procedures? [T19 CCR §2762.15(c) and ISO Section 450-8.016(b)(3)]	CCHS reviewed San Francisco Refinery (SFR) Policies and Procedures Manual, Manual Section 3.0-2, Human Factors Program - ISO, PSM, CalARP (revised 7/16/19). The Human Factors (HF) Program addresses HF in PHA; human systems as causal factors in incident investigation for MCAR (major chemical accident or release) or for an incident that could reasonably have resulted in an MCAR; training of employees in HF; consideration of HF in development of operations and maintenance procedures; MOOC prior to staffing changes for changes in permanent staffing levels/reorganization in operations, maintenance, health and safety or emergency response (staffing changes longer than 90 days are considered permanent); consultation with employees and their representatives in the development and continuous improvement of HF program; the ongoing evaluation of management issues such as staffing, shiftwork and overtime. CCHS also reviewed P&P 1.1, Fatigue Management Policy (revised 11/22/19) which describes the requirements for the Fatigue Management Program. The policy states that the facility will use its own standards unless there is a state, local, or federal standard that is more stringent. In section P&P 1.1-22, the policy lists the maximum hours that an operator can work (this includes extended shifts), the number of consecutive days that a person can work during normal operations and outages, and the minimum time off that an operator must have before the next work-set. CCHS reviewed the checklist used by the facility which is the County's Latent Conditions Checklist from June 2011. CCHS also reviewed the Human Factors Checklist Training (no date) slides that were used to train the operators on the use of HF/LCC checklist for PHA's. None of the checklists included complexity of task or contractor fatigue. Per CCHS interview with the Process Safety (PS) SME, the facility does perform an analysis on the complexity of tasks whenever an issue comes up during an operating procedure, maintenance procedure, or wherever else a human factors evaluation is needed. However, there is nothing written in the HF checklist indicating an evaluation of complexity of task. There is also nothing on any of the HF checklists reviewed by CCHS indicating an evaluation of contractor fatigue would be part of the HF analysis. CCHS was informed by the SME that the facility expects the contractor companies to monitor the work hours and to follow the fatigue management policy but the facility does not currently review this data as part of the contractor fatigue management program.	Ensure that the human factors analysis includes an evaluation of contractor fatigue as appropriate.	Revise policy 3.0-2 Human Factors to include the list of topics to be evaluated by the chosen methodology; ""...staffing levels; the complexity of tasks; the length of time needed to complete tasks; the level of training, experience, and competency of employees; the human-machine and human-system interface; the physical challenges of the work environment in which the task is performed; employee fatigue, including contractor employees and other effects of shiftwork and overtime; communication systems; the understandability and clarity of operating and maintenance procedures, and analysis of process controls"". Since the Rodeo Refinery does not use contractors as process operators or in positions covered by the MOOC program, the only area that contractor fatigue would be ""relevant"" is the investigation of a major incident or situation where a major incident could reasonably occur. If, at a future date, we use contractors in positions that are covered by the MOOC criteria, contractor fatigue would become a ""relevant"" topic in the MOOC (Management of Organizational Change) Human Factors evaluation.	6/1/22

ID#	Question	Findings	Actions	Proposed Remedy	Due Date

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A50-06	Does the Stationary Source ensure that personnel applying the latent conditions checklist are trained to understand that the intent of the checklist isn't to identify their errors, but rather to identify latent conditions that could cause them to make an error and are truly contemplating each question (i.e., not simply checking boxes)? [Section B: Chapter 3.2 of the CCHMP Safety Program Guidance Document]	CCHS reviewed P&P 3.0-2 which describes the specialized training on the different LCC's used for PHAs, incident investigations, MOOC, operating and maintenance procedures, and management issues. It states that the training provided to the employees applying the LCC's "…will include the specific reason for each question, the relative importance of the different questions and the degree to which items fail to meet the criteria. The training will also ensure that those applying the checklist understand the intent isn't to identify errors but to identify latent conditions that could cause them to make an error." The policy also states that specialized refresher training is provided on an as-needed basis to employees who will serve on a PHA team, an incident investigation team, or a MOOC team. PHA: CCHS reviewed the HF checklist training slides that were used to provide training to operators and maintenance personnel who are going to participate in a HF evaluation as part of a PHA. CCHS reviewed the human factors checklist that was completed for each of the PHAs (Units 215, Relief & blowdown, MP30). Operating Procedures: CCHS reviewed R-403, Human Factors Checklist, from P&P 06.01-04, Operating Procedure Formatting and Writing (updated 4/18/19) which provided a blank HF checklist (34 questions, the last 10 for emergency procedures) that is to be used to evaluate human factors as part of the development of operating procedures. There is no revision date for the checklist specifically. Maintenance Procedures: CCHS reviewed the Maintenance Department Procedures Manual (revised 5/22/19) which lists all of the maintenance procedures in the facility. Per CCHS interview with the SME, the department has only performed LCC's on a few maintenance procedures which are the procedures that have been reviewed since 2018. CCHS also noticed that many of the maintenance procedures were past the date for the next review, some over 3 years. CCHS reviewed the checklists that were completed for some of the maintenance procedures. Per CCHS interview with SME, only those maintenance procedures that are marked as "Task procedure" would require an LCC. There are 41 Task	Ensure that the maintenance staff involved in writing maintenance procedures receive initial or just in time specialized training and 3-year refresher on writing effective procedures and applying LCCs. (This is a carryover recommendation from the previous audit due to the changes that were made to maintenance management during the audit which made verifying documentation difficult.)	Revise Maintenance Procedure 1.01 to include performance of human factors checklists and procedure writing training.	3/15/22

procedures. Per CCHS interview with the SME, only those procedures that have been reviewed since 2018 would have LCC's. 5 of these procedures were completed since 2018.

CCHS reviewed the LCC's (HSE-170, revised 12/15/15) that were completed for 2.11 Piping Pressure Test Guidelines and for 4.52 In Service Testing of Relief Valves. Attached to the LCC's were the Maintenance Procedure Risk Based Assessment sheet (R-118, revised 2/02/17) which classifies the procedure Task complexity and Task frequency. On the horizontal axis is Reasonable Potential Consequence and categories of Low, Moderate, and Severe. The combined risk are from 1-3 with 3 requiring the user of the procedure to have a copy "in-hand" with step by step sign off required. A 2 only requires same day prior review, and a 1 is No written work instruction required. On the bottom there are 4 lines for people to sign who completed the form and a note (min two people required, one must be a Subject Matter Expert).

CCHS reviewed the sign-in sheet that was used to document training of writer's, reviewers, and approvers on maintenance procedure development. There were 13 names on the list but only 9 were signed. CCHS was unable to verify that the remaining 4 employees on the list were trained. Due to very recent changes in management, CCHS was unable to verify that the 9 people had also received LCC training.

Incident Investigations:

There were no incidents that would have met the definition of an MCAR or near-miss MCAR since the last CalARP audit. See questionnaire A52 for more information on incident investigations at the facility.

CCHS reviewed P&P 10.0-1, Incident Management Policy (revised 5/15/19) which specifies the requirements of the investigation based on the severity of the incident. For MCAR's or incidents that could have resulted in MCAR's, the facility would complete R-10.0-7 which is the Human Factors Pre-checklist. The facility would use Taproot as the RCA (root cause analysis) tool which has human factors as part of the causal factors that are reviewed.

Facility-Wide:

Per CCHS interview with the PS SME, the facility does not do a facility wide LCC but instead performs individual LCC's based on PHAs, operating procedures, incident investigations, and other

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		areas. The SME believes that evaluating so many different process safety programs covers the equivalent of a facility-wide LCC.			
A51-01	Did the Stationary Source elect to complete the applicable questions of the Latent Conditions Checklist prior to conducting the PHA? If so: a) Were PHA team members provided with copies of the completed checklist prior to the PHA meeting; b) Were the PHA team members provided with all of the action items or recommendations formulated to resolve the latent conditions and the status of each; c) Did the PHA team evaluate the consequences of implementing action items or recommendations from the latent conditions review; and d) Did the PHA team leader use the results of the latent conditions checklist to focus the PHA revalidation (similar to MOC and II) to consider the effects of existing latent conditions on the frequency of and consequences associated with any active failure or unsafe act? [ISO Section 450-8.016(b)(1) and Section B: Chapter 4.2.1 of the CCHMP Safety Program Guidance Document]	Per section E.2.e, page 10, of Manual Section 2.0-6 SFR Process Hazard Analysis (PHA) dated 5/1/19, which states, "Human Factor and Facility Siting checklists are initially prepared by Operations representative assigned to the PHA. The policy further states, "the human factors and facility siting checklists must be completed prior to the initial start date of the existing PHA. If the Human Factors checklist has not been completed at the time of the first PHA meeting, it will be done as the first activity. Per interview with Process Safety Director, CCHS confirmed that the Human Factors checklist should be completed prior to starting the PHA study meeting then reviewed by the PHA Facilitator and distributed to the Team members prior to starting the PHA. The PHA team will review the Human Factors Recommendations after the PHA nodes are complete. Per review of the PHAs and Human factors Checklist, the Checklists were completed after the PHA was started. -- MP30 (Checklist completed on 10/11/19; PHA started on 7/8/19); -- U215 (Checklist completed on 5/4/18; PHA started on 4/30/18) The facility needs complete Human factors Checklist prior to conducting the PHA and provide PHA team members with copies of the completed checklist prior to the PHA meeting.	Ensure to complete the Human Factors Checklist prior to conducting the PHA and provide PHA team members with copies of the completed checklist at the beginning of the PHA.	Modify PHA protocols and first day agendas to ensure the Human Factors checklist was completed by Operations. If not completed, have the team complete the checklist before working the individual nodes and have copies available for all team members.	3/15/22

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A54-05	Has the owner or operator developed and implemented a method to ensure that they clearly understand their existing situation prior to making the organizational change including performing a human factors analysis? [T19 CCR §2762.15(c) & Section B: Chapter 7.2 of the CCHMP Safety Program Guidance Document]	CCHS reviewed form R-765 "Management of Organizational Change (MOOC) Procedure" which is to be completed when it is determined that an MOOC is appropriate for the organizational change. Page 2 of form R-765 is the "Safety and Environmental Responsibility Mapping Chart". This chart is a checklist for analyzing the position being changed and ensures that responsibilities are fully understood for the position and indicates where these responsibilities will be transferred when the organizational change occurs. Pages 3-4 of form R-765, "Identifying Potential Safety, Health, and Environmental Impacts", lists the positions which are identified on page 2, gives a brief description of each, identifies the potential safety impact of the increase/change in responsibilities, and ranks the priority of the change (high, medium, low). For potential safety impacts that are medium or high priority, the team must complete the impact assessment on pages 5-13 to fully analyze the impact that the change will have on responsibilities, including human factors. Per SME interview, in order to determine the existing situation the facility relies on documenting tasks and responsibilities for positions by asking personnel who filled the affected positions to discuss these tasks and responsibilities. Unsuccessful attempts have been made in the past to keep updated job descriptions, but the facility has found it more beneficial to discuss the job tasks and descriptions at the time of the review. MOOCs reviewed by CCHS indicate that the R-765 form has been properly filled out to address the existing situation and the impact for the two MOOCs which are not subject to CalARP/ISO requirements, but the impact assessment section for the "Board Consolidation" MOOC did not properly document where safety and environmental responsibilities would transfer and did not document associated action items when a potential impact was identified. Per CalARP Program 4 regulations, prior to conducting an MOOC the facility is required to evaluate the current job function descriptions for all affected positions. Review of the "Board Consolidation" MOOC, indicates that job function descriptions were not available to the team before the facility began conducting the MOOC. An ensure item was given during the last audit to "Ensure the MOOC team clearly understands the existing situation prior to making the organizational change by reviewing the job responsibilities/tasks for the affected personnel, complete all 'Impact Assessments', complete all appropriate signoffs and maintain the documentation." CCHS review of policy and SME interviews do not indicate that the facility appropriately documents the job tasks of the affected positions. The "Safety and Environmental Responsibility Mapping Chart" (Page 2 of form	Ensure that job tasks for affected positions are compiled prior to conducting the MOOC and included within the MOOC package. (modified repeat)	Revise Policy 5.0-4 Management of Organizational Change (MOOC) Section E.5.f to ensure the R-765 has sufficient documentation of the existing job tasks. The review will also verify that the documentation of the job tasks for the affected positions are in the MOOC package. See Consider item A54-05. §2762.6(k) describes the content of the written MOOC; "The MOOC shall be in writing and shall include a description of the change being proposed, the makeup of the team responsible for assessing the proposed change, the factors evaluated by the team; the rationale for the team's decision to implement or not implement the change; and the team's findings and recommendations." It does not discuss prioritizing job tasks or allocating tasks. These issues may be documented as findings and recommendations if the team identifies an issue.	6/15/22

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		R-765) and the "Identifying Potential Safety, Health, and Environmental Impacts" (pgs. 3-4) contains generic checklists to evaluate job tasks and allocation during the MOOC, but this does not meet the CalARP Program 4 regulatory requirement of having job function descriptions before the MOOC is conducted. Additionally, CCHS asks that the facility consider prioritizing the job tasks identified for an MOOC and specifically allocate these tasks to new or existing positions.			
A54-16	Did the owner or operator provide effective training to employees and employee representatives before serving on a MOOC team sufficient to understand the methodology and tools expected to be used? [T19 CCR §2762.4(e)]	Per Section E.4.c of the MOOC policy, team members will be provided training from the H&S department on the Human Factors Latent Conditions checklist questions and a review of the MOOC process. The training will include the importance of the team understanding the existing situation prior to the change and completing the documentation of all "Impact Assessments", and completing the required sign-offs on the MOOC forms. This training is supposed to be documented on an R-506 form that is to be included in the MOOC documentation file. Review of the only applicable MOOC did not include any documentation of training prior to the team serving on the MOOC team as stated in the policy. Per SME Interview, the only training that is conducted is prior to the MOOC beginning, the team goes over the R-765 MOOC Procedure. At a minimum this training should be documented, but CCHS encourages the facility to create a more formal training process so that all MOOC teams apply the procedure in the same manner.	Ensure that training on the methodology and tools expected to be used is provided to employees and employee representatives before serving on a MOOC team and this is documented.	Revise Policy 5.0-4 Management of Organizational Change (MOOC) Section E.5.f to ensure the R-506 and any additional training documentation and materials are included in the MOOC package before sign-off and implementation.	5/15/22

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A55-05	Does the Stationary Source ensure that employees and their representatives review the written human factors program on an established frequency and that any necessary revisions are incorporated? [Section B: Chapter 8.2 of the CCHMP Safety Program Guidance Document]	CCHS reviewed P&P Manual Section 3.0-2: Human Factors Program - ISO, PSM, CalARP, last reviewed on 07/16/2019. Per this policy, “the Latent Conditions Checklist will be reviewed on a 3-year basis coinciding with the policy update utilizing a team which will include representative employees to determine if the checklists reflect current conditions and if revisions are necessary." Per CCHS review, the policy was previously updated 04/01/2016 which would make the next policy update due on 04/01/2019. However, the policy was updated on 7/16/2019. More important was that per CCHS review and interview, a team which includes a represented employee has not reviewed the LCCs for necessary updates per the Human Factors Policy. Per a review of the MP-30 PHA which was conducted in 2019, the LCC template completed was revised on 10/11/2013 and has not been updated since. This was also an ensure item from the previous two CalARP/ISO audits. The MOOC checklist was last updated in 12/2016 and CCHS could not confirm if the LCCs for operating procedures was updated beyond 2013.	Ensure that the Latent Conditions Checklists (LCCs) are reviewed and updated on a 3-year basis per P&P Section 3.0-2 and the review includes a represented employee. (This is a second time repeat ensure item).	Policy 12.0-1 Policy & Procedure Manual - Access, Revisions, and Distribution will be revised to require the LCC checklists include a represented employee when conducting the periodic (at least 3 years) reviews. Reviews are documented on R-506 Form; 10/4/17 and 7/13/21.	4/15/22

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A58-05	Does the owner or operator ensure that the HCA team documents: a) Written recommendations to eliminate process safety hazards to the greatest extent feasible using first order inherent safety measures; b) Written recommendations to reduce any remaining process safety hazards to the greatest extent feasible using second order inherent safety measures; c) If necessary, the team shall also document written recommendations to address any remaining risks in the following sequence and priority order: 1) Effectively reduce remaining risks using passive safeguards; 2) Effectively reduce remaining risks using active safeguards; 3) Effectively reduce remaining risks using procedural safeguards; d) The individual rationales for the inherent safety measures and safeguards recommended for each process safety hazard? [T19 CCR §2762.13(f) and §2762.13(g)(5) and Section D.1.4 of the CCHMP Safety Program Guidance Document]	CCHS reviewed the ISS analysis presented in the three PHAs for the following processes: -- PHA for Unit 200: Relief and Blowdown System, completed July 19, 2018 -- PHA for Unit 215: Deisobutanizer and Caustic Trading System, completed October 5, 2018 -- PHA for Unit MP30, completed October 11, 2019 Based on CCHS review of the ISS Node in each of these PHAs, only a few actions were identified from the ISS node. The questions addressed are based on the County ISO requirements rather than P4 new CalARP requirements. The refinery should update the ISS Node in the PHA to address HCA approach to evaluate inherently safer systems. The refinery should also consider conducting the HCA analysis as a stand alone report as required by Program 4 CalOSHA requirement and the facility HCA policy. The HCA policy specifies that "HCAs must be performed within 6 months for each PHA recommendation for scenarios that have the potential to cause a major incident." However, per a review of the above PHAs and their recommended actions, CCHS noted that an HCA was not performed for each recommendation for scenarios that have the potential to cause a major incident. This is also required by P4 regulations and needs to be addressed for the PHAs that have been completed after October 1, 2017 to date and for all PHAs completed after October 1, 2020.	Ensure that the HCAs are performed by the HCA team for each PHA recommendation for scenarios that have the potential to cause a major incident and this needs to be addressed for all PHAs that have been completed since October 1, 2017 and all new PHAs.	Policy 2.0-14 HCA will be revised to address PHA recommendations in more detail. The completion of the HCA on PHA recommendations is documented in the HCA report for all PHAs after 10/1/2017	12/15/21

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A59-01	Has the owner or operator conducted an effective Process Safety Culture Assessment (PSCA) or Safety Culture Assessment (SCA) and produced a written report? [T19 CCR §2762.14(b) & ISO Section 450-8.016(h)]	CCHS reviewed P&P 15.0-1, Safety Culture Assessment (last reviewed 9/30/18) which describes the Safety Culture Assessment program at the facility. CCHS reviewed the most recent PSCA and found that it had been completed in 2015. This is outside the dates given by regulation which states that a previous SCA would have needed to be performed between April 1, 2016 and April 1, 2019. CCHS reviewed the SCA documentation of the previous 2 SCA's and per process safety (PS) SME, the next SCA is scheduled to be completed by the end of 2020 due to impacts of COVID-19.	Ensure that an SCA is completed as soon as	COVID disruptions have impacted the schedule for the SCA update. Phillips 66 is planning to conduct the SCA as soon as practical.	12/15/22

ATTACHMENT D

Summary of Consider Items

Summary of Consider Items and Proposed Remedies

ID#	*Question*	*Findings*	*Consider*	*Proposed Remedy*	*Due Date*
A37-02	Did the PHA, HCA. SPA & DMR team members have access to the compiled PSI while conducting the studies? [T19 CCR §2762.1(a) & ISO Section 450-8.016(a)(1)(A)]	CCHS reviewed the Process Safety Information Policy - P&P Manual Section 12.0-2 last reviewed 07/12/2019. Per this policy, a process safety information package (PSIP) must be developed for each facility process unit. The PSIP is defined as a standardized method to organize PSI into an electronic format available to affected individuals. Per a review of the PHA policy (P&P Manual Section 2.0-6), the PSI requirements are scattered throughout the policy but have not clearly specified that PSI documents must be developed/updated prior to conducting any process hazard analysis (PHA), Hierarchy of Control Analysis (HCA), Layer of Protection Analysis (LOPA) or Damage Mechanism Review (DMR). This requirement should be included in the PSI policy. Per the policy, the unit and system boundaries shall be consistent with those defined by the Refinery PHA Requirement Standard and Contra Costa County Industrial Safety Ordinance. CCHS reviewed three completed PHA reports associated with the following facilities: -- Unit 200: Coking, Relief and Blowdown -- Unit 215: Deisobutanizer and Caustic Trading System -- MP30 The above PHAs included P&IDs for the covered process PHA. All PSIP including P&IDs are also electronically available on intranet to the facility staff including operations and maintenance staff. Based on the review of the above PHAs and selected interview with the team members conducting PHAs and the associated studies, CCHS confirmed that team members had access to the compiled PSI while conducting the studies.	Consider revising the PSI policy to specify the requirement that PSI documents must be developed/updated prior to conducting any process hazard analysis (PHA), Hierarchy of Control Analysis (HCA), Layer of Protection Analysis (LOPA) or Damage Mechanism Review (DMR).	Policy 12.0-2 Process Safety Information (PSI) will be revised to specify that prior to conducting any PHA, HCA, SPA, or DMR, the PSI must be developed or updated.	6/15/22

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A37-17	Does the information pertaining to the equipment in the process include piping and instrumentation diagrams (P&ID's)? [T19 CCR §2762.1(d)(2) & ISO Section 450-8.016(a)(1)(A)(iv)]	The PSI Policy Section 2.0 addresses PSIP to include Piping and Instrumentation Diagrams (P&ID). These illustrate the piping, associated equipment, and instrumentation and control for the process. During a live navigation of PSI for Unit 215 and MP30, CCHS confirmed that the information pertaining to the equipment in the process include piping and instrumentation diagrams (P&ID's). CCHS conducted a field walk of two P&IDs and found some information missing on one of them. These should be corrected as follows: -- Unit 215 Gas Fractionation DIB & Reboiler, P&ID No. 0215-YD-001-002 st. 2 of 5, Rev. 11 -- Valve and blind not shown on drawing: Valve and blind outlet is located off the bottom of the 3” line F-705 & 1-1/3” F-703 line to F-705. -- Drawing is missing two sets of outlets and plug (caps) at E-703a on Line LS714-1-10 & at E-703a on Line LS703-1-3. -- Drawing is missing 1” outlet and plug off the 24” line from D-701 to E-703A between the TE750 and D-701.	Consider conducting field walks for Unit 215 to confirm the P&IDs accurately reflect what is in the field. Consider updating the P&IDs to reflect the field walks including those from CCHS findings from this question.	Phillips 66 will conduct field walks of Unit 215 to confirm the P&IDs and make updates to as necessary.	3/15/22

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A38-21	For corrective actions not within the timeline listed in question A38-23, has the owner or operator implemented interim safeguards sufficient to prevent the potential for a major incident, pending permanent corrections, and documented: a) The rationale for deferring the corrective action(s); b) The documentation required under the MOC process; c) A timeline describing when the corrective action(s) will be implemented; and d) An effective plan to make available the rationale and revised timeline to all affected employees and their representatives? [T19 CCR §2762.16(e)(14)]	Per section E.2.3.v, of P&P 2.0-6, the facility requires the Refinery Manager or a combination of the HSE Manager and one of the following: Maintenance Manager, Operations Manager, or the Technical Managers approval if they go beyond the regulatory requirements. Additionally, the policy requires any extension of the PHA target dates beyond the ISO, requires a demonstration to CCHS that the completion date is not feasible and an MOC is required. As a best practice, any recommendations that require CCHS approval for extension should be submitted at a minimum 2 weeks before the target date. CCHS notes that it does not grant extensions for recommendations going beyond the regulatory completion date and there is no guarantee that recommendation extensions will be reviewed within 2 weeks.	Consider updating the PHA policy to indicate that PHA recommendation extensions should be submitted to CCHS at least two weeks before the target completion date.	Section E.2.i.iv of Policy 2.0-6 PHA will be revised to include the two week guideline for requesting extensions to PHA completion dates.	3/15/22
A38-31	Did the owner or operator provide effective training to employees and employee representatives before serving on a PHA team sufficient to understand the methodology and tools expected to be used? [T19 CCR §2762.4(e)]	Per interview with the employee representatives, Operators that participate in the PHA and SPA (LOPA) receive all the necessary training in order to effectively participate in the study. CCHS confirmed through follow-up interviews with the Process Safety Director that PHA / SPA training is performed prior to starting the study. As indicated in A46-01, the facility did not perform HCAs on PHA recommendations. The facility should provide effective training to employees before serving on the HCA team and document the training. Because HCAs were not performed on the PHA Recommendations this is a consider item.	Consider providing effective training to employees before serving on the HCA team and then document the training.	Policy 2.0-14 HCA will be revised to include just in time training. Training documentation will be included in the HCA report. Alternatively, a training curriculum will be developed and delivered to affected employees.	3/15/22

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A41-13	Does/did the owner or operator establish a process for evaluating new or updated equipment codes and standards and implementing changes as appropriate to ensure safe operation? [T19 CCR §2762.5(d)(5]	CCHS reviewed P&P 6.0-10 (Labeling of Piping, last reviewed 10/1/18). This policy identifies that "uniform methods of labeling of piping contents and routing are encouraged to promote greater safety, and lessen the chances of error, confusion or inaction, particularly in times of emergency." The policy primarily concerns identification of the contents of piping systems carrying hazardous materials or process streams that is miss-routed or released to the environment could cause an incident with health, safety, environmental or operational impact. The policy also identifies that piping systems need to be labeled with block style lettering or by tape or permanent markers. CCHS found that the policy does not mention the need for colored safety bands or to include additional details such as temperature, pressure, etc., as are necessary to identify the hazard as suggested in ASME A13.1 (2015). ASME developed the standard to address the lack of uniformity across the Process Industry. The standard identifies that numerous injuries to personnel and damage to property have occurred because of mistakes made in turning valves on, or disconnecting pipes at the wrong time or place, particularly when outside agencies, such as municipal fire departments, were called in to assist. Furthermore, there has been considerable confusion in the minds of those who change employment from one plant to another. In order to promote greater safety, lessen the changes of error, confusion, or inaction, especially in times of emergency, a uniform system for the identification of piping contents has been established to warn personnel when the piping contents are inherently hazardous. Per SME interviews, P66 develops best practice documents through a Technical Networks Business Improvement Group based out of Houston. Each technical discipline has experts involved and are typically part of various national standard committees and provide feedback to P66 to keep up with new standards and changes to existing standards.	Consider modifying P&P 6.0-10 (Labeling of Piping) to discuss colored safety bands and when to include additional details such as temperature, pressure, etc., to identify the hazard as listed in ASME A13.1 (2015).	Phillips 66 declines this recommendation. Our company standard has not adopted the entirety of ASME13.1 at this time.	N/A

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A41-14	Does/did the owner or operator complete a Damage Mechanism Review (DMR) for each process for which a damage mechanism exists? [T19 CCR §2762.5(e)(1)]	CCHS reviewed the facility's Damage Mechanism Review policy (P&P 7.0-15, issued 5/20/19). This policy accurately summarizes the DMR requirements listed in the CalARP regulations. CCHS was informed that this policy was written to summarize the damage reviews performed to satisfy the revised OSHA Refinery PSM and CalARP Program 4 requirements. Per SME interviews and file review, P66 has completed damage mechanism reviews for their refinery processes for years. The site follows their corporate strategy for assessing damage mechanisms. Site materials engineers are sent to corporate training (e.g., "boot camp") to learn the various damage mechanisms common for each process unit. These damage mechanisms are summarized for each process and Reliability Operating Limits (ROLs) are developed to effectively monitor the processes. ROLs are what P66 calls Integrity Operating Windows (IOWs). The facility develops ME&I Checklists that summarize all of the damage mechanisms for each process and these checklists are used for each PHA review. The process used to date on assessing various damage mechanisms onsite has been used to develop the various equipment inspections (e.g., daily, monthly, annual). The facility maintains a schedule for completing Damage Mechanism Reviews (DMRs) to comply with Cal OSHA Refinery PSM and CalARP Program 4 regulatory requirements. To date, P66 has completed 4 official DMRs. The details of the DMR reports are described in A41-18. CCHS reviewed a schedule that identified that a total of 16 DMRs (53%) will be completed by 10/1/2020 and all 30 DMRs are to be completed by 10/1/2022. Per interviews, all processes onsite have some type of damage mechanism so DMR reports will be developed for each process. CCHS was informed that even though only 4 DMRs have been completed to date, they are considered a subset of the work that is performed onsite related to damage mechanisms done to date related to the site processes. P66 verbally assured CCHS that they are track on completing 12 more DMRs in the next 9 months. Nevertheless, a consider item has been issued to monitor this process.	Consider meeting with CCHS by September 1, 2020 to confirm the status and schedule of DMR development.	Phillips 66 had completed more than 50% of the DMRs by September of 2020. Remaining DMRs are scheduled for completion before the 5 year target.	12/15/21

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A41-19	Does/did the owner or operator resolve the DMR team's findings and recommendations, determine corrective action for implementation, track to completion, and document closeout? [T19 CCR §2762.5(e)(11)]	As described in A41-18, two DMR reports (dated March 2019) included recommendations to be addressed. CCHS was informed that all DMR recommendations are to be tracked to closure within IMPACT. CCHS confirmed that the two recommendations associated with DMR report U240-2 presented in A41-18 were entered into IMPACT on 1/29/20 although have not been identified as closed. Per SME interviews, one recommendation has been closed (replacement of heat exchanger). The U240-1 DMR recommendation has also been entered into IMPACT although the action is not due yet so remains open. CCHS reviewed the DMR policy, P&P 07.0-15, and was unable to confirm the policy identified that completed corrective actions were supposed to be appended to the final DMR report. CCHS reviewed P&P 10.0-3 (PSM - Cal ARP Program 4 Corrective Action Work Process, last reviewed 9/1/18) and was also unable to locate mention of appending corrective actions to the appropriate report. It is not a regulatory requirement for the various policies and procedures to include this statement although it may assist with compliance. Similar concerns were raised under other program policies so a consider action has been listed under Management Systems A49-14.	Consider improving the speed in which DMR recommendations are entered into IMPACT for closure tracking.	DMR recommendations are entered into the IMPACT system as soon as practical when the completed report is received.	12/15/21
A41-20	Did the owner or operator provide effective training to employees and employee representatives before serving on a DMR team sufficient to understand the methodology and tools expected to be used? [T19 CCR §2762.4(e)]	In reviewing P&P 7.0-15, CCHS was unable to locate mention of training DMR team members at the beginning of the DMR sessions. It is not a regulatory requirement for the DMR policy to include this information. Per SME interviews, the facility has completed four DMRs, one each for the four plants in Unit 240. Training was performed for the entire team involved. The training involved verbal discussion of the basis of process flow, piping circuits, damage mechanisms, mitigation techniques, linkage to ROLs, and how the study will be documented. At the conclusion of the training, a training form was completed and dated 3/25/19.	Consider updating P&P 7.0-15 to identify that DMR team members are to receive training at the beginning of the DMR sufficient to understand the methodology and tools expected to be used by the DMR team.	Phillips 66 will revise the DMR Policy 7.0-15 to describe the training provided to team members who participate in the DMR.	6/15/22

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A43-03	Does/did the stationary source confirm, as a verification check, independent of the management of change process, that prior to the introduction of regulated substances to a process that process equipment is maintained and operable in accordance with design specifications including construction, maintenance, and repair work performed? [T19 CCR §2762.7(b)(1-2) & ISO Section 450-8.016(a)(7)(B)]	CCHS reviewed the PSSR's for the MOCs from A42 and there is a question that asks "…the equipment been verified by operations as safe to operate and authorization is hereby given to start up the process/equipment that has undergone this change." This was for each of the MOC's and in the remarks section there is the following: "Approved for startup." For each of the PSSR's, the box was checked and the startup date given. The line between the MOC and the PSSR does not seem as clear as it should be. The facility should make sure that the actions to complete are done in the MOC and the verification check done in the PSSR.	Consider clearly defining activities and authorizations under the MOC and PSSR.	Phillips 66 declines to implement this consider item. Activities and authorizations under the PSSR and MOC programs are defined in the MOC/PSSR Policy 2.0-5. The KMS system is used to track and document the completion of pre-startup items and the approvals for startup. These activities are assigned to different employees. The project engineer must confirm that the actions from the MOC evaluations have been completed. The Area Superintendent approves the project startup after confirming that the PSSR items are done.	N/A

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A44-01	Has the owner or operator conducted an effective compliance audit every three (3) years and certified that the owner or operator has evaluated the procedures and practices developed under this Article to verify that the procedures and practices are in compliance with the provisions of this Article, and are being followed? [T19 CCR §2762.8(a) & ISO Section 450-8.016(a)(8)(A)]	CCHS reviewed the P&P Manual Section 14.0-6 : PSM/RMP Compliance Audit Process last reviewed 2/1/2018. Per this policy, the refinery H&S Audit Coordinator is responsible for confirming with the Corporate Lead Auditor that the scheduled audit start date falls within the site's required 3-year timeframe. The policy does not indicate that the refinery is required to conduct and certify compliance audits to comply with ISO requirements. CCHS reviewed the following three completed internal compliance audit reports: -- Internal Compliance Audit conducted on August 2-5, 2016 and issued on January 17, 2017 with certification by the site manager. -- Internal Compliance Audit conducted on September 10-19, 2013 and issued on December 17, 2013 with certification by the site manager. -- Internal Compliance Audit conducted on November 8-12, 2010 and issued on December 16, 2010 with a certification statement. Per interview, the most recent internal compliance audit was conducted from July 22 through August 1, 2019 by HSE corporate auditing team. A draft copy of this audit was made available to the refinery near the end of the CCHS CalARP audit but had not cleared the refinery legal review and was only shared with CCHS with limited observation of parts of the audit on 1/30/2020. This limited observation indicated that the audit included 3 members of the corporate auditing team and 8 other specialists from other refineries and the scope was to cover the requirements of Title 19 CCR 2735.1 through 2785.1 and the County ISO. The draft report identified a number of nonconformances presented in a table that included program category, risk ranking, nonconformances description and regulatory references. Per a review of the past two audits, there is thus a gap on complying with the requirement to complete a compliance audit and certify the audit every three years as the refinery had not formally issued their compliance audit report through the end of the current CalARP audit on 1/30/2020.	Consider updating the Compliance Audit policy to specify the refinery is required to conduct and certify compliance audits every three years to comply with CalARP/ISO requirements.	The Rodeo Refinery will revise the Compliance Audit policy, 14.0-6, to specify the refinery will conduct an audit and certify compliance every three years to comply with CalARP/ISO requirements.	3/15/22

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A44-07	Does the submitted RMP and Safety Plan accurately reflect the existing Compliance Audits Programs at the stationary source? [T19 CCR §2745.2(d) & ISO Section 450-8.016]	The RMP submitted 9/13/2019 Section 1.9 pages 39-40 and Safety Plan submitted 8/6/2018 page 23 generally reflect the existing Compliance Audits Programs at the stationary source. The facility should consider updating the RMP and Safety Plan to correct the number of past audits required to be retained from two to three.	Consider updating RMP Section 1.9, page 40, to specify that "Per the regulations, the last three compliance audit reports are retained." Consider updating the Safety Plan, page 23, to specify that "Minimally, the last three compliance audits are retained in the filing system."	RMP update will be done at next revision. ISO 450.8.016(a)(8) Compliance Audits (E) “The stationary source shall retain the two most recent compliance audits. Therefore, the Safety Plan does not need to be updated.	9/13/24
A44-11	As part of performing the compliance audit, has the owner or operator consulted with operators with expertise and experience in each process audited and documented the findings and recommendations from these consultations in the audit report? [T19 CCR §2762.8(f)]	The effective date of the P4 compliance audit requirement was 10/1/2017 making the first P4 compliance audit due no later than 10/1/2020. The most recent internal compliance audit was reported to have been conducted from July 22 through August 1, 2019 by HSE corporate auditing staff but the audit report had not been issued yet during the CalARP audit (January 2020). Per interview with the employee representatives, they were invited to attend the initial meeting with the Corporate Auditing team, but have not been offered a chance to review to close out the findings for compliance audits.	Consider inviting the employees and their representatives to offer them a chance to review to close out of the findings for compliance audits and document the consultations in the audit report.	Phillips 66 declines to implement this consider item because it is specifying an issue that is different from the regulatory text discussed in the finding. Phillips 66 has always had employee participation during audit closeout meetings. The requirement discussed is an issue that takes place during the compliance audit, not in the audit closeout meeting.	N/A

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A45-01	Has the owner or operator developed, implemented, and maintained effective written procedures for promptly investigating and reporting any incident that results in or could reasonably have resulted in a major incident, or catastrophic release of a regulated substance? [T19 CCR §2762.9(a) & ISO Section 450-8.016(a)(9)(A)] Does the Stationary Source ensure that a Root Cause Analysis is conducted for each Major Chemical Accident or Release (MCAR) and for each incident that resulted in or could have reasonably resulted in a major incident? [ISO Section 450-8.016(c)(1) and Section C of the CCHMP Safety Program Guidance Document]	Phillips 66 has established P&P tilted, "Element 10.0: Non-conformance, Investigation and Corrective Action", dated 5/15/19, which aims to set up uniform procedures to manage incidents and near misses at the San Francisco Refinery, find root causes, develop appropriate recommendations, complete recommendations and communication to stakeholders. Per Section D.2 "Incident Classification and Risk Ranking" of the policy, all incidents are first risk ranked and then classified as one of the following types of incidents Community Issues, Environmental, Injury/Illness, Process Safety Event, Property Damage / Loss, Quality, Security, Vehicle, serious incident, RMP Incident, MCAR, Environmental Incident, Process Safety Event, Major Incident, catastrophic release. P66 uses the Corporate HSE Risk Matrix for assessing the relative importance of all incidents. The matrix is comprised of a 1 to 5 numerical scale for event likelihood and severity which produces a risk rank. Risk rank is categorized of a scale I-IV (I-low, II=Medium, III = significant, and IV-High). Major Incident is defined by both Cal OSHA 5189.1 and CalARP 2735.3. The facility has developed a flow chart for verifying if incidents meet Major Incident definition. The flow chart lays out the definition in facile form but it is based on Cal OSHAs definitions of Major Incident and not CalARP, which they are slightly different. Per the flow chart (and Cal OSHA), process events that include the Highly Hazardous Material that results in a Shelter in Place or Evacuations is a Major Incident, but technically per CalARP Major Incidents are only when the evacuation or shelter in place is "officially declared public shelter-in-place" or a "[officially declared public] evacuation order". Onsite evacuation and shelter in place alone does not qualify as a Major Incident. The facility should consider clarifying the flow chart to reflect the regulatory language. Per the policy, the most comprehensive investigative method is "Full Team", which is performed for all incidents or near miss incidents with a risk ranked category III or IV, major incidents, near miss MCAR and MCAR. The "Full Team" investigative process uses a Root Cause Analysis Methodology, TapRoot or Cause Mapping. CCHS notes that TapRoot is a methodology that the county recognizes as including human factors to investigate MCAR or near miss MCARs. The facility has also developed a Human Factors Pre-Checklist (R-10.0-7) that is required for MCAR and near miss MCAR events. Per review of the incidents and through interviews, the facility has not had any MCAR events	Consider clarifying the site's Major Incident flow chart to reflect the CalARP regulatory language for officially declared public shelter-in-place, or evacuation order.	Phillips 66 will revise the Major Incident flowchart in Policy 10.0-1 to include "officially declared" in the box associated with "shelter-in-place" and "evacuation order".	3/15/22

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
		or Major Incidents dating back to the previous CalARP/ISO.			
A45-07	Does the RCA/ Incident investigation report include the following: a) Date and time of the incident; b) Date and time the investigation began; c) A detailed description of the incident; d) The factors that caused or contributed to the incident, including direct causes, indirect causes and root causes, determined through the root cause analysis; e) A list of any DMR(s), PHA(s), HCA(s), and Safeguard Protection Analyses (SPA(s)) that were reviewed as part of the Investigation; f) Interim recommendations to prevent a recurrence or similar incident [Section 2.2.3 of the CCHMP Safety Program Guidance Document]; g) Recommendations for permanent corrective action [T19 CCR §2762.9(i)] h) Whether the cause of the incident and/or recommendations resulting from the investigation are specific only to the process or equipment involved in the incident, or are applicable to other onsite processes or equipment? [ISO Section 450-8.016(a)(9)(D)]	P66 has developed two report templates for documenting incident investigations, document R-10.0-4 Small/Technical Team Report and document R-10.0-5 Full Team Report Template. Both reports templates include the following information -- Date of the incident; -- Description of the incident -- Incident Causes -- List of recommendations Form R-10.0-4 template for small team does not include the date and time the investigation began, but per policy the investigation must begin in 48 hours and is included in the IMPACT report. CCHS confirmed that the full team investigations include the time and date the investigation begin. Per interview with SME all RCA investigations identify both root cause and contributing/indirect causes. Per review of the full team and small team investigation and IMPACT reports, they included the date and time of the incident. CCHS notes that as part of the industrial safety ordinance, all incidents which resulted in, or could reasonably have resulted in a catastrophic release (as defined by ISO not CalARP) of a regulated substance, the investigation reports, need to include a written summary to indicate whether the cause of the incident and/or recommendations resulting from the investigation are specific only to the process or equipment involved in the incident, or are applicable to other processes or equipment at the stationary source. The facility should consider updating both Incident Report Templates to describe whether the causes of the incident are specific to the process/equipment or are they applicable to other processes/equipment.	Consider updating Incident Report Templates and/or associated policies to document whether the causes of the incident are specific to the process/equipment or to other processes/equipment.	Phillips 66 will develop a new incident report template for use during an investigation of event that resulted in, or could reasonably have resulted in the catastrophic release of a regulated substance that will include a section that will indicate whether the cause of the incident or recommendations are applicable to the process or equipment involved or are applicable to other processes or equipment.	12/15/21

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A45-16	Do the submitted RMP and Safety Plan accurately reflect the existing Incident Investigation Program at the stationary source? [T19 CCR §2745.2(d) & ISO Section 450-8.016]	Both the submitted RMP, dated 9/13/19, and the Safety Plan, dated August 6, 2018, generally describes the Incident Investigation Program but do not include some of the key updates including a descriptions of Major Incident. The facility should update the RMP and Safety Plan to accurately describe Major Incident.	Consider updating the RMP to include investigating Major Incidents within the Incident Investigation Program.	RMP will be updated at next revision. ISO does not have requirements for major incident, therefore the Safety Plan does not need updating.	9/13/24
A49-14	Does the Program policies and procedure ensure that the findings, recommendations, and corrective actions for all ARP programs such as PHA's, DMRs, HCAs, SPAs, incident investigations, compliance audit and MOC's are communicated effectively to the employees and employee representatives? [T19 CCR §2762.16(b)(4) & Section A.1.2.1 of the CCHMP Safety Program Guidance Document]	The facility's employee participation plan (described in A46-01) outlines how employees are involved with the various CalARP program 4 elements. CCHS was informed that the employees who participate within the various safety programs are the means used to effectively communicate findings, recommendations and corrective actions. Program 4 also requires the owner or operator to track each corrective action item to completion and append the documentation of completion to the applicable PHA, DMR, HCA, SPA, compliance audit, or incident investigation report [T19 CCR §2762.16(e)(15)]. Based on CCHS' review of these program elements, CCHS was unable to confirm that completed corrective actions associated with PHAs (see A38-28), DMRs (see A41-18), or SPAs (see A51-13) were appended back to the official written reports. If the official reports for these studies are maintained electronically, CCHS believes that completed corrective action items need to be placed within the same electronic directory as the study. As described in A58-01 and A58-06, CCHS was unable to locate any HCAs performed. As described in A45-01 and A45-10, there have been no qualifying major incidents. As described in A44-01, CCHS was unable to review the 2019 compliance audit so is unaware whether any corrective actions were issued or completed to be appended back into the report. Also, it is unclear to CCHS that completed corrective actions would be appended back into any of the following study reports given the lack of clarity in the associated program policies: PHA, DMR, HCA, SPA, or compliance audit. Incident investigations are reported through IMPACT so any investigations associated with a major incident would automatically append the closed-out recommendations to the report. CCHS also reviewed P&P 10.0-3 (PSM - Cal ARP Program 4 Corrective Action Work Process, last reviewed 9/1/18) and was unable to locate mention of appending corrective actions to the appropriate report. It is not a regulatory requirement for the various policies and procedures to include this statement although it may assist with compliance.	Consider updating the Corrective Action Work Process policy (P&P 10.0-3) and associated policies to identify that completed corrective action items need to be appended to the appropriate report.	This is an ENSURE Action A49-14. PHA §2762.2(k) SPA §2762.21(h) DMR §2762.5(e)(11) HCA §2762.13(h) Inc Inv §2762.9(l) Audit §2762.8(d) Each have provision to track and document actions IAW §2762.16 (e)(15) "…append the documentation of completed action items to the applicable…report" Policies will be revised to address this provision.	3/15/22

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A50-02	Did the owner or operator's human factors analysis use an effective method in evaluating the following: a) Staffing levels; b) Shift work; c) Overtime; d) The complexity of tasks; e) The length of time needed to complete tasks; f) The level of training, experience, and competency of employees; g) The human-machine and human-system interface; h) The physical challenges of the work environment in which the task is performed; i) Employee fatigue, including contractor employees and other effects of shiftwork and overtime; j) Communication systems; and k) The understandability and clarity of operating and maintenance procedures? [T19 CCR §2762.15(c) and ISO Section 450-8.016(b)(3)]	CCHS reviewed San Francisco Refinery (SFR) Policies and Procedures Manual, Manual Section 3.0-2, Human Factors Program - ISO, PSM, CalARP (revised 7/16/19). The Human Factors (HF) Program addresses HF in PHA; human systems as causal factors in incident investigation for MCAR (major chemical accident or release) or for an incident that could reasonably have resulted in an MCAR; training of employees in HF; consideration of HF in development of operations and maintenance procedures; MOOC prior to staffing changes for changes in permanent staffing levels/reorganization in operations, maintenance, health and safety or emergency response (staffing changes longer than 90 days are considered permanent); consultation with employees and their representatives in the development and continuous improvement of HF program; the ongoing evaluation of management issues such as staffing, shiftwork and overtime. CCHS also reviewed P&P 1.1, Fatigue Management Policy (revised 11/22/19) which describes the requirements for the Fatigue Management Program. The policy states that the facility will use its own standards unless there is a state, local, or federal standard that is more stringent. In section P&P 1.1-22, the policy lists the maximum hours that an operator can work (this includes extended shifts), the number of consecutive days that a person can work during normal operations and outages, and the minimum time off that an operator must have before the next work-set. CCHS reviewed the checklist used by the facility which is the County's Latent Conditions Checklist from June 2011. CCHS also reviewed the Human Factors Checklist Training (no date) slides that were used to train the operators on the use of HF/LCC checklist for PHA's. None of the checklists included complexity of task or contractor fatigue. Per CCHS interview with the Process Safety (PS) SME, the facility does perform an analysis on the complexity of tasks whenever an issue comes up during an operating procedure, maintenance procedure, or wherever else a human factors evaluation is needed. However, there is nothing written in the HF checklist indicating an evaluation of complexity of task. There is also nothing on any of the HF checklists reviewed by CCHS indicating an evaluation of contractor fatigue would be part of the HF analysis. CCHS was informed by the SME that the facility expects the contractor companies to monitor the work hours and to follow the fatigue management policy but the facility does not currently review this data as part of the contractor fatigue management program.	Consider adding to the human factors checklists the need to evaluate the complexity of task as appropriate.	Phillips 66 will revise the human factors checklists to add "complexity of tasks" with references to the appropriate items that evaluate the complexity of tasks.	3/15/22

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A51-13	Did the Stationary Source prepare a written report including: a) Potential initiating events and their likelihood and possible consequences, including equipment failures, human errors, loss of flow control, loss of pressure control, loss of temperature control, loss of level control, excess reaction or other conditions that may lead to a loss of containment; b) The risk reduction achieved by each IPL for each initiating event; c) Necessary maintenance and testing to ensure that all IPLs function as designed; d) Recommendations to address any deficiencies identified by the SPA; and e) SPA performed is in accordance with the standard of practice applicable to the type of analysis conducted? [T19 CCR §2762.2.1(f) & ISO Section 450-8.016(j)(4)]	Within each LOPA scenario, the facility identifies the initiating event frequency, which appears to confirm to CCPS LOPA guidance. The facility clearly identifies which safeguards are identified "IPLs" and the risk reduction achieved. Section E.2.k.i, page 17, of policy 2.0-6 states, "SPA (LOPA) Reports shall be completed within 30 days of completion of the LOPA analysis." The SPA technically consists of LOPA study completed by the team and independently review by a SIS engineer and an independent management review. Per interview with Process Safety Director, once the independent reviews are complete the SPA / PHA report is issued in a combined report to management for final approval. The facility should consider documenting the date the independent SIS review was complete and the independent management review within the PHA report. An ensure action item was given in A38-26 to complete the PHA /LOPA reports in a timely manner. Per interview with SIS Engineer and LOPA SME, the SIS based IPLs are verified using methods described in ISA 84.00.01. As discussed in further details in questions A41-04 & A41-09, SIL verifications is maintained in a database, that includes each element of the system. The facility's should consider documenting within the LOPA report a verification that includes the SIL rating, and other applicable information such as voting scheme, Probability of Failure, demand mode, and targeted verification schedule.	Consider documenting in the PHA / LOPA report the dates of the independent reviews completed by SIS Engineer and Management.	Phillips 66 declines to implement this consider item. The management review dates are documented as the report publication date since this occurs directly after the management review.	N/A

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A51-14	Did the Stationary Source update and revalidate the safeguard protection analysis at least once every five years and maintain all SPA documentation for the life of the process? [ISO Section 450-8.016(j)(2) and T19 CCR §2762.2.1(i)]	CCHS notes that the 5-year revalidations under Program 4 is not yet applicable since the regulation went into effect October 1, 2017. In practice the LOPA process is completed following the PHA and will follow the same schedule however this is not documented in the PHA policy. The facility should consider updating the PHA policy 2.0-6 to indicate the SPA will be completed following the PHA. Section E "Policy Requirements" page 3, states "PHA and Safeguard Protection Analysis (SPA) documentation, including resolution of the recommendations, shall be retained for the life of the process." Per interview with SME the recommendations are being tracked in IMPACT database and being appended to the report. The facility needs to append the completed PHA and LOPA recommendations to the report. Since the PHA / LOPA reports are managed in electronic form the recommendations could be either attached to the electronic document or archived in the same electronic depository. An ensure action item was given in A49-14.	Consider updating the policy to indicate the SPA will be started immediately following the completion and review of the PHA nodes.	P66 declines to implement this consider item. In some cases, the SPA may be executed in parallel, in some cases immediately after and in some cases shortly after the PHA completion.	N/A
A51-15	Did the Stationary Source complete all SPAs for the PHA within 6 months of completion of the PHA? [T19 §2762.2.1(d)]	Per interview with the Process Safety Director, the Safeguard Protections Analysis are completed immediately following the PHA Study, however this is not spelled out in the PHA policy. CCHS notes that the PHA and SPA (LOPA) were presented in one combined report. CCHS reviewed the activity tracking log within the PHA report and compared that to the LOPA report date and determined that the LOPA was complete within 6 months of the PHA Study. -- Relief & Blowdown PHA completion 2/9/18, LOPA report date July 19, 2018. -- Unit 215 PHA completion on 5/16/18, LOPA report date October 2018. The facility should consider updating their PHA policy, to state the SPA (LOPA) will be completed within six months of the completion of the PHA to meet the CalARP regulation. Alternatively the facility may also consider updating their PHA policy to indicate the combined PHA SPA (LOPA) study will be complete 6 months after the start of the PHA to align with their own intended practice.	Consider updating the PHA policy to indicate that the LOPA Report will be issued 6 months from the start date of the PHA to align with SFR's current intended practice.	The Policy will be revised to indicate that the LOPA report will be issued 6 months from the start date of the PHA to align with SFR's current practice.	3/15/22

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A51-18	Did the owner or operator provide effective training to employees and employee representatives before serving on a SPA team sufficient to understand the methodology and tools expected to be used? [T19 CCR §2762.4(e)]	Per interview with the Process Safety Director, training is administered by a facilitator to the team members before the SPA (LOPA) process begins. Per interview with Employee Representative, they confirmed that PHA and LOPA training was administered. They further clarified that if there is any questions regarding the process employees are encouraged to ask for clarifications. CCHS notes that although the facility has not documented training, through interview with employees there is sufficient evidence to suggest it is being completed. CCHS, recommends for the facility to consider documenting the just-in-time PHA / SPA (LOPA) training in a R-506 form and include it in the final SPA report.	Consider documenting the just-in-time PHA / SPA (LOPA) training in a R-506 form and include it in the final SPA report.	Phillips 66 will improve the PHA report format to better capture the dates and attendees for the PHA/SPA training.	6/15/22
A53-09	Has the Stationary Source trained employees responsible for developing and maintaining the procedures in rules for writing effective instructions? [Section B: Chapter 6.1.2.5 of the CCHMP Safety Program Guidance Document]	OPERATING PROCEDURES: CCHS was informed through SME interviews that general guidelines for operating procedures have been listed in P&P 6.1-4 (Operating Procedures Formatting and Writing Elements, last reviewed 9/17/18). This policy identifies that certain rules for writing operating procedures have been incorporated into the procedure templates. Per SME interviews, two types of training have been developed. One for the procedure writing tool used onsite, MobilOps, and one for the site's operating procedure guidelines. CCHS reviewed the MobilOps Manual, dated April 2019, and the Operating Procedure Risk Assessment & Procedure Writing guideline, dated 4/18/19. Per SME interviews, select operators have been assigned as procedure writers as an additional duty (i.e., not a stand-alone or temporary assignment). Typically, there is one procedure writer at each process unit. Initial training is provided for each procedure writer on the Mobil Ops software and on the facility's procedure writing policies. CCHS reviewed training records (class sign-in sheets) for procedure writers and confirmed that many operators have been trained in the last three years. Per SME interviews and records review, CCHS was unable to confirm a system has been maintained to track who needs this training after the previous training SME retired. MAINTENANCE PROCEDURES: CCHS was provided with training records for personnel trained on writing maintenance procedures. Maintenance procedures are not located within Mobil Ops so no training for that program was required. Records provided were sign-in sheets. Similar to above, CCHS was unable to confirm a system exists to track maintenance employees who received this training.	Consider developing and maintaining a tracking tool to verify employees writing procedures received initial training and refresher training on procedure writing.	Phillips 66 will improve the documentation of training to employees who are involved with writing maintenance procedures.	6/15/22

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A53-12	Does the Stationary Source ensure that only current, approved versions of procedures are accessible to employees and any other person who works in or near the process area or who maintains a process? [T19 CCR §2762.3(b & c) & ISO Section 450-8.016(a)(2)(D)]	OPERATING PROCEDURES: P&P 6.1-2 (Operating Procedure Development and Document Management, last reviewed 11/1/18) identifies that controlled electronic copies of all procedures are maintained accessible online through LiveLink. The facility maintains binders of printed operating procedures to be used in case of a power outage and the electronic copies are not available. These binders are maintained by the Training Group. Per SME interviews and review, electronic operating procedures are the official versions. Prior to performing a task, each operator is asked to print out the applicable procedure to take out into the field. CCHS was informed that the footer of each procedure is supposed to identify when the procedure was printed. CCHS reviewed over 20 operating procedures and found the date within the footer to be inaccurate for at least 9 of them (e.g., RNOP-603-OPS, ROL-001-MP, ROL-001-215, EIP-001-215, EIP-001-MP, NOP-705-MP, EOP-001-FLRE, EOP-001-MP, EOP-001-215). CCHS verified that paper copies of emergency procedures are maintained within binders within the central control room. MAINTENANCE PROCEDURES: Similar to operating procedures, only electronic copies of maintenance procedures are official. Maintenance procedures are accessible to all maintenance crafts and their supervisors.	Consider correcting the glitch when printing operating procedures such that the footer correctly lists the "printed on" date.	Phillips 66 will correct the "printed on" date for applicable procedures during the periodic review and revision process.	4/15/22

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A54-05	Has the owner or operator developed and implemented a method to ensure that they clearly understand their existing situation prior to making the organizational change including performing a human factors analysis? [T19 CCR §2762.15(c) & Section B: Chapter 7.2 of the CCHMP Safety Program Guidance Document]	CCHS reviewed form R-765 "Management of Organizational Change (MOOC) Procedure" which is to be completed when it is determined that an MOOC is appropriate for the organizational change. Page 2 of form R-765 is the "Safety and Environmental Responsibility Mapping Chart". This chart is a checklist for analyzing the position being changed and ensures that responsibilities are fully understood for the position and indicates where these responsibilities will be transferred when the organizational change occurs. Pages 3-4 of form R-765, "Identifying Potential Safety, Health, and Environmental Impacts", lists the positions which are identified on page 2, gives a brief description of each, identifies the potential safety impact of the increase/change in responsibilities, and ranks the priority of the change (high, medium, low). For potential safety impacts that are medium or high priority, the team must complete the impact assessment on pages 5-13 to fully analyze the impact that the change will have on responsibilities, including human factors. Per SME interview, in order to determine the existing situation the facility relies on documenting tasks and responsibilities for positions by asking personnel who filled the affected positions to discuss these tasks and responsibilities. Unsuccessful attempts have been made in the past to keep updated job descriptions, but the facility has found it more beneficial to discuss the job tasks and descriptions at the time of the review. MOOCs reviewed by CCHS indicate that the R-765 form has been properly filled out to address the existing situation and the impact for the two MOOCs which are not subject to CalARP/ISO requirements, but the impact assessment section for the "Board Consolidation" MOOC did not properly document where safety and environmental responsibilities would transfer and did not document associated action items when a potential impact was identified. Per CalARP Program 4 regulations, prior to conducting an MOOC the facility is required to evaluate the current job function descriptions for all affected positions. Review of the "Board Consolidation" MOOC, indicates that job function descriptions were not available to the team before the facility began conducting the MOOC. An ensure item was given during the last audit to "Ensure the MOOC team clearly understands the existing situation prior to making the organizational change by reviewing the job responsibilities/tasks for the affected personnel, complete all 'Impact Assessments', complete all appropriate signoffs and maintain the documentation." CCHS review of policy and SME interviews do not indicate that the facility appropriately documents the job tasks of the affected positions. The "Safety and Environmental Responsibility Mapping Chart" (Page 2 of form	Consider prioritizing compiled job tasks for normal operation, emergency operation, and startup/shutdown and allocating the tasks to new or existing positions after clearly understanding their existing situation.	Phillips 66 will revise the policy as stated in Ensure finding A54-05 but declines to compile prioritize job tasks as described since the process already contains a method to evaluate the potential risk and transfer to other positions when necessary.	N/A

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
		R-765) and the "Identifying Potential Safety, Health, and Environmental Impacts" (pgs. 3-4) contains generic checklists to evaluate job tasks and allocation during the MOOC, but this does not meet the CalARP Program 4 regulatory requirement of having job function descriptions before the MOOC is conducted. Additionally, CCHS asks that the facility consider prioritizing the job tasks identified for an MOOC and specifically allocate these tasks to new or existing positions.			

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A58-05	Does the owner or operator ensure that the HCA team documents: a) Written recommendations to eliminate process safety hazards to the greatest extent feasible using first order inherent safety measures; b) Written recommendations to reduce any remaining process safety hazards to the greatest extent feasible using second order inherent safety measures; c) If necessary, the team shall also document written recommendations to address any remaining risks in the following sequence and priority order: 1) Effectively reduce remaining risks using passive safeguards; 2) Effectively reduce remaining risks using active safeguards; 3) Effectively reduce remaining risks using procedural safeguards; d) The individual rationales for the inherent safety measures and safeguards recommended for each process safety hazard? [T19 CCR §2762.13(f) and §2762.13(g)(5) and Section D.1.4 of the CCHMP Safety Program Guidance Document]	CCHS reviewed the ISS analysis presented in the three PHAs for the following processes: -- PHA for Unit 200: Relief and Blowdown System, completed July 19, 2018 -- PHA for Unit 215: Deisobutanizer and Caustic Trading System, completed October 5, 2018 -- PHA for Unit MP30, completed October 11, 2019 Based on CCHS review of the ISS Node in each of these PHAs, only a few actions were identified from the ISS node. The questions addressed are based on the County ISO requirements rather than P4 new CalARP requirements. The refinery should update the ISS Node in the PHA to address HCA approach to evaluate inherently safer systems. The refinery should also consider conducting the HCA analysis as a stand alone report as required by Program 4 CalOSHA requirement and the facility HCA policy. The HCA policy specifies that "HCAs must be performed within 6 months for each PHA recommendation for scenarios that have the potential to cause a major incident." However, per a review of the above PHAs and their recommended actions, CCHS noted that an HCA was not performed for each recommendation for scenarios that have the potential to cause a major incident. This is also required by P4 regulations and needs to be addressed for the PHAs that have been completed after October 1, 2017 to date and for all PHAs completed after October 1, 2020.	Consider updating the ISS Node in the PHA to address HCA approach to evaluate inherently safer systems.	Phillips 66 intends to update the HCA process, including the node in the PHA to improve the evaluation process.	6/15/22

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A58-11	Does the owner or operator perform and document Inherently Safer System analyses / Hierarchy of Hazard Control Analyses for existing processes through the existing PHA review? [T19 CCR §2762.13(a) and Section D.1.2 of the CCHMP Safety Program Guidance Document]	As stated in A58-10, currently the facility performs and documents Inherently Safer System analyses for existing processes as a node evaluated as part of the PHA. CCHS recommends that the facility develops an HCA schedule so that 100% are complete by 9/22/2022.	Consider developing an HCA schedule so that 100% of HCAs for existing processes and the remaining processes are completed by 9/22/2022.	Phillips 66 will develop a schedule.	12/15/22
A58-16	Does the owner or operator provide effective training to employees and employee representatives before serving on an HCA team sufficient to understand the methodology and tools expected to be used including: a) Identification and use of first order inherent levels, then second order inherent and then address remaining risk using passive, active and procedural risk reduction categories; b) Use of the different categories of risk reductions; c) Approaches to apply ISS including minimization, substitution, moderation, and simplification? [T19 CCR §2762.4(e), §2762.13(f) & Section D.1.3 of the CCHMP Safety Program Guidance Document]	The three PHAs reviewed confirmed that the PHA/ISS team received just in time training on ISS during the PHA and before completing ISS node in each of the PHAs. CCHS reviewed the ISS questions used in the ISS Node that currently use the approach from the CCHS ISO Process Safety Guidance document. The refinery management should consider updating the just in time training for operator representatives and process engineers that are planning to participate in conducting 50 percent of HCAs for the existing processes to complete them by September 29, 2020.	Consider updating the just in time ISS training for operator representatives and process engineers to be more reflective of performing HCAs.	Phillips 66 will update the HCA/ISSA training to cover the HCA requirements.	3/15/22

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A58-22	Do the submitted RMP and Safety Plan accurately reflect the Inherently Safer Systems/HCA Program at the Stationary Source? [T19 CCR §2745.2(d) and ISO Section 450-8.016 and Section E.5 of the CCHMP Safety Program Guidance Document]	The RMP submitted 9/13/2019 Section 1.14 page 52 and Safety Plan submitted 8/6/2018 page 71 reflect the Inherently Safer Systems/HCA Program at the Stationary Source. The facility should update the RMP to correct Section 1.14 page 52 to indicate that HCA analysis also needs to be conducted to meet the CalARP Program 4 requirements.	Consider updating the RMP to correct Section 1.14 page 52 to indicate that HCA analysis also needs to be conducted to meet the CalARP Program 4 requirements.	The section noted is titled Hierarchy of Hazard Control Analysis (Program 4 requirement). The section will be revised during the next RMP update.	9/13/24
A59-06	Does the Stationary Source also maintain the following records for each Safety Culture Assessment: a) Criteria for rejection of any results or findings, b) Criteria used for determining if no actions will be taken on assessment results or recommendations, c) Rationale for prioritization of action items, d) Documentation of communications to work force, e) Qualitative and quantitative comparisons in subsequent assessments of whether improvement plans affected observable safety behavior or culture? [Section F.8 of the CCHMP Safety Program Guidance Document]	CCHS reviewed P&P 15.0-1 which states that recommendations are developed for action items and that the recommendations must be approved by the RLT (refinery leadership team). It also states: "Recommendations may be rejected with the approval of an RLT member but must have documentation explaining the reason." The policy states that the review team by consensus sets the items of priority from all deficient areas. The completed report is to be shared with all employees and contractors. CCHS was unable to locate mention in the policy that the facility will document that the report was shared.	Consider adding to the Safety Culture Assessment policy the need to document communication of the report to the workforce.	Phillips 66 will revise the SCA policy to describe the need to document communication of the report to the workforce.	12/15/21

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A59-07	Was the written PSCA report: a) Meeting the CalARP requirements developed within 90 calendar days of completion of the assessment; b) Developed with employee participation pursuant to the employee participation program; c) Made available and communicated with the action plan to employees, their representatives and participating contractors within 60 days of the completion of the report? [T19 CCR §2762.14(d & h)]	CCHS reviewed the last SCA which was completed in 2015. See A59-01 for more information on the status of the SCA. The SCA policy does not address some of the items in this section e.g., the need to develop a written report within 90 days of the completion of the assessment. The facility should make sure that the policy includes the topics (a)-(c) of the question [T19 CCR §2762.14(d & h)].	Consider updating the policy so that it includes the items from T19 CCR §2762.14(d & h) in the regulation.	Phillips 66 will update the policy to include the T19 CCR §2762.14(d & h) requirements; §2762.14(d) …report within 90 days §2762.14(h) …report, action plan, and assessments communicated within 60 days	12/15/21