PRELIMINARY DETERMINATION

Martinez Refining Company LLC
3485 Pacheco Blvd.
P.O. Box 711
Martinez, CA 94553

Site ID: 729718
CERS ID: 10476676

April 30, 2021

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 Martinez Refining Company LLC (MRC) in Martinez, 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 25, 2021 through March 3, 2021.

CCHSHMP is required to conduct an audit/inspection of MRC 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 MRC. 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 8 operators, 3 maintenance, and approximately 28 "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 MRC 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 MRC responsible for overseeing the implementation of the CalARP/ISO/RISO Programs. In general, the facility's management system was found to be well developed and the various CalARP and ISO programs incorporated into routine senior management reviews to ensure programs are being properly monitored and managed, including frequent meetings between program owners, subject matter experts and focal points. Process safety metrics have been established within each program to assist with monitoring activities. The facility changed ownership in 2020 and CCHSHMP found that senior management oversight was strengthened as a result. Although CCHSHMP did identify some areas for improvement in this audit, no program appeared deficient based on a lack of management oversight or one that needed additional oversight.

CCHSHMP identified 5 deficiencies and 23 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 33 deficiencies/partial deficiencies from the previous (2018) audit and documented the findings in each questionnaire. Four of these

actions were not adequately addressed and were repeated (A38-07, A48-11, A59-05, A59-09) in the 2021 audit.

CCHSHMP also generated 33 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 MRC to incorporate (e.g., consider consistently documenting nodes and topics covered for each PHA session). 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, MRC 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 MRC 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.

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:

PBF Energy
Martinez Refining Company
3485 Pacheco Blvd.
P.O. Box 711
Martinez, CA 94553

Site ID: 729718

December 8, 2020

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 PBF Energy's Martinez Refining Company (MRC), located in Martinez, 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 MRC.

II. ALLOCATE RESOURCES

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

1 - CalARP Program 4 questionnaires include ISO/RISO requirements

In response to the Contra Costa County Health Orders issued on 3/16/20, along with various updates through November 2020, for the health and safety of both Contra Costa Health Services Hazardous Materials Programs (CCHSHMP) staff and MRC employees, the audit plan has been modified to reflect a virtual auditing approach. This virtual auditing process will allow CCHSHMP to continue to conduct audits via documentation review and, as appropriate, will incorporate video or teleconference Subject Matter Expert (SME) and employee interviews. Common field verification activities that are normally performed during audits may not be completed at this time. However, CCHSHMP may elect to work with MRC to complete these activities in the future. As a result of these modifications Sections III through IX and Appendix D have been modified to include more detail of the modifications or reflect activities that may not be done at this time.

III. PURPOSE & SCOPE

The primary purpose of this audit/inspection is to evaluate MRC'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 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 MRC. 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 MRC 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 25, 2021, the starting date of this audit/inspection.

This audit/inspection's regulatory scope includes 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 request photographs in the field or a video field meeting for select critical items to document 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. CCHSHMP will prepare document requests, including specific records to be reviewed as part of this virtual audit. All documents will be accessed and shared electronically by audit team members and MRC staff utilizing available programs such as Microsoft Teams, WebEx, Skype, Dropbox, SharePoint or other network or cloud-based tools as agreed upon with CCHSHMP. Within 14 days of the closing audit meeting, CCHSHMP will delete any downloaded or shared files provided. We kindly ask that you allow access to the documents in the shared drive provided for the audit for two additional weeks to allow for a more efficient post-audit quality control review.

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 virtually with MRC personnel to review employees' organizational charts and the existing shift schedule. Understanding that as part of the COVID-19 response that there may be minimal people available on-site, CCHSHMP will work with the facility to perform select phone/teleconference interviews with employees as available. There will be no target percentage. CCHSHMP will also work with MRC to address concerns for represented employees as applicable.

CCHSHMP shall also meet with "key personnel" responsible for each CalARP and ISO Program requirement. Interviews shall be done utilizing available phone or available teleconferencing tools such as Microsoft Teams, WebEx, Skype, or video and audio meeting tools.

CCHSHMP will not conduct any field activities such as procedural nor P&ID walk-downs during this audit. As mentioned earlier, CCHSHMP may elect to perform these activities in the future and will work closely with MRC to determine the need. CCHSHMP will meet virtually with local union representatives, as applicable, at the beginning of the audit/inspection.

CCHSHMP will meet virtually with personnel, as necessary, 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 may virtually 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 MRC. CCHSHMP encourages the attendance of all MRC CalARP Program key personnel, management staff, and union representatives (if applicable).

Tentative Overall Schedule

The virtual audit/inspection activities will start:

January 25, 2021:

9:00 a.m.	–	10:00 a.m.	Virtual opening meeting. An agenda is included in Appendix D
10:00 a.m.	–	5:00 p.m.	Audit

CCHSHMP shall schedule weekly debriefings with MRC representatives, beginning the week of February 1st. 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 March 3, 2021. This date may change depending on the circumstances. MRC 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. MRC is expected to have this information compiled and available before the audit/inspection via Microsoft Teams or other cloud-based / network tools as agreed upon with CCHSHMP. CCHSHMP will institute a document control process for the duration of the audit and a mutually agreeable approach to return/delete documentation provided after the audit.

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 MRC's RMP which was received on June 17, 2019.

IX. SITE SAFETY PLAN

CCHSHMP will conduct as much of the audit as possible (up to 100%) virtually to comply with the Health Orders issued by Contra Costa County and to protect the health and safety of all employees involved. If a new health order is issued at any point during the audit, Cho Nai Cheung (ARP Supervisor) and Michael Dossey (Audit Lead) will work with MRC to determine how best to proceed for the good of the order and all involved in the audit.

If site visits are performed, CCHSHMP personnel shall follow MRC's Social Distancing Protocols, wear personal protective equipment (PPE) in the field as appropriate (i.e., hard hat, safety glasses/goggles, steel toed shoes, Nomex coveralls, hearing protection), and be escorted throughout the facility by personnel who are knowledgeable of the facility's emergency action plan (i.e., evacuation routes, head counting 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 the 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 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

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. Identify personnel who are responsible for the implementation of the various elements of the program. Establish a schedule, as necessary, for audit team members to meet with personnel to discuss the programs and review records
c. 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 a virtual conditions inspection as feasible
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 judgment in applying the guidance.

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.

Verify the implementation of proposed corrective actions from the stationary source

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 on-site 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 on-site 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 the 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 the 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 the exclusion of any systems, equipment, or instrumentation
- Relevant portions of manufacturers' manuals, codes, and standards
* List of maintenance procedures
- Maintenance procedures
- Documentation on the use of MI procedures
* Description of the 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 the system used to track the mechanical integrity program**
- **Description of the 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 the 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 the 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 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 require 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 on-site 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. Review documentation and virtually meet with Key Personnel (To find out how the programs are designed/supposed to function)
        1. Schedule virtual meetings with Key Personnel
    C. Verification of documentation
        1. Sample records – sample size will depend on the number and importance of the records
        2. Conduct virtual employee interviews – look for any trends
            a. If any employees want to talk with us that are not selected, let them know they can schedule time with us
            b. 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 last approximately 30 minutes
    D. The expected duration of the "on-site" portion of the audit is five weeks. CCHSHMP may request photographs from the field as part of the facility audit records
    E. Weekly virtual debriefings to discuss findings
    F. Complete questionnaires (same format as RMP/SP completeness review)
    G. March 3, 2021 is the expected audit completion date and expected closing meeting
    H. Administrative Draft "Preliminary Determination" within four to eight weeks
    I. The facility will have fourteen days to review the draft for factual inaccuracies
    J. "Preliminary Determination" issued, and the facility will have 90 days to submit proposed remedies and due dates to address any deficiencies
    K. Begin 45-day public notice period after CCHSHMP agrees to proposed remedies and due dates
    L. Schedule public meeting when possible and if permitted by the health order

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]	Per CCHS review of the PSI information in the PHA reports, listed below, and confirmed team members generally had access to the following types of information. Piping and instrumentation diagrams, Process Design Manual, Operating Procedures, Emergency Procedures, Material Safety Data Sheets, Process Limits (ESP Variables Table), Instrumented Protective Function Documentation, Relief System Design & Design Basis, Equipment Design Data Sheets, Equipment Inspection Records, Electrical Loop Drawings, Electrical Area Classification, Martinez Refinery Facility Siting Report. CCHS notes that the Corrosion Control Documents were not revised before conducting the PHA but were made nevertheless available to the PHA team members. See question A38-07 of this audit for further discussion regarding this matter. -Cogen I and II PHA dated June 2020 -straight run Hydrotreater PHA dated April 2020 -sulfur recovery unit PHA dated December 2019	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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.	CCHS performed live navigation with the PSI subject matter expert (SME), also an Industrial Hygienist, and confirmed that the following information about the regulated substance's hazards was not readily available to personnel; California's permissible exposure limits and the ERPG values, and the acute RELs. The facility needs to establish a process for personnel to have access to this information. One resolution may include developing a table with these values and making them available electronically. Another option may be to include a hyperlink to directing personnel to a reference source, where the values are published (e.g., https://www.dir.ca.gov/title8/ac1.pdf)	N	Ensure personnel has access to the following information about the regulated substances' hazards, Acute RELs, and ERPG values, and California permissible exposure limits (PELS).
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 facility uses simulation program to determine the reactivity regulated substances. The SME performed a live demonstration of the simulation software. The tool is widely available onsite for personnel, but the expectation is that onsite personnel can contact the industrial hygienist to perform the simulation. It is not uncommon for the PHA team to request reactivity information regarding two materials. CCHS also notes that the procedures includes mixing information in the Operating Procedures. Per CCHS review of the operating procedures this can be found before procedural steps as cautionary statements. CCHS also notes that the information can be found in the "Supporting Information". Examples identified in the procedure include the following types of statements: -XXX -XXX -XXX	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 maximum intended inventory is in the CHIIT (Container Hazard Inventory System) database. Per interview and live navigation with SME, the CHIT database was explicitly designed to track inventory for the Business Plan, but it is also used as a depository for SDS and managing the hazard information. All changes in quantities are subject to the MOC process for tracking and authorizing new chemical that includes corrosion engineer and waste management review. For any chemical compound onsite, the database also identifies the largest vessel of that material and the daily inventory. During live navigation with the SME, CCHS randomly reviewed select materials and compared those values to the California Environmental Reporting System's reported values, and confirmed the values were the same.	Y	None
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)]	The facility has a database that has all the upper and lowers limits. Within this database, there are multiple triggers that align with the API description of Integrity Operating Windows (IOW). CCHS notes that generally Operating Procedures do not have upper and lower limits for process variables, rather the operating targets, and they are trained.	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]	Per interview with SME, the facility has designated personnel that can evaluate the inadvertent mixing of two chemicals. They use software that can generate the results of the mixing. CCHS was told that the mixing of chemical analysis generally is performed for PHA team or by Operations Support Engineer (OSE) prior to planning maintenance activities (e.g. chemical cleaning).	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]	Per CCHS review, materials of construction are listed in various places. The corrosion control documents list all the materials of construction. CCHS also reviewed the following types of documents: material selection guides one dated February 2017, and December 12/31/16. One material selection guide includes the piping specifications that are currently used at the facility. CCHS reviewed a few projects and as part of the technical evaluation, materials of construction are also listed.	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 CalARP regulation requires the facility to develop P&IDs on process equipment, which is described in local policy D (a)-8 "updating Piping and Instrumentation Diagrams (rev. 9, dated March 1, 2019) which cover their drawing program. Due to the pandemic, CCHS was unable to verify the P&ID accuracy, a task that is typically completed during a CalARP audit site-walk. In lieu, CCHS reviewed the inventory of P&IDs, including the types of symbology and conventions used, and found minor inconsistencies but, in large, generally conformed with instrumentation identifications listed in ANSI / ISA 5.1.	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.	CCHS confirmed that the facility has developed electrical classification drawings. CCHS reviewed the electrical classification drawing for Cogen Unit and Hydrotreater. The drawings included the profile view of key equipment and plot plan view both of which appear to conform with API 500.	Y	None
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].	The facility maintains the design basis for all PSVs in electronic format. CCHS reviewed select PSVs and confirmed they included the basis for the design scenario, the piping or equipment it is designed to protect.	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		CCHS notes that the facility has changed ownership from Shell to PBF; however, CCHS confirmed the new owner has access to all legacy design and engineering practices from the refinery's previous owner. CCHS reviewed project documentation from two recent projects and confirmed the design conditions and design specifications the meet those conditions. CCHS reviewed technical documents related to temporary leak repairs and confirmed the leak repairs included the design basis per ASME PCC-2.	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 450-8.016(a)(1)(A)(iv)]	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)]	CCHS observed a live navigation of the crude unit's material and energy balance performed by SME (or OSE or Process Engineer) and confirmed that they had an Excel spreadsheet with the output values generated from a simulation. A process flow diagram accompanies the table. The facility has PDF copies of all the material and energy balances, but they also have a simulation of all the information that resides with the project group.	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		Per interview with ESP SME, and live navigation of the ESP database, each alarm, and safety system is documented in the database with the description of the alarm and set point. This can be viewed on the board by operators. Per interview with field operators, CCHS was informed that they could view alarm on a "mirror" view only control board that gives them access to all the setpoints. The ESP has established IOW, logs the parameter and time, and sends a notification to process engineers when values are exceeded. As part of the shift turnover, operators get notified of a complete summary of any alarm exceedances.	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	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation only requires the following be listed in the RMP: "(d) The date on which the safety information was last reviewed or revised" [T19 CCR §2745.7.5].	Section 5.1 of the Safety Plan dated August 22, 2019, and section 4.4.1 of the Risk Management Plan dated February 28, 2020, accurately reflect the stationary source's PSI Program.	Y	None
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.	In the previous CalARP/ISO audit, there were no ensure action items given for this regulatory topic. This question is not applicable.	N/A	None

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

ID#	*Category*	*Question*	*Type*	*Clarifications*	*Findings*	*Answer*	*Actions*
A38-02	Program 4 CalARP & ISO	Did the owner or operator perform an initial process hazard analysis (PHA) for all processes? [T19 CCR §2762.2(a) and ISO Section 450-8.016(d)(2))]		1. Initial PHAs must be performed and documented for covered processes that are subject to P4 within 3 years from the effective date of P4, or by October 1, 2020. [T19 CCR §2762.2(a)] 2. The priority order for conducting PHAs shall be based on the extent of process hazards, number of potentially affected people, the age of the process, and process operating history. [T19 CCR §2762.2(a)] 3. PHAs performed or revalidated at least once every five years (since the initial completion date) to comply with CalARP Program 3 requirements are acceptable as initial PHAs for P4. [T19 CCR §2762.2(a)] 4. PHAs must cover all modes of operation as set forth in §2762.3(a)(1). [T19 CCR §2762.2(a)]	This is CCHS' eighth CalARP audit of the facility. Past audits have confirmed that the facility has performed initial PHAs for most of their processes subject to CalARP Program 3 requirements. Per SME interviews, the facility evaluated their processes and determined two additional PHAs required completion to comply with the CalARP Program 4 requirements. The regulation required such process PHAs be completed by 10/1/2020. These PHAs were completed: -- Wharf PHA, report dated 3/24/2020, session date also 3/24/2020, HAZOP method used -- Atmospheric Storage PHA, report dated 3/31/2020, session date also 3/31/2020, HAZOP method used	Y	None

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 the facility's Process Hazards Analysis policy (I(A)-50, revised 12/9/19). This policy identifies that the methods commonly used are either HAZOP or What-if/Checklist, although any of the methods outlined in the question may be used as appropriate. CCHS reviewed the corporate Process Hazards Analyses Procedure (CORP-HSE-006, revised 5/10/19). Although this policy outlined potential PHA methods that could be used, which was consistent with those listed in the question, it also specified that the HAZOP/LOPA (Layers of Protection Analysis) method shall be the method of choice for process unit PHAs. CCHS notes that the LOPA is a recognized form of Safeguard Guard Protection Analysis. CCHS reviewed the following PHAs: -- Hydrocracker Unit (HCU) PHA, report dated December 2018, session dates from October 15-31, 2018, HAZOP method used -- Volatiles Storage Facilities PHA, report dated June 2018, session dates from June 11-21, 2018, What-If PHA method used -- Aqueous Ammonia Storage Facilities PHA, report dated July 2019, session dates from May 29-30, 2019, HAZOP PHA method used -- Sulfur Recovery Units (SRU) 1 & 2 PHA, report dated December 2019, session dates from September 23 to October 7, 2019, HAZOP PHA method used -- Cogen Units 1 & 2 PHA, report dated June 2020, session dates from May 11-18, 2020, HAZOP PHA method used -- Straight Run Hydrotreater (SRHT) PHA, report dated April 2020, session dates from March 11-25, 2020, HAZOP PHA method used.	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	CCHS reviewed the PHA reports listed in the findings of question A38-05. Five of the six PHAs reviewed were performed using the HAZOP analysis, which uses deviations to uncover cause / consequence pairs. It is here that the hazards of the process are described. The What-if worksheets used for the Volatiles Storage PHA are formatted with columns for Hazard and Consequence pairing. Together these columns adequately describe the hazards of the process. Examples of hazard found within the PHAs reviewed include but are not limited to: -- Line-up error -- Vessel overfilling -- Failure of equipment -- Valve inadvertently opened/closed -- Bypass left open -- External fire -- Vent fails to open -- Loss of nitrogen, utility air, or cooling water -- Relief valve prematurely opens -- Plugged line/equipment All six of the PHAs reviewed were subject to the requirement to have DMRs and HCAs available to the PHA team. Per SME interviews, the facility developed Corrosion Control Documents (CCDs) for each process unit, which is their version of DMRs. The CCDs were available to the PHA team and referenced when the group had questions on various corrosion mechanisms or other damage mechanisms on a unit. CCHS performed a live navigation of the network directories and documents available to PHA teams. CCHS confirmed that CCDs were included as documents available to the team. CCHS also found that the CCDs are typically revalidated after completing the PHA study on the same 5-year cycle. As a result, the PHA team was working from CCDs that may not reflect the latest information	P	Ensure that PHAs address HCAs for the unit and that this is documented in the PHA. (this is a repeat)

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				"catastrophic" possibilities are covered. Other possibilities still need to be addressed and documented as 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]	regarding the process's damage mechanism. It is not a regulatory requirement for CCDs (i.e., DMRs) to be revalidated prior to the PHA. In reviewing the local PHA policy, I(A)-50, Section 6.1.2 identified that DMRs (i.e., CCDs) were listed as PSI, among other information that needs to be available to the team. Although CCHS does not identify DMRs as PSI, these types of studies are required to be available to the PHA team. CCHS was unable to locate mention within I(A)-50 or CORP-HSE-006 that HCA studies need to be made available to the PHA team. The PHA team did have access to the ISS checklist evaluation, although that is not an HCA. Per SME interviews, the primary issue has been that existing process HCAs have been inconsistently performed. Per SME interviews, there has been a gap in addressing the CalARP Program 4 requirements in conducting existing process HCAs based on a misunderstanding of the requirements that ISS and HCA were essentially identical. This is further described in A58-11. The facility needs to start conducting HCAs and make them available to the PHA team. The same issue was found during CCHS' previous audit, so a repeat ensure has been issued.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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]	Per SME interviews, the facility has an Incident Coordinator that is responsible for gathering relevant incident details for each PHA. Sources for publicly available incident summaries predominantly come from the CSB (Chemical Safety Board) or corporate. The facility finds it a consistent challenge to find publicly available incident reports directly related to a particular unit so many times, they look for reports identifying similar hazards. In reviewing the PHA reports listed in A38-05, CCHS found several documented external incident investigation reports (e.g., CSB reports were referenced within SRHT PHA, OSHA reports referenced within Aqueous Ammonia PHA). CCHS also confirmed that site-specific incident data is also summarized for each process unit. Each PHA report included a table in Section 6.2 of the PHA report that summarized the incident reports reviewed.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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)]	For each applicable process hazard (see A38-07), the PHA studies identified potential causes and consequences. Examples of consequences include, but are not limited to: -- Deadheading a pump -- Overpressuring a vessel -- Release through a relief valve -- Overheating of exchanger tubes -- Hydrocarbon release -- Equipment damage The facility risk ranked the severity and likelihood of cause/consequence pairs based on established risk matrices. Five of the PHAs reviewed were evaluated using Shell's risk matrix, and the Cogen PHA was evaluated using the PBF risk matrix after the refinery changed ownership in 2020. Both matrices have similar intents to assist in performing a qualitative assessment of the failure of engineering or administrative controls to determine whether additional safeguards are necessary. Recommendations would be developed for additional safeguards if the severity and likelihood combination were high enough based on company policy. Both the Shell and PBF PHA methods incorporate Layers of Protection Analyses (LOPA), further described in A51-11. LOPA contributes to the evaluation to better understand whether existing safeguards are adequate or whether new or better ones should be added.	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	* Check whether the refinery followed API RP 752 for their siting study. 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]	Per SME interviews and record reviews, the facility performs facility-wide siting studies every five years per API RP 752. The last such study was performed in November 2017 and included blast overpressure, vapor cloud (un-ignited), toxic and radiant heat affects. In reviewing PHAs (listed in A38-05), CCHS found that a process-specific siting review was performed prior to each PHA and was included as an attachment to the report. Per SME interviews, these siting reviews were designed to confirm that the facility-wide siting study adequately covered the currently occupied buildings within the units, and to confirm whether anything new has been built or now is in a different use at the plant since the study took place. The facility uses a certified industrial hygienist to evaluate siting before each PHA. All six PHAs reviewed contained the siting study evaluation. One of the siting studies included a siting checklist and additional modeling performed to complete the evaluation. All siting studies evaluated buildings and occupant evacuation routes.	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]	Per review of each of the PHA reports listed in A38-05, CCHS observed that the facility uses a global node to evaluate external events such as (not a complete list): adjacent plant incidents, sabotage, terrorist activity, transportation, flooding, extreme ambient temperatures, fog, etc. The facility also performs seismic assessments for each process that may impact a public receptor consistent with CalARP/ISO requirements. Of the six PHA reviews, five were required to conduct seismic assessments (i.e., Cogen unit was not). CCHS confirmed that seismic assessments reports were included as appendices to each of the five applicable PHA reports. Each seismic report identified the assessment was performed following the LEPC CalARP Seismic Guidance of the appropriate date. CCHS reviewed each of the seismic assessments and verified that seismic recommendations were added to the facility's PHA recommendation tracking tool. CCHS also evaluated the dates of the seismic reports and was unable to confirm any of the seismic reports were available to the PHA team during their PHA sessions. For example, the HCU seismic report was provided to the facility on 12/18/18, after the PHA sessions concluded. CCHS found that each seismic report was provided to the facility after the associated PHA session dates were completed. Only the SRHT PHA was still in session at the time of the seismic report issuance, although, per review of the PHA session history, CCHS found the External Events global node had been already reviewed. Per SME interviews, CCHS was informed that seismic studies are completed every five years as required, and every recommendation has been accepted from each seismic report. CCHS prefers that seismic assessments are performed	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					sufficiently in advance of the PHA so that the PHA team could take the results into account during the PHA process.		
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."	CCHS reviewed CORP-HSE-006 (corporate PHA policy) and found it identified the PHA team must include an individual with at least 5 years of experience working the process and familiar with the current operation. The policy inconsistently identifies who may satisfy this requirement (i.e., Section 5.5 identifies the operational representative may be a supervisor). CCHS reviewed I(A)-50 and found it identified that the current operating employee could be someone who currently works or provides training in the unit, consistent with the regulation. The operations representative is a qualified operator with at least 3 years of experience in the unit being assessed. Each of the PHA studies reviewed (see the list in A38-05) included a list of team participants by name, position title, and years of experience. Older PHAs, completed by Shell, the previous owner, included more detailed description of the individual's qualifications for being on a PHA team. For example, 17 years as HCU RO and 4 years as CO and 15 years HP-1/SGP RO, and 4 months CO. The level of detail within the past PHAs more clearly documents the requirement to have knowledgeable operators (and other PHA team members) on the team. It is not a regulatory requirement to include this level of detail, so a consider item was issued. All of the PHAs reviewed included an operator who was currently working the unit. Relative experience on the unit under evaluation ranged from 5-17 years.	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.	CCHS reviewed the site-specific policy and corporate policy and found that both policies meet the minimum CalARP and ISO requirements, but with respect to each other, the requirements are not aligned. CCHS reviewed I(A)-50 and found it identified that a process engineering representative must be on the team consistent with the CalARP regulation and be a degreed engineer with at least 3 years of experience in the industry. The policy also identified that at least one full-time PHA team member needs to have at least 5 years of relevant technical or operational experience. CCHS reviewed CORP-HSE-006 (corporate PHA policy) and found it identified the PHA team must include an individual with at least 1 year of process industry experience and be knowledgeable with the design of the process under review. There is also wording that the combined experience level between the operations representative and process engineer be a least 8 years on the process under review. The minimum PHA team needs to include three full-time members: leader, operations representative, and process engineer. CCHS believes only requiring a process engineer with 1 year of experience on the process being evaluated is low although not unique in the county (e.g., ranges from 1-5 years). All of the PHAs reviewed included personnel as part of the core PHA team with process engineering expertise. Process engineering experience ranged from 3.5-21 years. Of the 6 PHAs reviewed, 5 identified additional personnel participated in the PHA on a part-time basis. All part-time	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					participants were identified by name and title. None of the PHAs identified what days, sessions, or nodes these part-time participants joined the core PHA team. This is a best practice as it is not a regulatory requirement. 21 part-time participants were used in the 5 PHAs, although years of experience were included for only 1 part-time participant in 1 PHA. This is a best practice as it is not a regulatory requirement. Of the 6 PHAs reviewed, 4 tracked the topics covered for each session (i.e., HCU and Cogen did not). Although not a regulatory requirement to track nodes or topics covered for each session, it is a best practice.		
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]	CCHS reviewed I(A)-50 and found it identified that the PHA facilitator is required to be knowledgeable in the PHA technique used. CCHS reviewed corporate PHA policy (CORP-HSE-006) and found it identified the PHA facilitator must have (not a complete list) the following qualifications; minimum of least 3 years of process industry experience, completed an industry-recognized PHA team leader course, proficient in the PHA software being used, and led a PHA using the PBF method under the supervision of a qualified facilitator. This only applies to PHAs conducted in mid-2020 and later after PBF took ownership. Each PHA report identified each facilitator's years of experience for leading PHAs, which ranged from 6-15 years. Per SME interviews, the facility is actively working on qualifying additional facilitators in the PBF method. CCHS reviewed PHA Team Leader training certificates, HEMP training documentation, and associated emails confirming facilitators received appropriate training.	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 SME interview and file review, MRC tracks all PHA recommendations to final resolution. The facility has used various recommendation tracking databases over the years. The current system tracks all types of recommendations, including the responsible party, target due date, planned course of action, and final resolution. After the PHA sessions are completed, the PHA facilitator performs quality control checks on the study and summarizes any necessary recommendations. A meeting is then held with management to share the results. For the 6 PHAs reviews, the timeframe for these meetings has been from 1 week to 2 months after the last PHA session date, with an average of 30 days. This average timeframe is consistent with other large facilities as a best practice. Section 6.6 of I(A)-50 describes the process if a PHA recommendation is rejected and the requirement to communicate with the PHA team consistent with the regulation. Per SME interview, it is not common, although PHA recommendations are occasionally rejected. One PHA recommendation was rejected in recent memory and was communicated to PHA team members. CCHS reviewed documentation of this communication with the PHA team. The communication included the rationale of why the recommendation was being rejected, alternate resolutions, and the PHA team participants' agreement.	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)	MRC has a PHA recommendation prioritization process described in CORP-HSE-006 that corresponds to the company's risk matrix. Like most PHA risk matrices, the one used by the facility identifies combinations of likelihood and consequence pairs that need additional resolution. The matrix includes 5 levels of consequence and 7 levels of likelihood. Unlikely events paired with low consequence situations are typically not given recommendations. Combinations triggering PHA recommendations fall into three different categories that require resolution within 3 years to 18 months. Since the facility is subject to Contra Costa County's Industrial Safety Ordinance (ISO), I(A)-50 identifies that all non-turnaround PHA recommendations must be resolved within one year. The corporate PHA risk matrix contains many categories to further classify different consequences (e.g., health and safety, environmental, community). Reviewing these classifications, CCHS found no clear indication for where a major incident would fall. Per SME interviews, the facility is not allowed to change its corporate risk matrix, so every PHA facilitator has been trained to understand situations that could be considered a major incident (as defined by CalARP) and those that could be considered a major chemical accidental or release under ISO. As previously described, the facility has a process to develop PHA recommendations and track them to completion. The database used to track these recommendations includes the action to complete, target completion date, responsible party, and the actual completion date and actual resolution completed. CCHS reviewed the completion status for PHA recommendations from the 6 PHAs reviewed and confirmed this	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					information is tracked.		
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)]	The CalARP Program 4 regulations require PHA recommendations to be resolved within 2.5 years; whereas county ISO requires these to be resolved in one year. The CalARP regulations require interim safeguards for non-turnaround recommendations to prevent the potential for a major incident if permanent solutions take longer than 2.5 years. County ISO makes no mention of interim safeguards. Per SME interviews, the facility has implemented interim safeguards to address select concerns when the timeframe for implementation of permanent solutions is lengthy, and the concern is elevated. One example found was the application of car seals on low point drain valves until upgraded instrumentation can be installed. Section 6.6 of I(A)-50 describes the regulatory requirements consistent with the question.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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 SME interviews and file reviews, an email is sent to the applicable operating unit staff identifying a PHA has been completed for the process. The email identified the PHA team participants and included a copy of the list of PHA recommendations, and stated they were entered into the facility's PHA recommendation tracking database. The email also identified that a copy of the PHA report is available in the Shift Team Leader's office. Per operator interviews, CCHS was informed that crew staff meetings also mention when a recent PHA was completed for the process. CCHS reviewed emails sent for seven different process PHAs. Each email reviewed was sent to the local operational department and all maintenance personnel. CCHS was unable to confirm that a copy of a similar email was maintained for the SRU 1/2 PHA. No action or consider item was determined to be warranted.	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.	CCHS confirmed that the facility tracks PHA recommendations to resolve them within one year unless a turnaround is necessary. Section 6.6 of I(A)-50 included wording similar to the question. The majority of the PHA recommendations associated with the 6 PHA reviewed were completed within one year of issuance. The following summarizes the status of these PHA recommendations: -- 2018 HCU PHA, all 16 recommendations completed within one year or less -- 2018 Volatile Storage PHA, 47 recommendations identified, all recommendations identified as completed, 9 identified Target Dates beyond 1-year ISO requirement, and T/A not required. In total, 11 recs not needing a T/A were completed beyond the 1-year ISO requirement and took an average of 201 days to address (ranged from 9 to 471 days beyond 1-yr requirement). This is further described below. -- 2019 SRU 1&2 PHA, 12 recommendations identified, 11 completed within one year or less, 1 remains open requiring a turnaround for completion (CCHS verified on T/A list), 1 completed 30 days beyond target due date although within the 1-yr ISO requirement. -- 2019 Aqueous Ammonia Storage PHA, 5 recommendations identified, all were completed in less than one year -- 2020 Cogen 1&2 PHA, no recommendations identified -- 2020 SRHT PHA, 21 recommendations identified, 14 completed in less than one year, 7 currently open still within their 1-year target dates Per SME interviews, all PHA recommendations must be completed within one year unless a process shutdown is required, and if so, then the item is added to the next turnaround schedule. For items that cannot be implemented within one year and do not apply to turnaround,	P	Ensure that PHA recommendations not required to be completed under turnaround are completed within one year, or CCHS contacted for a possible variance at least two weeks before becoming overdue.

the county must be contacted to obtain concurrence and approval. For variance requests, CCHS prefers to be contacted at least 30 days before the recommendation becomes overdue.

CCHS has been contacted periodically over the last three years to approve a few variance requests when a PHA recommendation cannot be resolved by the expected target date. Recently, several of these requests were due to the facility being unable to obtain the necessary resources or equipment from vendors or contractors due to delays resulting from the ongoing pandemic.

Regarding the issues related to resolving PHA recommendations for the 2018 Volatile Storage PHA, variance requests were denied by CCHS for some of these as they were already overdue at the time of the request. CCHS grants no extensions or variances if an item is already overdue. Per SME interviews, CCHS found two situations that contributed to the overdue recommendations.
-- The first was an apparent misunderstanding. Suppose a PHA recommendation was written to perform a study to further evaluate how to address an issue. In that case, the study and study's final resolutions need to be complete within the given regulatory timeframe. If the final resolution does not need a turnaround and needs longer than 1-year from the PHA to resolve, a variance is still needed from the county.
-- The second was the process used to assign responsible parties to the PHA recommendation was altered temporarily due to changes in leadership style. CCHS found that select individuals were assigned as responsible parties when they were unable to perform those assigned duties (e.g., assigned asset owner an engineering project).

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					CCHS understands that changes were eventually made, although by then, some recommendations went beyond the required 1-year requirement. Even though the trend for assigning PHA recommendations has improved since this 2018 PHA, CCHS cannot ignore the significance of the issue and an ensure action item the item is listed here, and another one is listed under Management Systems. Recommendations that took longer than one year to resolve not needing a turnaround without county variance approval: Action IDs: 052727, 059360, 037452, 042686, 058179, 059549, 060201, 037454, 037483, 042714, 042715. CCHS was informed the timeframe for completing engineering projects has accelerated under PBF ownership, so it takes less time now than under Shell ownership.		

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? [CCHMP Interpretation] 2. The PHA team must meet the requirements of §2762.2.	Per SME interviews, the facility tracks PHAs based on the PHA report issuance date. Sessions are scheduled, completed and reports issued within the 5-year requirement. CCHS reviewed the facility's Master PHA Schedule and found the initial PHA dates and subsequent revalidation or redo dates for each process unit. For the PHAs reviewed in detail (listed in A38-05), each was found to have been revalidated every five years since their initial PHAs conducted in the 1990's (e.g., HCU PHA dates: 2/94, 2/99, 12/03, 12/08, 12/13, 12/18). CCHS also confirmed that each PHA report reviewed included a listing of the Management of Change (MOC) documents that were reviewed during each PHA. Per SME interviews, the PHA process has changed slightly under the new PBF ownership. Because of the change, most new PHAs resemble redos more than revalidations. CCHS reviewed the facility's master PHA schedule and verified that other process PHA were also revalidated every five years. Three PHAs were due to be revalidated in 2020 and needed to be rescheduled in 2021 due to issues with the ongoing pandemic: Recovered Oil Processing, ETP 1/2, and Flexicoker. A letter was sent to CCHS in April 2020 explaining the situation.	Y	None
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		Per SME interviews, all PHA reports are maintained for the life of the process. Older PHA reports originally only in binders have also been scanned, so they are available electronically. Newer PHA reports are also placed in binders as well as kept on the company's server.	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.	databases for various recommendations. All past PHA recommendations have been extracted and archived to remain accessible without the need to go into an old or obsolete computer program or database. In addition, the current practice for performing PHAs has been to gather the recommendations from the previous PHA to provide to the current team for use in the next PHA. CCHS performed a live navigation of the PHA process, including the storage of electronic records. Although PHA recommendations are managed through a recommendation tracking database, once completed they are copied to a subdirectory under the appropriate PHA.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation only requires the following be listed in the RMP: "(e) The date of completion of the most recent PHA or PHA revalidation and the technique used. (1) The expected date of completion of any changes resulting from the PHA; (2) Major hazards identified; (3) Process controls in use; (4) Mitigation systems in use; (5) Monitoring and detection systems in use; and, (6) Changes since the last PHA." …also "(t) The owner or operator shall submit the following external events analysis information: (1) The types of natural and human caused external events considered in PHA Section 2762.2; (2) The magnitude or scope of external events which were considered. If not known, the owner or operator of the stationary source shall work closely with the UPA to determine what is required. If seismic events are applicable, the parameters used in the consideration of the seismic analysis and which edition of the Building Code was used when the process was designed; (3) For each external event, with a potential to create a release of a regulated substance that will reach an endpoint offsite, apply sections (e)(1) through (e)(6); and, (4) The date of the most recent field verification that equipment is installed and maintained as designed." [T19 CCR §2745.7.5]	Section 4.4.2 of the RMP submitted to CCHS in June 2019 accurately summarizes the Process Hazard Analysis program implemented onsite. Section 8 of the SP submitted to CCHS in August 2019 accurately summarizes the Process Hazard Analysis program implemented onsite, although it will need to be updated after changes are made to the facility's HCA program as described in A58-22.	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.	CCHS' previous audit of this regulatory topic at MRC in 2018 identified one ensure action item. This issue was not resolved and is repeated in A38-07.	P	Ensure that MRC works with CCHS to close out the ensure action item in A38-07 for having HCAs addressed in the PHA.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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 SME interviews, training is done at the very beginning of the PHA in the first session for the PHA team. The facilitator describes the PHA method and how the process will unfold over the various sessions, roles and expectations from each member, requirement to maintain minimum core team for each session, documenting the study, development of recommendations when necessary, etc. At the beginning of each PHA is also when training is conducted on human factors (HF) and inherently safer systems (ISS). The facility created a form specifically to document HF and ISS training. Copies of these forms were included in all 6 PHA reviewed. Dates listed on the forms identified the training took place on the very first PHA session date for 5 of the 6 PHAs. The HF/ISS training form date associated with the 2018 HCU PHA identified the training took place after all PHA sessions were completed. Per SME interviews, the training took place on the first session although the training form was either not signed or could not be located so was completed after the sessions to complete the paperwork. Based on discussions, CCHS does not believe any action item is warranted.	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	Each of the PHAs reviewed by CCHS included a current operator as part of the core PHA team. Per SME interview and record review, each operator was involved with every PHA session and development of PHA recommendations. Only 3 of the 6 PHA report-out meetings with management included an operator (i.e., 2018 Volatile Storage, 2020 Cogen 1/2 and 2020 SRHT). CCHS observed that additional employees were brought into various sessions to review specific aspects (e.g., rotating equipment specialists, flare specialists). CCHS reviewed the facility's PHA policies and was unable to locate specific examples of when employees need to attend a PHA besides being part of the PHA team. The company's Employee Participation criteria listed in C(A)-4, Process Safety Management, specifies that employees and employee representatives will be involved with all phases in performing PHAs although CCHS was unable to locate further clarification on what these activities could be. CCHS generated an action item in A46-01 that describes this in more detail.	R	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 selected P&ID against the procedure for accuracy. SRHT: drawing no. 5811, rev. 41, shows the control valve for fuel gas from the fuel gas header as Procedure SRH-1200 (rev. 1/2/2019) step 2.5. The P&ID also shows the bypass to be "CSC" and the procedure 2.12.2 states to car-seal bypass. SRHT: drawing no. 5813, rev. 61, shows the flow control valve from FXU Naphtha to be the same as the SRHT-2110 (rev. 1/22/2020) step 14. SRU: drawing no. 6156, rev. 31, shows the flow control of the blower to be consistent with the SRU-3170 (rev. 10/2020) procedure steps in step 11. COGEN: drawing no. 577907, rev. 4 listed the volume of the lube oil reservoir and it is consistent with section D. lube oil system note in procedure COGN1107 (rev. 7/6/2019). CCHS also selected procedures to check against the operating limits that are compiled in the ESP (Ensure Safe Production) variable limits table listed in the master alarm database that is displayed on the control consoles. Per CCHS review: - COGEN3011: noted low pressure and high pressure S/D trip points for PI-920/970, CCHS was able to confirm these values in the alarm database. However, the procedure noted after step 3.11 that the low pressure set point is 4 psig; and the alarm table listed this as 1 psig. - COGEN1107: noted the PI-100 to alarm at 15" HGA and 17" HGA in the note after step 14, CCHS verified that the alarm table listed this as 14.5" HGA and 17.5" HGA.	P	Ensure that procedures are reviewed to confirm operating limits and alarm set points are consistent with the master alarm database values.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					- SRHT-2110: low flow alarm on 3FC191 is set at 12.0 MBD, and CCHS was able to confirm this value as listed in the alarm table.		
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]	Per interview with learning manager, there are roughly 2500 operating procedures in the 6 production areas of the refinery. CCHS only focused on selected units for the procedure review in this questionnaire. CCHS reviewed table of contents for: -- COGEN -- Hydrocracker -- Straight -Run Hydrotreater -- Sulfur Recovery Unit -- Logistics CCHS noted procedures for start-up for the productions units included partial start-up, start-up of specific equipment, start-up after turnaround or maintenance and some included start-up after unplanned shutdown. Logistics does not have start-up procedures, rather just normal operations for loading and unloading and other related procedures. CCHS randomly reviewed start-up procedures for select portions/equipment in the units listed: -- SRHT-1200 -- COGN1002 -- SRU-1125 -- HCU-1130	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]	CCHS noted that there is a section classified as Special/ Obsolete/ Temporary procedures. For SRU, SRHT and HCU, the section heading states that these procedures are for reference only and they are not approved for use and there is no hyperlink to access. Per SME, when temporary procedures are developed and used, then it is no longer accessible to personnel. Mentors that are assigned to the units for access to these archived procedures and these can be reviewed and issued if the same or similar temporary operations arises. Some mentors do not list temporary procedures in the table of content but maintain such a list for reference for future procedure development. CCHS notes that expected temporary conditions are listed under normal operations. For example, use of portable compressors for air blower preplanned shutdown, freeze protection, TDC instrument Power switching, by-passing equipment are listed as normal procedures.	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.	CCHS reviewed the Table of content for the units listed in A39-03 and noted a section for shutdown for turnaround or maintenance and short shutdown/trip. A trip would be considered to be emergency shutdown. CCHS reviewed three emergency procedures for HCU, SRU and SRHT. The procedures in HCU and SRHT identified roles that could perform the tasks, action to take and notifications. The SRU procedure reviewed specifically states that no roles identified in this procedure. The procedures also include Initiate Unit Evacuation Alarm to evacuate non essential personnel from unit. The HCU and SRHT procedures also state that during actual emergencies, the procedure provides a guide to quickly bring the unit into a stable condition and once stability is achieved, the board operator is expected to sign off the steps in the procedure and file the document with supervision.	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.	CCHS reviewed the table of content for the units listed in A39-03 and noted an emergency section for emergencies such as loss of view; loss of boiler feed water; loss of instrument air; loss of cooling water; electrical power failure; tube rupture, reactor temperature excursion, etc., if applicable. Depending on the emergency, steps includes monitoring of temperature, pressure, level, and checks for positive isolation, etc. CCHS notes that consequence of deviation were listed as Loss of Primary containment and /or equipment damage in some cases in the caution statement.	Y	None

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]	Per CCHS review of 21 procedures (the refinery have ~ 2500 procedures), some procedures include cautions statements. The caution statement includes the steps that is to be performed and the consequence of deviation if not performed such as unit upset, environmental damage, loss of primary containment, seal failure, etc. A limited caution statement and notes have included operating limits. See more detail discussions of alarm limits in A39-02. Per interview, for ease of maintaining consistency of operating limits, the facility has developed ESP (Ensure Safe Production) variable table also refers to as the master Alarm database where critical limits can be found that defines the operating range, critical operating range, Integrity operating window range (longer term monitoring), maximum operating (manufacturer's equipment safe limit). These variables and limits are built in to the operator's console data so that when a limit is reached, the operator could see the reason for the alarm, steps to take (inside and outside if applicable), and consequence if the problem is not corrected. CCHS was able to view a live navigation of the ESP variable table. Per interview, since the limits are considered to be an operating procedure information, the ESP variable tables for the production department are maintained current and accurate using MOC and certified annually as well. See details of certification review in A39-19.	Y	None

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]	Per CCHS review of 21 randomly selected procedures, all procedures are prepared using the same template, with a section "HSE Precautions". This section refers to and provides a link for Precautions for Chemical Hazards, Safety and Health considerations. For example: for SRHT1200, the HSE precautions calls for flash gear when lighting off fixed equipment and use face shield when looking inside the furnace box. The procedure also include a section title Personal Protective equipment and a link to I(A)-67 Personal Protective Equipment policy. If additional PPE is required, it is listed in this section as well. CCHS reviewed the SRHT Chemical Hazards, Safety and Health considerations document, which states that the document identified significant chemical hazards corresponding to those identified by a process hazards analysis. Appropriate administrative and engineering controls and PPE requirements are described including hazard communication, Safety datasheet access and Container Hazard Identification Table (CHIT), which are located next to operations filed shelters or control center. The document also included hazards of chemicals in the unit, exposure symptoms, PPE and controls measures. Procedure itself may also include warning as appropriate. For example, CCHS noted in SRHT1200, a warning states "the meter must read below detectable limit of LEL before proceeding" and there is a COD of explosion hazard. Since the Chemical Hazards, Safety and Health considerations documents are referenced and a required element of procedures, these are also annually	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					certified along with the operating procedures by the mentors. See details of certification review in A39-19.		
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		CCHS notes that some procedures include a support information section prior to the procedure steps that provides additional equipment safety functions, equipment and systems information as appropriate for safe operations. In addition, there is a reference section that list the safety system for the area. Per interview each unit area compiled a safety systems document that describes the overall alarm strategies and protective functions. CCHS reviewed the HCU safety systems as a reference and notes that the discussion is equipment specific and in relation to operating equipment and parameters but do not list the actual alarm limits. Since the safety systems documents are referenced and is a required element of procedures, these are also annually certified along with the operating procedures by the mentors. See details of certification review in A39-19.	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. Stationary 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)]	Per SME interview, there are 6 production departments in the refinery and currently there are three mentors responsible to maintain procedures. Up until Oct 2020, there was one mentor in each production department. CCHS reviewed signed annual certification statements: -- For covered process areas (Dimersol, DSU, H2 2, SR 3, SR 4, Emergency procedure north and south, Common facilities, Flexicoker, Flexicoker gas, Coke gas cooler, Flexorb, south special procedures) by Learning Advisor Field, signed 3/30/2020 -- For covered process areas (Alky, Catalytic Cracker, sulfur recover, sour water strippers) by Learning Advisor Field, signed 3/18/2020 -- For covered process units (CRU, crude vacuum flasher, HCU, HP 1, SGP, SRHT) by Learning Advisor Field, signed 3/16/2020 -- For covered process units (Effluent Treatment, Gasoline Blender, LPG loading, Tank Farm, Wharf) by Learning Advisor Field, signed 3/11/2020 -- For covered process units (Cat gas Depentanizer, Caustic regen #2, Cooling WT, Delayed coker, Distillate Hydrotreater, Flare Gas Recovery, Heavy Gas Hydrotreater, Isomerization, Vent Gas Treater) by Learning Advisor Field, signed 4/28/2020 -- For covered process units (Air System, BFW N/S, Boilers, CoGen, Condensate system, Fuel system, Instrumentation and electrical, raw water fire) by Learning Advisor Field, signed 3/19/2020 Each of these were accompanied by that operating procedure table of content, and the signee certified to the best of their knowledge based on a review process that the procedures are current and accurate. The review process	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					include review of MOC, conversations with technical disciplines and that no procedures were over due for the 3-year review. The annual certification also states that the certification is for the purpose of 40 CFR §68.69(4)(c). CCHS reviewed similar certification statements for 2019 and 2018. Per interview and procedure review, only a limited operating limits are listed in the procedures, most are on the operators console0 and linked to ESP (ensure safe production) table in the Master Alarm Database, these variable limits are also separately annually certified. CCHS reviewed the certification of the 6 production areas by 13 Operation Support Engineers (OSE) for 2019 and 2020. In addition, there are also annual certifications by the Learning Advisor Field (mentor) for the Safety systems that they are not overdue for the 3-year review and is current and accurate; as well as certifications for the Chemical Hazards, Safety and Health considerations documents referenced in the operating procedures to be current and accurate. CCHS reviewed these annual certification statements for the 6 production areas signed by the mentors for 2019 and 2020.		
A39-21	Program 4 CalARP & ISO	Does the submitted Safety Plan accurately reflect the Operating Procedures Program at the stationary source? [T19 CCR §2745.2(d) & ISO Section 450-8.016]	Abr	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation does not require the covered process data sheets (i.e., RMP) to mention anything about operating procedures. [T19 CCR §2745.7.5]	CCHS reviewed the SP dated Aug. 22, 2019, Section 5.2 is a brief description of the operating procedure program at the facility and is accurate. CCHS reviewed the CalARP RMP for MRC dated February 28, 2020, section 4.4.4 is an accurate summary description of the operating procedure program at MRC.	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.	There are no ensure actions from the 2018 CalARP/ISO audit.	N/A	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 the SME, the facility maintains policies and training databases that ensure 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 relevant to his area of responsibility. CCHS reviewed the following policies related to operator training: □ C(A)-40 Operation Training policy (rev. January 2020) □ C(A)-42 Operator New-Hire Training (Phase 1) policy (rev. January 2017) □ C(A)-43 Operator Job Specific Training and Qualification (Phase 2) policy (rev. September 2018) □ C(A)-44 Operator Refresher Training policy (rev. January 2020) Policy C(A)-42 describes the basic training provided to new hires. This policy describes the various layers of training provided, including PSM, facility overview, process/equipment tasks, Process Operator Duties and Simulator Training. Policy C(A)-43 describes the training provided to new operators once their basic training is completed and they are assigned to a process unit. During this phase a Job Training Plan (JTP) is developed for each person. The JTP outlines the steps and assignments that need to be completed for the new employee to be qualified to work their first position. This includes training from subject matter experts, job-specific training, on the job training (termed "parallel training"), reading and following operating procedures, and eventually passing a written final exam, oral exam,	Y	None

and demonstrations to confirm they have sufficient knowledge and expertise to be a qualified operator. Once qualified, the new operator must remain in their first role for 4 months.

Per interview, there are two phases of new hire training. The first phase is all classroom training described in C(A)-42 and takes approximately 8 weeks. The second phase of the new hire training described in C(A)-43 takes approximately 2-3 months. When the new hires are assigned to a unit, they work with that Department's Mentor to go through their Job Qualification Plan (JQP). Mentors walk the new hires through each step of the training process and are there to monitor their progress and help direct them.

CCHS reviewed initial operator qualification documentation for 6 operators associated with 4 field jobs and 2 board jobs within the straight run hydrotreater and the hydrocracker departments. The facility maintains copies of each qualification record for each job. Each of the packets contained information used by the facility to verify that the trainee has met the minimum qualifications expected for the position. This information included verification of course-specific instructions on the process (e.g., process overview and its hazards) and mentor evaluation.

In reviewing documentation associated with the 6 initial job qualifications packages, the number of operating procedures in the Skill Level verification ranged from 10-60 depending on the role.

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 a review of the Operator Refresher Training policy, C(A)-44, operators need to receive refresher training for each job they are qualified for every three years. The policy also requires each operator "work a minimum of 5 shifts per year, as the primary operator for each job on which they are qualified, to maintain qualification for those jobs." As part of the refresher training, the policy identifies that refresher training includes a review of each module of the original job qualification training and the operating procedures associated with that job. Per operator interviews, operators in select processing departments (such as Hydrocracking) routinely rotate between all of their qualified positions so they work far more than 5 shifts per year for each position. Other departments do not rotate positions often, so they have to monitor the roles they work to ensure they work each job 5 shifts. Mentors are also assigned to assist with refresher training by reviewing the 3-year refresher training package with each operator for each of their qualified roles. CCHS reviewed refresher training packages for 5 operators for them to remain qualified for specific jobs in the Straight Run Hydrotreater and Hydrocracker process units. The packages included copies of final exam and a Refresher Training Documentation Task List. The Refresher Training Documentation Task List identifies specific tasks that relate to operating procedures. Mentors and management jointly developed the Task List to represent the dominant activities for each position. The Refresher Training Documentation Task List also identified specific operating procedures that the operator is to demonstrate or simulate, including starting up or shutting down	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					equipment, placing equipment into circulation and placing heat exchangers in service.		
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 CCHS review of the initial and refresher training documentation provided in A40-01 and A40-03, the site satisfied the requirement specified in this question. For initial training, there is a final sign-off on the final phase of the initial training, that states the following: "On the above date the above named Trainee successfully completed the Final Evaluation and is now certified to operate the [XXX] position." The documentation includes the dates of the training, name of the trainee, signature and title of the personnel giving the training, and copies of tests used to verify understanding.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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]	Per interview, all maintenance employees new to the refinery are required to attend a portion of the phase 1 training for new hires described in A40-01. During this training, all new maintenance employees receive PSM training and the Facility Overview training. CCHS observed a live navigation of the Facility Overview training presentation and confirmed that it included a discussion of each process within the refinery. All maintenance personnel are also provided a refinery process overview that included an overview of the processes and their hazards. See A40-08 for a more detailed description of maintenance training program/policy.	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 interview, the refinery primarily hires journey-level maintenance employees that are already experienced in their craft. The hiring of personnel in the Instrumentation and Machinist crafts has been difficult. The refinery developed a training process that requires non journey-level new hires to work with existing personnel until deemed ready to work on their own. For Machinists, new non journey-level employees must shadow existing Machinists in the shop for 800 hours prior to being released to work on their own. For Instrumentation, new non journey-level employees are required to shadow existing Instrument personnel for 6 months spending approximately 4 hours in the shop and 4-8 hours in the plants each day prior to being released to work on their own. CCHS reviewed the following procedures regarding maintenance training: - Procedure D(A)-1 Maintenance Training Policy (rev. October 2019) - Procedure A(A)-37 Create and Revise Maintenance Procedure (rev. March 2019) The maintenance training policy D(A)-1 applies to all Phases of Maintenance training and the personnel who are responsible for performing the training activities at the refinery. All Maintenance training needs will be identified by conducting a Training Needs Analysis with the intent to align the required / proper training scope for a new employee based on their prior knowledge and training and the role that they are hired to perform. Training plans will be established for each craft role (and / or individual craft worker) based on training Needs Analysis. Training content will be established to support training plans and will be categorized in a four (4) phase structure:	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					Phase 1 – New Hire Orientation – Phase I New Hire Orientation will include, but not be limited to: a review of HR Policies and Procedures, Health, Safety, Security and Environment awareness, Industrial Hygiene, Process Safety Fundamentals, Life Saving Rules, Life Critical Procedure reviews, Barrier Thinking, Basic Equipment training, and a Refinery Process Overview. Phase 2 – Role Specific Training – Phase II Training will be delivered to Maintenance Employees based on Role Specific Learning Profiles and the Craft Specific Training Plans. This will include self-paced computer-based learning modules, Instructor-led classroom sessions, face to face field sessions and formal skill-based field evaluations. Passing criteria for written tests and field evaluations are 80% or better, with remediation to 100%. Phase 3 – Refresher Training – Refresher Training will be delivered to all Maintenance Employees at least every three years. Refresher Training will include, but not be limited to; Procedures, Site Policies, Job Specific Tasks, HSSE, and IH. Refresher Training will be delivered via computer-based learning modules, skill-based field evaluations, and face to face classroom and field sessions. Phase 4 - Deliver Training and Tracking - The required training is provided by several means that include: · Classroom · In the Field · OJT (On the Job Training – Learning through experience, typically partnered with an experienced employee) · “Hands–On” (with SME support) · CBT (Computer based training e.g. – e-learning module) · Self-Instructed (Read and / or Practice) · Video Training Packages		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A40-09	Program 4 CalARP & ISO	Does the submitted Safety Plan accurately reflect the existing Training Program at the stationary source? [T19 CCR §2745.2(d) & ISO Section 450-8.016]	Abr	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation does not require the covered process data sheets (i.e., RMP) to mention anything about training. [T19 CCR §2745.7.5]	The submitted 2019 Safety Plan Sections 5.3 and 6.0 accurately describe the existing Training Program. The submitted RMP dated June 2019 Section 4.4.5 and 4.4.18 describes the existing CalARP Training Program. Section 4.4.18 specifically addresses the training associated with the human factors program to comply with Program 4 requirements. The RMP does not describe the Program 4 elements training that is provided to all affected plant employees that include operations and maintenance personnel.	Y	None
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 two ensure action items associated with the prior CalARP/ISO audit that have been addressed.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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.	As described in A40-08, Maintenance Training Policy D(A)-1 describes the requirements for refresher and supplemental training on procedures related to the tasks performed by each craft. CCHS reviewed an index of maintenance procedures that included one maintenance procedure and about 90 maintenance work instructions for various crafts. It is about 8 months that the Active Learner training software program has been in use by the refinery and this software tracks the training required by the maintenance craft as well as the operations staff. Active Learner program sends out emails on first and 15th of the month to each employee and line manager to remind what training is due in the for the next 90 days and show if they are overdue on any training. CCHS reviewed the training completed for a welder, a pipe fitter mechanic and an instrument technician documented in Active Learner program for the past three years and noted that their 3-year refresher training included the newer Program 4 overview training and human factors training as well as maintenance procedures refresher training. As an example, the refresher training for the pipe fitter mechanic indicated completion of about 24 maintenance procedures that included LOTO, hot work, confined space entry, temporary repairs, CF5 process isolation, IF45 level gages and ammonia training. Hot work employee training included similar coverage that also included refreshers on hexavalent chrome awareness, QC of weld piping and hot taps and weldments.	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.	Per interview with the SME, the facility maintains policies and training databases that ensure 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 relevant to his area of responsibility. See A40-01 for policies in place that address the requirements in this question.	Y	None
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 just operators and maintenance employees.	MRC has developed a comprehensive slide presentation that provides an overview of the Program Level 4 requirements for the refinery employees. This video slide presentation has been provided to all affected refinery employees so as they become aware of and understand all CalARP/CalOSHA Program 4 safety elements. All plant 473 affected operations and maintenance employees have completed the review of this presentation through the Active Learner program. This slide presentation includes a set of 14 comprehension questions that need to be answered as true or false or multiple choice. One hundred percent passing is required to complete this training.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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 interview, 4 or 5 hourly USW employees were involved in preparation of Program 4 training described in A40-13. USW representatives also conduct the training for new hires in face to face HF training, initial face to face Program 4 training and face to face PPE training. The union representatives are also involved in conducting the TOPs incident investigation training and Safety feed back training for new hires. Per CCHS review of the updated maintenance training policy, a review of refresher training for maintenance procedures, and interview, affected maintenance employees and employee representatives effectively participate throughout all phases in the implementation of the maintenance training program. CCHS also reviewed the C(A)-40 Operation Training policy (rev. January 2020) and Procedure D(A)-1 Maintenance Training Policy (rev. October 2019). CCHS noted that D(A)-1 Maintenance Policy states: "6.7 Employee Involvement: Employees and Employee Representatives will be involved in or be given the opportunity to be involved in all phases of Maintenance Training. This includes but is not limited to Phase I New Hire Training, Phase II Crafts Specific Training, Job Shadowing, Instructor-Led Classroom Training, Field Training and Refresher Training." CCHS could not find any similar employee participation in C(A)-40 Operation Training police. See A46-01 for an ensure action item for updating the employee participation program that addresses employee operator training in all phases of the CalARP Program elements.	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	Per interview and a review of the Index of maintenance procedures, there are about 200 maintenance documents (work instructions, policies, and guidelines) and approximately 400 instrumented protective functions (IPFs) inspection and testing procedures. Pressurized/Fixed Equipment: Per interview, the Pressure Equipment Inspection (PEI) Department follows and manages the timely implementation of inspections specified by the C(A)-1 Frequency of Pressure Equipment Inspection policy (rev. 2/19/20). This document applies to all stationary pressure equipment located at MRC, including: air coolers, boilers, furnaces, heat exchangers, piping, spheres, storage tanks, pressure vessels, and pressure relief devices. This policy establishes the criteria used to develop acceptable Risk-Based Inspection (RBI) plans for equipment and piping and establishes the maximum non-RBI, Condition-Based Inspection (CBI) intervals for pressure equipment and piping. The policy also identifies the responsibilities of all those involved in inspection of equipment. CCHS reviewed the following procedures that were part of the mechanical integrity program at PBF Martinez Refinery Company (MRC): • C(A)-30 Quality Assurance Manual for Risk-Based Inspection of API 510 Pressure Vessels (rev.11/4/2020). • C(A)-32 Risk-Based Inspection Work Process (rev. 5/31/19) • C(A)-47, Corrosion Control Document Management (Rev. 5/31/2019) which states the standard requirements for the implementation, updating and continuous improvement of Corrosion Control Documents (CCDs). The CCD covers the Damage Mechanism Review process. • D(F)-1, Pressure Relief Device Handling and Service (Rev. December 2019) the policy includes a PRV pre-test acceptance criteria and actions. Rotating Equipment:	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				includes the use of Industry Codes, Standards, and Guidelines, which are defined as "…the edition of the 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)]	• MEG-010 Rotating Equipment PSM & LHC Guidelines (Rev. Feb. 2019) the procedure covers the general inspections of rotating equipment at MRC. The inspections include oil analysis, vibration monitoring and interim and full mechanical inspections. Electrical: C(A) - 13 Requirements for Safety Instrumented Functions (Rev. Nov. 2020) Section 6.2, Management of Change specifies: • Used when a change could directly or indirectly impact the design, the design intent, the demand rate, the consequences, and/or the testing requirements of a SIF or create the need for a new SIF shall be covered by the site MOC process. • Bypassing a SIF for more than 72 hours if equipment is operating/in service, unless the extended bypass is pre-approved operating procedure (typically when equipment is temporarily out of service or a batch process is in a phase that requires the SIF to be disabled. The IPFs are used to keep a process in steady state or to return it to steady state after a process upset. IPFs are safety instrumented functions (SIF) typically related to safety integrity levels (SIL) for process safety equipment such as PSVs (pressure safety valves). Routine Maintenance: Procedure D(A)-9, Request for Scheduled Inspection or CAIR (corrective action integrity repair) Due Date Extension (rev. 2/8/18) defines steps necessary to request and evaluate the extension of a scheduled inspection or repair due date for pressure equipment and piping. GMP-28, Safe Use of Bleeder Cleaner/Rodout Devices (dated 4/01/16) "provides the steps necessary to safely use a 'Bleeder Cleaner/Rodout Device' to clean plugged instrument taps, isolation valves and associated process equipment."		

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 interview with the SME and as described in A41-01, MRC uses C(A)-32 Risk-Based Inspection(RBI) Work Process (rev. 5/31/19) that is consist with a) Applicable manufacturer's recommendations, b) Recognized and generally accepted good engineering practices (RAGAGEP), and c) Internal practices that are more protective than a) or b). The purpose of RBI process is to document the work process for creating and maintaining a risk-based inspection program to set inspection intervals and inspection scopes for API 510 pressure equipment, API 653 tanks, API 570 piping, and Fired Equipment within the scope of RBI. RBI generates intervals and scopes of maintenance, and inspection to manage the reliability and integrity of the assets, based on risk based principles. The risk-based assessment process necessitates the use of sometime dependent variables like operating conditions/envelopes etc., which may alter the confidence levels of the user, and in turn an amended maintenance/inspection strategy (and/or SIF design) may be required to achieve an optimum level of reliability/ integrity. This allows the RBI program to determine the appropriate inspection frequency based on gathering and monitoring the degradation of pressure vessels and tanks over time. This would be consistent with API 653 which covers tank inspections, repairs, alterations, and reconstruction. It also covers the development of an RBI program by creation and management of RBI schedule in IMS (Inspection Management System) which is the database that is the basis for implementation of the inspection program.	Y	None
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 the inspection requirements detailed in A41-01 and A41-04 and records reviewed in A41-06, the IMS reports and SAP maintenance documentation contain information on inspections for PSVs, Pressure Vessels and Reactors. MRC retains certification records to document that each inspection and test has been performed.	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).	Per interview with a supervising maintenance planner from the PEI Department, the inspection management system (IMS) database is used to develop an annual 18-month look ahead schedule for the inspection and maintenance program. The 18-month plan ahead schedule is prepared on an excel spreadsheet that will then be reviewed by a team from operations and maintenance to address any gaps and upon the team agreement, two maintenance planners will then incorporate the excel spread sheet data into the SAP maintenance database that identifies the number of each maintenance crafts required for each activity and time required for the maintenance crafts needed for the next 90 days. The SAP database will then generate maintenance work orders that are scheduled for the next 90 days. Priority is given to the mandatory preventive maintenances (PMs). CCHS reviewed the look ahead schedules for 2018-19 and 2019-20. CCHS also observed a live navigation of the IMS database and SAP maintenance database. The SAP database is an updated version of the previous SAP maintenance database used by Shell Oil and was made available in October 2020 and integrated the program data from the previous version into the updated version. CCHS observed an overview of thousands of maintenance plans that included about 3000-4000 records for Straight Run Hydrotreater (SRHT) unit maintenance plans. Per a review of data maintained for maintenance of a pump and two PSV replacements, CCHS confirmed that the inspection and testing records were available as indicated in a) to e) in this question. Per a live navigation of PSVs for the Hydrocracker unit (HCU), there are 57 PSVs that are scheduled to be replaced from 1 to 5 years and some up to 10 years. Per a review of maintenance data for three of these PSVs, they were within their 5 year replacement window and records were available as indicated in a) to e) in this question. Per interview, there are currently more than 70 maintenance employees (including pipe fitters and machinists) and about 60 contractors that are	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					available to conduct maintenance activities. There are an additional 8 to 10 electrical contractors that are also available to support the maintenance program.		
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]	Per SME interview, the inspections and preventive maintenance (PM) of PSVs, piping, and pressure vessels follows a particular schedule as these are considered safety critical. These maintenance activities would fall under either Emergency or Schedule Breaker, either of which would need to be done within a few days or within a week depending on the situation. In the event of a PEI (Pressure Equipment Inspection) item needing to be replaced based on a corrosion control document (CCD) finding, it would be given a high priority for that unit. However, in the case of piping or pressure vessels, the replacement can be delayed by the Corrosion and Materials Engineer (CME) if the degradation does not appear to be jeopardizing the safety of the equipment or process. These extensions are based on CCD data that has been compiled over many years. Per SME interview, rotating equipment such as pumps and compressors are closely monitored for parameters such as vibrations, viscosity, water content, flash point, acid number, particle counts and other testing procedures. When a pump or a compressor is found to be operating outside of certain limits, e.g., if the vibrations become severe, the pump or compressor would be removed from service and repaired per the procedures set up in the SAP maintenance program on a timely basis. Per interview and a review of the maintenance data files, the repairs would be consistent with RAGAGEP.	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]	Per interview with SME, the MOC process is required when any new process equipment is introduced to the facility and would need to go through a design review process. A team of subject matter experts would perform the necessary analyses to make sure that the equipment selected for the process would be able to handle the operating conditions. A design team would be used to select equipment that would meet the requirements of API and internal specifications. Once the new process equipment has been installed, there would be a PSSR (Pre-Start Up Safety Review) performed by a team with the necessary technical expertise. As part of the PSSR, there is a checklist Attachment that includes questions related to completion of field construction, installation, maintenance work, and equipment in accordance with design specification and approved drawings, recommendations from Hazard Assessments, field walk-throughs, functional testing of equipment and updates to P&IDs. The engineering design team would also provide the specifications needed to repair and overhaul existing equipment or to add additional equipment to an existing process.	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]	Per a review of the policy/procedures in place for the MI program described in A41-01 and a review of the maintenance planning IMS database, and SAP maintenance program database, MRC conducts 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 the applicable codes and standards. Per interview, a lot of the equipment used at the refinery has been in place for many years. The refinery has developed operating data which allows modification of inspection frequencies and replacement. For new equipment, the Original Equipment Manufacturer (OEM) data is used to set inspection criteria. This is for pressure equipment, piping, PSVs, and process pumps. CCHS reviewed the repair and inspection history for 12 pieces of equipment (5 PSVs, 3 pumps, 2 compressors, 2 pressure vessels) and these had inspections and frequencies that were consistent with the API specifications. If OEM replacement parts are no longer available, an MOC would prompt a technical review to evaluate the alternatives and select the appropriate parts. See A42-01 for information on MOC policy as it relates to parts that are not "replacement-in-kind." Per interview, CCHS was informed that the rotating equipment group has established procedures for installation, maintenance, inspection, and replacement that is based on the OEM manuals. These would be consistent with RAGAGEP.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation does not require the covered process data sheets (i.e., RMP) to mention anything specific for MI although does list the following for DMR: "(s) The date of completion of the most recent Damage Mechanism Review or update. (1) The expected date of completion of any changes resulting from the Damage Mechanism Review, (2) Major damage mechanisms identified; and (3) Changes since the last Damage Mechanism Review". [T19 CCR §2745.7.5]	The submitted RMP dated June 2019 Section 4.4.8 and the submitted Safety Plan dated August 2019 Section 5.6 accurately reflect the existing Mechanical Integrity Program.	Y	None
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.	There were no ensure action items associated with the previous CalARP/ISO audit to be addressed. This question is not applicable.	N/A	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.	Per SME interview, the refinery uses Design and Engineering Practices (DEPs) database which was developed by the previous Shell Oil Company and is now maintained by PBF Energy. Design data is gathered from past projects, stored online and accessible by the MRC technical staff that is responsible for maintaining the pumps, compressors, and PEI equipment. The DEPs include the latest revisions of policies and API and ASME standards. The DEPS are kept current by PBF Energy which aggregates all of the data. For existing equipment, MRC would also use DEPs to find the most current specifications and equipment information.	Y	None
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 Procedure C(A)-47 Corrosion Control Document Management (rev. 5/31/19) .The purpose of this document is to define the standard requirements for the implementation, updating and continuous improvement of Corrosion Control Documents (CCDs). Per the procedure, the purpose of a CCD is to define the principle corrosion concerns; present the materials selection and corrosion control philosophy and identify key process variable limits for corrosion control in specific operating units in the Martinez refinery (MRC). It is intended that the information in a CCD be used proactively by Operations to prevent and control corrosion and/or other materials degradation mechanisms and by Pressure Equipment Integrity Department (PEI) Staff in maintaining an effective inspection-monitoring program. It provides a common understanding of the corrosion and materials degradation mechanisms that could occur and what measures should be applied to mitigate corrosion and/or other materials degradation mechanisms to minimize their impact on the integrity of the unit. Per SME interview, the previous refinery owner Shell Oil prepared CCDs a long time ago and has been updating them periodically and every five years since October 2017. There are 20 CDDs that have been completed or updated to date that cover for all process units.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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.	As described in A41-14, the refinery prepared CCDs a long time ago and has been updating them periodically and every five years since October 2017. These reports are maintained for the life of the process. There are 20 CDDs that have been completed or updated to date that cover for all process units. CCHS reviewed the following CCDs that have been prepared since the prior 2018 CalARP/ISO audit, as follows: - HCU and Volatile Storage CCDs completed in 2018 - SRU-1&2 CCD completed in in 2019 - SRHT and BFWT & Steam Generator completed in 2020 Per interview, a total of 4 unit CDDs that remain to be completed by October 2022. These include 3 CDDs for Logistics Department and 1 CDD for oil water separator for utilities Department.	Y	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 The team that 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 a review of the DMR reports completed in 2018 to 2020 (see A41-15), the DMR is 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. As a specific example, the SRHT DMR team consisted of five members that included the following: - Corrosion & Materials Engineer, - Operations Support Engineer - Operations Specialist - Unit Inspector - SRHT Operator The DMR report included the date, names and signatures of all team members and sign off by PEI Manager, PEI Inspector, Engineering Manager and Operations Manager. The DMR report included corrosion loop and unit specific discussion for 37 parts of the process. The CCD also included a section on corrosion mechanisms prevention and inspection. Per a review of Procedure C(A)-47 Corrosion Control Document Management (rev. 5/31/19), the CCD creation and revalidation should be performed by a team with expertise in engineering and process operations and should include at least one refinery operating employee who currently works in or provides training in the unit, and who has experience and knowledge specific to the process being evaluated. Per interview with operators, CCHS noted that the team conducting the DMR review includes an operator with experience in the specific process reviewed and the operator is in communications with the USW representatives.	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 a review of the six DMRs completed from 2018 to 2020 (see A41-15), CCHS confirmed that the reports included the specified requirements a) through h) in this question. Per CCHS review of the CCDs, the reports do not include process flow diagrams that highlight the affected parts of the process for the most significant corrosion mechanisms. Such information would be useful for the PHA process. This information is currently only available in tabulated form in the CCDs.	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		Per a review of the six DMRs completed from 2018 to 2020 (see A41-15), CCHS confirmed that the reports generally included the specified requirements a) through f) in this question.	Y	None
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)]	Per SME interview, the inspection program is updated if the recommendation from a CDD includes an updated inspection frequency due to a damage mechanism. The primary approach to address the CDD recommendations is the PHA process that requires a review of the CCD for the process and address the changes recommended as action items that are developed and tracked to completion via the PHA recommended actions tracking system in place, See A38 and A51 questionnaires that address the development and tracking of PHA recommendations.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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.	The operations staff and representatives have all taken the P4 training that address the Program 4 safety elements requirements. This training includes the Mechanical Integrity Program. See A40-13 for a more detailed information on this training.	Y	None
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.	Per interviews, the DMR reports findings and completions are discussed in monthly safety meetings with operating, maintenance, and other personnel whose work assignments are within the process unit covered in the DMR. The DMR reports are made accessible on the refinery intranet.	Y	None

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	Contra Costa health services(CCHS) reviewed the MOC policy dated October 31, 2019, revision 13, and confirmed that the policy covers process changes, procedural changes, and organizational changes. The policy also covers permanent, temporary, and emergency changes. Per policy, all process changes require a MOC except for replacement in-kind and direct replacements. The policy provides multiple examples of “replacement in-kind” and “direct replacement” CCHS reviewed the listing and found the items appropriate. Per interview with MOC SME, the facility has completed approximately 200 MOCs from Mar 2018- Jan 2021. CCHS randomly selected the following MOCs for review: •20172263 – 001 •M2019522 – 001 •M201468 – 001 •M20172186 – 001 •M20161923-001 •M2020051-001 •M20191437-001 •M20181778-001 •M20171750-001 •M2018171-001	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				training and notification documentation, as appropriate. [CCHMP interpretation]			
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.	CCHS reviewed the MOC policy C(A)-15, revision 13, dated October 31, 2019, and confirmed the management of change procedure addresses the impact of the change related to process safety before implementing the change. The facility has developed various technical evaluations based on the type of change required to be complete and attached to the MOC package before the completion of the MOC. The technical evaluation also includes a checklist to identify if the MOC qualifies as a major change. If the change qualifies for a major change, then HCA, Human Factors / LCC Checklist are required. There were two major changes that were identified. CCHS reviewed those changes specifically and confirmed that the facility had completed the PHA and performed the HCA for both of those major changes. Per policy, the facility states the human factors checklist will be completed as part of the major change. However, CCHS notes that these major changes predate revisions to the policy, that now included a human factors checklist. Human factors were evaluated as part of the HCA process for more information regarding human factors, see question a A50-14.	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		The MOC evaluation has a check to ensure that operating procedures are updated as part of the MOC. Similarly, there is another check for maintenance procedures. Based on a CCHS review of the 10 MOC's that were identified in question a A42–01, the following procedures were updated as a result of the change. Changes made to the procedure are attached to the electronic MOC database system. Per policy, if there are any updates made to either the operating procedure or the maintenance procedure, those items must be included as part of the training. Per follow-up interview with MOC SME, they confirmed that the operating procedures were updated prior to the administration of the training. The facility has also developed a process the addresses changes to operating and maintenance procedures only. Per policy A(A)–32, dated December 2020, there are two types of review of new processes based on the procedure's criticality. Both review processes including a multi tiered-review process. All newly reviewed revised temporary operating procedures require an MOC transmittal form, which documents a description of the technical change basis for the change in impact to the change. Procedural only changes do not go through KMS. Per policy A(A)–37 "and revise maintenance procedures" dated March 2019 revision 4, follows a different process than the operating procedures. First, the maintenance procedure is risk ranked on a score of 1–3 review being the highest risk. Only maintenance procedures that are risk-ranked three go through the MOC process.	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 the MOC policy and confirmed that it addresses temporary repairs and addresses the necessary time required for the change. Temporary changes are discussed in section 6.1.3.2 of the policy. Temporary MOC's are treated in the same fashion as the normal MOC process using KMS; however, the temporary MOC's must include an expiration date. That expiration date must not exceed the next scheduled unit turnaround. One type of temporary MOC is Leak Repair. CCHS reviewed the Temporary Repairs listed below and determined that none of the evaluations included the temporary repair's expected design life. American Society of Mechanical Engineers Post Construction Code - 2 requires the repair's design life to be established. That design life should exceed the expected removal date of the temporary repair. CCHS notes that this is critical when using resin epoxy that operates at cyclic temperatures. Upon follow-up discussions with the MOC SME and the Leak Repair SME regarding the addition of the design life, they both confirmed that adding this to the Leak Repair form would improve the process. Contra Costa County reviewed the following temporary MOC's listed below. TR – 157 – 10 TR 836 – 17 TR – 841 – 17 TR 859 – 17 TR – 861 – 18 TR – 965 – 19 TR – 966 – 19 TR – 1030 – 20\ Contra Costa County reviewed the temporary repair record, which falls under the temporary MOC program, and identified inconsistencies in the majority of the QA/QC mechanical completion records reviewed. For example, in some circumstances, the QC portion indicated that the NDE was completed while the QA identified it as not	P	Ensure that the ”record of temporary repair QA/QC” portion is appropriately completed to be accurate such that any discrepancies between the QA and QC portions are addressed before the completion of the temporary MOC.

applicable. Of the temporary repairs listed above, the following records show this inconsistency;
TR 1030 – 20 – QA indicates visual inspection was completed, QC indicates N/A for NDE completed
TR – 841 – 17 – QA indicates visual inspection was completed, QC indicates N/A for NDE completed
TR – 859 – 17 – QA indicates that pressure test results & bolt torquing is not applicable, while QC identifies the pressure test and torquing as completed
TR – 965 – 19 QA indicates pressure test is not applicable, while QC suggests that it was completed
TR – 966 – 19 QA indicates pressure test is not applicable, while QC indicates that it was completed

The facility needs to ensure the "Record of Temporary Repair QA/QC" portion is appropriately completed to be accurate. Any discrepancies between the QA and QC portions need to be addressed before the completion of the temporary MOC.

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)]	The MRC has developed a process for informing their personnel of the change related to the MOC before the implementation of the change. The SME provided CCHS with live navigation of the system used to notify personnel of the MOC, which is also used to track training. The facility uses an email system to send the notification to personnel that is affected by the change; the receiver is required to review the email, sign their name, and state whether they understand the change or need additional follow-up to understand the change. The responses to these emails are tracked in a database (Microsoft Form). Per multiple operator interviews, they confirmed that they are notified of the change via email and have to confirm whether they understand the change. Operators also confirmed that training regarding the change also is completed in the field as needed and can also be done via teleconference PowerPoint. For new equipment that is installed in the area, which that an engineer or supervisor will take operators into the field, and they will go over the change. Contra Costa County reviewed the MOCs listed in A42-01 and confirmed the MRC had verified training was complete prior to the authorization to start the system.	Y	None
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)]	As discussed in question A42 – 08, maintenance employees are informed of the change in the same manner as operators through email notification. Training is provided as either face to face, email notification, or classroom).	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)]	As discussed in question A42 – 08, contract employees are informed of the change in the same manner as operators through email notification. Training is provided as either face to face, email notification, or classroom).	Y	None
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.	Per interview with a subject matter expert and operators, both confirm that P&IDs are updated electronically. Changes made to the PSI information is tracked in the technical evaluation. Specifically, in the technical evaluation called "drawing / File update plan," which discusses the files that will be updated as a result of the change, this includes the drawings, limits, inspection plans, test procedures. CCHS was able to confirm that the redline drawings were attached to the MOC evaluation.	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		For each MOC, the technical evaluation that is completed, ask the following two questions related to operating procedures and maintenance procedures. Operating procedures - (any impact to operating procedures, start-up/shutdown, emergency procedures, list out the procedures and impacts). Maintenance - identify whether the change will require new requirements for maintenance personnel to do their job, consider training, maintainability, access, procedures. CCHS reviewed the MOC listed in findings A42-02 and confirmed that the technical evaluations for the MOC responded to the above items listed above. CCHS confirmed via an interview with Operations Specialists that the procedures are updated before the training and prior to completing the MOC. The MOC SME also confirmed that the Operating Procedures are finalized and updated before closing out the MOC. CCHS notes that following MOC # M20191437-001 involved changes to a procedure.	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	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation only requires the following be listed in the RMP: "(f) The date of the most recent review or revision of management of change procedures" [T19 CCR §2745.7.5].	Section 5.4 of the Safety Plan dated August 22, 2019, and section 4.4.6 of the Risk Management Plan dated February 28, 2020 accurately reflect the MOC Program at the stationary source.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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.	In the previous CalARP ISO audit, the one ensure action item was given and addressed.	Y	None
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)]	Section 6 of the MOC policy states the following ”A DMR (Damage Mechanism Review or CCD) review is required as part of a major change, or if the major change introduces a new damage mechanism, a DMR shall be conducted before the approval of the change.” CCHS reviewed the major change documentation and confirmed that the corrosion control documents were reviewed for the major changes. CCHS notes that for the flexigas flare projects the Corrosion Control Limits were part of the "Ensure Safe Production" process. As a result of the CCL and ESP, some of the IOW limits had to be updated. A summary of the change is listed in the Technical Evaluation for this major change is dated 10/31/17.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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)]	Section 6 of the MOC policy states the following "A DMR (Damage Mechanism Review or CCD) review is required as part of a major change, or if the major change introduces a new damage mechanism, a DMR shall be conducted before the approval of the change." CCHS reviewed the major change documentation and confirmed that the corrosion control documents were reviewed for the major changes. CCHS notes that for the flexigas flare projects, the Corrosion Control Limits were part of the "Ensure Safe Production" process. As a result of the CCL and ESP, some of the IOW limits had to be updated. A summary of the CCD updates is listed in the technical evaluation for both the flexigas flare and energy recovery project.	Y	None
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)]	Per interview with the SME, employee participation is a requirement. For all MOCs, it is now included as formal, sign-off, and part of technical signoff, and, formally, they typically review the meeting. They will get the phone call and included them. Program in terms off feedback, off-hours, invite to the meeting. CCHS interviewed the USW representative and confirm that this information is correct. This new process has been employed for roughly about one year. As identified in A46-01 employee participation questionnaire, employees and their representatives need to be involved in the development of the MOC program, which would include any revisions made to this policy.	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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 section 8.0 of the MOC policy are two types of training that are offered under the MOC process versus MOC awareness level training, the second MOC knowledge training. The first MOC awareness level training is an annual training that is offered via computer based training. Per multiple interviews with operators, they confirmed that they had received MOC training and that they were very familiar with the process.	Y	None

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

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A43-01	Program 4 CalARP & ISO	Does/did the owner or operator perform pre-startup safety reviews for new processes? [T19 CCR §2762.7(a) & ISO Section 450-8.016(a)(7)(A)]		* Review completed PSSR's and corresponding information. 1. A PSSR is also required for new stationary sources although P4's "new processes" is more restrictive. [ISO Section 450-8.016(a)(7)(A)] 2. A new stationary source is a stationary source constructed on a site such that it is physically separated from and otherwise independent from existing stationary sources and would not affect or be affected by another facility or any of its process(es). [OSHA Interpretation Letter to Chevron, 1/11/96] 3. New Stationary Source means a stationary source that now has a covered process that is not currently in the CalARP program. [T19 CCR §2735(qq)]	CCHS reviewed the policy titled C(A) – 14 "Pre-Startup Safety/statement of fitness" revision 13, dated October 31, 2019, which states A PSSRs are required for new processes. Per interview with SME, the facility has not had any new processes built since the 2018 CalARP audit. Per policy, the PSSR would be completed for any new asset or modification via the MOC process. Section 6.2 of the policy specifically addresses PSSR for new facilities are a modification to existing facilities. Within the section, the policy describes additional programs that will be reviewed as part of a new facility or modification to the existing facility; this may include PHA, HCA, DMR, and SPA as applicable. Attachment 1, to the policy, is a form that serves as a verification check independent of the MOC process to confirm that the pre-startup safety review questions in the MOC electronic database are completed. This form is signed and dated by the production specialist, MOC responsible person, and production unit manager.	Y	None

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]	As indicated in question A43-01, the policy address PSSR for MOCs that were completed on modified processes if processes necessitate the change. The policy addresses PSSR in the event of a partial or unplanned shutdown, including turnaround work as required by the regulation(CCR S27 62.7). The facility has developed a specific PSSR (also known as Statement of Fitness) form to address startups following a partial and unplanned shutdown, including turnaround work. The PSSR forms are signed by various technical disciplines, the Production Specialist or operations coordinator, and the operations support engineer, and the production unit manager. CCHS reviewed the Statement of Fitness (SoF) forms completed on the following dates May 16, 2020, and May 19, 2020.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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		The PSSR includes questions that confirm the equipment is maintained and operable in accordance with design specifications, including construction, maintenance, and repair work performed. The PSSR questionnaire is comprised of 19 questions that are uploaded into MOC electronic database and are required to be answered as part of the MOC process. Below are some examples of questions that relate to the verification that procedures have been completed. - "Is field construction, installation, maintenance work, and equipment in accordance with design specification and approved drawings?" -Are necessary maintenance procedures in place? -Are necessary startup, shutdown, operating, There is an operations specialist required to sign and approve a "ready to start" statement confirming that the PSSR questions have been completed and answered. This within itself is not a second independent verification. However, it adds to the PSSR program's robustness by having a second check that the PSSR verification was indeed completed. Per interview with the operation specialists responsible for oversight that the PSSR is completed correctly; and as such, they validate anywhere from 10 to 20% of the PSSR items. Contra Costa County health services reviewed the PSSR forms related to the same MOC's reviewed in question a A42 – 01, and no issues of concern were noted.	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		The PSSR form that is completed for all MOC's ask the following questions that confirms operating, maintenance, and emergency procedures are in place: -Are necessary startup, shutdown, operating, and special procedures in place? -Are necessary maintenance procedures in place? -Have the emergency procedures been updated if necessary (unit operation emergency)? -Have the safety and emergency response procedures been updated if necessary? CCHS notes that the PSSR reviewed did not require an update to the procedure. CCHS did confirm that when the procedure updates are required, the redline procedure was attached to the MOC and the PSSR verified that it was attached.	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 PSSR form that is completed for the all MOCs and asks the following questions: -"Have the affected on shift operators been informed of and trained in the change? Attach any necessary training documentation to this PSSR." -"Have the affected maintenance employee and contractors been informed of and trained in the change? Attach any necessary training documentation to this PSSR."	Y	None
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	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation only requires the following be listed in the RMP: "(g) The date of the most recent pre-startup safety review" [T19 CCR §2745.7.5].	The section 5.5 of the Safety Plan dated August 22, 2019, and section 4.4.7 the Risk Management Plan dated February 28, 2020 accurately reflect the PSSR Program at the stationary source.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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.	In the previous 2018 CalARP ISO audit, the one ensure action item was given and addressed.	Y	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		Operating and maintenance employees and employee representatives do not effectively participate throughout all phases in the performing PSSRs. As indicated in question A46-01, employee participation is required in the development and ongoing implementation of the program. The facility needs to establish a means for allowing employee representation to review and revise the PSSR policy.	R	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 section 8 of the PSSR policy, requiring all individuals who participate in the PSSR team to have awareness training. Per an interview, the SME indicated that they review approximately 10% of the completed PSSRs for quality assurance, and feedback is provided. The operations specialist was responsible for signing off on the PSSR’s and performing additional quality inspections on newer employees or employees new to the PSSR program. CCHS notes that operators and operator representatives are currently not listed as part of the PSSR team; under the employee participation rules, union-represented personnel can participate in the ongoing PSSR program development. The facility will need to provide effective training to the employees and employee representatives serving on the PSSR team.	Y	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	CCHS reviewed a copy of the 2020 compliance audit report and the last page of the report included a signature page signed on 2/1/2021. The audit was conducted Oct 26-30, 2020 with the report issued on January 20, 2021. CCHS also reviewed a certification page dated Nov 2017 for an audit that was conducted April 10-13, 2017 and the report issued on Oct 24, 2017 released after legal review. CCHS was contacted by the facility on 4/3/2020 to discuss the impact of the March 16 Health order and subsequent revisions on a planned compliance audit scheduled for the week of April 27. The due date for the compliance audit was extended to be three months after expiration of stay at home health order. Due to the health order compliance, the audit was delayed 6 months and subsequently the new report must be issued and signed by May 2021. The facility did complete and certify the report within the extended timeframe. In light of the safety measure in place in 2020, the planning and preparation were done virtually and most of the interviews were done via teleconference. The audit team convened on site and practiced social distancing for the audit week.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				requirements (Article 6.5).			
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)]	CCHS reviewed a copy of "2020 Martinez PSM/RMP/CalARP/ISO Internal Compliance Audit Final Report, Oct. 26-30, 2020", and it includes an audit objective and scope, audit plan, a listing of the topics examined and the audit finding including the corrective action, assignment and target completion date. The report included the names of the audit team members, and stated that the audit team used the Contra Costa County Program 4 questionnaire which includes the CalARP Program 4 requirements and the Contra Costa County Industrial Safety Ordinance requirements. This audit is intended to meet compliance with Cal/OSHA PSM standard, EPA RMP rule, CalARP and the County's Industrial Safety Ordinance.	Y	None
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)]	Per review of the compliance audit report, there were 12 findings and each of the identified audit findings identified the corrective action, assigned person responsible to complete the action and a target date. CCHS noted that the target dates listed for these findings are 4/30/2022 and there was one item identified from reviewing the 2018 CCHS CalARP audit that was already addressed on 3/1/2021. This target date was 1.5 years from the completion of the audit on Oct 30, 2020.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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]	CCHS reviewed C(A)-29 Conduct Assurance, dated May 2019, which is the procedure for managing internal audits and external audits. The procedure states that the final audit report is sent to the report distribution list and the Assurance Coordinator is to input this to an electronic database. The procedure further states the party responsible for completing assigned actions must do so on or before the required due date. There is also a Closed Action Review conducted monthly by Primary Lead Auditor. However, the policy does not address the requirement to append the completed action to the report. However, the actual completion date of action items in not due for till 4/20/2022.	Y	None
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)]	Per this CalARP audit, CCHS was provided copies of compliance audit for 2017 (April 10-13, 2017) and 2014 (April 28-May 2, 2014) along with the certification records and the 2020 compliance audit.	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	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation only requires the following be listed in the RMP: "(h) The date of the most recent compliance audit and the expected date of completion of any changes resulting from the compliance audit" [T19 CCR §2745.7.5].	CCHS reviewed the CalARP RMP dated Feb. 28, 2020 and the SP dated Aug. 22, 2019, Section 4.4.10 and Section 5.7 are brief descriptions of the compliance audit program at the facility and is accurate.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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 no ensure actions from the 2018 CalARP/ISO audit. This question is not applicable.	N/A	None
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 SME, the 2020 compliance audit report was distributed to the audit team which included the USW representatives. A link to the report was also made available on the intranet website portal for all employees to access. CCHS was provided a snap copy to verify that a link was posted.	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)]	Per interview with SME, after the closing report out meeting, where the audit members discuss gaps that was identified, there will be a follow-up meeting. The meeting is held with Primary Lead Auditor, primary auditee and audit team lead to review and agree on findings, risk rankings, and assign actions. For gaps that were identified in the compliance audit, there is no rejection of recommendations but there is an agreement on the corrective actions needed. C(A)-29 stated that the primary auditee has final approval for all decisions in this session. Then at the Action Validation Meeting, proposed corrective actions and target dates are presented to the primary auditee for approval. Then the agreed upon and approved content will be entered into the final audit report.	Y	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		Per interview with SME, the audit team members were provided copies of the audit questions, the expectation of sample sizes, interview with personnel. SME was also involved in scheduling interviews and the USW representatives were a part of the audit team and accessible to all team members for discussions. CCHS reviewed a document titled "Terms of Reference" for the 2020 Martinez Process Safety Management Internal Compliance Audit, it states in methodology that auditors will gather information through "interviews with appropriate staff, crafts, production personnel, and contractors" as well as field observations, and review of relevant site procedures, documents and records. This is specified in audit activities in the PBF policy (CORP-HSE-004, rev. 6/29/2020) and was also covered in a power point training for compliance auditors. Per interview with SME, employee representatives are not a part of the Action Validation meeting where the proposed corrective actions are formulated. There is no consultation for the recommendations before the audit reports are finalized. As indicated in A46-01, employee participation is required in "all-phases" of the prevention programs.	R	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	CCHS reviewed Shell HSSE & SP Control Framework (rev. 06, dated February 2016) which provided a Risk ranking that was used to evaluate incidents. CCHS reviewed MRC Procedure I(A)-6, Investigations and Incident Reporting (revised November 2019) which provides the process for investing incidents that uses a tool called TOP (Triangle of Prevention) and CL (Causal Learning) which is referred to as TOP/CL. This was the RCA method used by the facility to investigate incidents in the past. For the incidents reviewed during the audit, these investigations will be covered by the this policy. Under Mandatory Investigations (section 6.3), the policy includes criteria for classifying MCAR, potential MCAR, Major Incident, potential Major Incident, catastrophic release, potential catastrophic release. CCHS was informed by the Safety Manager that a new RCA method will be used to investigate incidents in the future and a recent incident that is being classified as a potential Major Incident. CCHS was provided a copy of the new policy which is different from the current policy in how it categorizes incidents as well as the RCA method. This policy is I(A)-6 revision 18 (expected to be released Feb 2021). CCHS was informed that the facility is no longer able to utilize the TOP/CL method to investigate process safety incidents involving MCAR, potential MCAR, Major Incident, potential Major Incident, catastrophic release, or potential catastrophic release due to loss of personnel who were very experienced in performing TOP/CL on process safety incidents. CCHS was informed that the facility is transitioning to a new RCA method. There is no record of MRC communicating with CCHS about using a new RCA method for incident investigations; however this RCA method was reviewed during the audit. This policy classifies incidents using CORP-HSE-008 Appendix B & C, Risk Matrix & Consequence Guidance (rev 1-4/1/19) which uses frequency and consequence to classify incidents.	P	Ensure that the facility reviews, implements and maintains an effective written procedure for incident investigation that includes RCA. Ensure that MRC communicates with CCHS about any new RCA methods before making them part of the incident investigation policy. This action item was addressed during the audit so no further action is needed.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				regulated substance" and how and when they 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) &	From I(A)-6 from November 2019: Level 1 Tech study - used to determine physical or technical causes of an incident. The team is typically made up of only a couple of people within the department and does not include a union representative or hourly person. CCHS was informed by the Safety Manager that this type of investigation would not be used to investigate MCARs, Major Incidents, or potential MCAR or Majors. TOP/CL Level 2 - medium level investigation where the purpose is to discover both physical, behavioral and the underlying system causes that led to the incident. This includes organizational and safety culture causes. All Level 2 investigations require participation of at least 1 trained TOP/CL hourly investigator unless the CL facilitator is an hourly employee. TOP/CL Level 3 - high level investigation where the purpose is to discover both physical, behavioral and underlying system causes that led to the incident. This includes organizational and safety culture causes. An investigation team and facilitated by the Causal Learning Focal Point or a facilitator with the competency to facilitate a Level 3 investigation. All Level 3 investigations require participation of at least 1 trained TOP/CL hourly investigator unless the CL facilitator is an hourly employee. On page 19, the procedure states that the sponsor is responsible for making sure that an HCA (Hierarchy of Hazard Control Analysis) is performed on all action items that are considered major changes that could reasonably result in an MCAR. This should be ISS. On page 20, the policy states that the sponsor is responsible for making sure that HCA's are performed on all action items from a Major Incident. The policy has definitions for MCAR, Major Incident, potentials for MCAR and Majors, and catastrophic release as follows: -- MCAR: consistent with the ISO definition of an MCAR. -- Major incident: consistent with the CalARP P4 definition. -- Catastrophic release: consistent with the CalARP P4 definition.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				Labor Code Section 6432(e)] 3. “Catastrophic release” means a major uncontrolled emission, fire, 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)]	CCHS reviewed the following incident investigation reports: Major Incident - none MCAR (Investigated using the Cause and Effect RCA method which is part of the TOP/CL method) -- Loss of flare pilots (incident date 7/6/18) Potential Major Incidents -- F-14012 (incident date 10/31/17) -- FIM incident 2026352 (incident date 2/16/18) (Investigated using the TOP/CL RCA method) -- FIM incident 2020582 (incident date 2/8/18) -- FIM incident 2032512 (incident date 2/16/18) -- FIM incident 2108968 (incident date 6/26/18) -- FIM incident 2189489 (incident date 10/18/18) -- FIM incident 2377677 (incident date 6/12/19) Potential MCAR -- F-14012 Furnace flooding (incident date 10/31/17) -- FIM incident 2026352 (incident date 2/16/18) (Investigated using the TOP/CL RCA method) -- FIM incident 2370831 (incident date 6/7/19) -- FIM incident 2032512 (incident date 2/16/18) -- FIM incident 2108968 (incident date 6/26/18) -- FIM incident 2189489 (incident date 10/18/18) -- FIM incident 2377677 (incident date 6/12/19) -- FIM incident 2305905 (incident date 3/19/19) CCHS reviewed incident 183118 (incident date 11/17/20) which was an ongoing investigation. This was an incident that was initially identified to CCHS with the potential for an environmental impact as well as process safety incident. CCHS interviewed the Safety Manager and the Process Safety Manager who said that although the incident was classified as a near miss, due to redundancies in the system, there was almost zero chance that this would have risen to the level of potential MCAR or potential Major Incident. CCHS was informed that although there were numerous interlocks in place, these interlocks were		

					bypassed and the alarms silenced. MRC has several processes in place that require checking and monitoring systems and these checks discovered the issue with the bypasses.		

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	CCHS reviewed the incidents from A45-01 and each had a report that included the makeup of the team that was responsible for doing the incident investigation. As mentioned in A45-01, there are three levels of incidents: level 1, Top/CL level 2, and Top/CL level 3. The facility uses Top/CL Level 2 and Level 3 to investigate MCARs, Major Incidents, and potential MCARs or Major Incidents. The union reps maintain a list of qualified personnel who have been trained in Top/CL method and can serve in different capacities on an incident investigation team. CCHS was informed by the SME that MRC is in the process of changing the Level 3 investigation technique. MCAR -- Loss of flare pilots (incident date 7/6/18) (Investigated using the Cause and Effect RCA method which is part of the TOP/CL method) investigative team: investigator/facilitator, operations rep, two staff engineers experienced in the LOP flare system Potential Major Incidents -- FIM incident 2020582 (incident date 2/8/18) (Top/CL RCA Level 2 method used for investigation) Team: full time: project engineer (TOP/CL facilitator), hourly investigator, engineer Ad Hoc: contractor representative -- FIM incident 2189489 (incident date 10/18/18) (Top/CL Level 2 RCA method used for investigation) Team full time: CLFP (trained facilitator) and union rep Potential MCAR -- FIM incident 2370831 (incident date 6/7/19) (Top/CL RCA Level 2 method used for investigation) Team: full time: rotating equipment engineer (trained CL facilitator) and peer to peer coordinator (trained TOP/CL investigator) -- FIM incident 2377677 (incident date 6/12/19) (Top/CL RCA Level 3 method used for investigation) Team:	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				training.	full time: CL focal point (facilitator), union rep, H&S engineer, utilities supervisor Ad Hoc: unit reliability operators, unit board op, production specialist, utilities operator, process safety engineer -- FIM incident 2305905 (incident date 3/19/19) (Top/CL Level 2 RCA method used for investigation) Team: full time: environmental engineer/TOP CL facilitator, union rep Ad Hoc: unit OSE, CL focal point.		

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.	CCHS reviewed the incident investigation policy I(A)-6 which states (page 7) that a level 1 tech study would be used when the focus is on the deterring the physical or technical causes of an incident. In the case of a level 1 classified incident, the investigators do not need to have TOP/CL training and the team would normally be small, consisting of only 2 people from the department and no union reps or hourly employees. CCHS reviewed the following Level 1 tech studies: -- FIM incident 2026352 (incident date 2/16/18) Note: this incident was reclassified as a potential MCAR This report contained the date of the incident, the date that the investigation began, a description of the incident, factors that contributed to the incident, recommendations (2 action items). Neither change was considered a major change that could have resulted in an MCAR. CCHS reviewed the potential MCAR incident reports below which included the date of the incident, date investigation began, description of incident, factors that contributed to the incident, recommendations resulting from incident, and if recommendation is applicable refinery-wide. -- FIM incident 2370831 (incident date 6/7/19) Two recommendations (343991 and 343989) have due dates of 3/26/21 and remain open. The other 4 recommendations have been completed. -- FIM incident 2032512 (incident date 2/16/18) All 13 recommendation have been completed -- FIM incident 2108968 (incident date 6/26/18) 2 of 3 recommendations remain open. -- FIM incident 2189489 (incident date 10/18/18) All 3 recommendations have been completed. -- FIM incident 2377677 (incident date 6/12/19) 1 of 17 recommendations remains open with target completion date of 4/10/21. -- FIM incident 2305905 (incident date 3/19/19)	Y	None

There were 9 action items from the investigation one of which was deemed an alternative to an action item. This was for adding a safe guard that would provide more protection than the original recommendation. CCHS reviewed the associated MOC20191297 which was for changing the set points for several alarms. CCHS also reviewed the MOC summary for this action item and all of the items had been closed. There was an action item to verify that Work Order 83799730 was completed which was marked complete on 9/1/20.

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;	CCHS reviewed the reports in A45-01 and each had the items in (a)-(d). The reports have sections called "Review of studies relevant to the incident" which details some of the documentation that is reviewed as part of the incident investigation. This typically includes the PHA for the unit where the incident took place but could also include DMR, HCA, or LOPA. For each recommendation from an incident investigation, there are notes that could include the following: interim measures (if there is one), systems of safety, corrective action, cause to address, FIM action #, due date, and applicability (whether this condition could occur elsewhere in the facility). For example, the incident report for LOP Loss of Flare Pilots (classified as an MCAR) included the following: diagrams of the piping involved in the incident; the Cause and Effect Analysis as the RCA tool; the RCA; the contributing causes, and the CCD reviewed. This report also included the weather conditions, the type of release, the quantity and chemical released, the onsite and offsite impacts, and agency notifications made. For each recommendation, there was a statement regarding applicability to other processes and equipment. For FIM 2377677, the report includes RCA Top/CL which identified two issues during the investigation which was a design issue and the lack of review of the potential incident in a PHA. This was classified as both a potential Major Incident and a potential MCAR. There were 16 recommendations generated and each had an Applicability section indicating whether the recommendation could apply to other processes or equipment. CCHS interviewed the SME's for incident investigation and was informed that there have not been any Major Incidents at MRC and thus none of the reports reviewed in A45-01 would have required an HCA.	Y	None

(c) Introduction;
(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-	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 reviewed policy I(A)-6 which states (section 6.3.1.3) that for MCARs, potential MCARs, Major Incidents, potential Major Incidents, catastrophic releases, potential catastrophic releases the incident sponsor can reject a team recommendation based on the criteria in T19 CCR §2762.16(e)(2). In addition, the policy states that a sponsor may change a team recommendation if the sponsor can demonstrate in writing that an alternative inherently safety measure is in place of a higher order or equivalent or that for a safeguard recommendation, an alternative safeguard would provide protection that is equally or more effective. In section 6.3.1.3 (page 15), the policy states that recommendations shall include interim action that will reduce the risk of a reoccurrence or similar incident until the final recommendations are completed. The policy also states that recommendations that come from Level 2 or Level 3 investigations that the recommendations will be completed within 18 months for actions that do not require a turnaround for Major Incidents or potential Major Incidents and 1.5 years or 2 years from the date of the incident or turnaround (if required) for MCARs or potential MCARs. CCHS reviewed the list of action items for the incident reports in A45-01. Each list contained the status, action item #, action item source, assigned person, action item title, action item note, action item resolution note, target date, completion date, action item closed date, created date, action item responsible manager, action item final approver, incident ID, and priority. For example, incident FIM 2189489 contained three recommendations with the first one being classified as an Interim measure and the other two as Preventative measures. Another example was incident FIM 2370831 which contained four recommendations: one Interim measure (two parts,1a & 1b) related to design and engineering, one improvement to hardware (two parts, 2a & 2b), and the final two recommendations that were related to obtaining more information about the hardware and sharing this information with the affected parties. CCHS interviewed the incident investigation SME's who said that once action items are generated, the	Y	None

sponsor would determine whether there were any recommendations that needed to be evaluated further.

MCAR
-- Loss of flare pilots (incident date 7/6/18)
All recommendations have been completed, the last one 10/25/19. There were two more recommendations that were completed in March 2020 which were for generating an LFI and attaching the recommendations to the report.

Potential Major Incidents
-- FIM incident 2189489 (incident date 10/18/18)
Two of three total recommendations not closed out until Aug 2020.

-- FIM incident 2377677 (incident date 6/12/19)
There were 17 action items that came out of the investigation and one action item that was for reviewing the action items. 16 of the action items have been closed with the last one scheduled for completion 4/10/21.

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)]	CCHS reviewed a spreadsheet that contained the action items for the incident reports listed in A45-01. This spreadsheet was for incidents classified as MCAR, potential MCAR, potential Major Incident and divided into individual tabs that contained the action items for each of the incident reports. The column headers for each table were Status (action item), Action item #, Source, Assigned person, Action Item Title, Action Item Note, Resolution Note, Target Date, Completion Date, Closed Date, Created Date, Responsible Manager. CCHS interviewed the SME's for incident investigation and was informed that under the previous owner the facility used a different database to track recommendations. However, past data has been archived and is available for review. CCHS also reviewed the new database system that is being used to track action items from incident investigations to completion. For FIM incident 2370831 (incident date 6/7/19), the report indicates that the HCU PHA was reviewed as part of the investigation. There is a note indicating that this incident was added to the PHA. There were 4 recommendations: two have been completed by the original due date; the remaining two recommendations have a target completion date of 3/26/21. None of these required an extension. For the LOP Loss of flare pilots MCAR event, the report referenced the PHA and the CCD for the LOP flare. Each recommendation was tracked to completion and included the action taken and the date that the recommendation was closed. None of the recommendations required an extension.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A45-12	Program 4 CalARP & ISO	Has the report been provided to and, upon request, reviewed with all employees whose job tasks are affected by the incident and made available to all operating, maintenance, and other personnel whose job tasks are relevant to the incident findings, including contractor employees where applicable? [T19 CCR §2762.9(k) & ISO Section 450-8.016(a)(9)(F)]		1. Investigation reports are to be provided upon request to employee representatives, and where applicable, contractor employee representatives. [T19 CCR §2762.9(k)] 2. All documents or information developed or collected by the owner or operator related to the incident investigation program should be accessible to employees and employee representatives including information that might be subject to protection as a trade secret? [T19 CCR §2762.10(a)(3)]	CCHS reviewed the incident investigation policy (page 18) which states that the investigation team is responsible for creating an LFI (learning from incident) and the CLFP (causal learning focal point) is responsible for making sure that a link to the LFI is emailed to all employees at the site including contractors. This would be for MCAR's, potential MCAR's, Major Incidents, potential Major Incidents, catastrophic releases, and potential catastrophic releases. CCHS reviewed the LFI presentations that were provided to the workforce once the incident reports were completed. CCHS also reviewed Safety Alerts which is a new system that is being used to track the communication of incident investigations with the workforce. This list includes the title of the incident report, the department, the complex unit, the site, the date shared, incident category. This is a new system which does not yet have all of the incident LFI communications. CCHS interviewed operators who said that incident reports are shared with each of the units and discussed as part of the morning meetings. Depending on the severity of the incident, there may be additional training required if there is an update to operating procedures or some other change that would be typically captured in an MOC. Most of the incident reports that personnel receive are for slips, trips, and falls but there is a lot of communication from the corporate office as well as site leadership about near miss incidents at the site as well as other facilities.	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)]	CCHS reviewed the Incident Investigation policy which states in section 10.1 that investigation reports are to be kept for the life of the process. CCHS interviewed the incident investigation team that included TOP/CL rep as well as the Safety Manager and did a live navigation of the archive of past incident reports that were downloaded from the old system. In February 2020, the facility implemented a new database for tracking incident investigations with associated action items. The old database is no longer used by the facility as a result of the facility being under new ownership. However, past reports have been archived and are available for review.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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.	CCHS interviewed the Safety Manager who said that employee reps and the Safety Manager meet twice per week to review incident investigations. These include process safety incidents as well as slips, trips, and falls. The team looks at process safety incidents and reclassifies them if they believe that more thorough investigations are needed. They will also determine whether there are any trends within MRC. The corporate office tracks trends and shares incident reports with all of the refineries within the organization. CCHS interviewed operations personnel who said that near miss events are communicated to the workforce within units and plant wide. This is in addition to communication that is received from the corporate office.	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	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation only requires the following be listed in the RMP: "(i) The date of the most recent major incident investigation and the expected date of completion of any changes resulting from the investigation" [T19 CCR §2745.7.5].	The submitted 2019 Safety Plan (pages 31-33) and the submitted 2019 RMP (pages 64-66) accurately reflect the existing incident investigation program at MRC.	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 three ensure action items from the previous audit and all have been addressed.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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)]	CCHS reviewed I(A)-6 which states in section 6.3.1.4 that the investigation report is to include a list of any CCDs, PHAs, and LOPAs reviewed as part of the investigation and relevant findings from those reviews, if any. CCHS reviewed the incident reports from A45-01 and found the following incident reports required reviewing the related CCD's. -- For MRC 2018-002 MCAR investigation report (incident date 7/06/18), both the PHA and the CCD were reviewed: There is a note about the CCD being reviewed and the material for a particular run of pipe being upgraded. -- For FIM 2026352 (incident date 2/16/18) there was a technical study of an incident that occurred at the facility. The investigation team consisted of 3 SMEs: a corrosion materials engineer, a PEI inspector, and a unit inspector which indicates that a review of the CCD would have been part of the investigation although it is not mentioned in the report. For the rest of the incidents reviewed, the incidents were not deemed to have been impacted by a damage mechanism.	Y	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	* 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). 1. “All phases” may include employee participation in recommendation closure verification or other activities, check employee participation policy for details.	CCHS reviewed Attachment 3 of C(A)-4 Process Safety Management (rev. 2, dated May 2019) which describes the employee participation program at MRC. The policy mentions "all phases" for process safety programs including incident investigation. The policy states that MRC will seek employee involvement through direct participation on voluntary basis; active consultation with affected employees; by promptly addressing communications (including anonymous) to any member of leadership team on any process safety management program; and employee reps will select employees to participate in overall PSM program development and implementation planning and to participate in PSM teams. The incident investigation policy I(A)-6 states that the CLFP (causal learning focal point) or the TOP rep is responsible to ensure that just-in-time training is performed and that the training is documented and uploaded. There are also requirements (section 8.0) related to the skill pool for trained investigators and trained facilitators. These two positions must receive training that is beyond what a regular incident investigation team member would receive. Both the CLFP and TOP rep are responsible for maintaining a list of trained facilitators and investigators. Nevertheless, CCHS believes that there are improvements that need to be made in order to have clearly defined expectations for employee participation within the incident investigation program especially for incident investigations that are process safety related. See A46-01 for more information on the employee participation program at MRC.	R	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)]	CCHS reviewed the incident investigation policy I(A)-6 which states (section 6.3) that for MCARs, the investigation sponsor is responsible for communicating with CCHS throughout the investigation. MRC has communicated regularly with CCHS about past incidents including the MCAR event (LOP flare) that occurred in July 2018. For Major Incidents, the I(A)-6 states that a written investigation report has to be submitted to CCHS within 90 days of the incident. The due date can be extended if approved by CCHS. The maximum time allowed is 5 months. MRC has not had any Major Incidents and thus no Major Incident reports have been submitted to CCHS.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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)]	CCHS reviewed section 6.3.1.6 of the incident investigation policy which states that the sponsor is responsible for communicating with CCHS throughout the investigation for MCARs and an update every 30 days until the report is final. A written investigation report has to be submitted within 90 days of the incident for Major incidents. Reports for near-miss or MCARs CCHS received the incident reports for the MCAR that occurred in July 2018. This included 30 day reports and the final report. There have also been potential MCAR incidents that have been reported to CCHS. Reports for near-miss or Major incidents CCHS was informed by the process Safety Manager that there have not been any Major Incidents at MRC since the last audit. However, there have been 6 potential Major Incidents. The incidents have been reported to CCHS.	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 Process Safety Management Policy C(A)-4 rev. 2, May 2019, Attachment 3. This policy describes the employee participation at MRC (the procedure indicates SMR). Through this policy, MRC encourages employee participation through all phases in performing PHAs, SPAs, HCAs, DMRs, MOCs, PSSRs, MOOCs, process safety culture assessments and incident investigations. The policy also states that the employee representatives (USW and IBEW) have the authority to select employees to participate in overall PSM program development and implementation planning and to participate in PSM teams and other activities related to PSM elements. PHA/SPA: CCHS reviewed I(A)-50 policy (see A38-02) that states that process hazard analysis shall be performed by a team including at least one operation representative (qualified operator with at least 3 years’ experience with the process unit being assessed). CCHS noted that of the PHAs reviewed, LOPA was integrated into the HAZOP and the HAZOPs were conducted by a team including union representation. DMR: CCHS reviewed C(A)-47 policy (see A41-01) that states Corrosion Control Documents are developed and/or maintained (revalidated) by a team consisting of the Unit Operations Support Engineer (OSE), Operations Specialist, PEI Unit Inspector, and Corrosion & Materials Engineer (CME). HCA: CCHS reviewed C(A)-4 rev. 2, Attachment 3 and confirmed that employees are encouraged to participate in development and implementation of HCA. MOC/PSSR: CCHS reviewed C(A)-15 and CA-14 policies (see A42-01 and A43-01) that states the MOC and PSSR processes provide for Employee Participation per the Process Safety	P	Ensure to update the prevention program policies to reflect the employee participation plan including addressing participation in "all-phases" in the development, training, implementation and maintenance of the Accidental Release Prevention elements such as Compliance Audits, incident investigations, PHAs and HCA/ISS. The employee participation program is to be improved to enhance the scope development and corrective action formulation process for all of the Program 4 safety elements.

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]	Management procedure, C(A)-4. MOOC: CCHS reviewed the I(A)-53 policy (see A54-01) that specifies the MOOC process generally start by forming an MOOC Change Review Team. The change team should include those personnel who will be most affected by the change (representatives of the affected positions) and are likely to be the most familiar with the potential impacts of the change. The policy states that the MOOC process provides for Employee Participation per the Process Safety Management procedure, C(A)-4. PSCA: CCHS reviewed the I(A)-71 policy (see A59-01) that specifies the PSCA Team is to be comprised of representatives from Contract Partners, Company Management, and Union Representatives. The Team is given the task to design, deliver, and evaluate the assessment. II/RCA: CCHS reviewed Procedures I(A)-6/EM-11.1 (see A45-01 and A52-01). This procedure outlines the work process for incident investigation. The procedure identifies the USW investigation “TOP” as a Level 2 investigation method. CCHS also reviewed the other CalARP programs policies (Compliance Audits, Mechanical Integrity, Operating Procedures, Training): Per a review of Compliance Audit program (C(A)-29 Conduct Assurance Policy), and C(A)-40 (Operations Training Policy D(A)-1) , CCHS did not find any specific discussion of employee participation. Interview with the union representatives also indicated that the employee participation can be improved by enhancing the scope development and the corrective action formulation process for the compliance audits safety element.		

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	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation only requires the following be listed in the RMP: "(j) The date of the most recent review or revision of employee participation plans" [T19 CCR §2745.7.5].	The submitted RMP (June 17, 2019, p. 66-68) and the SP (Aug 22, 2019, p. 34-35) reflect the Employee Participation Program at this site These documents do not reflect all of the current CalARP Program 4 prevention program elements.	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 2018 CalARP/ISO audit to be addressed. 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 the policy, I(A)-42 Contractor HSSE (revision 9, dated Feb 2020), covering the contractors program selection process. The facility uses a third-party contractor to evaluate the contractor. New contractors are required The facility has established criteria for measuring each contractor's safety performance as indicated in the policy. The following variables are tracked continuously on a three-year average: EMR <1.00, TRIR <2.00, LTIR <0.50, Zero fatalities. CCHS performed live navigation of the system used to track these values. Contractors that do not meet these standards require a variance to perform work at the site. Section 6.4 of policy indicates that all contractors must provide and safety plan, demonstrating that the contractors have the appropriate personnel for managing all the health and safety risks associated with that health & safety plan. The facility has developed a guide for reviewing the safety plan, which looks first at specific elements, including monitoring safety performance indicators and strategies for closing those gaps. Per communication with the subject matter expert refinery personnel, the facility relies on the contractor to ensure that at least 60% of the refinery personnel are journeyperson level. Per follow-up communication with liaison to the contract companies, CCHS determined that electrical personnel are essentially all journeyperson level. CCHS confirmed via interview that the contract employees are required to	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				drink services, laundry, delivery or other supply services. [T19 CCR §2762.12(a)]	complete 20 hours of advanced training through OSCA before badges are issued.		

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]	Section 6.6 of the Contractors policy describes the contractor evaluation process. The process has three components; the first component relies on a third-party contractor to continuously monitor safety metrics. The second component requires the facility to annually review the overall safety performance. The third method relies on the contractors' periodic performance audit, which meets the CalARP regulatory obligations, including the individual review of completed training certificates from the contract company. MRC has also developed a detailed audit questionnaire to ensure the contractor is meeting their internal standard. The facility completed 8 contractor audits in 2020, which is about a third of the contract companies that work on or near the process. Per contractors policy, the MRC classifies contractors into 4 groups which are called categories. Only category 1 and 2 work near and around the process; from a regulatory compliance standpoint, the facility should audit all category 1 and 2 groups at least once every 5 years. A detailed explanation of the frequency at which contractors are audited should be included in the policy. This item is just a consider because the current contractor audit rate is appropriate. In reviewing the audit questionnaire, CCHS recommends that MRC add an audit question that verifies or asks the contractor to explain how they are meeting the SB54-chapter 795 requirement that at least 60 percent of the skilled journeypersons. As indicated in A47-01, the facility relies on the contractor to ensure compliance, and therefore it makes sense to ask during the contractor audit process. CCHS notes that during the CalARP audit, many contractors were supplying almost all journeyman levels, and therefore, this item is not a deficiency.	P	Ensure to periodically evaluate and document the evaluation of the field performance of the contractor.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					CCHS was able to confirm per SME interview and multiple operator interviews that the periodic field audits occur; these field audits can be characterized as "cultural/habitual" and generally not documented. One interviewee described them more as stop-work moments. Per follow-up interview with SME, new to the role, recalls having performed a comprehensive field audit under the previous ownership. CCHS reviewed the previous field audit program and determined that it would meet the intent of the regulation. During this CalARP audit, CCHS could not ascertain contractor field evaluations; the facility needs to periodically evaluate and document the contractor's field performance, and consider using the permit audit process used two years ago.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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]	Per interview with SME, all contractors who enter the site must complete over 20 hours of training divided into 4 types of training. Three of the training, which is equivalent to 20 hours, is also intended to satisfy SB-54 rules requiring high Hazard training. Upon completing the training, each contractor receives a reference guide that includes evacuation routes, safety rules, and process hazards. CCHS reviewed the reference guide for the types of information included and confirmed that it included the refinery safety rules and evacuation routes. CCHS reviewed the training material during the audit, which covers items ABC and D of the question. Upon completion of the class, each contractor is required to pass a test with 90% proficiency. The questions generally serve two purposes first, to confirm that person understood the MRC material, and second, to highlight key portions of the material. The training is provided at an off-site facility and is administered via computer. The test scores are managed in an off-site database by a third-party contractor who is also given to MRC to approve access to the site. Each contractor must complete the four courses to receive an active badge to enter the refinery. After 30 days of not accessing the site, the badge needs to be reactivated. As part of that process, the on-site security team verifies that the individual has completed the training. After the initial training, every 18 months, the contractor must conduct refresher training to stay current. CCHS performed live navigation of the database and confirmed that contractors must have completed the courses to be given an active status. The facility also provided documentation regarding each contract individual currently active.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					CCHS was able to confirm per SME interview and multiple operator interviews CCHS confirmed that the periodic field audits occur; these field audits can be characterized as "cultural/habitual" and generally not documented. One interviewee described them more as stop-work moments. Per follow-up interview with SME, new to the role, recalls having performed a comprehensive field audit under the previous ownership. CCHS reviewed the previous field audit program and determined that it would meet the intent of the regulation. During this CalARP audit, CCHS could not ascertain contractor field evaluations; the facility needs to periodically evaluate and document the contractor's field performance, and consider using the permit audit process used two years ago.		

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]	As discussed in A47-05, the facility uses a database to manage contractor training records. Per review of this training database, CCHS confirms that it identifies each contractor by the first and last name the date they completed the training. The date the training expires, which requires renewal and includes the test score for each training. As indicated in questions A47-05, each contractor must answer 90% of the questions correctly to pass the	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	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation only requires the following be listed in the RMP: "(l) The date of the most recent review or revision of contractor safety procedures. (m) The date of the most recent evaluation of contractor safety performance." [T19 CCR §2745.7.5].	The Safety Plan dated August 22, 2019, and the Risk Management Plan dated February 28, 2020 accurately reflect the Contractors' Program at the stationary source.	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.	One action item for this regulatory topic was given in the previous audit, which has been resolved.	Y	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 EM-2.2, Emergency Response Organization and Emergency Response Plan (rev. 23, dated 02/2020) which provides the ERP (Emergency Response Plan) for the facility. The MRC (Martinez Refining Company) Emergency Response organization is made up of 9 units: basic fire crew, auxiliary fire crew, rescue crew, emergency medical service, operating personnel from unit (where fire occurs), operations ER paging groups, Incident Command Post, emergency operations center, and health and safety personnel. The ERP defines the roles and responsibilities of each of the ER units. The ERP describes the elements as follows: 1. Pre-emergency planning and coordination with outside parties 2. Personnel roles, lines of authority, training, and communications 3. Emergency recognition and prevention 4. Safe distances and places of refuge 5. Site security and control 6. Evacuation routes and procedures 7. Emergency medical treatment and first aid 8. Emergency alerting and response procedures 9. Critique of response and follow-up 10. PPE and emergency equipment 11. Emergency response drills As part of the Emergency Manager checklist (page 77), the initial response section includes agency notifications. For the Emergency Operations Coordinator checklist (page 80), the initial response section includes obtaining initial briefing from the Refinery Team Leader (RTL) or Incident Commander (IC) that includes safety, environmental and community impacts, current operations unit status, response team status update, agency notifications, identify immediate issues. Table	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					1, Emergency Operations Center Roles, (page 70) provides the position, initial off hours owner, primary owner, alternatives, and primary roles for positions within the EOC. These roles include the Liaison Office which is responsible for making sure that agency notification and CWS level notification are proper and coordinates and updates agency communications both off site and on.		

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]	CCHS reviewed I(A)-14 Inspection of Fire Protection Equipment (rev. 8, dated July 2018) which provides the inspection frequency of certain kinds of equipment that is used during emergencies at MRC. The procedure includes the inspection of fire hydrants and fire monitors, fire hoses, portable fire extinguisher, fire alarm and detection systems, deluge, manual spray, and sprinkler systems, utilities GTG fire extinguishing systems, fire fighting vehicles, tank foam systems, raw/fire water piping, raw/fire water pumps, storm sewers. Table 6.01, Emergency Response Equipment Inspection Overview, lists the equipment, action, frequency, responsible party, record owner, and protocol. In the action column, the test include flow test and visual, visual and test, visual and pump tests. Quarterly inspections: fire monitors, deluge and spray systems Annual: hydrants and monitors, fire hose, portable extinguishers, alarm and detection systems, deluge and spray system, utilities GTG extinguishing systems, ER vehicles and apparatus, fire engines and pumps, tank foam systems. Every 5 years: raw/fire water piping Weekly: raw/fire water pumps Periodic: raw/fire water pumps, storm sewers in process units Varies: ER vehicles and apparatus CCHS reviewed inspection records for the emergency response equipment used by MRC. This included fire alarms, fire hose, PIV, foam piping reports, hydrants, vehicles, fire extinguishers, AED, deluge and sprinklers, emergency lighting. The inspection reports were from 2019 and 2020. CCHS also reviewed I(A)-65 Breathing Air	Y	None

Equipment (rev. 04, dated February 2018) which addresses the inspection, maintenance and testing of breathing air supply hoses, breathing air masks, SCBA (self contained breathing apparatus), 5 minute escape bottles, breathing air trailers, and breathing air regulator. There is a note in the procedure that the procedure does not apply to equipment supplied by contractors for their own use.

CCHS reviewed a spreadsheet that lists all of the SCBA within MRC. The spreadsheet specifies the location of the SCBA, the regulator number, cylinder number, hydro date, next hydro date, last flow test date, next flow test date, and last overhaul. There are over 300 SCBA spread across the different units such as DCU, fire rescue, LOP, engine, truck. There are 6 cylinders that were overdue for hydro tests. Five of these were to be due in 2020, the sixth in Feb 2021. There were 13 flow test that were overdue, 3 of which were due in March 2020, the rest in March 2021. CCHS interviewed the SME who indicated that the SCBA have been lost which is why they have not been hydrotested. A consider item was issued to assist in resolving this issue.

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).	CCHS reviewed Attachment 1, Emergency Response Training Requirements, of the ERP which describes the training requirements as follows: Medical Protocols -- Respirator questionnaire every 12 months -- Respirator fit test every 12 months -- ER physical every 12 months -- TRADE test every 15 months Initial: onboarding -- Basic fire crew: current on medical protocols, new operator orientation 24 hrs ER fire training, fire school (TEEX - Texas A&M), driver operator training -- Aux: BFC training + initial fire brigade, attend Aux crew training -- RAT (response action team): hazardous materials specialists: hazardous materials tech level training -- TIGER (trauma intervention group emergency response): trauma team: trained and certified to the National Registry of Emergency Response Techs and state of California to EMT (emergency medical technician) level -- SHARC: high angle rescue crew: attend 40 initial SHARC training, first aid/AED training F2F (face to face) Recurrent training -- Fire brigade: Basic fire crew and auxiliary crew. -- SHARC: high angle rescue crew -- RAT: hazardous materials specialist -- Yearly 40 hours off-site training College Station or equivalent CCHS reviewed Attachment 6, Incident Command Roles and Responsibilities of the ERP which provides information about the command structure during an incident. CCHS reviewed the spreadsheet 2020 ER Training Records which documents training for the BFC, Aux, SHARC, SHARC Tech, SHARC Op. The training includes topics such as truck	P	Ensure that MRC completes the Red Tag drills according to the Emergency Procedure and Abnormal Situation Drills policy C(A)-4. (This is a repeat action item.)

(fire engine training, driving, and pumping), live fire (BFC training on live fire props), online (tests with entire ERP), first aid (CPR/first aid, basic life support), new hire (similar to BFC), and TEEX. CCHS reviewed a different sheet and noticed that there are currently 24 of 133 operators who are overdue for three year refresher TEEX training (due December 2020). Some of the operators (9) last received training in February of 2017. CCHS was informed by the Refinery Manager that this was due to the TEEX facility canceling training due to the Covid-19 pandemic which resulted in some of the refresher training going overdue.

Rescue Crew (SHARC)
This is a group in the SNS that may be called 24 hours a day, 7 days a week due to their training as emergency responders. The 5 member crew (page 5) consists of two responders capable of basic technical rescue; two support personnel training in basic rescue activities; one rescue trained leader. The H&S supervisors/fire chief (or designate) can provide additional resources using CCCFPD when onsite staffing levels drop below 5.

If an emergency is declared, the Refinery Safety Leaders (RSL) will have the rescue team paged.

SNS (site notification system)

Aux (Auxiliary) trained to perform as backup of BFC.

CCHS reviewed C(A)-24 Emergency Procedure and Abnormal Situation Drills Policy (rev. 6, October 2020) which provides the requirements for emergency response drills at MRC. These are referred to as Emergency Procedure Drills and Abnormal situation (What-if) Drills which are conducted as either tabletop exercises or field exercises. The focus of the policy is the operations groups which are divided into operating teams that are required to do one Emergency Procedure and one

What-if drill per month. All operators on each operating team are required to drill on all Emergency Procedures at least once every three years. The STL's (shift team leaders) are responsible for making sure that the drills are completed according to the MRC policy.

CCHS reviewed training documentation for Red Tag drills and What-if drills and found the following:

2019 DCD Red Tag Drill Report
There are 4 teams (team 1, team 2, team 3, and team 4) and 12 drills for the year. Per C(A)-24, each team is to conduct both a What-if drill and a Red Tag drill each month. There is a note in the Drill Due Date column that the drills are to be completed by the last day of the month. For Team 1, Drill 4 was completed on 4/20/19 and Drill 5, completed on 6/9/19. For Team 3, Drill 7 was performed on 7/28/19 but there was no drill performed in August which has a yellow box.

2020 DCD Red Tag Drill Report
Throughout the year, there are numerous empty boxes. For example, Team 2 did not do Drills 1 or 2; Team 1 completed Drill 1 on 2/26/20 (due at end of Jan); Team 4, did not complete Drills 5, 6, 7, or 8.

(This is a repeat action item.)

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]	CCHS reviewed EM-2.2 which has a revision history going back to 2007. On page 19, under Approvals, there is a box with the name of the procedure, the date of revision, and the next revision due date which is set for March 2021 as the previous revision was in March 2020. However, CCHS could not find any requirement in the ERP to review the ERP on a schedule.	P	Ensure that the ERP includes a procedure to perform a periodic review of the ERP at MRC.
A48-15	Program 4 CalARP & ISO	Does the submitted Safety Plan accurately reflect the Emergency Response Program at the stationary source? [T19 CCR §2745.2(d) & ISO Section 450-8.016]	Abr	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation does not require the covered process data sheets (i.e., RMP) to mention anything about emergency response. [T19 CCR §2745.7.5]	The submitted 2019 Safety Plan (pages 39-42) and the 2019 RMP (pages 74-77) accurately reflect the Emergency Response Program at MRC.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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 was one action item that has been repeated in A48-11.	N	Ensure that MRC works with CCHS to develop a process to perform emergency response drills according to the schedule set in the MRC policy.

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]	MRC has a policy that describes the responsibilities for the process safety programs implemented for CalARP/ISO compliance. CCHS reviewed this policy, C(A)-4, Process Safety Management (rev 2, revised 5/1/19). Attachment 1 in this policy is a table that summarizes each process safety topic along with the program's Owner, Focal Point, and SME. Having three positions involved with each process safety program is part of the facility's cascading management system to make sure there is proper oversight between the various regulatory programs. Many times the Owner is a member of the Refinery Leadership Team (RLT). For example, the Contractor program owner is the Technology Manager, the focal point is the Safety Manager, and the SMEs are the TA Manager and Contractor Coordinator. CCHS verified that each of the CalARP/ISO programs was listed in Attachment 1. Per SME interviews, the facility has been following the management systems used under Shell and has purchased Shell's Asset Management System (AMS), which is contained within OPRR_RP-01_v2 (issued July 2019). This document describes roles and responsibilities at a higher level used to drive performance in many areas, including process safety. The facility also purchased Shell's Manufacturing Management System (MMS) that describes leadership roles and the plan, do, check continual improvement cycle (Work Process Management in Downstream Manufacturing, ver 1.0, dated April 2017). The facility also maintains organizational	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					charts for the onsite management structure. These charts do not link in the CalARP/ISO program topics. For that connection C(A)-4 was developed.		

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 SME interviews, the company requires work process metrics to be developed to track progress on achieving annual goals. Every manager develops an annual plan to align their department's goals and objectives to meet those established by the site's General Manager. Managers set goals and objectives for their subordinates. Metrics are reviewed with leadership to monitor progress in meeting these goals and objectives. RLT members also have goals and objectives along with metrics used to monitor their progress at leadership process effectiveness reviews (e.g., number of overdue recommendations). Process effectiveness reviews are performed for RLTs monthly although are limited to one work process at a time. Process effectiveness reviews are further discussed in A49-06. Each refinery employee is assigned 8 competencies they must meet each year to satisfy the expectations of their role and qualify for an annual bonus. Everyone's first competency is the employee's commitment to HSE. Others include: Act with Integrity, Fosters Teamwork, Communication, Job Knowledge, Adaptability, Plan and Prioritize, and Results Orientation. Equal weight is assigned to each competency, so there is no difference in weighting between production or performance. Managers, including senior leadership, get an additional 5 competencies: Active Listening, Assessing Talent, Conflict Management, Organization, and Priority Setting. Every employee meets annually with their manager to review their progress for the year.	Y	None

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 and RLT interviews, one of the company's stated missions is to perform work safely. This mission has been converted into various slogans to increase its visibility around the workplace. Senior management encourages the beginning of every meeting to start with a “safety moment” discussion. CCHS confirmed this practice through operator interviews. Every employee's core competencies includes HSE. During annual reviews, employees need to demonstrate how they satisfy this expectation. The facility created their Ensure Safe Production (ESP) Work Process policy ESP-001 (rev 1, revised May 2020) to promote safety which establishes critical, standard, and target limits for all units. This policy requires shift handover (turnover) meetings as well as written shift reports before a change in shift team personnel. This policy also requires shift team leaders and operators to complete a start of shift orientation (SOSO) for each shift after the shift turnover. CCHS reviewed this document and verified it contains references to evaluating the process to ensure it operates safely.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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]	Per SME and RLT interviews, the effectiveness of the company's safety programs is reviewed by senior management in a variety of ways: -- Reports are emailed to managers every 12 hours that describe whether any notable issues have occurred in the refinery in the last 12 hours -- Managers get a summary every 24 hours that describes notable activities or issues happening anywhere in the company -- Senior staff each review company and department metrics frequently -- Sitewide objectives reviewed monthly -- Formal process effectiveness reviews occur monthly, resulting in each work process being reviewed approximately every year (RLTs involved with process effectiveness reviews) -- Key process safety indicator reports issued monthly. As identified in C(A)-4 (see A49-01), RLTs are typically assigned as owners or focal points on the various CalARP/ISO program topics. Meetings are routinely held between owners, focal points, and SMEs to monitor each work process to ensure they perform properly. Metrics are evaluated, and reports are generated to assess gaps or potential concerns, and corrections are administered as needed. Many of the metrics are listed on each department's KPI (key process indicator), otherwise called a Scorecard. CCHS reviewed the KPIs for Process Safety. Per RLT interviews, RLTs are expected to know more in-depth details on the health of programs under their purview than previously expected under Shell ownership. As such, RLTs have frequent discussions with focal points, SMEs, and other RLTs to maintain awareness. Each RLT is expected to thoroughly understand the programs they sponsor so they can	P	Ensure that the current process is memorialized for escalating awareness to all senior stationary source staff in advance of process safety program recommendations from going overdue such that appropriate actions are taken.

summarize them during process effectiveness reviews with senior leadership. These reviews occur weekly with the General Manager and other RLTs. All senior leadership is involved to share information uniformly. Per RLT interviews, the facility recently expanded these reviews under the new PBF ownership to require all RLTs be more involved and have more working knowledge in topics they are not assigned. CCHS believes this process should be memorialized to minimize the potential for repeating the process that happened in 2018.

As described within A38-23, CCHS found a number of PHA recommendations took longer than 1-year to resolve, and a turnaround was not required. One of the issues found by CCHS was that individuals assigned as responsible parties were unable to resolve the issues. Even more of a concern was that the RLT was aware of the difficulties these individuals faced in resolving the PHA recommendations, and the RLT decided not to reassign the items or provide alternatives until the 1-year regulatory requirement was passed. Even though this issue involved a 2018 PHA, under a different facility owner, under different senior management, it highlights an issue that should never have happened. As such, CCHS is issuing senior management an action to institute something that would minimize this situation from occurring again.

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]	Per SME interviews, a number of years ago, the facility developed C(A)-4 to clearly identify roles and responsibilities for the various CalARP/ISO programs. This policy more formally established a link between position responsibilities and needed expertise. When new persons are assigned to a role, a training plan is developed to ensure that they understand their responsibilities. Succession planning has also been performed that attempts to assess future needs based on potential retirements and promotions. Management can also monitor how a new person performs by reviewing feedback from direct reports, metrics, and other criteria. This information is evaluated by senior management and can also be part of the periodic work process meetings described in A49-06.	Y	None
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]	As previously described, process safety owners and focal points discuss their process safety topics in various meetings. Per SME and RLT interviews, highlights of these meetings are then discussed at monthly senior leadership process effectiveness review meetings. All RLTs are asked to pay attention to other areas outside of their normal duties, so they remain up to speed with each other's roles and responsibilities.	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 SME interviews, the following activities assist in communicating a variety of topics across a wide range of departments: -- As described in A49-01, MRC is still following Shell's Asset Management System (AMS). This practice requires personnel to broadly communicate topics with other seemingly different roles to improve communication throughout the workforce. -- MRC's maintains Ensure Safe Production (ESP) variable tables, which requires direct communication to select parties during shift turnover as well as after reaching certain process parameters. ESP-001 (ESP Work Process, rev 1, revised May 2020). -- ESP-002 (Roles and Responsibilities SOSO, rev 1, revised Sept 2018) describes in detail role requirements for a dozen positions within operations, engineering, inspection, support, and management as it pertains to the ESP Work Process, including communication between different parties. -- Similar shift turnover occurs every 12 hours between the outgoing/incoming Refinery Team Leads (RTL) as well as the Shift Team Leaders (STL). -- MRC uses steering teams and committees comprised of diverse groups designed to improve communications across disciplines. For example, the Joint Health & Safety Committee, which is required under a contract between the United Steelworkers and management.	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]	CCHS reviewed the facility's Employee Participation criteria listed in C(A)-4, Process Safety Management (rev, revised May 2019). Attachment 3 of this document identified that employees and employee representatives will be involved with all phases of the safety programs listed within this question. C(A)-4 also identified that employees and employee representatives have the right to access information associated with the Process Safety Management program although there are limitations on incident investigations conducted under attorney-client privilege. PHAs/SPAs: Section 6.5 of I(A)-50 (Process Hazards Analysis policy, rev 10, revised 12/9/2019) identified PHA reports and recommendations would be communicated to the workforce through email. SPA (LOPA) is part of the PHA report. This is further described in A38-22. DMRs: Section 9 of C(A)-47 (Corrosion Control Document Management policy, rev 3, revised 5/31/2019) identified that CCDs are available on the company's intranet in "ready only" access. Section 3.2 identified that all changes to IOWs will be performed through the site's MOC process. Additional details can be found in A41-21. HCAs: Section 6.3 of I(A)-43 (Hierarchy of Hazard Control Analysis (HCA) policy, rev 8, revised Oct 2019) described the HCA team requirements to include an operations representative. Additional details can be found under A58-23. Incident Investigations: Appendix F of I(A)-6 (Incident Investigations policy, rev 18, revised Feb	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					2021) described how findings from the investigation and links to the final investigation report are shared with employees and contractors. Additional details can be found in A45-12. Compliance Audits: Section 6.4.3 of C(A)-29 (Conduct Assurance policy, rev 6, revised May 2019) identified that the completed compliance audit report is available to employees and employee representatives on the company's intranet. CCHS verified the availability of the report as described in A44-09. MOCs: Section 8 of C(A)-15 (Management of Change policy, rev 13, revised 10/31/2019) described the process to inform and/or train affected personnel on a change. CCHS did not have any concerns with this practice as described in A42-08 and A42-09.		
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 previously described, ESP-001 (ESP Work Process) requires shift handover and start of shift orientation meetings at the beginning of each shift. ESP-002 (Roles and Responsibilities SOSO, rev 1, revised Sept 2018) provides detailed expectations of the communications that need to take place between personnel during shift changes.	Y	None
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 and A49-06, CalARP/ISO roles and responsibilities are defined in C(A)-4 and included within Attachment 1 of the policy.	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, the Roles and Responsibility section of C(A)-4 was developed to ensure that every CalARP/ISO program was covered by multiple positions to make sure each continues to have adequate coverage. This policy was partially developed to ensure there were no gaps in coverage. CCHS was also informed that each position within the refinery has a job description that is maintained in the site's HR department. CCHS reviewed job descriptions for the Technical Manager and the PSM Supervisor. Both job descriptions discuss requirements for developing and implementing aspects of the safety programs established onsite. Per SME interviews, the process for continuing to look for gaps in coverage in the safety programs is an ongoing activity as people are promoted, reassigned and retire. This is further described in A49-10.	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 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) & 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 confirmed that MRC has summarized the required process safety performance indicators listed in the question and submitted them to Cal OES in June 2019 and June 2020. Both submittals included certification signatures.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				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]			
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		CCHS confirmed that each MRC policy contains a revision history (Section 12) that describes when and what was changed within each policy over time. MRC also has a Document Control policy A(A)-25 (rev. 6, Oct 2020), which details the process used to control updates to site policies and procedures. This policy identifies that the facility's document control process has provisions to ensure that changes and revisions of documents are identified. The policy references a number of other policies that specify how new documents are created, existing documents are modified, as well as how documents are numbered and controlled.	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.	Senior staff conduct process effectiveness reviews on a monthly basis. During these reviews, issues are openly discussed with other senior staff responsible for other safety programs as described in A49-01. This practice promotes the communication of issues and changes relevant to other safety program owners. Section 6.18 of the facility's Process Safety Management policy C(A)-4 identified that compliance audits are performed every three years to ensure that regulatory requirements are met. Section 7.8 of the facility's Conduct Assurance policy C(A)-29 (rev 6, revised May 2019) identified that those parties charged with addressing an action item from a compliance audit need to include additional parties when needed. The intent here is to make sure proposed resolutions to action items are appropriate as well as to bring others in on the discussion in case it impacts them as well.	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		MRC personnel has consistently worked with CCHS in the past to prepare for public meetings when requested.	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	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation only requires the following be listed in the RMP: "(p) The date of the most recent evaluation of the Accidental Release Prevention Program Management policies and procedures" [T19 CCR §2745.7.5].	Section 4.1 of the RMP submitted to CCHS in June 2019 accurately summarizes the Management System implemented onsite. Section 4 of the SP submitted to CCHS in August 2019 accurately summarizes the Management System implemented onsite.	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.	CCHS' previous audit of this regulatory topic at MRC in 2018 identified one ensure action item that has been resolved.	Y	None

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 the facility's Stop Work Procedure, I(A)-70 (rev 2, revised Oct 2020). The revision history section identified the original procedure was issued on 3/21/18, revised on 4/8/19, and revised again on 10/1/20. The procedure emphasized all employees and contractors can use it to stop work when a concern has not been resolved with the immediate work crew or through peer-to-peer discussion. The procedure identified someone's opinion to stop work cannot be overruled or otherwise influenced by anyone, and there will be no retaliation if someone refuses to perform unsafe work. After review, the procedure follows the regulatory requirements stated in the question.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A49-30	CalARP Program 4	Does the owner or operator implement and document effective procedures that ensure: a) Employees, and employees of contractors have rights to anonymously report hazards; b) Hazards that present the potential for death or serious physical harm are prioritized, promptly responded 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.	Per SME interviews, the refinery had a 0-60 program that was used until PBF ownership took over in early 2020. The program encouraged and expected hazard reporting to go from first recognition in the field to emailing refinery personnel in a span of 60 minutes. The process for reporting concerns continued, although the email portion to the workforce was discontinued. For the last year, the process for reporting hazards has been to enter details into a reporting database. This database changed after the new ownership. Per interviews with USW representatives, most of the data entering into this newer database are now done by management. Typically, operators would inform the STL, who would inform the RTL (Refinery Team Leader) to make sure a report is entered into the tracking system by the end of the shift. Represented employees can contact their union reps if they want to report information anonymously. The reporting database sends summary reports to managers every 12 hours to update them on what has been entered or modified in the last shift. These summaries are reviewed during shift team meetings. Morning production meetings review these reports for the previous 24 hours. Per SME interviews, contractors can report hazards by completing Goal Zero cards, which are then dropped off into boxes located throughout the refinery. These cards can be completed anonymously. The facility has a Goal Zero team that collects these cards and reviews them for issues that need resolution, although they are not necessarily entered into the hazard reporting database described previously.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					The Goal Zero program is described in the Employee Health/Safety Suggestions policy I(A)-9 (rev 5, revised April 2017). CCHS interviewed USW representatives and obtained a different impression of how the Goal Zero program has been working. For example, the past practice of having USW review Goal Zero cards has been paused for the last year due to a significant drop in the number of cards submitted. CCHS did not further evaluate this issue, although it suggests additional attention is warranted. MRC has used another hazard reporting process intermittently called FOCUS (Focus On Changing Unsafe Situations). Refinery employees have used this process in the past to report safety suggestions. Before the PBF ownership, Shell discontinued the FOCUS program, so it has not been used for the last year. CCHS was also informed that MRC is bringing the FOCUS program back. The FOCUS process is mentioned under I(A)-9 and even refers to I(A)-18 as the "FOCUS Event Reporting System". CCHS reviewed I(A)-18 (rev 10) and found it was renamed to "HSE201 Incident Reporting" on 10/5/19, and all mention of the FOCUS program was removed. CCHS was informed that MRC is currently updating I(A)-9 and I(A)-18 and considering combining the two into one policy. I(A)-18 also mentions the 0-60 program. Both I(A)-9 and I(A)-18 contained details on how the facility would respond to reported hazards. The facility's Stop Work policy I(A)-70 identifies that the employer shall respond in writing within 30 days to written hazard reports consistent with the question and listed regulatory citations. The facility's Injury and Illness Prevention		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					Program I(A)-4 (rev 8, revised Dec 2020) identified the facility would investigate and take immediate action to resolve reported hazardous conditions.		
A49-31	CalARP Program 4	Did the Stationary Source: a) Annually prepare a written report by June 30 of each year containing a compilation of site specific indicators for the previous calendar year; b) Has the Stationary Source manager or designee annually certified that the report is current and accurate? [T19 CCR §2762.16(h)(2)]	New	1. The Stationary Source must develop a list of site-specific indicators within six months of the effective date of the CalARP regulations (or by April 17, 2018). These indicators are to consist of activities and other events that the Stationary Source will measure in order to evaluate the performance of its process safety systems for the purpose of continuous improvement. [T19 CCR §2762.16(h)(2)]	CCHS reviewed select monthly metrics gathered and submitted from the Process Safety Department. Per SME interviews, every department submits their internal Key Process Indicators (KPI) to management on a monthly basis. CCHS was unable to confirm that an annual report has ever been generated to satisfy the regulatory requirement.	P	Ensure that an internal written report is developed and certified by the site manager (or designee) by June 30 of each year summarizing site specific indicators for the previous calendar year.

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 the Sitewide LCC that was completed om Dec 19, 2018. The sitewide checklist included: -- Evaluation of shift work and fatigue, the response is that MRC uses a program to track employee hours and gate log for tracking in and out of the refinery movements including employees and contractors. It also states that the length of a shift is the same for start-up and turnaround as during the normal operations and complies with API 755. -- Communication check in which the response was the refinery's radio system has an orange button that provided emergency indication to security console if activated. -- Procedures: maintenance procedures are handled similar to operating procedures including human factors considerations Other concerns related to LCC are address in other LCCs: PHA LCC checklist include: -- Are workers able to deal with the complexities of the tasks they must complete? -- Do operators have sufficient knowledge to safely operate or shutdown unit in emergency situations manually -- 16 questions related to the physical work environment including lighting and availability of tools and equipment -- 22 questions related to the control panel layout and usability Operating procedures and maintenance procedures use customized checklist to evaluate human factors. CCHS reviewed G(A)-28 "Policy for Management for Overtime Limits", REV.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					7, dated July 2017. The policy defines overtime limitations to manage fatigue in the workforce and applied to employees performing safety-sensitive work, operators, crafts, laboratory personnel and supervisory staff in production, engineering and technology departments. This policy defines the work hours for extended shifts and consecutive work shifts during an outage for 10- and 12-hour shifts. A computerized scheduling program is used to assure compliance with the procedure. Deviation from the policy must be approved using the exception approval request which required the signature of the Production/Maintenance Supervisor, production unit/Maintenance manager when it is unplanned and signed by the production manager/General Manager for the exception. If it is for planned turn around or rebuilds, the exception must be approved by the General Manager and RVP [Regional Vice President] with the original sent for record keeping by Human Resources. Per interview, RVP is not a role in the new PBF organization.		

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 I(A)15 (rev.10, dated April 2019), procedure for human factors at MRC which required human factors review by applying human factors checklist/latent conditions checklist (LCC) for PHA, MoOC, creation or review of maintenance and operating procedures, incident investigations, major changes, and Hierarchy of Hazard Control Analysis (HCA). The procedure describes how latent conditions are the hidden causes that contribute to human errors when combined with an active failure that results in an accident. This condition may exist and unrecognized in the management or organization; physical environment or equipment; tasks associated with procedures or individual factors. I(A) 15 specifies that training in the use of LCC will be part of the job role or "just-in-time" prior to completing the checklist. PHA: CCHS reviewed the (11) slide presentation for human factors training & PHA and the discussion include explaining human factors; identification of elements in situational characteristics, task/equipment/procedure characteristics; application in PHA and the regulatory requirements; and the expectation that personnel completing the LCC to understand the specific reason for the questions and the intent to identify and correct existing latent conditions that could cause an error. Operating Procedures: Per interview with Learning Manager, procedure writers receive training prior to being assigned to writing procedures. CCHS reviewed the training material for procedure writing for Operations, it includes basic rules of procedure writing; use of "Notes", "caution" and "warning"; process for creating procedure; procedure MOC	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					checklist; applying LCC; process for revised procedures; control and authorization of procedures. Maintenance Procedures: CCHS reviewed the training material for procedure writing for Maintenance, it includes basic rules of procedure writing; use of "Notes", "caution" and "warning"; process for creating and approving new procedures; process for reviewing procedures; applying LCC. There are 3 types of LCC used: Type 1: 7 questions (only for when document is created), no LCC for review. Type 2: 23 questions Type 3: 26 questions with additional question about 1) conditions (temporary or unit conditions) for the procedure to be valid to be clear; 2) special format for listing Cautions, Warnings, and Notes, 3) can individual practically perform multiple tasks simultaneously if required. Incident Investigations: CCHS reviewed the (14) slide presentation for Latent Conditions/Human Factors training, and noted it covers the ISO requirement for considerations of human systems for MCAR and potential MCAR; regulatory requirements; in-depth discussion of human factors and latent conditions, causal factors and the expectation that personnel completing the LCC to understand the specific reason for the questions and the intent to identify and correct existing latent conditions that could cause an error. Facility-Wide: CCHS reviewed the 5-year human factors LCC review training presentation and noted the discussion regarding CCC ISO, PSM and CalARP program 4 requirements, discussion of human factors and human factors program deficiencies from the 2018 audit. The presentation include a quiz question that latent conditions should be		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					used as a tool to prompt further discussion and not just check the box or save time on reviews. The training slide included discussion that the intent of LCC is to identify latent conditions that could lead to errors and LCC is to be viewed as indicators or questions as examples to lead the thought process.		

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: I(A)-50 PHA specifies a management review sign-off sheet for completed human factors LCC that was reviewed. CCHS confirmed management and team sign off for 6 PHAs (Aqueous Ammonia, Volatile Storage and Cogen 1,2 not listed) and listed 3 specific LCCs sign-offs from each year here: -- SRHT PHA (April 2020): Management review sign-off sheet signed by Production Unit Manager, Production specialist, operations support engineer and operator dated March 25, 2020. -- SRU PHA (Dec 2019): Management review sign-off sheet signed by operations support engineer and operator dated September 23, 2019 and signed by Production Unit Manager and Production specialist on Nov. 12, 2019. -- HCU PHA (Dec 2018): Management review sign-off sheet signed by Production Unit Manager, Production specialist, operations support engineer and operator dated Nov 7, 2018. Operating Procedures: Operating Procedure LCC contains 27 questions and include sign-offs by Operator, mentor and Senior Production Specialist. CCHS reviewed completed 2019 LCCs from 4 procedures from Cogen and 1 from logistics procedure reviewed on 5/7/2019 (used the 24 questions 2016 LCC, LCC updated 5/20/2019). The LCCs were attached, the procedures completed functional review, compliance review, LCC and MOC checklist and properly signed. Per interview with learning manager, all procedures must follow this as outlined in A(A)32-controlling (reviewing/revising) Operating Procedures. Maintenance Procedures: There are sign-offs for all 3 type of LCC completed by Procedure Author, Craftsperson and Maintenance Supervisor. CCHS selected	P	Ensure that completed LCC for incident investigations with management and member sign-offs are maintained and accessible with the incident investigation report.

8 maintenance procedures, 3 of these were guidelines and LCCs are not required. One of these is due for a review in 2022 and the LCC will be applied then as part of the review cycle. CCHS was able to verify the sign-offs for the remaining procedures: CEM-03 (5/2018), GMP-56 (5/2019), AMP-06 (7/2019) and Elec-12 (2/2021).

Incident Investigations: CCHS notes that I(A)15 human factors (rev. 10, dated April 2019) states that LCC was specifically developed for incident investigation. I(A)-6 Incident investigation (rev. 18, dated Feb. 2021) include discussion and use of LCC to assess human factors. CCHS was only able to review 2 completed LCCs out of 4 randomly selected potential MCAR investigations reviewed (2 LCCs were missing):
-- FIM 1960946: LCC reviewed on 6/1/2017(probably a typographical error on the date), a management sign off on a I(A)-6 attachment for participant and management sign-off on 3/6/2018. CCHS also note that the incident investigation report corrective action recommendation included identifying the LCC addressed as item 1.5 and LCC item 3.45 which were indicated on the completed LCC form.
-- FIM # 2032512: the management sign-off of the LCC was 8/22/2018 and the team sign offs were 7/24/2018.

Facility-Wide: The facility-wide checklist was complete by a 9-person team on Dec 19, 2018 and included management and USW representatives. The completed LCC checklist was reviewed and responded by the Goal Zero Governance team on Feb 11, 2019. The Goal Zero Governance Team included nine people from USW representative and management staff. The USW and PSM manager were the only two persons that were on the team that completed the

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					Sitewide checklist and on the Goal Zero Governance team. The final completed LCC with identified corrective actions was accepted by the Technology Manager via email on April 4, 2019.		

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 following completed LCCs: -- SRHT PHA (April 2020): LCC completed on 3/11/2020, 5 LCC questions received "No" answers and recommendations were developed to address the concerns. -- SRU PHA (Dec 2019): LCC completed not dated, 3 LCC questions received "No" answers and recommendations were developed to address these concerns. -- HCU PHA (Dec 2018): LCC completed on 10/24/2018, 5 LCC questions received "No" answers and recommendations were developed to address the concerns. Operating Procedures / Maintenance Procedures: Per interview, any "No" answer or non-compliance with the LCC is corrected when identified before the procedure is issued for use. Incident Investigations: As described in A50-08, CCHS was only able to review 2 completed LCC checklist out of 4 randomly selected potential MCAR investigations: -- FIM 1960946 (10/31/2017): CCHS noted that the incident investigation report corrective action recommendation included identifying the LCC addressed as item 1.5 and LCC item 3.45 which were indicated on the completed LCC form. The action was closed on 2/7/2018 and 9/5/2018. -- FIM 2032512 (2/16/2018): CCHs noted from the incident investigation report one of the recommended action is related to human factors and it was addressed and closed on 2/1/2019. Facility-Wide: Per CCHS review of the 2018 facility wide LCC, there were no real issue identified that a recommendation was generated. One of the issue identified related to maintenance procedure was already being addressed	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					as part of the 2018 CalARP/ISO audit.		
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.	Per CCHS review of the human factors/LCC program, employees and/or employees representatives are involved in the revisions of the LCC checklist used in the various program. See detail discussion of revision of individual and sitewide LCC in A50-12. CCHS was able to confirm the participation of employees in completing the LCC in all the required programs and in the development of the recommendations. Record keeping of completed LCCs and the sign-offs by the team and management could be improved. See discussions in A50-08 and A50-09.	Y	None

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]	PHA: CCHS selected 3 PHAs for review of LCC and recommendations were generated for identified issues. See detail discussions in A50-09. CCHS also noted that PHA reports include a resolution tracking that include the status, assigned person, and target date for completion. See detail discussion in A38-23 regarding recommendation tracking. Operating Procedures / Maintenance Procedures: Per SME interviews, procedures are not issued if they are not in compliance with the requirements. So LCCs are not expected to identify issues, if issues were identified, they are corrected and another LCC would be evaluated for the revised procedure. Incident Investigations: Per CCHS review of three incidents, recommendations are resolved in a timely manner. See discussion A45-10 for discussion of incident recommendation close out. -- FIM 1960946 (Oct 31, 2017): two recommendations linked to LCC/HF closed Feb and September 2018. -- FIM 1833164: FIM action number were assigned to the 4 corrective action, but none are attributed to LCC/HF. -- FIM 2189489 (Oct 2018): root cause were related to the LCC/HF three recommendations were made including an interim recommendation. These were indicated to be closed out in appendix C. Facility-Wide: There were no facility-wide recommendations.	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	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.	Per interview and record review with SME, during the 2018 completion of the sitewide LCC, the team also reviewed the sitewide questions for revisions specifically to accommodate the CalARP program 4 requirements and review of effectiveness of LCCs. After discussion with management on the disposition of sitewide LCC and concerns, the information was fed back to the original LCC team. Then smaller teams were formed to review individual LCC checklist led by a different team member and each one included USW representative. The changes and updated LCC was then incorporated into the appropriate procedures.	Y	None
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 were two ensure actions from the 2018 CalARP/ISO audit. One was addressed and the other is being repeated in A50-08 as a modified repeat.	Y	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: CCHS reviewed C(A)-15 (rev. 13, dated Oct., 2019) sec 6.1.5 identified that for a major change (that met the definition), an LCC review team that includes employee participation will complete the "Major change human factors-LCC checklist". Per SME interview, there were two projects classified as major change, these projects were completed prior to the finalization of the MOC policy so the human factors were reviewed as part of the HCA questionnaire. CCHS reviewed the following: -- ER-3227: Select phase HCA report states that human factors are covered in the HCA checklist. CCHS did note that there are some questions related to human factors included under simplify strategy related to access, flange, connection, equipment isolation, gate valves, automated block valves. HCA were used at several phase of the project. -- ER-3257 (MOC M20181306-001) CCHS reviewed the define phase report of this project and located completed HCA checklist that included under simplify strategy questions related to access, flange, flange, connection, equipment isolation, gate valves, automated block valves. HCA were used at several phase of the project. The two projects did include some considerations for human factors although in the future, a more comprehensive analysis is anticipated with the completion of the LCC. MOOCs: I(A)-53 Management of Organizational Change (rev. 6) specifies an impact assessment be performed using the Health and Safety checklist and the latent conditions HF checklist for MoOC (rev. 12/2013) for MoOC once it is determined that MoOC is required and a change team is identified. See 54-05 for completed LCC forms and H&S	Y	None

checklists.

HCAs: I(A)-43 (rev. 8, dated Oct 2019) states HCA team includes questions on human factors such as human-machine interfaces and other considerations and a separate LCC is not required. See detail discussions of completed HCA in A58-05.

Incident Investigations: Per I(A)-6, the intent of the incident investigation program is to prevent reoccurrence of events by uncovering causes/root causes and learning from the discovered causes. Part of the investigation is to understand human factors, latent conditions, and other failures. The incident investigation report seems thorough and discuss human factors and the program are laid out well; however, some of the record keeping could be improved. See discussion in A50-08 and A50-09.

PHAs: Human factors were considered in two ways in a PHA. A completed LCC identifies human factor issues that should be addressed. See discussion in A50-02 and A50-09 for more details related to completed LCC. In addition, in a PHA scenario, potential active failure are also assessed and safeguards considered.

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 Master LCC (revised 2018). This excel file included the disposition of all the Contra Costa County original questions, and which LCC checklist it is asked or modified to be asked using the facility's vernacular. CCHS notes that the concepts of error proofing, automatic alerts are related to communications and how an operator is expected to react to the information. Questions 2.43, 2.44, 3.2, 3.8, 3.11, 3.12, 3.23 3.24, 3.27, 3.38-3.4 (added touch screens), 3.51 are included in the PHA LCC checklist. Questions 2.43, 2.44, 2.45, 2.47, 2.51 are also covered in the sitewide questions. The operating procedure checklist covered questions 2.53-2.57 that ensure appropriate precautions are taken before authorizing the next step.	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	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation only requires the following be listed in the RMP: "(q) The date of the most recent evaluation of the Human Factors Program" [T19 CCR §2745.7.5].	CCHS reviewed the CalARP RMP dated Feb. 28, 2020 and the SP dated Aug. 22, 2019, Section 4.4.18 and Section 6 are brief descriptions of the Human Factors program at the facility which included use of customized latent conditions checklists.	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)]	I(A)-15 section 6.3 specifies that employees are involved in the development and updating of the human factors program at least every five years. The LCC review team may include members from USW, Process Safety, Learning and Development, Production, Maintenance-IBEW. Per review of the 2018 LCC checklist review team, USW representatives were involved in the review team. Also based on results of this questionnaire, employees were involved in completing LCCs for specified programs. See details in A50-08 regarding completed LCC sign-offs.	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.	As part of the CalARP audit. CCHS reviewed the following six PHA reports: -- Hydrocracker Unit (HCU) PHA, report dated December 2018, session dates from October 15-31, 2018 -- Volatiles Storage Facilities PHA, report dated June 2018, session dates from June 11-21, 2018 -- Aqueous Ammonia Storage Facilities PHA, report dated July 2019, session dates from May 29-30 -- Sulfur Recovery Units (SRU) 1 & 2 PHA, report dated December 2019, session dates from September 23 to October 7, 2019 -- Cogen Units 1 & 2 PHA, report dated June 2020, session dates from May 11-18, 2020 -- Straight Run Hydrotreater (SRHT) PHA, report dated April 2020, session dates from March 11-25, 2020. Documentation maintained within each of the PHA reports reviewed confirmed that 5 of the 6 PHAs completed the human factors (HF) latent conditions checklist (LCC) at the very start of the PHA (before any process nodes). The 2018 HCU PHA completed the HF LCC mid-way through the PHA sessions on 10/24/18. CCHS expects that HF LCCs be completed either once before the start of the PHA, or be completed during each of the PHA nodes. Per SME interviews, only one HF LCC is completed for a PHA. In that case, the HF LCC needs to be completed at the very beginning of every PHA. CCHS did not issue an ensure action item for this one case since the trend after the 2018 HCU PHA was in compliance. CCHS reviewed the facility's local PHA	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					policy I(A)-50 and could not locate mention of completing the HF LCC at the very beginning of each PHA. Although it is not a regulatory requirement to state this within the policy, it is suggested as a best practice.		
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.	As described in A51-01, the refinery prefers to complete the HF LCC at the beginning of each 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 I(A)-49, Procedures HAZOP (rev 10, revised Nov 2019) that identified procedural PHAs apply to Critical Operating Procedures. This policy identified that the refinery evaluated each of the operating procedures and identified Critical Operating Procedures as those that have high active failure likelihood and high hazard potential. The facility's procedural PHA process involves evaluating select procedures using specific guidewords to assess impacts of missing steps, doing something other than the listed step, or doing steps out of sequence. Per SME interviews, the facility initially selected over 50 procedures to perform procedural PHAs. The facility reviewed each of these procedures every three years, and each session found less and less information. After reviewing the same procedures three times, the facility expanded its scope and added additional procedures. Currently, the facility has approximately 23 procedures they are in the process of reviewing. Approximately half of these have been reviewed once. Although the facility may review some of them again in three years, the plan is to add more procedures to the mix over time. The facility uses a team to review each procedure. The team is typically comprised of the following personnel: Production Specialist, the Process Engineer for the unit, person responsible for writing the procedure, certified outside operator, certified inside operator, and procedural PHA facilitator. Typically the team has 5 members. CCHS was informed the team selection was developed over time and currently represents a diverse mix of participants that have provided good feedback.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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).	Each of the PHAs listed in A51-01 included an HF LCC as part of the PHA report. Per record review, CCHS confirmed the facility identified 22 situations from these checklists that needed further evaluation or resolution in 4 of the 6 PHAs reviewed. Each of the LCC issues identified was captured as PHA recommendations and tracked to resolution. Generic examples include: -- Procedures do not consistently specify the response to alarm indicators -- Select remote emergency shutdown switches not protected from inadvertent activation -- Inadequate vents or drains	Y	None
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	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation only requires the following be listed in the RMP: "(r) The date of the most recent Safeguard Protection Analysis" [T19 CCR §2745.7.5].	Section 4.4.2 of the RMP submitted to CCHS in June 2019 accurately summarizes the Process Hazard Analysis program implemented onsite. Section 8 of the SP submitted to CCHS in August 2019 accurately summarizes the Process Hazard Analysis program implemented onsite, although it will need to be updated after changes are made to the facility's HCA program as described in A58-22.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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.	CCHS' previous audit of this regulatory topic at MRC in 2018 identified two ensure action items. Both of these issues were found to have been resolved.	Y	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)	Before 2020, the facility was under different ownership and used LOPA to satisfy the SPA requirement. Under Shell, the refinery used LOPA through their Hazards and Effects Management Process (HEMP). This process is described within their C(A)-49 policy and identifies that hazards that fall into the red area or red and yellow risk level 5A or 5B on the company's risk matrix need further evaluation to confirm risks are managed to ALARP (as low as reasonably practicable). The evaluation requires processes to be managed through Model Bow-Tie's, unit PHA/Bow-Tie studies and Shell and/or industry standards. Major incident was incorporated into the policy and the HEMP analysis. CCHS reviewed select PHA reports and confirmed that LOPA was being performed as identified. Section 6.2.5 of I(A)-50 (revised 12/9/19, rev 10) identifies that the PHA scenarios that have the potential for a major incident or catastrophic release must be evaluated through a SPA. The policy identifies the SPA method used by the former refinery owner (i.e., HEMP) and not the current process that is being performed. The policy needs to be updated. CCHS confirmed that the facility currently uses a Layers of Protection Analysis (LOPA) process as their SPA. LOPA is done as part of the PHA process and is combined with the written PHA report. The PHA team also does LOPA. PBF requires each facilitator to be trained in their PBF PHA/LOPA method. After the study is completed, it must be internally peer-reviewed for accuracy and compliance. The current LOPA process is described in CORP-HSE-007, issued 2/27/15, rev 0. CCHS reviewed this policy and found it	P	Ensure that I(A)-50 is updated to reflect the current process for conducing SPA (e.g., LOPA).

requires LOPA for safety and environmental scenarios with an unmitigated consequence level of 4 or higher on the company's risk matrix. Reviewing the facility's risk matrix, CCHS could not locate a category or criteria meeting a potential major incident consequence. Per SME interviews, neither the corporate policy nor risk matrix was written for CalARP Program 4 requirements. As a result, each PHA/LOPA facilitator, as part of their qualification, must demonstrate their understanding when a consequence could result in a potential major incident, so they know when to apply LOPA to the deviation. Per discussions with facilitators, every consequence is evaluated to whether it has the potential for serious physical harm. If the potential exists, then LOPA is applied. CCHS confirmed this practice in reviewing the Cogen 1/2 PHA where LOPA evaluated several unmitigated consequence levels below 4. CCHS also reviewed the draft hazard worksheets for a 2020 Pentane Storage PHA and also found an example of applying LOPA to a lower consequence level than required by policy.

CCHS also reviewed LOPA evaluations from PHA/LOPAs performed under Shell. CCHS found many examples of scenarios evaluated for LOPA that were not red (or red or yellow 5A or 5B) under the companies risk ranking matrix within the SRHT PHA.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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)]	When the Program 4 regulations first became effective, the facility was owned by Shell. As described in A51-11, the process used to complete SPAs (Safeguard Protection Analysis) changed in 2020 when ownership of the facility changed to PBF. Both ownerships used a slightly differing SPA method, known as LOPA (Layers of Protection Analysis), to comply with Program 4 requirements. Both companies required facilitators to be trained and deemed qualified to lead their respective LOPAs. CCHS confirmed this training, and it is further described in A38-18. CCHS also confirmed that the first three items in the question were satisfied by the core PHA team members: qualified operator, process engineer, and facilitator. Per SME interviews and file reviews, the fourth item in the question, item d), was satisfied at times by the core PHA team, and other times involved part-time participants joining the PHA sessions to assist. Most of the PHA reports reviewed included part-time participants brought in for a consultation. Job titles for some of the personnel involved included: Production Support Engineer, Flare and Relief Specialist, Rotating Equipment Engineer, Electrical Engineer, Mechanical Engineer.	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]	As previously described, the LOPA evaluation is part of the PHA and is combined within the same report. The facility uses hazard worksheets that include columns for the various LOPA parameters that are only filled in when the scenario is LOPA evaluated. The PHA/LOPA analysis is conducted on the same node in the same session; versus completing the PHA for a node and returning later to complete the LOPA. The facility documented the LOPA evaluation consistent with similar studies (e.g., initiating cause frequency, unmitigated consequence, unmitigated frequency, enabling conditions, conditional modifiers, unmitigated risk rank, applicable IPLs, mitigated consequence, mitigated frequency, mitigated risk rank). Initiating causes were documented and identified with a frequency based on allowable values listed within the corporate LOPA standard (CORP-HSE-007). The online hazard worksheets have built-in formulae that use the available information to identify the mitigated risk ranking. Based on the corporate risk matrix, acceptable mitigated risk rankings are identified as not needing further action. Otherwise, a recommendation is made to address the gap to bring the potential scenario into an acceptable risk profile. Each scenario identified the initiating event frequency and the rationale. For scenarios with multiple initiating events using the same safeguards, the most conservative one is listed. If other safeguards apply, the PHA lists multiple initiating events to evaluate them separately. The hazard worksheets include the order of magnitude risk reduction offered by each IPL. Recommendations issued from the LOP analysis are treated as PHA recommendations.	Y	None

In reviewing the PHA/LOPA reports and hazard worksheets, CCHS was unable to locate documentation of necessary maintenance and testing to ensure that all IPLs function as designed. Per SME interviews, IPLs identified in the PHA/LOPA sessions are referred to as “critical equipment.” All critical equipment identified for each process unit is placed on a Critical Equipment List for the unit. Each list identified the critical equipment being managed and the specific critical activity to maintain the equipment. After each PHA/LOPA is completed for a process, a Safety-Critical Equipment Review is performed to verify critical equipment is being maintained as specified on the Critical Equipment List. CCHS reviewed emails summarizing the Safety Critical Equipment Reviews for Utilities and Logistics Volatile Storage. These reviews took place between the last PHA session date and the PHA report-out date with management. Correspondence included changes that needed to be made to various critical equipment to ensure the equipment remains appropriately maintained and tested to continue to function as designed.

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]	The facility has combined their PHA and SPA (i.e., LOPA) evaluations into the PHA report. As described in A38-27, all PHA reports are maintained for the life of the process. Per SME interviews, the new PBF ownership required changes to the PHA and LOPA techniques used. The LOPA performed under Shell does not meet PBF's requirements, so all LOPA evaluations are essentially redos, not revalidations. A redo is a much more complete analysis that essentially performs the study without using the previous study as a template. A revalidation is a quicker analysis that uses the previous study (including all of the causes, consequences and safeguards) and asks the team whether there has been any changes in the last five years that need to be reflected in the analysis. The CalARP regulations allows PHA revalidations every five years.	Y	None
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		As previously described, the facility conducts their SPA (LOPA) within the PHA. As such, all SPAs are completed within 6 months of the corresponding PHA.	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)]	Per SME interview and file review, the facility treats issues identified through their LOPA process (SPA) as PHA recommendations and requires a resolution within one year unless a turnaround is necessary. CCHS confirmed this practice by reviewing 6 PHA/LOPA reports. As such, the SPA corrective work practice is the same as that described in A38-21 and A38-23. Although CCHS had concerns with several PHA recommendations not being completed within the one-year ISO requirement, CCHS did not discover any of these were related to LOPA recommendations. CCHS was informed that the same process would be used to reject a SPA (i.e., LOPA) recommendation as used for PHAs, which is summarized under A38-19.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				8. CCHMP may grant PHA recommendation due date extensions if 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.	As previously described, each PHA/LOPA facilitator must be trained and go through an approval process to lead PHA and LOPA sessions. The approval process was a requirement under Shell and remained a requirement under PBF ownership. Per SME interviews, a training session is held on the first day of the PHA to review the process for conducting PHAs as well as to introduce LOPA, and its concepts to the PHA team. CCHS reviewed the 28 pages of training slides and confirmed 7 slides incorporated appropriate LOPA concepts (e.g., definitions, independence, explanation of IPLs, IPL vs. safeguard, calculating risk ranking). Per SME interviews, core PHA team members are provided the above training. CCHS confirmed through operator interviews that training is conducted at the beginning of the PHA session to go over the concepts, although CCHS was unable to locate training documentation or sign-in sheets. This type of documentation is maintained for HF LCC and ISS training. Such documentation is not definitively required for PHA/LOPA training, although it is suggested.	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.	CCHS reviewed the incident investigation policy I(A)-6 (rev. 17, dated 11/2019) which describes the RCA method used to investigate Major Incidents, MCARs, potential Major Incidents, potential MCARs. This method is referred to as TOP/CL (TOP - triangle of prevention/causal learning) and it focuses on deterring causal factors that include human factors. The causal factors cover direct cause, contributing causes and root causes. Both TOP/CL Level 2 and TOP/CL Level 3 are used to investigate process safety incidents, with the Level 2 investigation being for medium level investigations that requires a smaller team; and Level 3 for investigating Major Incidents, MCARs, and potentials of each. Human factors are considered for both Level 2 and Level 3 investigations. MRC uses a human factors checklist that covers most of the same main topics as the ISO LCC checklist. The topics evaluated in the checklist were experience/knowledge, stress/fatigue, shift work, work practices, conflict between work practice and procedure, clarity of procedure, complexity of tasks, HMI (human machine interface), physical work environment, communication systems, training, overtime, worker selection, climate/culture, management system. During the audit, CCHS was informed that the facility would no longer be using the TOP/CL methods as the RCA for investigating Process Safety Management (PSM) incidents. CCHS reviewed I(A)-6 (rev. 18, expected release Feb 2021) which states that PSM incidents which are classified as Major Incidents, MCARs, potential Major	Y	None

Incidents, potential MCARs, catastrophic releases, potential catastrophic releases will be investigated using a new method. This method has not been properly reviewed by CCHS but does seem to be related to an existing RCA method that was approved by CCHS in the past. During the audit, MRC formally submitted the new RCA method to CCHS for review.

CCHS reviewed the following incident investigation reports which included human factors checklists. The checklists had 15 questions that covered topics such as experience level, shiftwork, procedure clarity, complexity, human machine/system interface, communications, climate, management system.

Major Incident - none

MCAR
-Loss of flare pilots (incident date 7/6/18)

Potential Major Incidents
-- F-14012 (incident date 10/31/17)
-- FIM incident 2026352 (incident date 2/16/18)
-- FIM incident 2032512 (incident date 2/16/18)
-- FIM incident 2108968 (incident date 6/26/18)
-- FIM incident 2189489 (incident date 10/18/18)
-- FIM incident 2377677 (incident date 6/12/19)
-- FIM incident 2020582 (incident date 2/8/18)

Potential MCAR
-- F-14012 (incident date 10/31/17)
-- FIM incident 2026352 (incident date 2/16/18)
-- FIM incident 2032512 (incident date 2/16/18)
-- FIM incident 2108968 (incident date

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					6/26/18) -- FIM incident 2189489 (incident date 10/18/18) -- FIM incident 2377677 (incident date 6/12/19) -- FIM incident 2305905 (incident date 3/19/19) -- FIM incident 2370831 (incident date 6/7/19)		
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 item from the previous audit which has been addressed in A52-01.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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]	CCHS reviewed the incident investigation policy which provides definitions of MCARs, Major Incidents and potential MCARs and potential Major Incidents and, in section 6.3, the need to investigate each using an appropriate RCA method. CCHS was informed by the Safety Manager that incidents are reviewed regularly by a team consisting of the Safety Manager and a union rep who go over process safety incidents to make sure that the incidents are classified appropriately and thus investigated properly. CCHS was provided a list of process related incidents some of which were classified as potential MCARs or potential Major Incidents. There was an incident that happened fairly recently that was reclassified based on preliminary findings of the incident investigation. This incident was still being investigated and thus a report was not available for review during the audit. The process used at MRC to categorize incidents (as mentioned in A52-01) resulted in the following which were reviewed by CCHS: 1 - MCAR 0 - Major Incidents 7 - potential Major Incidents 8 - potential MCARs CCHS noticed that there was a lot of overlap between potential MCAR and potential Major Incidents; however, there were differences. FIM incident 2020582 was classified as a potential Major Incident but not a potential MCAR. FIM incidents 2305905 and 2370831 were both classified as potential MCARs but not potential Major Incidents. CCHS interviewed the SMEs who said that MRC uses the ISO definition of MCAR to differentiate between Major Incident as defined by P4 and MCAR and the potential of each.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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 Document]	Abr	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation only requires the following be listed in the RMP: "(i) The date of the most recent major incident investigation and the expected date of completion of any changes resulting from the investigation." [T19 CCR §2745.7.5].	The submitted 2019 Safety Plan (pages 31-33) and 2019 RMP (pages 64-66) each reflect the incident investigation program at MRC.	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	Per SME interview, the operating procedure program is now fairly mature at the facility from many years of review and human factors program checks. A(A)-31 Creating New Operating procedure (rev. 9, dated Nov. 2019) is the procedure to follow for creating new procedures. New procedures and revised procedures most follow the facility's MOC process. A(A)-37 Create and Revise Maintenance Procedures (rev. 4, date March 2019) is the procedure for creating and revising maintenance procedures at MRC and includes Maintenance procedures, policies, work instructions, safe work practices and any other document used to document specific maintenance tasks during field maintenance activities. Section 6 specifies that maintenance procedures are required by regulation for maintenance of: -- Pressure vessels and storage tanks -- Piping Systems including valves -- Relief and vent systems -- Emergency shutdown systems -- Controls -- Pumps Per interview with the current Maintenance Manager, SMR reviewed and developed maintenance procedures prior to him being in his current role. Currently, MRC has roughly 400 maintenance procedures, work instructions and safe work practices. Per craftsperson interview, vendor or manufacturer manuals are also readily available on the internet for additional information and support in addition to the procedures which seem adequate.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				acceptable, an official written operating procedure is probably not required.			
A53-04	Program 4 CalARP & ISO	Did the owner or operator develop a schedule for revising existing operating and maintenance procedures based on a human factors analysis? [T19 CCR §2762.15(e) & Section B: Chapter 6.1.2.4 of the CCHMP Safety Program Guidance Document]		1. The owner or operator shall complete no less than fifty percent of assessments and revisions by 9/29/2020 and one hundred percent by 9/30/2022. [T19 CCR §2762.15(e)] 2. The timing listed in clarification #1 only applies to a new owner or operator that was not subject to county ISO requirements prior to being subject to Program 4 requirements. [CCHMP interpretation]	Per interview with the Learning Manager, the facility's operating procedure is quite established and mature with over 20 years of revisions and review and following human factors protocol. A(A)-37 Attachment A is the decision tool that spells out which latent conditions checklist (LCC) to use, revision frequency (3 or 5 years) and if an MOC is required for revision and document approver for maintenance procedures. A matrix is used to assess the level of risk in relation to the criticality, familiarity/frequency, and complexity of a maintenance task. Per interview with the Maintenance Manager, MRC has roughly 400 maintenance procedures and LCCs are being applied to the procedures as they come due in the normal review cycle which is 3-5 years. Currently, roughly 50-60% have been evaluated using the appropriate typed LCC and they are on target to be completed by 9/2022. 2018 CalARP/ISO findings: Per interview with the maintenance training supervisor, SMR will review approximately 100 to 200 maintenance related procedures and complete at least 50 percent by 9/30/2020 and one hundred percent by 9/30/2022, per the P4 CalARP requirements.	Y	None

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] 4. This question only applies to maintenance procedures subject to human factors evaluation under ISO/RISO (not all maintenance procedures under P4).	Per interview with the Maintenance Manager, procedures are on a 3-5 year review cycle for continuous improvement and assessment. Prior to that, the facility evaluated and developed maintenance procedures to address regulatory requirements as listed in A53-03. See discussion of operating procedure and the program in A53-02.	Y	None
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.	Per interview, personnel responsible for developing and maintaining operating and maintenance procedures are trained in rules for writing effective instructions. CCHS randomly selected three mentors responsible for reviewing and maintaining operating procedures and confirmed their training records for 2/2018, 8/2018 and 7/2020. CCHS also randomly selected 5 maintenance procedure reviewers and was able to verify training for only two in 1/2021 and 2/2021.	P	Ensure that employees responsible for developing and maintaining maintenance procedures are trained in rules for writing effective instructions before they are assigned the task to perform this work.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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. 6. This question only applies to maintenance procedures subject to human factors evaluation under ISO/RISO (not all maintenance procedures under P4).	Per interview and review, there are policies for review and approval of procedures to ensure that they are accurate, current, and that the effects of procedural errors are fully understood. A(A)-31 is the policy that lays out the requirements for creating and revising operating procedures and work instructions. Procedures with a task complexity risk score of Low (1) and Medium (2) may be written as a work instruction or added to training curriculum. Assigned area mentors will identify the Document Author or Subject Matter Expert (SME) that can provide Functional, Technical, and Compliance information when writing new procedures. The SME(s) must be certified in the areas covered by the procedure they are creating. A(A)-32 is the policy for controlling (reviewing/revising) operating procedures and it specifies that the appropriate LCC will be used as well as having functional, technical and compliance review. A(A)-37 is the procedure that listed requirements for creating and revising maintenance procedures for MRC including use of 3 types of LCC forms based on classification from a matrix. The procedure process also include the following: -- Draft be prepared based on vendor manuals and by SME knowledge on topic -- Functional review -- Technical review -- Compliance review Functional review includes tabletop discussion and/or a field walk of the procedure to verify that the procedure steps can be performed as written. See A50-08 for discussion and review of completed LCC for operating and maintenance procedures.	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]	Per interview with the Learning Manager, only approved operating and maintenance procedures are accessible on the intranet. For operating procedures, some mentors will leave titles of temporary or special procedures in the unit procedure table of contents for reference purposes only but the actual procedure cannot be accessed. Per CCHS interviews with employees, they are able to access the procedures when needed.	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	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.	Per interview with the Learning Manager, the operating procedures are written using a third-party software with a fixed format that meets the human factors guidelines. Per CCHS review of the procedure training material, there are 11 basic rules that cover much of the listed material in this question and there was discussion for use of "Notes, Cautions and Warnings". Per interview, temporary procedures are in general not available for access unless approved using MOC. CCHS randomly reviewed the following procedures and confirmed that normal procedures complies with the general elements of effective procedures as listed in this questionnaire: -- COGN 1002 -- COGN 1107 -- COGN 2108 -- COGN 3011 -- HCU 1130 -- HCU 2121 -- HCU 3142 -- HCU 3200 -- HCU 5240 -- MTZ-4900 -- SRHT 1125 -- SRHT 2170 -- SRHT 3170 -- Tank 3250	Y	None

defined and placed immediately before the step to which they apply;
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

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
		more than a simple push-button to press)? [Section B: Chapters 6.2 and 6.4 of the CCHMP Safety Program Guidance Document]					

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A53-16	ISO	Has the Stationary Source incorporated the following into emergency operating procedures: a) Acknowledging and silencing alarms; b) Responsibilities for performing specific actions during the emergency; c) Appropriate PPE and other protective devices (e.g., safety showers, emergency carts); d) Special tools, materials, or chemicals; e) Additional hazards not present during normal operations; f) Location and use of emergency equipment; g) Location of alternate/redundant control stations or panels; h) Location of manual stops and shutoffs for systems normally under automatic control; i) Decision aids; j) Safe operating limits and other indicators; k) Shut down lists, diagrams; l) Consequences of deviation; m) Steps to place the process in a safe or self-sustained mode; n) Steps to shut down the process in the safest, most direct manner; o) Conditions under which the user may have to stop and evacuate; p) Required communication, announcements, and notifications, including initiating the Emergency Response plan; q) Instructions and conditions when by-passing emergency shutdown systems or interlocks is allowed should be specified; and r) Steps to return the process to safe operating limits if possible or practical? [Section B: Chapter 6.4 of the CCHMP Safety Program Guidance Document]		1. This list of information was adapted from CCPS's Guidelines for Writing Effective Operating and Maintenance Procedures. This list includes types of information Stationary Sources may include in emergency operating procedures. [Section B: Chapter 6.4 of the CCHMP Safety Program Guidance Document]	CCHS reviewed two emergency procedures and noted that they comply with the general elements of effective procedures as listed in this questionnaire for emergency procedures. General safe operating limits are not included in the emergency procedures as the equipment may already began to shutdown or the instruction is just to use the trip. Per interview, safe operating limits are listed in the ESP tables which displays on the operator's console: -- HCU 4100 -- SRHT 4110 Emergency procedures also state in the beginning of the procedure to initiate the unit evacuation alarm to evacuate nonessential personnel from unit.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation does not require the covered process data sheets (i.e., RMP) to mention anything about operating procedures although does list the following related to human factors: "(q) The date of the most recent evaluation of the Human Factors Program." [T19 CCR §2745.7.5]	CCHS reviewed the CalARP RMP dated Feb. 28, 2020 and the SP dated Aug. 22, 2019. Section 4.4.4 and Section 5.2 (respectively) are general descriptions of the implementation of operating procedure program at the facility and are accurate.	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.	There is one action item from the 2018 CalARP/ISO audit and it was addressed.	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] 2. This question only applies to maintenance procedures subject to human factors evaluation under ISO/RISO (not all maintenance procedures under P4).	CCHS reviewed the following maintenance procedures: -- GMP-13 -- GMP-56 -- IMP-09 (work instruction) -- AMP-06 -- CEM-03 -- ELEC-12 The procedures reviewed generally have the same format, with the exception of Elec-12. The maintenance procedure reviewed generally identified the person that is responsible for performing the work; however, the steps are not only written in command form and generally lengthier than seen in operating procedures. CCHS notes use of diagrams as part of the procedure for clarity.	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. 2. This question only applies to maintenance procedures subject to human factors evaluation under ISO/RISO (not all maintenance procedures under P4).	Per interview with the Maintenance Manager and A(A)-37, the policy applies to maintenance procedures, policies, work instructions, safe work practices and any other document used to document specific maintenance tasks. CCHS reviewed the following safe work policies: -- C(F)-3 rev. 19 -- C(F)-4 rev. 16 -- C(F)-5 rev. 25 CCHS noted consistent format, work requirements, custody transfer from operating department to work party, and responsibilities.	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)]	CCHS reviewed I(A)-53 - Management of Organizational Change Procedure (rev. 2/20/2018) which describes the scope of the procedure as: • Determination of MoOC applicability • Guidance on screening the nature of a proposed change for California Regulatory Requirements • Conducting a MoOC analysis when a proposed change has California Regulatory applicability • Conducting a MoOC analysis when a proposed change does not have California Regulatory applicability The procedure further defines applicable organizational changes as: • Change in the number of positions, or number of personnel within those positions. • The roles and/or responsibility to perform identified critical activities assigned to a specific position are substantially increased or modified. • Change to the organization structure (existing organizations are merged or divided). • Reduction in staffing levels, reducing classification levels of employees, changing shift duration, or substantively increasing employee responsibilities at or above 15%. The requirements also apply to contract partners in permanent positions. . Per interview with the SME, there have been about 9 organizational changes that met the criteria mentioned above since the previous CCHS audit. Three of the more significant MOOCs are as follows: -- Eliminating one staff position by combining the Safety Engineer position with the Industrial Hygienist position,	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					completed 7/30/20. -- Safety Organization Re-Design by Combining the Health and Safety and Process Safety organization under one department manager, completed 8/2/19. -- HSE & Technology Organization Re-design by Combining Production Support Manager and CSE Manager into Process Controls and Process Technology Manager, completed 8/2/19. In reviewing the MOOC procedure I(A)-53, CCHS noted that it does not require MOOCs to include the required certification statement to be signed off by the Refinery Manager or designee. Also a review of the completed MOOCs indicated that the certification by the Refinery Manager or designee was not consistently completed. This certification is required by the CalARP Program 4 regulations for the MOOC program and an ensure action is issued in A54-15.		

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]	The MoOC procedure, section 6.2, provides additional guidance for when an MoOC needs to be initiated: • Elimination of a position with the exception of a temporary position filled for the purpose of accomplishing a discrete task for a finite duration/upon completion of a task or a position made obsolete by accompanying elimination of non-critical responsibilities • Reduction of number of individuals in a position: the reduction must be at or below the minimum number of individuals necessary to ensure that direct operations, safety, or emergency response activities can be carried out without routinely incurring excessive overtime that may lead to fatigue • Significant change in responsibilities: an overall increase of responsibility that impacts a position's capacity (time available) to effectively carry out some or all of the required tasks; changes in responsibilities when replacing critical tasks with other tasks without ensuring that the critical tasks continue to be addressed. • Temporary organizational changes lasting more than 90 days shall be treated as permanent organizational changes. Temporary changes associated with contract contingency preparations must also be managed in accordance with the change management requirements of the California Regulations.	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 a review of the completed MOOCs referenced in A54-01, the affected employees and their representatives participated in the MOOC. The first couple of pages in each MOOC documents the names and signatures of the MOOC team that was involved in the review and approval of the change. The MoOC procedure, section 6.3.1, describes the MoOC Change Review Team. The team consists of 2-5 people with the size and makeup to be determined by the manager(s) of the affected department(s). The makeup of any specific change team should include personnel who: • Will be affected by the change (representatives of the affected positions), and • Are likely to be the most familiar with the potential impacts of the change.	Y	None
A54-04	Program 4 CalARP & ISO	Has the owner or operator developed and disseminated criteria or guidance to assist personnel responsible for conducting the MOOC in determining the composition of the team? [T19 CCR §2762.6(k) & Section B: Chapter 7.1 of the CCHMP Safety Program Guidance Document]		1. "Change teams" or "MOOC teams" should include employees and their representatives, as appropriate, from engineering, maintenance, and operations as well as safety and health. 2. The “change team” or “MOOC team” must be given the time, resources, and management support to properly evaluate proposed staffing changes. [Section B: Chapter 7 of CCHMP Safety Plan Guidance Document]	The MoOC procedure, Section 6.3.2, describes the process to define the existing situation prior to making an organizational change. Section 6.3.3 of the procedure describes the use of the Latent Conditions for Management of Organizational Change checklist (Attachment D) which includes 15 questions taken from the County's Latent Conditions Checklist (County LCC) and are tailored to identify potential issues associated with the proposed organizational change. Per interview, job descriptions for all plant employees (both hourly and staff) are available on the intranet. When an MoOC is initiated, as part of the evaluation process, an individual in the affected position is required to review and record the job description to ensure there are no gaps between the recorded job description and current duties performed.	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. 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. 6. 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]	The MoOC procedure, Section 6.3.2, describes the process to define the existing situation prior to making an organizational change. Section 6.3.3 of the procedure describes the use of the Latent Conditions for Management of Organizational Change checklist (Attachment D) which includes 15 questions taken from the County's Latent Conditions Checklist (County LCC) and are tailored to identify potential issues associated with the proposed organizational change. Per interview, job descriptions for all plant employees (both hourly and staff) are available on intranet. When an MoOC is initiated, as part of the evaluation process, an individual in the affected position is required to review and record the job description to ensure there are no gaps between the recorded job description and current duties performed. Per a review of the MOOCs referenced in A54-01, the MOOCs completed showed clear understanding of their existing situation prior to making the organizational change. The MOOCs included a copy of the completed Management of Organizational latent conditions checklist as indicated in their MOOC procedure.	Y	None

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	The MoOC procedure, Section 6.3.2, describes how a Change Review Team will assess the impact of a proposed organizational change. The team begins with defining the existing situation and developing a detailed inventory of the job duties that are carried out by the affected positions. Any of the duties that are identified as critical to Health, Safety, Security, and Environment (HSSE), Product Quality (PQ), and Reliability are documented within the Critical Activities Mapping Table (Attachment B); the tasks are then distributed by the Department Manager to alternate personnel to ensure that these duties continue to be carried out effectively. Additional impact assessments include the Health and Safety Checklist for Management of Organizational Change (Attachment C of the procedure) which focuses on the following impacted areas: Health and Safety (H&S) Management, H&S Training, Safe Work Practices, OSHA PSM Management, Contractor Safety, Emergency Response, Safety and Health (S&H) Regulatory, Occupational Health, Operations Effectiveness H&S, and Craft Safety Effectiveness. Per interview and a review of staffing for Pressure Equipment Inspection (PEI) Department, last year the staffing included two full time equivalent Corrosion & Materials Engineers and one pf the full time equivalent positions was lost due to retirement. This left just one Corrosion & Materials Engineer position in place now for several months. The organization needs to assess staffing level for this program to confirm if the lost Corrosion & Materials Engineer position should be restored or an MOOC needs to be performed to document the reduction of this position.	P	Ensure to assess staffing level for the Mechanical Integrity program to confirm if the lost Corrosion & Materials Engineer position should be restored or an MOOC needs to be performed to document the reduction of this position.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					Per interview with SME, CCHS was informed that the staffing of the operations department for the refinery has been reducing from 5.2 faces per 4 person shift to 4.8 faces per 4 person shift based on the strategy from the new organization PBF Energy. There has been a significant number of retirements in operation since the change of ownership of the refinery in the past year. Follow-up communications indicated that the operations staffing for the refinery has currently reached the new lower threshold of 4.8 faces per 4 person shift. MRC should consider conducting an MOOC to assess the staffing level for operations to stay well above the new threshold of 4.8 faces per each 4 person shift.		
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.	There were no ensure action items associated with the previous CalARP/ISO audit. This question is not applicable.	N/A	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
A54-14	Program 4 CalARP & ISO	Does the submitted 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	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation does not require the covered process data sheets (i.e., RMP) to mention anything about MOOC. [T19 CCR §2745.7.5]	The submitted SP (Aug 22, 2019, p. 46-47) reflects the MOOC Program at this site.	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 CCHS review, the MOOCs have not been consistently signed off by the Refinery Manager or designee. For example, the MOOC related to combing a process safety specialist and the Industrial Hygienist was not signed off on the required certification by the Refinery Manager or designee. This MOOC was initiated on 6/1/2020 and completed on 9/1/2020. MRC needs to ensure that all MOOCs completed include the signed certification statement by the Refinery Manager or designee.	P	Ensure that the completed MOOCs consistently include the required certification statement that is signed off by the Refinery Manager or designee.

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.	The MoOC procedure, Section 8.0, identifies the training requirement for the Change Review Team members as just-in-time training on the MoOC and Latent Conditions checklist prior to participation on a Change Review Team. This training is documented using Attachment F of the MoOC procedure. The MoOC and Latent Conditions Checklist Training and Management Review Sign-Off sheet (Attachment F) identifies the topics covered in the MoOC training: -- MoOC Work Process -- Purpose and intent of the MoOC latent conditions checklist -- Method for reviewing, interpreting and responding to questions -- Review of questions in the latent conditions checklist -- Understanding the reason for each question -- Relative importance of different questions A review of the MOOCs referenced in A54-01 confirmed that the completed MOOCs included documentation of just-in-time training for the MOOC program and the MOOC latent conditions checklist to be completed by the MOOC Team members.	Y	None

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 human factors program.	CCHS reviewed I(A)-15 Human Factors Policy (Feb 2019); section 7.0 specifies that the USW Process Safety representative is responsible for providing input and involvement in the Process Safety Work Processes described in this procedure and to participate in the 5-year Latent Conditions Checklist Review/Update. Also, the USW Process Safety Rep is involved in the development and updating of the Human Factors program. CCHS reviewed a slide presentation that was used for the 5-Year review and revision of the HF Program and the LCCs including those for PHAs and facility wide and these were dated December 2018. The policy further states employees participate in the application of the Latent Conditions Checklist, participate as members of Process Hazard Analysis teams, Incident Investigations team, reviewing Management of Organizational Change for staffing changes, in reviewing and updating operating and maintenance procedures and throughout the MOC process as applicable. Per interview, a team was formed to review the written human factors program in 2013.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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 a review of I(A)-15 Human Factors Policy (Feb. 2019), Section 2, employees participate in Human Factors awareness training requirements, team requirements to assess Human Factors, application of Human Factors Checklist/ Latent Condition Checklists (LCCs) in Process Safety Programs, and maintenance of the site-wide checklist and program. Process Safety Programs that require Human Factors review include Process Hazard Analysis (PHA), Management of Organizational Change (MoOC), creation or review of maintenance and operating procedures, incident investigations, major changes, and Hierarchy of Hazard Control Analysis (HCA). Per CCHS review, employees are involved in completing the latent conditions checklists. For PHAs, the team completes the LCC as a team prior to the HAZOP and will field-verify any specific issue of concern. For procedures, the procedure mentor consults with an SME to review the procedures before finalizing. Employees are also involved with completing LCCs associated with qualifying incident	Y	None
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.	Per the policy and interview, employees and their representatives participate in the incident investigation team and are involved with evaluating latent conditions during the investigation. Per interviews, employee representatives were concerned with their level of involvement in formulation of corrective actions from incident investigations. See an ensure action item in A46-01 that addresses the review and update of the safety elements policies to better clarify this involvement.	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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.	The Latent Conditions Checklist is used by persons reviewing and writing procedures (mentors) to avoid latent conditions that might lead to active failures. A formal procedure review process is followed and includes personnel (including employee representative) familiar with actual plant operations to review procedures for accuracy and effectiveness.	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.	It is optional to have a human factors committee, so this question is not applicable. As confirmed by interview, there was a human factors committee when the facility was first developing the human factors program in 2013. The committee has been dismantled for many years.	N/A	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	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation only requires the following be listed in the RMP: "(j) The date of the most recent review or revision of employee participation plans" …also "(q) The date of the most recent evaluation of the Human Factors Program." [T19 CCR §2745.7.5].	The RMP (June 17, 2019, p. 66-68) and the SP (Aug 22, 2019, p. 47) reflect the Employee Participation Program at this site.	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 were no ensure action items associated with the previous 2018 CalARP/ISO audit to be addressed. This question is not applicable.	N/A	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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 a review of I(A)-15 Human Factors policy (Feb. 2019), CCHS confirmed that employees are involved with application and review of the LCC. The employees and their representatives all have access to the refinery's policies on the intranet. Based on interviews, the employees and their representatives are generally aware of human factors unless they also participated in procedures writing, PHAs or any specific item related to the HF program. Contractors and their representatives will be involved in the HF program in specific prevention program elements. Contractors are provided with the facility policies prior to coming on site.	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).	There are two separate classes for all new operations and maintenance staff that are completed in one live classroom setting in a 2-hour class that addressed the basic awareness of human factors initial training and the overall human factors program training. Active Learner is the electronic learning management system that tracks the training of all employees at the refinery. See A56-06 for a live navigation discussion of this database. Per SME interview, specialized training is also managed by the Active Learner program and tracked by this program. Completion of specialized training is maintained as an E-Learning class for latent conditions and used for operations and maintenance staff training on Human Factors training latent conditions checklist.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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 interviews, employees and their representatives are provided basic awareness and overall human factors refresher training every three years, and more often if necessary. Refresher training is in conducted by E-Learning in Active Learner that was installed to replace a previous program in June of 2020. Active Learner maintains documentation of this refresher training for all operations and maintenance employees. The process is automated. Hardcopies for training before June 2020 are available and maintained on site for one year and then stored outside of the facility. The LCCs completed for PHAs or incident investigations or MOOCs are maintained with the specific reports generated for those program elements. CCHS reviewed the human factors program training slides that are used for the training on this topic. By live navigation of Active Learner program, CCHS also confirmed that refresher training on human factors program has been completed at least every three years for 6 operators from HCU and SRHT unit and five maintenance employees.	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 interview with SME, employees and their representatives are provided with specialized refresher training on an as needed basis. In general, mentors, production specialists and select operators or maintenance employees get specialized training on LCCs. The Training Department has provided E-Learning slides on LCCs that are now available to anybody who needs training or involved in creating or revising operating procedures and maintenance procedures. CCHS reviewed a training roster that indicated completion of this training for about 180 of the operations and maintenance employees. This CalARP audit identified that the training documentation in writing effective procedures was not available for select members of the maintenance department involved in procedure writing and an ensure action identifies the need for conducting and documenting the training for all of maintenance mentors and/or procedure writers. This is a repeat ensure action that is so stated in A53-09.	R	None
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	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation does not require the covered process data sheets (i.e., RMP) to mention anything about training although does list the following related to human factors: "(q) The date of the most recent evaluation of the Human Factors Program." [T19 CCR §2745.7.5]	The submitted RMP dated June 2019 Section 4.4.5 and 4.4.18 describes the existing CalARP Training Program. Section 4.4.18 specifically addresses the training associated with the human factors program to comply with Program 4 requirements. The submitted 2019 Safety Plan Sections 5.3 and 6.0 accurately describe the existing Training Program.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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 was one ensure action item associated with the previous CalARP/ISO audit that has not yet been addressed completely and has been repeated in A53-09.	R	None

A58: Section D - HCA/ISSA

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,	CCHS reviewed the HCA procedure ((A)-43 (revised Oct 2019, rev. 08) which provides the HCA strategies and approaches in section 6.2. The five HCA strategies used were consistent with P4: -- Eliminate hazards to the greatest extent feasible using first order inherent measures -- Reduce any remaining hazards to the greatest extent feasible using second order inherent safety measures -- Effectively reduce remaining risks using passive safeguards -- Effectively reduce remaining risks using active safeguards -- Effectively reduce remaining risks using procedural safeguards CCHS reviewed the checklist that is used to perform HCA. The checklist, First and Second Order Inherent Safety Measures Checklist (no revision date) starts with two questions for the First Order Inherent box which are for Eliminate and Substitute. If questions are answered Y[es], the HCA team continues onto the Second Order Inherent box which contains questions for Minimize, Substitute, Moderate, Simplify. Each of these has multiple questions that are considered as part of HCA. The HCA reports specifies which category of HCA was used. In addition to the ones mentioned, the report has a separate category that includes Passive safeguards, Active safeguards, Procedural safeguards. CCHS reviewed procedure I(A)-43 Hierarchy of Hazard Control Analysis (HCA) which was revised in October 2019 (rev. 08) which is the process used to conduct HCAs at the facility. The	P	Ensure that ISS and HCA are performed on PHA recommendations according to ISO and P4 requirements.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				processes, materials, layouts, and procedures meant to eliminate, minimize, 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)]	procedure states that HCA and ISSA are used interchangeably in the document which is inaccurate. The HCA and ISSA are two different methods that are applied differently and thus must be treated separately. Section 6.0 is consistent with the CalARP P4 regulation which requires HCA to be applied to each covered process units as follows: -- Existing covered processes every 5 years -- Development and analysis of all PHA recommendations -- Development and analysis of incident investigation recommendations from a major incident -- During the design of major changes In section 6.4.2, HCA for PHA Recommendations, the policy states that an HCA shall be conducted in the analysis of all PHA recommendations which would typically be done using Attachment B. This would be used for recommendations that would not be considered major changes. The policy also states that if a recommendation does not require an MOC, the HCA should be part of the PHA study with the same team members. If an MOC is required, the PHA can still complete the HCA using Attachment B, but the checklist will be finalized as part of the MOC process. CCHS reviewed Attachments B-E which were checklists for HCAs for different categories: Attachment B - PHA, Investigation, Major Change MOC; Attachment C - Major Change Capital Project - Assess/Select; Attachment D - Major Change Capital Project - Define; Attachment E - Major Change Capital project - IFC. Attachment F is the HCA full report template which is used to present a full HCA report that includes the individual HCA reports.		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					CCHS reviewed the ISSAs for existing process PHAs and HCA's on PHA recommendations below. There were no existing process HCA's performed. 2020 -- Cogen 1,2 PHA ISS (on existing process dated 5/11/20) HCA - there were no recommendations and so no HCA was completed -- Straight Run SRHT PHA ISS (performed on existing process but sheet did not have a date) HCA - there were HCA summary reports for 6 of 8 recommendations. The final 2 had notes about the recommendations being completed as part of MOC's. The 6 that were reviewed did not have any associated actions related to HCA. 2019 -- Aqueous Ammonia Storage PHA ISS (on existing process dated 5/29/19) HCA - there were HCA summary reports for all 4 recommendations and the reports were dated 5/30/19. -- SRU 1, 2 PHA ISS (on existing process 9/23/19) HCA - there were HCA summary reports for 8 of 9 recommendations. The dates of the HCA's were as follows: -- Recommendation #1 - 3/25/20 -- Recommendation #2 - 2/10/20 -- Recommendation #3 - 11/24/19 -- Recommendation #4 - To be completed as part of project/and or MOC -- Recommendation #5 - 11/14/19 -- Recommendation #6 - 11/14/19 -- Recommendation #7 - 11/14/19 -- Recommendation #8 - 11/14/19 -- Recommendation #9 - 11/14/19 The final recommendation had a note that it would be completed as part of the MOC. Some of the HCA reports were listed as Second Order Inherent Safety		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					Measure - Simplify. 2018 -- HCU PHA ISS (on existing process but the checklist did not have a date) No HCA report -- Volatiles storage PHA HCA - there were two HCA summary reports for 5/9/19 and 12/2/19. There have not been any major changes proposed as part of an MOC review; no recommendations from an RCA investigation for a Major Incident; and no recommended major change from an incident investigation of an MCAR that could reasonably result in an MCAR.		

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	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 have a major incident or MCAR potential.	Existing process PHA's: HCA's were not performed on existing processes. Instead, the facility performed ISSA's on existing processes using the ISS checklist. See A58-01 for more information on existing process HCA's. New processes: CCHS was informed that there have not been any new processes that would have required a major change MOC. PHA recommendations: CCHS reviewed the HCA/ISSA reports from A58-01 which were used to evaluate First Order Inherent, Second Order Inherent, and remaining risks to the greatest extent feasible . Within the HCA checklist, there are comments in the Moderate section of the Second Order Inherent part of the checklist about different parts possibly being operated to the greatest extent feasible. For example, for the HCA for the 2019 SRU PHA recommendation #1, there are comments about the process being operated at the least severe condition feasible; in another, operations have been simplified to the maximum extent feasible. The First Order section of the HCA checklists were answered N[o] for Eliminate and Substitute. The HCA for the 2019 SRU PHA had the section Other HCA Strategy Chosen with Active Safeguards and Procedural Safeguards boxes checked. The HCA report also has a Summary of HCA strategies that were chosen with the HCA strategy in the first column and the Summary of Strategy Chosen in the second column. Incident Investigation: CCHS reviewed the incident investigations for MCAR, potentials MCARS, and potential Major Incidents. There was no incident that was classified	R	None

as a Major Incident. There was one MCAR incident but none of the recommendations would have required an ISSA.

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	CCHS reviewed the HCA procedure which states that an HCA shall be used during the design of new processes, process units, new facilities and all other categories that would qualify as major changes. For major changes that are not classified as capital projects, the HCA will be completed as part of the MOC process as mentioned in A58-01. The procedure states that an HCA will be created for each new hazard introduced or for an existing hazard that was made worse. If no new hazards are introduced, an HCA checklist should be filled out for each group of new equipment that contains the same hazard. For major changes that are capital projects, different attachments will be used to capture the different phases. Since the hazards, process, and equipment have all been selected by this stage, the intent of the HCA is to ensure that all elements from previous HCA's are implemented into the detailed design, engineering, and construction of the facilities prior to startup. Any remaining recommendations that are to be implemented shall be entered in the action item database. CCHS interviewed the SME who said that there have not been any new projects since the previous audit in 2018. CCHS reviewed HCA's for two projects at the site which were reviewed during the previous audit in 2018. The facility went back through the projects and performed HCA's on the different phases of the projects. -- ER-3227 Select Phase HCA (dated 10/22/19) - only one report Design Phase HCA (dated 10/22/19) - three separate equipment HCA reports all	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				needing to apply ISS and/or conducting an ISS analysis. [Section D of the CCHMP Safety Program Guidance Document]	with the same dates IFC Phase HCA (dated 10/22/19) - three separate equipment HCA reports all with the same dates -- ER-3257 Select Phase HCA (dated 12/16/19) - only one report Design Phase HCA (dated 12/16/19) - only one report IFC Phase HCA (dated 12/16/19) - only one report		

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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)]	CCHS reviewed the HCA policy and confirmed that HCA's are to be documented, performed, updated, and revalidated by a team with expertise in engineering and process operations. The team will be made up of a person who is knowledgeable of the HCA methodology and at least one operating employee who currently works on the process and has specific knowledge of the process under review. The team shall include employee participation. CCHS reviewed the HCAs for PHA recommendations below and found that each had included teams with the appropriate knowledge, expertise and experience; however, as mentioned in A58-01, the HCA's were not completed for existing processes. 2020 -- Cogen 1,2 ISS team: unit operator, unit OSE, PHA facilitator HCA team: not performed -- Straight Run SRHT ISS team: no names on ISS checklist and no date (Note: CCHS reviewed a session document for session 1 with the topics covered including ISS (HCA) checklist, the date of the session, and the names of the participants) HCA team: HCA facilitator, unit OSE, unit operator 2019 -- Aqueous Ammonia Storage ISS team: unit operator, unit OSE, HCA facilitator HCA team: unit operator, unit OSE, HCA facilitator -- SRU 1, 2 ISS team: unit operator, unit OSE, HCA facilitator HCA team: unit operator, unit OSE, HCA	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					facilitator 2018 -- HCU ISS team: no names on ISS checklist and no date HCA team: not performed -- Volatiles storage ISS team: unit operator, unit OSE, process safety engineer HCA team: not performed		

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	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 Procedure 2.15A & 2.15B (A) SEO Reviews for All Projects (B) For Projects Subject to HCA (rev. 18, dated 8/2019) which describes how projects are evaluated. SEO (Safety, Environmental and Operability) addresses those issues related to safe and environmentally sound operation of new and modified facilities prior to completion of detailed mechanical design. The HCA review process for new processes ensures good engineering practices and engineering judgement achieve the highest level of hazard reduction to the greatest extent feasible. The SEO Checklist and HCA reviews are associated with the specific stages of a new project: select, define, and IFC (issued for construction). CCHS was informed by the Process Safety Manager that there have not been any new processes that would have required an HCA evaluation since the previous audit. This question does not apply. In addition to the ISS evaluations that were already performed, the facility went back and did HCA's on the projects from A58-06, ER-3227, and ER-3257.	N/A	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
		Attachment C of the SP 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.	CCHS reviewed I(A)-43 which states in section 6.4.1 that an HCA will be performed on existing covered processes by completing an ISS checklist as part of the PHA. This question does not apply.	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.	CCHS reviewed I(A)-43 which describes how an existing process HCA shall be performed using an ISS checklist as part of the PHA. This checklist was located in I(A)-50 Process Hazards Analysis (revised 12/9/19, rev. 10), Attachment F, Inherently Safer System Checklist which is the ISS checklist for the facility. CCHS reviewed Attachment F which is consistent with the CCHS Attachment C Inherently Safer System Checklist. There is no mention in the PHA policy of doing an HCA nor is there any reference to an HCA checklist. CCHS reviewed a list of 50 PHAs that have been performed on processes at the facility. Since the last audit, 12 PHAs have been revalidated. CCHS was informed that HCA's were not performed on all existing processes through the PHAs due to a misunderstanding of the differences between the ISO requirements for ISSA and the P4 requirements for HCA. The HCA's were only performed on PHA recommendations while ISS was performed on the actual processes. The facility is working on getting the HCA's done for the PHAs that have been either revalidated or are new since the regulation went into effect October 2017. CCHS reviewed the ISS's and HCA's for each of the PHAs in A58-07. 2020 -- Cogen 1,2 PHA ISS (dated 5/11/20) HCA - there were no recommendations and no HCA was completed. No process HCA was performed. -- Straight Run SRHT PHA ISS (no date) HCA - reports dated 3/24/20 for recommendations. No process HCA was performed.	P	Ensure that the facility performs HCAs (as well as ISSAs) on existing processes.

2019
-- Aqueous Ammonia Storage PHA
ISS (dated 5/29/19)
HCA - reports dated 5/30/19 for recommendations. No process HCA was performed.
-- SRU 1, 2 PHA
ISS 9/23/19
HCA - there were HCA summary reports for 8 of 9 recommendations and report dates from Nov 2019 to Mar 2020. No process HCA was performed.

2018
-- HCU PHA
ISS (no date)
No HCA report
-- Volatiles storage PHA
HCA - there were two HCA summary reports for 5/9/19 and 12/2/19. No process HCA was performed.

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	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	CCHS reviewed the HCA policy (section 6.9) which is consistent with the P4 CalARP regulation that requires that HCA reports be completed within 30 days of the HCA. The HCA report will include the composition of the team, responsibilities, qualifications, the methodology, a description of each hazard, relevant HCA questions asked and answered, the information available to the HCA team, the process used to determine inherent safety measures, documentation of any inherently safer options, human factors evaluation, findings and recommendations, and documented resolutions. New Process: CCHS reviewed HCA reports for two new processes, ER-3227 and ER-3257. These projects were in development and reviewed by CCHS during the last audit. At the time of the last audit, only the ISSAs were performed and the ISSA report for ER-3227 did not contain the required information. PHA recommendations: CCHS reviewed the HCA reports for the PHAs in A58-01 and found that the SRU 1 & 2 HCA report had the following: The recommendations had dates of (1) 3/25/20, (1) 2/10/20 and the rest (6) had 11/14/19. There was also one that had been incorrectly moved to a project MOC where it was assumed that an HCA would be performed. CCHS reviewed the ISSA for the SRU 1 & 2 process. The PHAs had the information in (a)-(i). Existing Process: The facility has not performed HCAs on existing processes but has performed ISSAs as mentioned in A58-01. CCHS reviewed all of the ISS's for the PHAs mentioned in A58-01.	P	Ensure that an ISSA report is generated within 30 days of completing the ISS for existing processes (HCA reports must be completed within 90 days).

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
		D.1.2 of the CCHMP Safety Program Guidance Document]		not necessary to implement more than 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.	MOC: CCHS was informed by the Process Safety Manager that there have not been any major changes that resulted from MOC's other than those captured for the project MOC's that were reviewed during the previous audit. CCHS reviewed a sampling of MOC's that were selected for review during the audit and did not see any that would have been considered major changes. II: CCHS did not see any major changes that resulted from the incident investigations reviewed in A45-01 that could reasonably have resulted in an MCAR. RCA: CCHS reviewed the list of recommendations from RCA investigations in A45-01 and did not identify any that were from a Major Incident.		

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.	CCHS reviewed the HCA policy which describes in section 6.7 that recommendations from an ISSA must be implemented to the greatest extent feasible. The justification for not implementing a recommendation must be documented. The adequacy of such justification will be reviewed by the ISSA facilitator as well as the USW PSM rep. If there are still concerns, the ISSA facilitator will contact CCHS. The criteria for declining to implement an ISSA recommendation are consistent with ISO Section 450-8.016(i)(3) and Section D.1.4 of the CCHMP Safety Program Guidance Document. CCHS reviewed the ISSA reports from PHAs in A58-01 and found the following: 2020 SRHT: -- For each ISS not implemented, the checklist had an explanation. For example, for the use of compact heat exchangers, there was a note that the heat exchangers in place are more safe than the compact heat exchangers which could cause a worse safety issue. -- CCHS found wording used in the LOPA documentation that seemed to imply that additional ISS may be feasible: "Additional barriers considered grossly disproportionate to risk reduction achieved". Per SME interviews, this generic wording was used by Shell to identify no further evaluation was necessary since acceptable tolerability criteria had already been met. 2019 SRU 1 & 2: -- For consequence 3.8.2, CCHS found the risk calculation incorrectly put the number at 1E-3 when in fact the number is 1E-4. Underneath the calculation is another note: Meets tolerability criteria. CCHS was informed that there was no further documentation for this particular	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					scenario. CCHS interviewed the ISSA SME's who said that there is a new approach that is being used to evaluate risks and IPL's. As part of the new approach, MRC provides better documentation on the decisions made regarding options that were not implemented and the associated risk calculations.		
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.	CCHS reviewed section 6.1 of the HCA policy which is consistent with the P4 CalARP regulatory requirement that an HCA is required for each covered process unit every 5 years. As mentioned in A58-11, in general MRC has not performed existing process HCAs during PHA reviews or outside of PHA reviews since P4 went into effect in October 2017. Thus, MRC is not currently meeting the requirement that 50% of the existing process HCA's be completed by October 2020. CCHS was informed by the SME's that MRC is working to get the existing process HCAs completed and has started doing them outside of the PHA process to catch up. MRC has performed ISSA on existing processes on PHAs that have been revalidated since the previous audit so it is only the HCAs that are deficient.	N	Ensure that 50% of existing process HCAs are completed by November 2021 and the remaining by 9/30/2022.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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 Guidance Document]	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.	CCHS reviewed the ISS checklist that were performed as part of existing process PHAs in A58-07. CCHS was informed by the SME's that ISS's are performed on MCARs and potential MCARs for the processes under review. Another part of the ISS review of the PHA would be on any MOC's for the existing process. The PHA teams include SME's with strong technical backgrounds who are well versed in process technologies. There have not been any changes to the ISS checklist since the last audit.	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.	CCHS reviewed section 8.0 of the HCA policy which describes how HCA facilitators, including the USW PSM rep, will be trained in the intent of the HCA strategies and approaches, the process of doing an HCA, the process of documenting an HCA report, and be knowledgeable in the procedure and work process. HCA team members will be trained in the application of HCA strategies and approaches. CCHS reviewed all of the sessions for the PHAs listed in A58-01 and session 1 on the first day of the PHA included training on the ISS or the HCA. CCHS reviewed the presentation (dated 2020) Hierarchy of Hazard Control Analysis (HCA) Training that is provided by the HCA facilitator which covers HCA. The training discusses the HCA strategy of moving from First Order Inherent to Second Order Inherent, to Passive, Active, and Procedural. CCHS reviewed the sign-in sheets for HCA training for each of the PHA teams for the PHAs mentioned in A58-01 and A58-11. The 2020 Cogen PHA did not have an HCA completed and therefore there was no HCA training performed. For the 2019 SRU PHA, there was a sign-in sheet for ISS training but there was no indication of HCA training. For the 2018 PHAs for the HCU and Volatile Storage, there were no HCAs performed.	R	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	CCHS reviewed section 6.8 of the HCA policy which describes how HCA recommendations arising from HCA analyses shall be implemented in a timely manner. Each recommendation needs an action plan that includes the timeline for implementation. Once recommendations have been agreed upon, and deadlines accepted, they will be entered into the action item tracking database by the HCA facilitator. An HCA recommendation can be declined for reasons that are consistent with T19 CCR §2762.16(e)(2)-(4) and (10). CCHS did not identify any action items from the ISSA's nor any recommendations from the process HCA's since these were not performed. CCHS reviewed HCA's and ISSA's performed on PHA recommendations and found that most had been closed within 1 year and none of the recommendations were rejected. However, in the PHA for LOP flare, there is a note in the HCA summary report for 3 recommendations that are to be completed within 30 months of the PHA (completed 12/15/19) issuance date which would be 6/15/2022. All three have been assigned projects for turnaround.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
				applicable. [Section D.1.5 of CCHMP Safety Program Guidance Document] 8. Any proposed change to a completion date shall be conducted through MOC per §2762.6. [T19 CCR §2762.16(e)(9)]			
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 were three ensure action items from the previous audit and all were addressed.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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	1. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation only requires the following be listed in the RMP: "(n) The date of the most recent Hierarchy of Hazard Control Analysis" [T19 CCR §2745.7.5].	The submitted Safety Plan (dated 8/22/19) reflects the ISS program at the facility. Throughout the SP, the ISS and HCA terms are used interchangeably although they are two separate programs. This is also the case with the PHA policy at MRC which refers to HCA within the ISS section and then references the ISS checklist. The submitted RMP (dated 6/14/19) does not reflect the HCA/ISS program at the facility. For each of the PHAs, there was an HCA date listed although the facility has not done HCA's on existing processes. The facility has done only ISS on existing processes. The RMP needs to be updated to make clear that the dates shown are for ISS's, not HCA's. See A58-11 for information on the HCA's for existing processes.	P	Ensure that MRC updates the RMP with the appropriate information for the ISS's performed and dates rather than HCA's which have not yet been completed. Ensure that MRC updates the Safety Plan to accurately reflect the relationship between HCA and ISSA. Ensure that once the site ISS/HCA programs and policies are revised, that the RMP and SP are updated accordingly to reflect the ISS/HCA programs at MRC.
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]	CCHS reviewed section 6.3 of the HCA policy which describes that at least one operating employee who currently works on the process and has the expertise in the process being evaluated will be part of the HCA team. For all of the HCA's reviewed in A58-01 for PHA recommendations, there was an operator in attendance. For existing processes, there were no HCA's performed although per SME interviews they would be performed in the PHA that includes an operator. See A58-01 and A58-11 for more information on HCA's for existing processes.	R	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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		CCHS reviewed the documents that were in place since the P4 regulation went into effect in October 2017. MRC has retained the ISSA's performed since then as well as the HCA's performed on PHA recommendations. CCHS reviewed section 6.9 of I(A)-43 which is consistent with the P4 regulation which requires that HCA/ISSA reports be kept for the 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)]	For the HCA/ISSA reviewed in A58-01, CCHS did not see any HCA/ISSA items that would have not been able to be closed within the timeline. These were ISSA's for existing processes and HCA's for PHA recommendations.	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 was provided a copy of a report titled "Shell Martinez Refinery 2018 HSSE Culture Assessment Report". The survey was from October 24th to early December 2018 with both an on-line version and a paper version survey. There was also a follow-up survey for non-respondents for several days near end of February 2019. Per interview with SME, the completed report was signed by the Refinery Manager on 3/31/2019.	Y	None
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)]	The HSSE Culture Assessment included both an on-line version and a paper version of a 27-questions survey. The survey also included a solicitation for those that would like to participate in a Focused Group Discussion to send their name in an email to participate. Both written survey and focus group are approved methodologies for safety culture assessments. 57% of the survey were completed on-line and 43% were on paper.	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]	Per the 2018 HSSE PS Culture Assessment report, the respondents were summarized by work type into: -- Hourly (operations or maintenance) -- Staff (engineers, managers) -- Contract Partner, routine (long-term) -- Contract Partner, T/A (short-term, temporary) There were also 17 unanswered responses for work arrangement from the 506 survey forms received.	Y	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 the I(A)-71 PS Culture Assessment Policy (rev. March 2019) which identified that the facility hopes to obtain an overall participation rate of 30% and for smaller groups, for example, operating departments or turnaround maintenance, the target rate was at least 20% participation. Per the survey report (p. 8), the response rate is listed as: -- Hourly (operations or maintenance): 45% -- Staff (engineers, managers): 58% -- Contract Partner, routine (long-term): 44% -- Contract Partner, T/A (short-term, temporary): 19% The report noted that the survey was conducted near the end of a turnaround when there were fewer then average number of contract partners on site.	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.	The 2018 HSSE Culture Assessment Report stated in the goals and objectives that the assessment included an evaluation of the effectiveness of the following elements of process safety leadership: • Hazard reporting program (3 questions) • Response to reports of hazards (2 questions), • Procedures to ensure that incentive programs do not discourage reporting of hazards (3 questions), • Procedures to ensure that process safety is prioritized during upset or emergency conditions (2 questions), and • Management commitment and leadership (3 questions) CCHS noted in the report findings, discussions and assessment specific to the above elements. Though there were no specific discussions on the elements, the report also identified 9 general questions that are kept the same from the 2010 and 2015 PSCA that would help assess: • Safety, Health, Environmental, and Process Safety programs performance, and • Individual performance and accountability with respect to the above CCHS also reviewed the 27 questions survey form and identified 3 questions that address Peer perception and accountability (questions 8,10,11). CCHS reviewed the PSCA policy and noted that section 6.1 of the policy states the PSCA would include an evaluation of the effectiveness of all 8 elements of process safety leadership as outlined in these questions. CCHS finds the topics are covered in the survey; however, the elements are not	P	Ensure that future Process Safety Culture Assessment Report include evaluation of all 8 elements of process safety leadership as stated in the policy, including the Industrial Safety Ordinance requirements and not just the elements listed in CalARP Program 4 regulations. This is a repeat from 2018.

adequately discussed in the assessment report.

Per interview with SME, the survey questions are custom developed before each survey deployment. CCHS noted that the policy does not include questions and the mapping to the required element to this question.

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.	Per the PSCA report, the survey was inclusive of all work groups using questions that were a blend of specific topics, e.g., 0-60 reporting of hazards, and general program perspective. Then a follow-up survey only for people that did not originally respond with the intent to evaluate the representativeness of the main survey results. It was anticipated that those that did not originally respond would score low. However, the two surveys were not statistically different in the findings. A Culture Survey team was assembled per the PSCA policy comprised of representatives of the USW, staff and management to identify actionable recommendations to address responses that were below the overall average of the survey. The survey identified three areas where improvement actions could be focused. See discussion in A59-07 regarding detail discussion for development of PSCA recommendations and the various communications to the workforce and contractors. The report also stated that the Culture Survey Team will prioritize changes to the program, i.e., use of the program, effectiveness of the program, end-user/stakeholder satisfaction in the program, and any other metric believed to be associated with the Culture Assessment Survey findings. Each program team shall, for 24 months, hold at least quarterly team meetings and document actions taken by uploading program changes or action into the Action Tracking Software.	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]	Per the PSCA policy, there were six methods that the work force may be made aware of the PSCA report. Per SME, CCHS was provided handouts that was part of the Joint Health and Safety Committee on 5/7/2019 which summarized the PSCA report, findings and proposed action. CCHS also was provided a copy of the Martinez Minute newsletter dated 4/24/2019 which included a quick summary of the HSSE culture survey and key areas of improvement identified. The Martinez Minute are sent to all employees and those contract partner supervisors with refinery computer access. Per SME and review of the sign-in sheet, the PSCA report was shared in a "leading for Goal zero" session between supervision / Management /employee/contractors presentation at the on-site clubhouse on 4/10/2019. This was attended by ~49 persons. Presentations to contractors was also made in the Shell Contractors United for Safety (SCUFS) around the same time. Per SME, links to the report and slides were also posted on the Health and Safety Department intranet website that is accessible by employees and contractor supervisors. Per SME and review of presentation slides and communication around 4/11/2019, refinery leadership were encouraged to have discussion with those they supervise to have the discussion and from there for the managers to review the slides with their direct report. These are well within the 60 days of	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					PSCA report date of 3/31/2019 and 6 months data collection from Oct-Dec 2018. The report was developed within 90 calendar days of completion of the assessment which included the focus group in late February and review of the culture team. However, much of these communications are passive with the only exception being the "leading for Goal zero" and SCUFS for contractors, CCHS finds that active communications of PSCA results is critical for improving safety at the facility as well as help to encourage future PSCA participation.		
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.	Three improvement actions were identified in the 2018 HSSE Culture Assessment report dated 3/31/2019. See details of the communication dates in A59-07. Per SME, these action items and an overview action to monitor the action was entered into the action item tracking database on 3/31/2019. The overview action states over a period of 24 months to hold quarterly meeting with action parties to review programs and identify improvements.	Y	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	Per SME interview, an overview action was developed to monitor in a quarterly basis. One of the recommendations included development of metric to allow for tracking of progress. However, in the time since the survey, the facility had a change in ownership which resulted in management and program changes, additionally; some of the planned activities were disrupted dues to COVID-19 challenges in implementation and specific metrics were not developed. One of the three improvement actions from the survey is closed on schedule. MRC is planning an interim assessment in the very near future to further refine the improvement plan and determine the path forward in addressing gaps identified in the survey.	N	Ensure the improvement plan from the interim study include metrics to monitor the effectiveness of the actions in achieving the facilities' process safety culture goals. This is a repeat from 2018.
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)]	Per SME interview, the facility performed a PSCA in Q4 of 2015 with a report issued in early 2016. The 2018 PSCA survey was performed to satisfy the CalARP Program 4 requirement of meeting 18 months of Oct 2017 and also satisfies the ISO requirements of re-assessment at least once every 5 years.	Y	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.	There were four ensure actions from the 2018 CalARP/ISO audit. Two were addressed and two are being repeated in A59-05 and A59-09.	N	Ensure that MRC provides periodic update to CCHMP regarding the repeat actions in A59-05 and A59-09.
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] 2. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation only requires the following be listed in the RMP: "(o) The date of the most recent Process Safety Culture Assessment." [T19 CCR §2745.7.5].	CCHS reviewed the CalARP RMP, dated Feb. 28, 2020, and the SP, dated Aug. 22, 2019. Section 4.4.17 and Section 12 (respectively) are brief descriptions of the PSCA program at the facility. It describe the use of written survey method that are combination of hard copy and electronic but did not include the use of focus group to further explore issues.	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		Per review of the PSCA report, interview and documentation, there were participation from operating and maintenance employees as well as employee representatives. A culture team was assembled to develop the survey and review the recommendations. A culture team with the same make-up and as much as possible, team member, as the original culture team (retirements, role changes, etc.) was re-convened to discuss the status of actions prior to the interim assessment. The current culture team is slightly larger as some of the original team members have had role changes but are involved for continuity.	Y	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 PSCA includes assembling a safety culture team per the PSCA policy and comprised of representatives of the USW, staff and management. The team was tasked to: -- Engage the workforce -- Determine survey questions that is specific working arrangement and job assignment without sacrificing anonymity -- Determine use or not use of incentives for completing survey -- Develop survey method (online and paper) -- Identify actionable recommendations to address negative responses The reports also stated that USW representatives were knowledgeable in refinery operations and represented the union Operators and Maintenance craftpersons.	Y	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 most recent PSCA dated March 2019 was conducted in Oct-Dec 2018 with a focus group to discuss action items in February 2019. An interim assessment for implementation and effectiveness of each of the PSCA corrective actions is due by March 2022.	N/A	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		Per the report, the refinery General Manager, or his designee, shall serve as signatory to this report and corrective action plan. Per SME and the action tracking database, the General Manager provided signature to the PSCA and the action items on 3/31/2019.	Y	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		Per interview, the presentation slides and PSCA reports are available to employees on the facility network. The PSCA report included detailed analysis of the survey questions.	Y	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 Safety/Departmental Permits Procedure I(F)-3 (Rev. 30, dated Oct. 2020) which discuss two types of permits: Departmental Permits and Safety Permits. Section 6.5 discuss Safety permits, before a source of ignition may be created or before any person is permitted to enter a Permit Required Confined Space, a Safety Permit must be issued. There are also three types of permits related to this: -- Low Energy Permit (Level I) -- Level II Hot Permits -- Level III Hot Permits Section 6.6 discusses the Low energy Permit requirements and general is for work that does not require use or generation of open flame, such as electric power tools/products, chipping or breaking concrete, external sandblasting, drilling, pipe threading machines, portable internal combustion engines, etc. Section 6.7 discuss the Level II Hot Permits can be used only on new piping not connected to any process equipment or hot work on structural steel and for weld bays. This permit also applies to hot work for open flame mobile equipment. Section 6.8 discuss the Level III Hot Permits covers safety permits for all sources of ignition that are not covered under Level I or Level II. CCHS was provided 31 hot work permits, 16 in Cogen, 3 in LOG1, 2 in LOG2, 2 in SRU, 1 in boiler, 2 in SRHT, 3 CRU and 2 illegible. The permits spans from 8/2018 to 6/9/2020. CCHS noted 5 permits used by LOG1 and LOG2 that is different than all other permits for 3/2019 to 11/2019.	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)]	Section 8.0 of the procedure covers training requirements for issuing permits for operators issuing Departmental permits for units they are qualified in. The Operator's Shift Team leader makes a decision to start an operator on a pre-determined qualification process for Level I permits including issuing a specific permits that is co-signed by a Health & Safety Representative, completed permits reviewed by the Shift Team Leader, and completion of permit writer test (100% score required). For level II permit authorizing, training of the level II hot permit with initial ones be under the supervision of a Health & Safety qualified representative and also received a written certification from the Production or Maintenance Manager. For Level III permits, persons must have completed training as a Temporary Health and Safety Inspector and validated by the Health Safety and Security Fire Chief or equivalent. See descriptions in S01-01 for the definition of different levels of permit. Prior to issuing the permit, operation personnel must check the job site and that a Job Safety Analysis (JSA) must be performed prior to starting work for Level II or Level III permit. The policy in section 4.4 specified that operating area includes process units, tank farms, flare areas, motor control centers and substations, and pipe racks/pipe rows. The policy also specified that operating personnel in the other departments or areas shall be consulted for work on interconnecting lines, systems or equipment that may influence or affect operations in other departments and obtain concurrence before the job is started. Upon completion of such work, the employee initiating the work shall advise the other personnel involved. Of the 31 permits reviewed, all the permits were properly authorized and signed. Only 2 of the 30 permits that had a fire watch were not signed by the fire watch.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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]	The policy specified an approved, properly calibrated gas detector be used for gas testing for all Safety Permits. Of the permits review, there is a box to record the test results on the permit to include the following: -- Time, -- Oxygen level, -- LEL %, -- H2S ppm, -- CO ppm, -- Benzene ppm, -- Blind list, -- Person testing, -- Instru. [instrument] # The target value of these parameters are also listed on the permit, for O2%, the target is listed as 20.5%-21%, the policy also states test results shall not be greater than 0% LEL. The 5 permits used by Log does not include a space to log the instrument number. All 31 permits listed oxygen level to be 20.8% and 0% LEL and initials of person testing.	Y	None
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 CCHS review of the permits provided, there is a section for 'Hot Work' and a check for 'Fire extinguisher at site", there is a space to indicate the type of extinguisher as well as check boxes for "fire watch" and "charged firehose'. The policy also states that the type of extinguisher must be noted on the permit. CCHS notes that of the 31 permits reviewed, one was a level I permit and did not require fire extinguisher; two permits were Level I and II and also a confined space entry permit that did not indicate fire extinguisher or charged hose. The other 28 permit all indicated a fire extinguisher or also charged hose along with fire extinguisher.	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]	Level III permit must meet all the conditions of Level II permit. The policy states for a Level II and III permit, the hierarchy of conditions are: -- Work in areas free of flammable material, -- Eliminate ignition sources use using alternate equipment or methods, -- Implement control to have only one of the conditions of either flammable materials or ignition source during hot work. Written permits are not required for Level II/III type work in Designated Hot Work Locations.	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]	For Level II permits, the policy states: -- Drains covered/plugged to a radius of 50 feet, -- To remove general non-VOC combustible debris including construction remnants such as wood shavings, papers, etc. to a radius of 35 feet from work area, -- Area must be kept free of combustibles Level III permit must meet all the conditions of Level II permit, see additional requirements in S01-09. Of the 31 permits reviewed, one permit was a level 1 permit, the rest of the 30 permits all required a fire watch to be present on the permit.	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]	The policy specified for Level II and Level III permits that fire watch is required and shall be maintained at the Hot Work job site for a minimum of 30 minutes after the completion of Hot Work. The craft representative signing the permit is responsible to ensure the personnel performing Fire Watch duties understand the responsibilities listed on the back of the pink copy of the Safety Permit. If electronic permits are used, a separate document should be provided with fire watch duties. The 2019 NFPA 51B standard requires that the fire watch be maintained for 60 minutes after the completion of hot work operations. The facility should consider updating the plant policy to maintain a firewatch from 30 minutes to 60 minutes to be consistent with 2019 NFPA standard. Section 7.4 of the policy listed the responsibilities of fire watch which includes: -- Having suitable fire protection equipment is readily available; -- Paying special attention to areas with the potential for release of flammable liquids or vapors; -- Understand how to summon Emergency Services if fire observed but unable to be extinguished; -- Make proper notification to MRC Health & Safety Dept.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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		CCHS reviewed GMP-1 Tool Room policy (rev. 7, dated Jan 2021) that listed the purpose of the policy to insure only quality tools are used at MRC for employees and Contractors. The policy applies to contractors doing work at MRC and the tools they use on site. The policy specifies that contractors use “MRC Preferred Tool Manufactures List” when working at MRC. This is to insure only quality tools are used by all contractors unless approved by Maintenance Supervisor. This list is provided to contractors during the on-boarding process. CCHS also reviewed "Grinder use at Martinez Refining Company", rev. 1, approved 4/23/2019, that includes a checklist for using the tool which checks the condition of handle, cord and plug, guard, presence of the anti-kickback clutch and brake. Personnel also performs JSA and examine the conditions of the tools prior to use.	Y	None
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]	There is a responsibility section in the policy that specifies responsibilities of issuing Operating Department Personnel to inspect at least once per day the job in progress to ensure safe conditions. (This is a responsibility shared with personnel in the maintenance organization--MRC and Contract.) The policy also specified the Responsibilities of Issuing Health & Safety Personnel to perform periodic audits of the procedures and permit conditions to ensure compliance with policy and on-site documentation completeness. Permits are effective for no more than 24 hours.	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. Contra Costa County's RMP guidance has not been updated to identify what should be included in the RMP for this regulatory topic. The P4 regulation only requires the following be listed in the RMP: "(k) The date of the most recent review or revision of hot work permit procedures" [T19 CCR §2745.7.5].	CCHS reviewed the RMP dated Feb 28, 2020 and SP dated Aug. 22, 2019; Section 4.4.14 and 5.11 list the hot work procedure and use of safety permits to control permitted hot work.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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 were no ensure actions from the 2018 CalARP/ISO audit at this facility. 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 I(F)-3 Safety/Department Permits (rev. 30, dated October 2020) which provides information on the energy control program at MRC. The procedure discusses the two types of permits below: -- Departmental permits: for work performed by anyone other than operating department personnel. These permits do not cover work that involves a source of ignition or confined space entry -- Safety permits: required before a source of ignition can be created anywhere in the refinery or before a person is allowed to enter a confined space. Sources of ignition include welding, burning, portable internal combustion engines, electrical power tools, portable electronic products, chipping or breaking concrete, sandblasting, grinding, drilling, soldering, lead burning and other work or operation that maybe produce sparts or enough heat to ignite flammable vapors. CCHS reviewed C(F)-3 Lockout of Non-electronically Driven Equipment (rev. 19, dated October 2020) which is to prevent accidental startup of non-electronically driven machines and equipment when this could lead to injury to employees CCHS reviewed C(F)-4 Lockout of Electrically Driven and Powered Equipment (rev. 16, dated April 2020) which covers the LOTO of electrically powered equipment above and below 600 volts. For powered equipment below 600V, there are 5 procedural steps that will be taken to isolate energy and to verify isolation. Once work has been completed, operations will perform 4 additional steps that include a verification that work has been completed and return equipment to	Y	None

service.
-- Electrically driven equipment: pumps, motors, compressors, mixers, conveyors, fans, blowers, and similar electrical equipment
-- Electrically powered equipment: electrical heaters, unit lighting, electrostatic precipitators, analyzers, and similar electrically powered equipment. The focus is on the avoidance of accidentally energizing equipment during maintenance or disassembly.
-- Control circuits: circuits that cannot be locked out.
-- New construction: contractor or personnel working in clearly defined area (Green sites), Health and Safety, Electrical/Mechanical Group, and Major Projects Organization will develop procedures for safe electrical isolation.

CCHS reviewed C(F)-5 Process Isolation Policy (rev. 25, dated 11/2020) which provides information on the isolation of process streams including utilities from plant equipment and piping. The policy addresses the use of single valve, double valves, and double block and bleed valve isolation. The policy includes an isolation scope and plan which addresses verification of "Zero energy" for all line openings. The isolation package is made up of the isolation list, isolation drawing, and zero energy plan where required. In the event that an isolation strategy cannot be met, an "Isolation Strategy Review" will be performed by a person who did not create the isolation package. This person could be a production specialist, OMC (operations and maintenance coordinator), STL (shift team leader), RTL (refinery team leader), RSL (refinery safety leader). The policy also addresses activities that do not require an isolation packages (e.g., fire equipment, hot alignment, attaching/removing hoses from utility stations, hot tapping of equipment).

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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)]	CCHS reviewed the policies in S03-08 that addressed the requirement to test machine or equipment to verify effectiveness of LOTO. CCHS did a live navigation of the MRC C(F)-5 Tracking database which is used to store information on past energy isolation and to document active permits. CCHS reviewed permit SP15618 which was located in Cracked Products. The database indicated that the permit required a Zero Energy Plan but the permit itself did not need a Zero Energy Plan. The SME said that this could be due to a misunderstanding of the label of Zero Energy Plan in the database, that some people may be interpreting it as meaning that the Zero Energy section was evaluated. There were several other instances of this.	Y	None

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
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 C(F)-4 Lockout of Electrically Driven and Powered equipment which has a revision history of 10/2017 and the most recent 4/21/20. CCHS interviewed the SME for LOTO and was informed that the procedure had not gone through an annual review process. CCHS reviewed C(F)-5 which describes in section 7.5 the responsibilities of the Health & Safety Manager and Supervisor to annually review the procedure. A certificate will be created that documents the following: -- List of periodic inspections of process isolation that includes the names of individuals participating in isolation review, date of the review and description of equipment or vessel isolated -- Statement regarding program effectiveness -- Description of updates to program (if there were any) -- Description of review and discussion between MRC union safety reps and/or safety department reps on above information CCHS reviewed MRC Permitted Work Audit form (rev. 08, dated 4/20/17) which is used to document in field reviews of active permit documents, the JSA (job safety analysis) associated with the permit document, equipment conditions, PPE & other safety requirements, working at height/fall protection, electrical LOTO, process isolation, all levels of hot work and confined space entry. CCHS reviewed the following: -- SMR Permitted Work Audit (dated 01/22/18) type Level I and PRCS -- SMR Permitted Work Audit permit S1433410 (dated 07/30/19) type Level III and PRCS -- SMR Permitted Work Audit permit	P	Ensure that the energy control and isolation procedures are reviewed at least annually.

ID#	Category	Question	Type	Clarifications	Findings	Answer	Actions
					2018/00025285SPLOG2 (dated 07/25/18) type Level I & III -- SMR Permitted Work Audit permit S1349423 (dated 03/12/18) type Level I and PRCS -- SMR Permitted Work Audit permit S1441602 (dated 8/10/19) type Level III -- SMR Permitted Work Audit permit S1423202 (dated 1/22/19) type PRCS -- SMR Permitted Work Audit permit S1425411 (dated 4/16/19) type Level III -- SMR Permitted Work Audit permit S1402263 (dated 3/21/19) type PRCS Level I - low energy Level II - hot work (new piping/structural steel/etc.) Level III - hot work (all hot work not covered by Level II) PRCS - permit required confined space CCHS was informed that MRC did not do any field audits of LOTO in 2020 due to a combination of being short staffed and the social distancing requirements that went into effect as a result of the pandemic.		
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.	There were no ensure action items from the previous audit. This question does not apply.	N/A	None

ATTACHMENT C

Summary of Action Items

Summary of Action Items and Proposed Remedies

ID#	*Question*	*Findings*	*Actions*	*Proposed Remedy*	*Due Date*
A37-04	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)]	CCHS performed live navigation with the PSI subject matter expert (SME), also an Industrial Hygienist, and confirmed that the following information about the regulated substance's hazards was not readily available to personnel; California's permissible exposure limits and the ERPG values, and the acute RELs. The facility needs to establish a process for personnel to have access to this information. One resolution may include developing a table with these values and making them available electronically. Another option may be to include a hyperlink to directing personnel to a reference source, where the values are published (e.g., https://www.dir.ca.gov/title8/ac1.pdf)	Ensure personnel has access to the following information about the regulated substances' hazards, Acute RELs, and ERPG values, and California permissible exposure limits (PELS).	See IMPACT action# 378161 “Make Cal PELs, ERPGs, RELs, and AEGLs for highly hazardous materials available to all employees and affected contractor employees.”	Completed 3/19/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A38-07	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)]	CCHS reviewed the PHA reports listed in the findings of question A38-05. Five of the six PHAs reviewed were performed using the HAZOP analysis, which uses deviations to uncover cause / consequence pairs. It is here that the hazards of the process are described. The What-if worksheets used for the Volatiles Storage PHA are formatted with columns for Hazard and Consequence pairing. Together these columns adequately describe the hazards of the process. Examples of hazard found within the PHAs reviewed include but are not limited to: -- Line-up error -- Vessel overfilling -- Failure of equipment -- Valve inadvertently opened/closed -- Bypass left open -- External fire -- Vent fails to open -- Loss of nitrogen, utility air, or cooling water -- Relief valve prematurely opens -- Plugged line/equipment All six of the PHAs reviewed were subject to the requirement to have DMRs and HCAs available to the PHA team. Per SME interviews, the facility developed Corrosion Control Documents (CCDs) for each process unit, which is their version of DMRs. The CCDs were available to the PHA team and referenced when the group had questions on various corrosion mechanisms or other damage mechanisms on a unit. CCHS performed a live navigation of the network directories and documents available to PHA teams. CCHS confirmed that CCDs were included as documents available to the team. CCHS also found that the CCDs are typically revalidated after completing the PHA study on the same 5-year cycle. As a result, the PHA team was working from CCDs that may not reflect the latest information regarding the process's damage mechanism. It is not a regulatory requirement for CCDs (i.e., DMRs) to be revalidated prior to the PHA. In reviewing the local PHA policy, I(A)-50, Section 6.1.2 identified that DMRs (i.e., CCDs) were listed as PSI, among other information that needs to be available to the team. Although CCHS does not identify DMRs as PSI, these types of studies are required to be available to the PHA team. CCHS was unable to locate mention within I(A)-50 or CORP-HSE-006 that HCA studies need to be made available to the PHA team. The PHA team did have access to the ISS checklist evaluation, although that is not an HCA. Per SME interviews, the	Ensure that PHAs address HCAs for the unit and that this is documented in the PHA. (this is a repeat)	Revise site procedure I(A)-43 and associated training material to clarify HCA is performed on existing process during the PHA revalidation and for any applicable PHA recommendation. Include HCA in the PHA Process Checklist to include completion of HCA for existing process and PHA recommendations.	11/01/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
		primary issue has been that existing process HCAs have been inconsistently performed. Per SME interviews, there has been a gap in addressing the CalARP Program 4 requirements in conducting existing process HCAs based on a misunderstanding of the requirements that ISS and HCA were essentially identical. This is further described in A58-11. The facility needs to start conducting HCAs and make them available to the PHA team. The same issue was found during CCHS' previous audit, so a repeat ensure has been issued.			

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A38-23	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]	CCHS confirmed that the facility tracks PHA recommendations to resolve them within one year unless a turnaround is necessary. Section 6.6 of I(A)-50 included wording similar to the question. The majority of the PHA recommendations associated with the 6 PHA reviewed were completed within one year of issuance. The following summarizes the status of these PHA recommendations: -- 2018 HCU PHA, all 16 recommendations completed within one year or less -- 2018 Volatile Storage PHA, 47 recommendations identified, all recommendations identified as completed, 9 identified Target Dates beyond 1-year ISO requirement, and T/A not required. In total, 11 recs not needing a T/A were completed beyond the 1-year ISO requirement and took an average of 201 days to address (ranged from 9 to 471 days beyond 1-yr requirement). This is further described below. -- 2019 SRU 1&2 PHA, 12 recommendations identified, 11 completed within one year or less, 1 remains open requiring a turnaround for completion (CCHS verified on T/A list), 1 completed 30 days beyond target due date although within the 1-yr ISO requirement. -- 2019 Aqueous Ammonia Storage PHA, 5 recommendations identified, all were completed in less than one year -- 2020 Cogen 1&2 PHA, no recommendations identified -- 2020 SRHT PHA, 21 recommendations identified, 14 completed in less than one year, 7 currently open still within their 1-year target dates Per SME interviews, all PHA recommendations must be completed within one year unless a process shutdown is required, and if so, then the item is added to the next turnaround schedule. For items that cannot be implemented within one year and do not apply to turnaround, the county must be contacted to obtain concurrence and approval. For variance requests, CCHS prefers to be contacted at least 30 days before the recommendation becomes overdue. CCHS has been contacted periodically over the last three years to approve a few variance requests when a PHA recommendation cannot be resolved by the expected target date. Recently, several of these requests were due to the facility being unable to obtain the necessary resources or equipment from vendors or contractors due to delays resulting from the ongoing pandemic. Regarding the issues related to resolving PHA recommendations for the 2018 Volatile Storage PHA, variance requests were denied by CCHS for some of these as they were already overdue at the time of the request. CCHS grants no extensions or variances if an	Ensure that PHA recommendations not required to be completed under turnaround are completed within one year, or CCHS contacted for a possible variance at least two weeks before becoming overdue.	MRC will add a section to procedure C(A)-4, “Process Safety Management,” that specifies completion of PHA actions that do not require a process shutdown within one year after completion of the PHA. This section will also specify that contacting CCHS for a possible variance must be done at least two weeks prior to the existing target date.	9/30/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
		item is already overdue. Per SME interviews, CCHS found two situations that contributed to the overdue recommendations. -- The first was an apparent misunderstanding. Suppose a PHA recommendation was written to perform a study to further evaluate how to address an issue. In that case, the study and study's final resolutions need to be complete within the given regulatory timeframe. If the final resolution does not need a turnaround and needs longer than 1-year from the PHA to resolve, a variance is still needed from the county. -- The second was the process used to assign responsible parties to the PHA recommendation was altered temporarily due to changes in leadership style. CCHS found that select individuals were assigned as responsible parties when they were unable to perform those assigned duties (e.g., assigned asset owner an engineering project). CCHS understands that changes were eventually made, although by then, some recommendations went beyond the required 1-year requirement. Even though the trend for assigning PHA recommendations has improved since this 2018 PHA, CCHS cannot ignore the significance of the issue and an ensure action item the item is listed here, and another one is listed under Management Systems. Recommendations that took longer than one year to resolve not needing a turnaround without county variance approval: Action IDs: 052727, 059360, 037452, 042686, 058179, 059549, 060201, 037454, 037483, 042714, 042715. CCHS was informed the timeframe for completing engineering projects has accelerated under PBF ownership, so it takes less time now than under Shell ownership.			
A38-30	Have all ensure action items associated with the previous CalARP/ISO audit of the stationary source been addressed within this prevention program questionnaire?	CCHS' previous audit of this regulatory topic at MRC in 2018 identified one ensure action item. This issue was not resolved and is repeated in A38-07.	Ensure that MRC works with CCHS to close out the ensure action item in A38-07 for having HCAs addressed in the PHA.	Propose quarterly meetings with the County to provide updates. (Consider coordinating with other CCHS meetings, to the extent practical.)	11/01/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A39-02	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)]	CCHS reviewed selected P&ID against the procedure for accuracy. SRHT: drawing no. 5811, rev. 41, shows the control valve for fuel gas from the fuel gas header as Procedure SRH-1200 (rev. 1/2/2019) step 2.5. The P&ID also shows the bypass to be "CSC" and the procedure 2.12.2 states to car-seal bypass. SRHT: drawing no. 5813, rev. 61, shows the flow control valve from FXU Naphtha to be the same as the SRHT-2110 (rev. 1/22/2020) step 14. SRU: drawing no. 6156, rev. 31, shows the flow control of the blower to be consistent with the SRU-3170 (rev. 10/2020) procedure steps in step 11. COGEN: drawing no. 577907, rev. 4 listed the volume of the lube oil reservoir and it is consistent with section D. lube oil system note in procedure COGN1107 (rev. 7/6/2019). CCHS also selected procedures to check against the operating limits that are compiled in the ESP (Ensure Safe Production) variable limits table listed in the master alarm database that is displayed on the control consoles. Per CCHS review: - COGEN3011: noted low pressure and high pressure S/D trip points for PI-920/970, CCHS was able to confirm these values in the alarm database. However, the procedure noted after step 3.11 that the low pressure set point is 4 psig; and the alarm table listed this as 1 psig. - COGEN1107: noted the PI-100 to alarm at 15" HGA and 17" HGA in the note after step 14, CCHS verified that the alarm table listed this as 14.5" HGA and 17.5" HGA. - SRHT-2110: low flow alarm on 3FC191 is set at 12.0 MBD, and CCHS was able to confirm this value as listed in the alarm table.	Ensure that procedures are reviewed to confirm operating limits and alarm set points are consistent with the master alarm database values.	Update Operating Procedure review process and Transmittal Form to ensure OSE review and sign-off. Train OSEs and Mentors on revised Operating Procedure review process and expectations. Create OSE Checklist for Operating Procedure Reviews. Update A(A)-32 with changes. OSE Checklist will be an Attachment in A(A)-32.	4/30/22

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A42-06	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)]	CCHS reviewed the MOC policy and confirmed that it addresses temporary repairs and addresses the necessary time required for the change. Temporary changes are discussed in section 6.1.3.2 of the policy. Temporary MOC's are treated in the same fashion as the normal MOC process using KMS; however, the temporary MOC's must include an expiration date. That expiration date must not exceed the next scheduled unit turnaround. One type of temporary MOC is Leak Repair. CCHS reviewed the Temporary Repairs listed below and determined that none of the evaluations included the temporary repair's expected design life. American Society of Mechanical Engineers Post Construction Code - 2 requires the repair's design life to be established. That design life should exceed the expected removal date of the temporary repair. CCHS notes that this is critical when using resin epoxy that operates at cyclic temperatures. Upon follow-up discussions with the MOC SME and the Leak Repair SME regarding the addition of the design life, they both confirmed that adding this to the Leak Repair form would improve the process. Contra Costa County reviewed the following temporary MOC's listed below. TR – 157 – 10 TR 836 – 17 TR – 841 – 17 TR 859 – 17 TR – 861 – 18 TR – 965 – 19 TR – 966 – 19 TR – 1030 – 20\ Contra Costa County reviewed the temporary repair record, which falls under the temporary MOC program, and identified inconsistencies in the majority of the QA/QC mechanical completion records reviewed. For example, in some circumstances, the QC portion indicated that the NDE was completed while the QA identified it as not applicable. Of the temporary repairs listed above, the following records show this inconsistency; TR 1030 – 20 – QA indicates visual inspection was completed, QC indicates N/A for NDE completed TR – 841 – 17 – QA indicates visual inspection was completed, QC indicates N/A for NDE completed TR – 859 – 17 – QA indicates that pressure test results & bolt torquing is not applicable, while QC identifies the pressure test and torquing as completed TR – 965 – 19 QA indicates pressure test is not applicable, while QC suggests that it was completed	Ensure that the ”record of temporary repair QA/QC” portion is appropriately completed to be accurate such that any discrepancies between the QA and QC portions are addressed before the completion of the temporary MOC.	Update D(F)-10 Temporary Repairs procedure to identify the Temporary Repair design end date and modify QA and QC signoffs to address discrepancies prior to completion of a Temporary MOC.	9/30/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
		TR – 966 – 19 QA indicates pressure test is not applicable, while QC indicates that it was completed The facility needs to ensure the "Record of Temporary Repair QA/QC" portion is appropriately completed to be accurate. Any discrepancies between the QA and QC portions need to be addressed before the completion of the temporary MOC.			

ID#	Question	Findings	Actions	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]	CCHS reviewed Shell HSSE & SP Control Framework (rev. 06, dated February 2016) which provided a Risk ranking that was used to evaluate incidents. CCHS reviewed MRC Procedure I(A)-6, Investigations and Incident Reporting (revised November 2019) which provides the process for investing incidents that uses a tool called TOP (Triangle of Prevention) and CL (Causal Learning) which is referred to as TOP/CL. This was the RCA method used by the facility to investigate incidents in the past. For the incidents reviewed during the audit, these investigations will be covered by the this policy. Under Mandatory Investigations (section 6.3), the policy includes criteria for classifying MCAR, potential MCAR, Major Incident, potential Major Incident, catastrophic release, potential catastrophic release. CCHS was informed by the Safety Manager that a new RCA method will be used to investigate incidents in the future and a recent incident that is being classified as a potential Major Incident. CCHS was provided a copy of the new policy which is different from the current policy in how it categorizes incidents as well as the RCA method. This policy is I(A)-6 revision 18 (expected to be released Feb 2021). CCHS was informed that the facility is no longer able to utilize the TOP/CL method to investigate process safety incidents involving MCAR, potential MCAR, Major Incident, potential Major Incident, catastrophic release, or potential catastrophic release due to loss of personnel who were very experienced in performing TOP/CL on process safety incidents. CCHS was informed that the facility is transitioning to a new RCA method. There is no record of MRC communicating with CCHS about using a new RCA method for incident investigations; however this RCA method was reviewed during the audit. This policy classifies incidents using CORP-HSE-008 Appendix B & C, Risk Matrix & Consequence Guidance (rev 1-4/1/19) which uses frequency and consequence to classify incidents. From I(A)-6 from November 2019: Level 1 Tech study - used to determine physical or technical causes of an incident. The team is typically made up of only a couple of people within the department and does not include a union representative or hourly person. CCHS was informed by the Safety Manager that this type of investigation would not be used to investigate MCARs, Major Incidents, or potential MCAR or Majors.	Ensure that the facility reviews, implements and maintains an effective written procedure for incident investigation that includes RCA. Ensure that MRC communicates with CCHS about any new RCA methods before making them part of the incident investigation policy. This action item was addressed during the audit so no further action is needed.	Revise site procedure I(A)-6 and associated training material to include current RCA method, ABS Root Cause Investigations.	10/31/2021

TOP/CL Level 2 - medium level investigation where the purpose is to discover both physical, behavioral and the underlying system causes that led to the incident. This includes organizational and safety culture causes. All Level 2 investigations require participation of at least 1 trained TOP/CL hourly investigator unless the CL facilitator is an hourly employee.

TOP/CL Level 3 - high level investigation where the purpose is to discover both physical, behavioral and underlying system causes that led to the incident. This includes organizational and safety culture causes. An investigation team and facilitated by the Causal Learning Focal Point or a facilitator with the competency to facilitate a Level 3 investigation. All Level 3 investigations require participation of at least 1 trained TOP/CL hourly investigator unless the CL facilitator is an hourly employee.

On page 19, the procedure states that the sponsor is responsible for making sure that an HCA (Hierarchy of Hazard Control Analysis) is performed on all action items that are considered major changes that could reasonably result in an MCAR. This should be ISS. On page 20, the policy states that the sponsor is responsible for making sure that HCA's are performed on all action items from a Major Incident.

The policy has definitions for MCAR, Major Incident, potentials for MCAR and Majors, and catastrophic release as follows:
-- MCAR: consistent with the ISO definition of an MCAR.
-- Major incident: consistent with the CalARP P4 definition.
-- Catastrophic release: consistent with the CalARP P4 definition.

CCHS reviewed the following incident investigation reports:

Major Incident - none

MCAR
(Investigated using the Cause and Effect RCA method which is part of the TOP/CL method)
-- Loss of flare pilots (incident date 7/6/18)

Potential Major Incidents

-- F-14012 (incident date 10/31/17)
-- FIM incident 2026352 (incident date 2/16/18)

(Investigated using the TOP/CL RCA method)
-- FIM incident 2020582 (incident date 2/8/18)
-- FIM incident 2032512 (incident date 2/16/18)

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
		-- FIM incident 2108968 (incident date 6/26/18) -- FIM incident 2189489 (incident date 10/18/18) -- FIM incident 2377677 (incident date 6/12/19) Potential MCAR -- F-14012 Furnace flooding (incident date 10/31/17) -- FIM incident 2026352 (incident date 2/16/18) (Investigated using the TOP/CL RCA method) -- FIM incident 2370831 (incident date 6/7/19) -- FIM incident 2032512 (incident date 2/16/18) -- FIM incident 2108968 (incident date 6/26/18) -- FIM incident 2189489 (incident date 10/18/18) -- FIM incident 2377677 (incident date 6/12/19) -- FIM incident 2305905 (incident date 3/19/19) CCHS reviewed incident 183118 (incident date 11/17/20) which was an ongoing investigation. This was an incident that was initially identified to CCHS with the potential for an environmental impact as well as process safety incident. CCHS interviewed the Safety Manager and the Process Safety Manager who said that although the incident was classified as a near miss, due to redundancies in the system, there was almost zero chance that this would have risen to the level of potential MCAR or potential Major Incident. CCHS was informed that although there were numerous interlocks in place, these interlocks were bypassed and the alarms silenced. MRC has several processes in place that require checking and monitoring systems and these checks discovered the issue with the bypasses.			

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 Process Safety Management Policy C(A)-4 rev. 2, May 2019, Attachment 3. This policy describes the employee participation at MRC (the procedure indicates SMR). Through this policy, MRC encourages employee participation through all phases in performing PHAs, SPAs, HCAs, DMRs, MOCs, PSSRs, MOOCs, process safety culture assessments and incident investigations. The policy also states that the employee representatives (USW and IBEW) have the authority to select employees to participate in overall PSM program development and implementation planning and to participate in PSM teams and other activities related to PSM elements. PHA/SPA: CCHS reviewed I(A)-50 policy (see A38-02) that states that process hazard analysis shall be performed by a team including at least one operation representative (qualified operator with at least 3 years' experience with the process unit being assessed). CCHS noted that of the PHAs reviewed, LOPA was integrated into the HAZOP and the HAZOPs were conducted by a team including union representation. DMR: CCHS reviewed C(A)-47 policy (see A41-01) that states Corrosion Control Documents are developed and/or maintained (revalidated) by a team consisting of the Unit Operations Support Engineer (OSE), Operations Specialist, PEI Unit Inspector, and Corrosion & Materials Engineer (CME). HCA: CCHS reviewed C(A)-4 rev. 2, Attachment 3 and confirmed that employees are encouraged to participate in development and implementation of HCA. MOC/PSSR: CCHS reviewed C(A)-15 and CA-14 policies (see A42-01 and A43-01) that states the MOC and PSSR processes provide for Employee Participation per the Process Safety Management procedure, C(A)-4. MOOC: CCHS reviewed the I(A)-53 policy (see A54-01) that specifies the MOOC process generally start by forming an MOOC Change Review Team. The change team should include those personnel who will be most affected by the change (representatives of the affected positions) and are likely to be the most familiar with the potential impacts of the change. The policy states that the MOOC process provides for Employee Participation per the Process Safety Management procedure, C(A)-4. PSCA: CCHS reviewed the I(A)-71 policy (see A59-01) that specifies the PSCA Team is to be comprised of representatives	Ensure to update the prevention program policies to reflect the employee participation plan including addressing participation in "all-phases" in the development, training, implementation and maintenance of the Accidental Release Prevention elements such as Compliance Audits, incident investigations, PHAs and HCA/ISS. The employee participation program is to be improved to enhance the scope development and corrective action formulation process for all of the Program 4 safety elements.	MRC will clarify in C(A)-4, "Process Safety Management," that provision for effective employee participation is required throughout all phases for each of the process safety elements. The language will specifically include provision for employee participation in the development of compliance audit scope, and for the formulation of compliance audit recommendations.	9/30/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
		from Contract Partners, Company Management, and Union Representatives. The Team is given the task to design, deliver, and evaluate the assessment. II/RCA: CCHS reviewed Procedures I(A)-6/EM-11.1 (see A45-01 and A52-01). This procedure outlines the work process for incident investigation. The procedure identifies the USW investigation "TOP" as a Level 2 investigation method. CCHS also reviewed the other CalARP programs policies (Compliance Audits, Mechanical Integrity, Operating Procedures, Training): Per a review of Compliance Audit program (C(A)-29 Conduct Assurance Policy), and C(A)-40 (Operations Training Policy D(A)-1) , CCHS did not find any specific discussion of employee participation. Interview with the union representatives also indicated that the employee participation can be improved by enhancing the scope development and the corrective action formulation process for the compliance audits safety element.			

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)]	Section 6.6 of the Contractors policy describes the contractor evaluation process. The process has three components; the first component relies on a third-party contractor to continuously monitor safety metrics. The second component requires the facility to annually review the overall safety performance. The third method relies on the contractors' periodic performance audit, which meets the CalARP regulatory obligations, including the individual review of completed training certificates from the contract company. MRC has also developed a detailed audit questionnaire to ensure the contractor is meeting their internal standard. The facility completed 8 contractor audits in 2020, which is about a third of the contract companies that work on or near the process. Per contractors policy, the MRC classifies contractors into 4 groups which are called categories. Only category 1 and 2 work near and around the process; from a regulatory compliance standpoint, the facility should audit all category 1 and 2 groups at least once every 5 years. A detailed explanation of the frequency at which contractors are audited should be included in the policy. This item is just a consider because the current contractor audit rate is appropriate. In reviewing the audit questionnaire, CCHS recommends that MRC add an audit question that verifies or asks the contractor to explain how they are meeting the SB54-chapter 795 requirement that at least 60 percent of the skilled journeypersons. As indicated in A47-01, the facility relies on the contractor to ensure compliance, and therefore it makes sense to ask during the contractor audit process. CCHS notes that during the CalARP audit, many contractors were supplying almost all journeyman levels, and therefore, this item is not a deficiency. CCHS was able to confirm per SME interview and multiple operator interviews that the periodic field audits occur; these field audits can be characterized as "cultural/habitual" and generally not documented. One interviewee described them more as stop-work moments. Per follow-up interview with SME, new to the role, recalls having performed a comprehensive field audit under the previous ownership. CCHS reviewed the previous field audit program and determined that it would meet the intent of the regulation. During this CalARP audit, CCHS could not ascertain contractor field evaluations; the facility needs to periodically evaluate and document the contractor's field performance, and consider using the permit audit process used two years ago.	Ensure to periodically evaluate and document the evaluation of the field performance of the contractor.	Ensure that field audits of contractors are systematically performed and documented. Consider using the former Permitted Work Audit process to accomplish this. Revise I(A)-42 to document the contractor field audit process.	2/1/2022

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A48-11	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)]	CCHS reviewed Attachment 1, Emergency Response Training Requirements, of the ERP which describes the training requirements as follows: Medical Protocols -- Respirator questionnaire every 12 months -- Respirator fit test every 12 months -- ER physical every 12 months -- TRADE test every 15 months Initial: onboarding -- Basic fire crew: current on medical protocols, new operator orientation 24 hrs ER fire training, fire school (TEEX - Texas A&M), driver operator training -- Aux: BFC training + initial fire brigade, attend Aux crew training -- RAT (response action team): hazardous materials specialists: hazardous materials tech level training -- TIGER (trauma intervention group emergency response): trauma team: trained and certified to the National Registry of Emergency Response Techs and state of California to EMT (emergency medical technician) level -- SHARC: high angle rescue crew: attend 40 initial SHARC training, first aid/AED training F2F (face to face) Recurrent training -- Fire brigade: Basic fire crew and auxiliary crew. -- SHARC: high angle rescue crew -- RAT: hazardous materials specialist -- Yearly 40 hours off-site training College Station or equivalent CCHS reviewed Attachment 6, Incident Command Roles and Responsibilities of the ERP which provides information about the command structure during an incident. CCHS reviewed the spreadsheet 2020 ER Training Records which documents training for the BFC, Aux, SHARC, SHARC Tech, SHARC Op. The training includes topics such as truck (fire engine training, driving, and pumping), live fire (BFC training on live fire props), online (tests with entire ERP), first aid (CPR/first aid, basic life support), new hire (similar to BFC), and TEEX. CCHS reviewed a different sheet and noticed that there are currently 24 of 133 operators who are overdue for three year refresher TEEX training (due December 2020). Some of the operators (9) last received training in February of 2017. CCHS was informed by the Refinery Manager that this was due to the TEEX facility canceling training due to the Covid-19 pandemic which resulted in some of the refresher training going overdue.	Ensure that MRC completes the Red Tag drills according to the Emergency Procedure and Abnormal Situation Drills policy C(A)-4. (This is a repeat action item.)	Add Refinery Team Leader (RTL) accountability to review and signoff on Operations (LOP, HOP, Logistics & Utilities) Red Tag drill/Emergency Procedure/Abnormal Situation drills completed training. Consider documenting process in C(A)-24 Emergency Procedure and Abnormal Situation Drills policy procedure.	3/31/1022

Rescue Crew (SHARC)
This is a group in the SNS that may be called 24 hours a day, 7 days a week due to their training as emergency responders. The 5 member crew (page 5) consists of two responders capable of basic technical rescue; two support personnel training in basic rescue activities; one rescue trained leader. The H&S supervisors/fire chief (or designate) can provide additional resources using CCCFPD when onsite staffing levels drop below 5.

If an emergency is declared, the Refinery Safety Leaders (RSL) will have the rescue team paged.

SNS (site notification system)

Aux (Auxiliary) trained to perform as backup of BFC.

CCHS reviewed C(A)-24 Emergency Procedure and Abnormal Situation Drills Policy (rev. 6, October 2020) which provides the requirements for emergency response drills at MRC. These are referred to as Emergency Procedure Drills and Abnormal situation (What-if) Drills which are conducted as either tabletop exercises or field exercises. The focus of the policy is the operations groups which are divided into operating teams that are required to do one Emergency Procedure and one What-if drill per month. All operators on each operating team are required to drill on all Emergency Procedures at least once every three years. The STL's (shift team leaders) are responsible for making sure that the drills are completed according to the MRC policy.

CCHS reviewed training documentation for Red Tag drills and What-if drills and found the following:

2019 DCD Red Tag Drill Report
There are 4 teams (team 1, team 2, team 3, and team 4) and 12 drills for the year. Per C(A)-24, each team is to conduct both a What-if drill and a Red Tag drill each month. There is a note in the Drill Due Date column that the drills are to be completed by the last day of the month. For Team 1, Drill 4 was completed on 4/20/19 and Drill 5, completed on 6/9/19. For Team 3, Drill 7 was performed on 7/28/19 but there was no drill performed in August which has a yellow box.

2020 DCD Red Tag Drill Report
Throughout the year, there are numerous empty boxes. For example, Team 2 did not do Drills 1 or 2; Team 1 completed Drill 1 on 2/26/20 (due at end of Jan); Team 4, did not complete Drills

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
		5, 6, 7, or 8. (This is a repeat action item.)			
A48-12	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)]	CCHS reviewed EM-2.2 which has a revision history going back to 2007. On page 19, under Approvals, there is a box with the name of the procedure, the date of revision, and the next revision due date which is set for March 2021 as the previous revision was in March 2020. However, CCHS could not find any requirement in the ERP to review the ERP on a schedule.	Ensure that the ERP includes a procedure to perform a periodic review of the ERP at MRC.	Add a section outlining the review/revise requirements/schedule in EM2.2	3/31/1022
A48-17	Have all ensure action items associated with the previous CalARP/ISO audit of the stationary source been addressed within this prevention program questionnaire?	There was one action item that has been repeated in A48-11.	Ensure that MRC works with CCHS to develop a process to perform emergency response drills according to the schedule set in the MRC policy.	Propose quarterly meetings with the County to provide updates. (Consider coordinating with other CCHS meetings, to the extent practical.)	11/01/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A49-06	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	Per SME and RLT interviews, the effectiveness of the company's safety programs is reviewed by senior management in a variety of ways: -- Reports are emailed to managers every 12 hours that describe whether any notable issues have occurred in the refinery in the last 12 hours -- Managers get a summary every 24 hours that describes notable activities or issues happening anywhere in the company -- Senior staff each review company and department metrics frequently -- Sitewide objectives reviewed monthly -- Formal process effectiveness reviews occur monthly, resulting in each work process being reviewed approximately every year (RLTs involved with process effectiveness reviews) -- Key process safety indicator reports issued monthly. As identified in C(A)-4 (see A49-01), RLTs are typically assigned as owners or focal points on the various CalARP/ISO program topics. Meetings are routinely held between owners, focal points, and SMEs to monitor each work process to ensure they perform properly. Metrics are evaluated, and reports are generated to assess gaps or potential concerns, and corrections are administered as needed. Many of the metrics are listed on each department's KPI (key process indicator), otherwise called a Scorecard. CCHS reviewed the KPIs for Process Safety. Per RLT interviews, RLTs are expected to know more in-depth details on the health of programs under their purview than previously expected under Shell ownership. As such, RLTs have frequent discussions with focal points, SMEs, and other RLTs to maintain awareness. Each RLT is expected to thoroughly understand the programs they sponsor so they can summarize them during process effectiveness reviews with senior leadership. These reviews occur weekly with the General Manager and other RLTs. All senior leadership is involved to share information uniformly. Per RLT interviews, the facility recently expanded these reviews under the new PBF ownership to require all RLTs be more involved and have more working knowledge in topics they are not assigned. CCHS believes this process should be memorialized to minimize the potential for repeating the process that happened in 2018. As described within A38-23, CCHS found a number of PHA recommendations took longer than 1-year to resolve, and a turnaround was not required. One of the issues found by CCHS was that individuals assigned as responsible parties were unable to resolve the issues. Even more of a concern was that the RLT	Ensure that the current process is memorialized for escalating awareness to all senior stationary source staff in advance of process safety program recommendations from going overdue such that appropriate actions are taken.	MRC will document the measures that have been adopted by site leadership (since the occurrences referenced in the Findings) to prevent action items from going past target dates. We anticipate that this will be documented in C(A)-4, but alternatives will be assessed.	9/30/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
		was aware of the difficulties these individuals faced in resolving the PHA recommendations, and the RLT decided not to reassign the items or provide alternatives until the 1-year regulatory requirement was passed. Even though this issue involved a 2018 PHA, under a different facility owner, under different senior management, it highlights an issue that should never have happened. As such, CCHS is issuing senior management an action to institute something that would minimize this situation from occurring again.			
A49-31	Did the Stationary Source: a) Annually prepare a written report by June 30 of each year containing a compilation of site specific indicators for the previous calendar year; b) Has the Stationary Source manager or designee annually certified that the report is current and accurate? [T19 CCR §2762.16(h)(2)]	CCHS reviewed select monthly metrics gathered and submitted from the Process Safety Department. Per SME interviews, every department submits their internal Key Process Indicators (KPI) to management on a monthly basis. CCHS was unable to confirm that an annual report has ever been generated to satisfy the regulatory requirement.	Ensure that an internal written report is developed and certified by the site manager (or designee) by June 30 of each year summarizing site specific indicators for the previous calendar year.	MRC has prepared annual written reports of site-specific indicators by June 30 of each year, covering the previous calendar year. The Refinery Manager has certified that the written report is current and accurate. MRC only has visibility back to February 2020 after transitioning from Shell to PBF. (Single certification page addresses (h)(1) and (h)(2).)	6/30/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A50-08	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]	PHA: I(A)-50 PHA specifies a management review sign-off sheet for completed human factors LCC that was reviewed. CCHS confirmed management and team sign off for 6 PHAs (Aqueous Ammonia, Volatile Storage and Cogen 1,2 not listed) and listed 3 specific LCCs sign-offs from each year here: -- SRHT PHA (April 2020): Management review sign-off sheet signed by Production Unit Manager, Production specialist, operations support engineer and operator dated March 25, 2020. -- SRU PHA (Dec 2019): Management review sign-off sheet signed by operations support engineer and operator dated September 23, 2019 and signed by Production Unit Manager and Production specialist on Nov. 12, 2019. -- HCU PHA (Dec 2018): Management review sign-off sheet signed by Production Unit Manager, Production specialist, operations support engineer and operator dated Nov 7, 2018. Operating Procedures: Operating Procedure LCC contains 27 questions and include sign-offs by Operator, mentor and Senior Production Specialist. CCHS reviewed completed 2019 LCCs from 4 procedures from Cogen and 1 from logistics procedure reviewed on 5/7/2019 (used the 24 questions 2016 LCC, LCC updated 5/20/2019). The LCCs were attached, the procedures completed functional review, compliance review, LCC and MOC checklist and properly signed. Per interview with learning manager, all procedures must follow this as outlined in A(A)32-controlling (reviewing/revising) Operating Procedures. Maintenance Procedures: There are sign-offs for all 3 type of LCC completed by Procedure Author, Craftsperson and Maintenance Supervisor. CCHS selected 8 maintenance procedures, 3 of these were guidelines and LCCs are not required. One of these is due for a review in 2022 and the LCC will be applied then as part of the review cycle. CCHS was able to verify the sign-offs for the remaining procedures: CEM-03 (5/2018), GMP-56 (5/2019), AMP-06 (7/2019) and Elec-12 (2/2021). Incident Investigations: CCHS notes that I(A)15 human factors (rev. 10, dated April 2019) states that LCC was specifically developed for incident investigation. I(A)-6 Incident investigation (rev. 18, dated Feb. 2021) include discussion and use of LCC to assess human factors. CCHS was only able to review 2 completed LCCs out of 4 randomly selected potential MCAR investigations reviewed (2 LCCs were missing): -- FIM 1960946: LCC reviewed on 6/1/2017(probably a typographical error on the date), a management sign off on a I(A)-6 attachment for participant and management sign-off on 3/6/2018. CCHS also note that the incident investigation report	Ensure that completed LCC for incident investigations with management and member sign-offs are maintained and accessible with the incident investigation report.	New PSM incident Management and Investigation procedure I(A)-72 covers requirements for conducting and tracking all requirements for PSM. Appendix A Checklist will be used to ensure requirements are met and also covers where documentation will be stored. Step 11 covers LCC.	10/29/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
		corrective action recommendation included identifying the LCC addressed as item 1.5 and LCC item 3.45 which were indicated on the completed LCC form. -- FIM # 2032512: the management sign-off of the LCC was 8/22/2018 and the team sign offs were 7/24/2018. Facility-Wide: The facility-wide checklist was complete by a 9-person team on Dec 19, 2018 and included management and USW representatives. The completed LCC checklist was reviewed and responded by the Goal Zero Governance team on Feb 11, 2019. The Goal Zero Governance Team included nine people from USW representative and management staff. The USW and PSM manager were the only two persons that were on the team that completed the Sitewide checklist and on the Goal Zero Governance team. The final completed LCC with identified corrective actions was accepted by the Technology Manager via email on April 4, 2019.			

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A51-11	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)	Before 2020, the facility was under different ownership and used LOPA to satisfy the SPA requirement. Under Shell, the refinery used LOPA through their Hazards and Effects Management Process (HEMP). This process is described within their C(A)-49 policy and identifies that hazards that fall into the red area or red and yellow risk level 5A or 5B on the company's risk matrix need further evaluation to confirm risks are managed to ALARP (as low as reasonably practicable). The evaluation requires processes to be managed through Model Bow-Tie's, unit PHA/Bow-Tie studies and Shell and/or industry standards. Major incident was incorporated into the policy and the HEMP analysis. CCHS reviewed select PHA reports and confirmed that LOPA was being performed as identified. Section 6.2.5 of I(A)-50 (revised 12/9/19, rev 10) identifies that the PHA scenarios that have the potential for a major incident or catastrophic release must be evaluated through a SPA. The policy identifies the SPA method used by the former refinery owner (i.e., HEMP) and not the current process that is being performed. The policy needs to be updated. CCHS confirmed that the facility currently uses a Layers of Protection Analysis (LOPA) process as their SPA. LOPA is done as part of the PHA process and is combined with the written PHA report. The PHA team also does LOPA. PBF requires each facilitator to be trained in their PBF PHA/LOPA method. After the study is completed, it must be internally peer-reviewed for accuracy and compliance. The current LOPA process is described in CORP-HSE-007, issued 2/27/15, rev 0. CCHS reviewed this policy and found it requires LOPA for safety and environmental scenarios with an unmitigated consequence level of 4 or higher on the company's risk matrix. Reviewing the facility's risk matrix, CCHS could not locate a category or criteria meeting a potential major incident consequence. Per SME interviews, neither the corporate policy nor risk matrix was written for CalARP Program 4 requirements. As a result, each PHA/LOPA facilitator, as part of their qualification, must demonstrate their understanding when a consequence could result in a potential major incident, so they know when to apply LOPA to the deviation. Per discussions with facilitators, every consequence is evaluated to whether it has the potential for serious physical harm. If the potential exists, then LOPA is applied. CCHS confirmed this practice in reviewing the Cogen 1/2 PHA where LOPA evaluated several unmitigated consequence levels below 4. CCHS also reviewed the draft hazard worksheets for a 2020 Pentane Storage PHA and also	Ensure that I(A)-50 is updated to reflect the current process for conducing SPA (e.g., LOPA).	Update I(A)-50 to align with corporate and Program 4 requirements specific to SPA and LOPA.	1/31/2022

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
		found an example of applying LOPA to a lower consequence level than required by policy. CCHS also reviewed LOPA evaluations from PHA/LOPAs performed under Shell. CCHS found many examples of scenarios evaluated for LOPA that were not red (or red or yellow 5A or 5B) under the companies risk ranking matrix within the SRHT PHA.			
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]	Per interview, personnel responsible for developing and maintaining operating and maintenance procedures are trained in rules for writing effective instructions. CCHS randomly selected three mentors responsible for reviewing and maintaining operating procedures and confirmed their training records for 2/2018, 8/2018 and 7/2020. CCHS also randomly selected 5 maintenance procedure reviewers and was able to verify training for only two in 1/2021 and 2/2021.	Ensure that employees responsible for developing and maintaining maintenance procedures are trained in rules for writing effective instructions before they are assigned the task to perform	L&D to work with CMD Leadership to ensure names of maintenance personnel responsible for developing and maintaining maintenance procedures is shared with L&D, both now and in the future. L&D will assign the Maintenance Procedure Writer's training course to identified individuals.	12/15/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A54-07	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]	The MoOC procedure, Section 6.3.2, describes how a Change Review Team will assess the impact of a proposed organizational change. The team begins with defining the existing situation and developing a detailed inventory of the job duties that are carried out by the affected positions. Any of the duties that are identified as critical to Health, Safety, Security, and Environment (HSSE), Product Quality (PQ), and Reliability are documented within the Critical Activities Mapping Table (Attachment B); the tasks are then distributed by the Department Manager to alternate personnel to ensure that these duties continue to be carried out effectively. Additional impact assessments include the Health and Safety Checklist for Management of Organizational Change (Attachment C of the procedure) which focuses on the following impacted areas: Health and Safety (H&S) Management, H&S Training, Safe Work Practices, OSHA PSM Management, Contractor Safety, Emergency Response, Safety and Health (S&H) Regulatory, Occupational Health, Operations Effectiveness H&S, and Craft Safety Effectiveness. Per interview and a review of staffing for Pressure Equipment Inspection (PEI) Department, last year the staffing included two full time equivalent Corrosion & Materials Engineers and one pf the full time equivalent positions was lost due to retirement. This left just one Corrosion & Materials Engineer position in place now for several months. The organization needs to assess staffing level for this program to confirm if the lost Corrosion & Materials Engineer position should be restored or an MOOC needs to be performed to document the reduction of this position. Per interview with SME, CCHS was informed that the staffing of the operations department for the refinery has been reducing from 5.2 faces per 4 person shift to 4.8 faces per 4 person shift based on the strategy from the new organization PBF Energy. There has been a significant number of retirements in operation since the change of ownership of the refinery in the past year. Follow-up communications indicated that the operations staffing for the refinery has currently reached the new lower threshold of 4.8 faces per 4 person shift. MRC should consider conducting an MOOC to assess the staffing level for operations to stay well above the new threshold of 4.8 faces per each 4 person shift.	Ensure to assess staffing level for the Mechanical Integrity program to confirm if the lost Corrosion & Materials Engineer position should be restored or an MOOC needs to be performed to document the reduction of this position.	Site plans to hire 2 CME's to bring staffing back to previous levels. CME responsibilities are temporarily being addressed by Contractor and staff.	3/31/2022

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A54-15	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)]	Per CCHS review, the MOOCs have not been consistently signed off by the Refinery Manager or designee. For example, the MOOC related to combing a process safety specialist and the Industrial Hygienist was not signed off on the required certification by the Refinery Manager or designee. This MOOC was initiated on 6/1/2020 and completed on 9/1/2020. MRC needs to ensure that all MOOCs completed include the signed certification statement by the Refinery Manager or designee.	Ensure that the completed MOOCs consistently include the required certification statement that is signed off by the Refinery Manager or designee.	MRC will revise I(A)-53 to clearly state that certification by the Refinery Manager or designee is required for each MoOC assessment. MRC will document the certification of the 2020 Safety Engineer/ Industrial Hygienist MoOC assessment.	10/29/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A58-01	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)]	CCHS reviewed the HCA procedure ((A)-43 (revised Oct 2019, rev. 08) which provides the HCA strategies and approaches in section 6.2. The five HCA strategies used were consistent with P4: -- Eliminate hazards to the greatest extent feasible using first order inherent measures -- Reduce any remaining hazards to the greatest extent feasible using second order inherent safety measures -- Effectively reduce remaining risks using passive safeguards -- Effectively reduce remaining risks using active safeguards -- Effectively reduce remaining risks using procedural safeguards CCHS reviewed the checklist that is used to perform HCA. The checklist, First and Second Order Inherent Safety Measures Checklist (no revision date) starts with two questions for the First Order Inherent box which are for Eliminate and Substitute. If questions are answered Y[es], the HCA team continues onto the Second Order Inherent box which contains questions for Minimize, Substitute, Moderate, Simplify. Each of these has multiple questions that are considered as part of HCA. The HCA reports specifies which category of HCA was used. In addition to the ones mentioned, the report has a separate category that includes Passive safeguards, Active safeguards, Procedural safeguards. CCHS reviewed procedure I(A)-43 Hierarchy of Hazard Control Analysis (HCA) which was revised in October 2019 (rev. 08) which is the process used to conduct HCAs at the facility. The procedure states that HCA and ISSA are used interchangeably in the document which is inaccurate. The HCA and ISSA are two different methods that are applied differently and thus must be treated separately. Section 6.0 is consistent with the CalARP P4 regulation which requires HCA to be applied to each covered process units as follows: -- Existing covered processes every 5 years -- Development and analysis of all PHA recommendations -- Development and analysis of incident investigation recommendations from a major incident -- During the design of major changes In section 6.4.2, HCA for PHA Recommendations, the policy states that an HCA shall be conducted in the analysis of all PHA recommendations which would typically be done using Attachment B. This would be used for recommendations that would not be considered major changes. The policy also states that if a recommendation does not require an MOC, the HCA	Ensure that ISS and HCA are performed on PHA recommendations according to ISO and P4 requirements.	Revise site procedure I(A)-43 and associated training material to clarify both ISS and HCA are performed on PHA recommendations. Add item to PHA Process Checklist to include completion of ISSA and HCA for PHA recommendations.	11/1/2021

should be part of the PHA study with the same team members. If an MOC is required, the PHA can still complete the HCA using Attachment B, but the checklist will be finalized as part of the MOC process. CCHS reviewed Attachments B-E which were checklists for HCAs for different categories: Attachment B - PHA, Investigation, Major Change MOC; Attachment C - Major Change Capital Project - Assess/Select; Attachment D - Major Change Capital Project - Define; Attachment E - Major Change Capital project - IFC. Attachment F is the HCA full report template which is used to present a full HCA report that includes the individual HCA reports.

CCHS reviewed the ISSAs for existing process PHAs and HCA's on PHA recommendations below. There were no existing process HCA's performed.

2020
-- Cogen 1,2 PHA
ISS (on existing process dated 5/11/20)
HCA - there were no recommendations and so no HCA was completed

-- Straight Run SRHT PHA
ISS (performed on existing process but sheet did not have a date)
HCA - there were HCA summary reports for 6 of 8 recommendations. The final 2 had notes about the recommendations being completed as part of MOC's. The 6 that were reviewed did not have any associated actions related to HCA.

2019
-- Aqueous Ammonia Storage PHA
ISS (on existing process dated 5/29/19)
HCA - there were HCA summary reports for all 4 recommendations and the reports were dated 5/30/19.

-- SRU 1, 2 PHA
ISS (on existing process 9/23/19)
HCA - there were HCA summary reports for 8 of 9 recommendations. The dates of the HCA's were as follows:
-- Recommendation #1 - 3/25/20
-- Recommendation #2 - 2/10/20
-- Recommendation #3 - 11/24/19
-- Recommendation #4 - To be completed as part of project/and or MOC
-- Recommendation #5 - 11/14/19
-- Recommendation #6 - 11/14/19
-- Recommendation #7 - 11/14/19

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
		-- Recommendation #8 - 11/14/19 -- Recommendation #9 - 11/14/19 The final recommendation had a note that it would be completed as part of the MOC. Some of the HCA reports were listed as Second Order Inherent Safety Measure - Simplify. 2018 -- HCU PHA ISS (on existing process but the checklist did not have a date) No HCA report -- Volatiles storage PHA HCA - there were two HCA summary reports for 5/9/19 and 12/2/19. There have not been any major changes proposed as part of an MOC review; no recommendations from an RCA investigation for a Major Incident; and no recommended major change from an incident investigation of an MCAR that could reasonably result in an MCAR.			

ID#	Question	Findings	Actions	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]	CCHS reviewed I(A)-43 which describes how an existing process HCA shall be performed using an ISS checklist as part of the PHA. This checklist was located in I(A)-50 Process Hazards Analysis (revised 12/9/19, rev. 10), Attachment F, Inherently Safer System Checklist which is the ISS checklist for the facility. CCHS reviewed Attachment F which is consistent with the CCHS Attachment C Inherently Safer System Checklist. There is no mention in the PHA policy of doing an HCA nor is there any reference to an HCA checklist. CCHS reviewed a list of 50 PHAs that have been performed on processes at the facility. Since the last audit, 12 PHAs have been revalidated. CCHS was informed that HCA's were not performed on all existing processes through the PHAs due to a misunderstanding of the differences between the ISO requirements for ISSA and the P4 requirements for HCA. The HCA's were only performed on PHA recommendations while ISS was performed on the actual processes. The facility is working on getting the HCA's done for the PHAs that have been either revalidated or are new since the regulation went into effect October 2017. CCHS reviewed the ISS's and HCA's for each of the PHAs in A58-07. 2020 -- Cogen 1,2 PHA ISS (dated 5/11/20) HCA - there were no recommendations and no HCA was completed. No process HCA was performed. -- Straight Run SRHT PHA ISS (no date) HCA - reports dated 3/24/20 for recommendations. No process HCA was performed. 2019 -- Aqueous Ammonia Storage PHA ISS (dated 5/29/19) HCA - reports dated 5/30/19 for recommendations. No process HCA was performed. -- SRU 1, 2 PHA ISS 9/23/19 HCA - there were HCA summary reports for 8 of 9 recommendations and report dates from Nov 2019 to Mar 2020. No process HCA was performed. 2018	Ensure that the facility performs HCAs (as well as ISSAs) on existing processes.	Revise site procedure I(A)-43 and associated training material to clarify both ISS and HCA are performed on existing process. Add item to PHA Process Checklist to include completion of ISSA and HCA for existing process.	11/1/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
		-- HCU PHA ISS (no date) No HCA report -- Volatiles storage PHA HCA - there were two HCA summary reports for 5/9/19 and 12/2/19. No process HCA was performed.			

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A58-12	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];	CCHS reviewed the HCA policy (section 6.9) which is consistent with the P4 CalARP regulation that requires that HCA reports be completed within 30 days of the HCA. The HCA report will include the composition of the team, responsibilities, qualifications, the methodology, a description of each hazard, relevant HCA questions asked and answered, the information available to the HCA team, the process used to determine inherent safety measures, documentation of any inherently safer options, human factors evaluation, findings and recommendations, and documented resolutions. New Process: CCHS reviewed HCA reports for two new processes, ER-3227 and ER-3257. These projects were in development and reviewed by CCHS during the last audit. At the time of the last audit, only the ISSAs were performed and the ISSA report for ER-3227 did not contain the required information. PHA recommendations: CCHS reviewed the HCA reports for the PHAs in A58-01 and found that the SRU 1 & 2 HCA report had the following: The recommendations had dates of (1) 3/25/20, (1) 2/10/20 and the rest (6) had 11/14/19. There was also one that had been incorrectly moved to a project MOC where it was assumed that an HCA would be performed. CCHS reviewed the ISSA for the SRU 1 & 2 process. The PHAs had the information in (a)-(i). Existing Process: The facility has not performed HCAs on existing processes but has performed ISSAs as mentioned in A58-01. CCHS reviewed all of the ISS's for the PHAs mentioned in A58-01. MOC: CCHS was informed by the Process Safety Manager that there have not been any major changes that resulted from MOC's other than those captured for the project MOC's that were reviewed during the previous audit. CCHS reviewed a sampling of MOC's that were selected for review during the audit and did not see any that would have been considered major changes. II: CCHS did not see any major changes that resulted from the incident investigations reviewed in A45-01 that could reasonably have resulted in an MCAR. RCA: CCHS reviewed the list of recommendations from RCA	Ensure that an ISSA report is generated within 30 days of completing the ISS for existing processes (HCA reports must be completed within 90 days).	Revise site procedure I(A)-43 to clarify a report for existing process will be generated and completed within 30 days of conducting the ISS and HCA for existing process.	11/1/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
	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 Program Guidance Document]	investigations in A45-01 and did not identify any that were from a Major Incident.			
A58-14	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]	CCHS reviewed section 6.1 of the HCA policy which is consistent with the P4 CalARP regulatory requirement that an HCA is required for each covered process unit every 5 years. As mentioned in A58-11, in general MRC has not performed existing process HCAs during PHA reviews or outside of PHA reviews since P4 went into effect in October 2017. Thus, MRC is not currently meeting the requirement that 50% of the existing process HCA's be completed by October 2020. CCHS was informed by the SME's that MRC is working to get the existing process HCAs completed and has started doing them outside of the PHA process to catch up. MRC has performed ISSA on existing processes on PHAs that have been revalidated since the previous audit so it is only the HCAs that are deficient.	Ensure that 50% of existing process HCAs are completed by November 2021 and the remaining by 9/30/2022.	Determine where 50% of PHA's completed from 2021 working backward is and conduct HCA analysis on existing process where it had not been applied. Under new process for conducting ISSA and HCA all future PHA's will ensure HCA's are completed on existing process. Note: 50% will be addressed in first quarterly meeting with CCHS.	9/30/2022
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 submitted Safety Plan (dated 8/22/19) reflects the ISS program at the facility. Throughout the SP, the ISS and HCA terms are used interchangeably although they are two separate programs. This is also the case with the PHA policy at MRC which refers to HCA within the ISS section and then references the ISS checklist. The submitted RMP (dated 6/14/19) does not reflect the HCA/ISS program at the facility. For each of the PHAs, there was an HCA date listed although the facility has not done HCA's on existing processes. The facility has done only ISS on existing processes. The RMP needs to be updated to make clear that the dates shown are for ISS's, not HCA's. See A58-11 for information on the HCA's for existing processes.	Ensure that MRC updates the RMP with the appropriate information for the ISS's performed and dates rather than HCA's which have not yet been completed. Ensure that MRC updates the Safety Plan to accurately reflect the relationship between HCA and ISSA. Ensure that once the site ISS/HCA programs and policies are revised, that the RMP and SP are updated accordingly to reflect the ISS/HCA programs at MRC.	Provide updated information for RMP revision on dates of appropriate information for ISSA's performed.	11/1/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A59-05	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]	The 2018 HSSE Culture Assessment Report stated in the goals and objectives that the assessment included an evaluation of the effectiveness of the following elements of process safety leadership: • Hazard reporting program (3 questions) • Response to reports of hazards (2 questions), • Procedures to ensure that incentive programs do not discourage reporting of hazards (3 questions), • Procedures to ensure that process safety is prioritized during upset or emergency conditions (2 questions), and • Management commitment and leadership (3 questions) CCHS noted in the report findings, discussions and assessment specific to the above elements. Though there were no specific discussions on the elements, the report also identified 9 general questions that are kept the same from the 2010 and 2015 PSCA that would help assess: • Safety, Health, Environmental, and Process Safety programs performance, and • Individual performance and accountability with respect to the above CCHS also reviewed the 27 questions survey form and identified 3 questions that address Peer perception and accountability (questions 8,10,11). CCHS reviewed the PSCA policy and noted that section 6.1 of the policy states the PSCA would include an evaluation of the effectiveness of all 8 elements of process safety leadership as outlined in these questions. CCHS finds the topics are covered in the survey; however, the elements are not adequately discussed in the assessment report. Per interview with SME, the survey questions are custom developed before each survey deployment. CCHS noted that the policy does not include questions and the mapping to the required element to this question.	Ensure that future Process Safety Culture Assessment Report include evaluation of all 8 elements of process safety leadership as stated in the policy, including the Industrial Safety Ordinance requirements and not just the elements listed in CalARP Program 4 regulations. This is a repeat from 2018.	Update Site procedure I(A)71 to clearly state the requirement to include the evaluation of all 8 elements of process safety leadership (both ISO and CalARP requirements).	11/1/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
A59-09	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]	Per SME interview, an overview action was developed to monitor in a quarterly basis. One of the recommendations included development of metric to allow for tracking of progress. However, in the time since the survey, the facility had a change in ownership which resulted in management and program changes, additionally; some of the planned activities were disrupted dues to COVID-19 challenges in implementation and specific metrics were not developed. One of the three improvement actions from the survey is closed on schedule. MRC is planning an interim assessment in the very near future to further refine the improvement plan and determine the path forward in addressing gaps identified in the survey.	Ensure the improvement plan from the interim study include metrics to monitor the effectiveness of the actions in achieving the facilities' process safety culture goals. This is a repeat from 2018.	PSCA focus team to ensure metrics are included in improvement plan from interim study. These metrics will help the site gauge the effectiveness of the actions in achieving the facilities' process safety culture goals.	11/1/2021
A59-11	Have all ensure action items associated with the previous CalARP/ISO audit of the Stationary Source been addressed within this prevention program questionnaire?	There were four ensure actions from the 2018 CalARP/ISO audit. Two were addressed and two are being repeated in A59-05 and A59-09.	Ensure that MRC provides periodic update to CCHMP regarding the repeat actions in A59-05 and A59-09.	Propose quarterly meetings with the County to provide updates. (Consider coordinating with other CCHS meetings, to the extent practical.)	11/1/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
S03-12	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)]	CCHS reviewed C(F)-4 Lockout of Electrically Driven and Powered equipment which has a revision history of 10/2017 and the most recent 4/21/20. CCHS interviewed the SME for LOTO and was informed that the procedure had not gone through an annual review process. CCHS reviewed C(F)-5 which describes in section 7.5 the responsibilities of the Health & Safety Manager and Supervisor to annually review the procedure. A certificate will be created that documents the following: -- List of periodic inspections of process isolation that includes the names of individuals participating in isolation review, date of the review and description of equipment or vessel isolated -- Statement regarding program effectiveness -- Description of updates to program (if there were any) -- Description of review and discussion between MRC union safety reps and/or safety department reps on above information CCHS reviewed MRC Permitted Work Audit form (rev. 08, dated 4/20/17) which is used to document in field reviews of active permit documents, the JSA (job safety analysis) associated with the permit document, equipment conditions, PPE & other safety requirements, working at height/fall protection, electrical LOTO, process isolation, all levels of hot work and confined space entry. CCHS reviewed the following: -- SMR Permitted Work Audit (dated 01/22/18) type Level I and PRCS -- SMR Permitted Work Audit permit S1433410 (dated 07/30/19) type Level III and PRCS -- SMR Permitted Work Audit permit 2018/00025285SPLOG2 (dated 07/25/18) type Level I & III -- SMR Permitted Work Audit permit S1349423 (dated 03/12/18) type Level I and PRCS -- SMR Permitted Work Audit permit S1441602 (dated 8/10/19) type Level III -- SMR Permitted Work Audit permit S1423202 (dated 1/22/19) type PRCS -- SMR Permitted Work Audit permit S1425411 (dated 4/16/19) type Level III -- SMR Permitted Work Audit permit S1402263 (dated 3/21/19) type PRCS Level I - low energy Level II - hot work (new piping/structural steel/etc.)	Ensure that the energy control and isolation procedures are reviewed at least annually.	Will add the requirement to review all Isolation procedures annually. This will include C(F)-3, C(F)-4, and C(F)-5	11/30/2021

ID#	Question	Findings	Actions	Proposed Remedy	Due Date
		Level III - hot work (all hot work not covered by Level II) PRCS - permit required confined space CCHS was informed that MRC did not do any field audits of LOTO in 2020 due to a combination of being short staffed and the social distancing requirements that went into effect as a result of the pandemic.			

ATTACHMENT D

Summary of Consider Items

Summary of Consider Items and Proposed Remedies

ID#	*Question*	*Findings*	*Consider*	*Proposed Remedy*	*Due Date*
A38-07	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)]	CCHS reviewed the PHA reports listed in the findings of question A38-05. Five of the six PHAs reviewed were performed using the HAZOP analysis, which uses deviations to uncover cause / consequence pairs. It is here that the hazards of the process are described. The What-if worksheets used for the Volatiles Storage PHA are formatted with columns for Hazard and Consequence pairing. Together these columns adequately describe the hazards of the process. Examples of hazard found within the PHAs reviewed include but are not limited to: -- Line-up error -- Vessel overfilling -- Failure of equipment -- Valve inadvertently opened/closed -- Bypass left open -- External fire -- Vent fails to open -- Loss of nitrogen, utility air, or cooling water -- Relief valve prematurely opens -- Plugged line/equipment All six of the PHAs reviewed were subject to the requirement to have DMRs and HCAs available to the PHA team. Per SME interviews, the facility developed Corrosion Control Documents (CCDs) for each process unit, which is their version of DMRs. The CCDs were available to the PHA team and referenced when the group had questions on various corrosion mechanisms or other damage mechanisms on a unit. CCHS performed a live navigation of the network directories and documents available to PHA teams. CCHS confirmed that CCDs were included as documents available to the team. CCHS also found that the CCDs are typically revalidated after completing the PHA study on the same 5-year cycle. As a result, the PHA team was working from CCDs that may not reflect the latest information regarding the process's damage mechanism. It is not a regulatory requirement for CCDs (i.e., DMRs) to be revalidated prior to the PHA. In reviewing the local PHA policy, I(A)-50, Section 6.1.2 identified that DMRs (i.e., CCDs) were listed as PSI, among other information that needs to be available to the team. Although CCHS does not identify DMRs as PSI, these types of studies are required to be available to the PHA team.	Consider updating and revalidating CCDs sufficiently in advance of the PHA such that the updated report is available to the PHA team. Consider updating I(A)-50 that HCA studies need to be made available to the PHA team.	Update I(A)-50 Process Hazard Analysis procedure to include information on creating the annual PHA schedule, and include distribution of the schedule to the PEI Dept. Update I(A)-50 Process Hazard Analysis to reference that the HCA for existing processes will be reviewed during the PHA.	12/15/2021 12/15/2021

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
		CCHS was unable to locate mention within I(A)-50 or CORP-HSE-006 that HCA studies need to be made available to the PHA team. The PHA team did have access to the ISS checklist evaluation, although that is not an HCA. Per SME interviews, the primary issue has been that existing process HCAs have been inconsistently performed. Per SME interviews, there has been a gap in addressing the CalARP Program 4 requirements in conducting existing process HCAs based on a misunderstanding of the requirements that ISS and HCA were essentially identical. This is further described in A58-11. The facility needs to start conducting HCAs and make them available to the PHA team. The same issue was found during CCHS' previous audit, so a repeat ensure has been issued.			

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A38-14	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]	Per review of each of the PHA reports listed in A38-05, CCHS observed that the facility uses a global node to evaluate external events such as (not a complete list): adjacent plant incidents, sabotage, terrorist activity, transportation, flooding, extreme ambient temperatures, fog, etc. The facility also performs seismic assessments for each process that may impact a public receptor consistent with CalARP/ISO requirements. Of the six PHA reviews, five were required to conduct seismic assessments (i.e., Cogen unit was not). CCHS confirmed that seismic assessments reports were included as appendices to each of the five applicable PHA reports. Each seismic report identified the assessment was performed following the LEPC CalARP Seismic Guidance of the appropriate date. CCHS reviewed each of the seismic assessments and verified that seismic recommendations were added to the facility's PHA recommendation tracking tool. CCHS also evaluated the dates of the seismic reports and was unable to confirm any of the seismic reports were available to the PHA team during their PHA sessions. For example, the HCU seismic report was provided to the facility on 12/18/18, after the PHA sessions concluded. CCHS found that each seismic report was provided to the facility after the associated PHA session dates were completed. Only the SRHT PHA was still in session at the time of the seismic report issuance, although, per review of the PHA session history, CCHS found the External Events global node had been already reviewed. Per SME interviews, CCHS was informed that seismic studies are completed every five years as required, and every recommendation has been accepted from each seismic report. CCHS prefers that seismic assessments are performed sufficiently in advance of the PHA so that the PHA team could take the results into account during the PHA process.	Consider performing seismic assessments sufficiently in advance of the PHA so that the PHA team could take the results into account during the PHA sessions.	Update I(A)-50 Process Hazard Analysis procedure to include information on creating the annual PHA schedule, and include distribution of the schedule to the external seismic consulting firm.	12/15/2021

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A38-16	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)]	CCHS reviewed CORP-HSE-006 (corporate PHA policy) and found it identified the PHA team must include an individual with at least 5 years of experience working the process and familiar with the current operation. The policy inconsistently identifies who may satisfy this requirement (i.e., Section 5.5 identifies the operational representative may be a supervisor). CCHS reviewed I(A)-50 and found it identified that the current operating employee could be someone who currently works or provides training in the unit, consistent with the regulation. The operations representative is a qualified operator with at least 3 years of experience in the unit being assessed. Each of the PHA studies reviewed (see the list in A38-05) included a list of team participants by name, position title, and years of experience. Older PHAs, completed by Shell, the previous owner, included more detailed description of the individual's qualifications for being on a PHA team. For example, 17 years as HCU RO and 4 years as CO and 15 years HP-1/SGP RO, and 4 months CO. The level of detail within the past PHAs more clearly documents the requirement to have knowledgeable operators (and other PHA team members) on the team. It is not a regulatory requirement to include this level of detail, so a consider item was issued. All of the PHAs reviewed included an operator who was currently working the unit. Relative experience on the unit under evaluation ranged from 5-17 years.	Consider clarifying CORP-HSE-006 that the operational representative on the PHA team should not be a supervisor. Consider expanding the qualification documentation for each PHA team member (e.g., expand on the time spent in various roles).	"Consider" item will be shared with corporate. "MRC PHA Guidance" document will be updated to provide guidance on details to include for personnel qualifications.	12/15/2021 12/15/2021

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A38-17	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)]	CCHS reviewed the site-specific policy and corporate policy and found that both policies meet the minimum CalARP and ISO requirements, but with respect to each other, the requirements are not aligned. CCHS reviewed I(A)-50 and found it identified that a process engineering representative must be on the team consistent with the CalARP regulation and be a degreed engineer with at least 3 years of experience in the industry. The policy also identified that at least one full-time PHA team member needs to have at least 5 years of relevant technical or operational experience. CCHS reviewed CORP-HSE-006 (corporate PHA policy) and found it identified the PHA team must include an individual with at least 1 year of process industry experience and be knowledgeable with the design of the process under review. There is also wording that the combined experience level between the operations representative and process engineer be a least 8 years on the process under review. The minimum PHA team needs to include three full-time members: leader, operations representative, and process engineer. CCHS believes only requiring a process engineer with 1 year of experience on the process being evaluated is low although not unique in the county (e.g., ranges from 1-5 years). All of the PHAs reviewed included personnel as part of the core PHA team with process engineering expertise. Process engineering experience ranged from 3.5-21 years. Of the 6 PHAs reviewed, 5 identified additional personnel participated in the PHA on a part-time basis. All part-time participants were identified by name and title. None of the PHAs identified what days, sessions, or nodes these part-time participants joined the core PHA team. This is a best practice as it is not a regulatory requirement. 21 part-time participants were used in the 5 PHAs, although years of experience were included for only 1 part-time participant in 1 PHA. This is a best practice as it is not a regulatory requirement. Of the 6 PHAs reviewed, 4 tracked the topics covered for each session (i.e., HCU and Cogen did not). Although not a regulatory requirement to track nodes or topics covered for each session, it is a best practice.	Consider increasing the minimum number of years of process engineering experience within CORP-HSE-006 on the PHA team. Consider documenting each PHA session with full and part time participants. Consider consistently documenting nodes and topics covered for each PHA session.	"Consider" item will be shared with corporate. "MRC PHA Guidance" document will be updated to provide guidance including more details on session activities (including nodes and topics covered) and personnel involved.	12/15/2021 12/15/2021

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A38-23	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]	CCHS confirmed that the facility tracks PHA recommendations to resolve them within one year unless a turnaround is necessary. Section 6.6 of I(A)-50 included wording similar to the question. The majority of the PHA recommendations associated with the 6 PHA reviewed were completed within one year of issuance. The following summarizes the status of these PHA recommendations: -- 2018 HCU PHA, all 16 recommendations completed within one year or less -- 2018 Volatile Storage PHA, 47 recommendations identified, all recommendations identified as completed, 9 identified Target Dates beyond 1-year ISO requirement, and T/A not required. In total, 11 recs not needing a T/A were completed beyond the 1-year ISO requirement and took an average of 201 days to address (ranged from 9 to 471 days beyond 1-yr requirement). This is further described below. -- 2019 SRU 1&2 PHA, 12 recommendations identified, 11 completed within one year or less, 1 remains open requiring a turnaround for completion (CCHS verified on T/A list), 1 completed 30 days beyond target due date although within the 1-yr ISO requirement. -- 2019 Aqueous Ammonia Storage PHA, 5 recommendations identified, all were completed in less than one year -- 2020 Cogen 1&2 PHA, no recommendations identified -- 2020 SRHT PHA, 21 recommendations identified, 14 completed in less than one year, 7 currently open still within their 1-year target dates Per SME interviews, all PHA recommendations must be completed within one year unless a process shutdown is required, and if so, then the item is added to the next turnaround schedule. For items that cannot be implemented within one year and do not apply to turnaround, the county must be contacted to obtain concurrence and approval. For variance requests, CCHS prefers to be contacted at least 30 days before the recommendation becomes overdue. CCHS has been contacted periodically over the last three years to approve a few variance requests when a PHA recommendation cannot be resolved by the expected target date. Recently, several of these requests were due to the facility being unable to obtain the necessary resources or equipment from vendors or contractors due to delays resulting from the ongoing pandemic. Regarding the issues related to resolving PHA recommendations for the 2018 Volatile Storage PHA, variance requests were denied by CCHS for some of these as they were already overdue at the time of the request. CCHS grants no extensions or variances if an	Consider contacting CCHS to request a variance or extension of PHA recommendation due dates at least 30 days before the recommendation becomes overdue.	Update I(A)-50 to include timing for variance/extension requests (at least 30 days prior to the recommendation becoming overdue).	12/15/2021

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
		item is already overdue. Per SME interviews, CCHS found two situations that contributed to the overdue recommendations. -- The first was an apparent misunderstanding. Suppose a PHA recommendation was written to perform a study to further evaluate how to address an issue. In that case, the study and study's final resolutions need to be complete within the given regulatory timeframe. If the final resolution does not need a turnaround and needs longer than 1-year from the PHA to resolve, a variance is still needed from the county. -- The second was the process used to assign responsible parties to the PHA recommendation was altered temporarily due to changes in leadership style. CCHS found that select individuals were assigned as responsible parties when they were unable to perform those assigned duties (e.g., assigned asset owner an engineering project). CCHS understands that changes were eventually made, although by then, some recommendations went beyond the required 1-year requirement. Even though the trend for assigning PHA recommendations has improved since this 2018 PHA, CCHS cannot ignore the significance of the issue and an ensure action item the item is listed here, and another one is listed under Management Systems. Recommendations that took longer than one year to resolve not needing a turnaround without county variance approval: Action IDs: 052727, 059360, 037452, 042686, 058179, 059549, 060201, 037454, 037483, 042714, 042715. CCHS was informed the timeframe for completing engineering projects has accelerated under PBF ownership, so it takes less time now than under Shell ownership.			
A40-09	Does the submitted Safety Plan accurately reflect the existing Training Program at the stationary source? [T19 CCR §2745.2(d) & ISO Section 450-8.016]	The submitted 2019 Safety Plan Sections 5.3 and 6.0 accurately describe the existing Training Program. The submitted RMP dated June 2019 Section 4.4.5 and 4.4.18 describes the existing CalARP Training Program. Section 4.4.18 specifically addresses the training associated with the human factors program to comply with Program 4 requirements. The RMP does not describe the Program 4 elements training that is provided to all affected plant employees that include operations and maintenance personnel.	Consider updating the RMP to describe the training provided to affected employees on Program Level 4 elements and means used to verify understanding of this training.	MRC will update the CalARP RMP to include a description of the Program 4 element training, along with a description of the means used to verify understanding.	10/29/2021

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A40-14	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)]	Per interview, 4 or 5 hourly USW employees were involved in preparation of Program 4 training described in A40-13. USW representatives also conduct the training for new hires in face to face HF training, initial face to face Program 4 training and face to face PPE training. The union representatives are also involved in conducting the TOPs incident investigation training and Safety feed back training for new hires. Per CCHS review of the updated maintenance training policy, a review of refresher training for maintenance procedures, and interview, affected maintenance employees and employee representatives effectively participate throughout all phases in the implementation of the maintenance training program. CCHS also reviewed the C(A)-40 Operation Training policy (rev. January 2020) and Procedure D(A)-1 Maintenance Training Policy (rev. October 2019). CCHS noted that D(A)-1 Maintenance Policy states: "6.7 Employee Involvement: Employees and Employee Representatives will be involved in or be given the opportunity to be involved in all phases of Maintenance Training. This includes but is not limited to Phase I New Hire Training, Phase II Crafts Specific Training, Job Shadowing, Instructor-Led Classroom Training, Field Training and Refresher Training." CCHS could not find any similar employee participation in C(A)-40 Operation Training police. See A46-01 for an ensure action item for updating the employee participation program that addresses employee operator training in all phases of the CalARP Program elements.	Consider updating C(A)-40 Operation Training policy to address employee representatives involvement in all phases of the CalARP Program elements.	Using D(A)-1 verbiage as a guide, update C(A)-40 to address Employee Representatives involvement in all phases of Operator Training.	4/30/2022

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A41-17	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)]	Per a review of the six DMRs completed from 2018 to 2020 (see A41-15), CCHS confirmed that the reports included the specified requirements a) through h) in this question. Per CCHS review of the CCDs, the reports do not include process flow diagrams that highlight the affected parts of the process for the most significant corrosion mechanisms. Such information would be useful for the PHA process. This information is currently only available in tabulated form in the CCDs.	Consider updating the Corrosion Control Documents (CCDs) to include process flow diagrams that highlight the affected parts of the process for the most significant corrosion mechanisms.	Our current practice is to list the line ID that corresponds to the CCD document that has the corrosion mechanism better defined than identifying a segment of piping in the CMD. Currently, we don't have any plans to change from our current practice.	N/A

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A42-06	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)]	CCHS reviewed the MOC policy and confirmed that it addresses temporary repairs and addresses the necessary time required for the change. Temporary changes are discussed in section 6.1.3.2 of the policy. Temporary MOC's are treated in the same fashion as the normal MOC process using KMS; however, the temporary MOC's must include an expiration date. That expiration date must not exceed the next scheduled unit turnaround. One type of temporary MOC is Leak Repair. CCHS reviewed the Temporary Repairs listed below and determined that none of the evaluations included the temporary repair's expected design life. American Society of Mechanical Engineers Post Construction Code - 2 requires the repair's design life to be established. That design life should exceed the expected removal date of the temporary repair. CCHS notes that this is critical when using resin epoxy that operates at cyclic temperatures. Upon follow-up discussions with the MOC SME and the Leak Repair SME regarding the addition of the design life, they both confirmed that adding this to the Leak Repair form would improve the process. Contra Costa County reviewed the following temporary MOC's listed below. TR – 157 – 10 TR 836 – 17 TR – 841 – 17 TR 859 – 17 TR – 861 – 18 TR – 965 – 19 TR – 966 – 19 TR – 1030 – 20\ Contra Costa County reviewed the temporary repair record, which falls under the temporary MOC program, and identified inconsistencies in the majority of the QA/QC mechanical completion records reviewed. For example, in some circumstances, the QC portion indicated that the NDE was completed while the QA identified it as not applicable. Of the temporary repairs listed above, the following records show this inconsistency; TR 1030 – 20 – QA indicates visual inspection was completed, QC indicates N/A for NDE completed TR – 841 – 17 – QA indicates visual inspection was completed, QC indicates N/A for NDE completed TR – 859 – 17 – QA indicates that pressure test results & bolt torquing is not applicable, while QC identifies the pressure test and torquing as completed TR – 965 – 19 QA indicates pressure test is not applicable, while QC suggests that it was completed	Consider making a policy requirement to document the temporary leak repairs' expected design life and include the design life on the "record of temporary repair" form.	Modify the record of temporary repair D(F)10 to reflect the repair design life end date.	9/30/2021

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
		TR – 966 – 19 QA indicates pressure test is not applicable, while QC indicates that it was completed The facility needs to ensure the "Record of Temporary Repair QA/QC" portion is appropriately completed to be accurate. Any discrepancies between the QA and QC portions need to be addressed before the completion of the temporary MOC.			
A44-05	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)]	CCHS reviewed C(A)-29 Conduct Assurance, dated May 2019, which is the procedure for managing internal audits and external audits. The procedure states that the final audit report is sent to the report distribution list and the Assurance Coordinator is to input this to an electronic database. The procedure further states the party responsible for completing assigned actions must do so on or before the required due date. There is also a Closed Action Review conducted monthly by Primary Lead Auditor. However, the policy does not address the requirement to append the completed action to the report. However, the actual completion date of action items in not due for till 4/20/2022.	Consider updating policy C(A)-29 to include appending the actual completion dates when deficiencies were corrected to the compliance audit report.	Update C(A)-29 Conduct Assurance procedure to identify and explain the process to document triennial compliance audit actions with completion dates and closure details.	11/1/2021

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]	CCHS reviewed Shell HSSE & SP Control Framework (rev. 06, dated February 2016) which provided a Risk ranking that was used to evaluate incidents. CCHS reviewed MRC Procedure I(A)-6, Investigations and Incident Reporting (revised November 2019) which provides the process for investing incidents that uses a tool called TOP (Triangle of Prevention) and CL (Causal Learning) which is referred to as TOP/CL. This was the RCA method used by the facility to investigate incidents in the past. For the incidents reviewed during the audit, these investigations will be covered by the this policy. Under Mandatory Investigations (section 6.3), the policy includes criteria for classifying MCAR, potential MCAR, Major Incident, potential Major Incident, catastrophic release, potential catastrophic release. CCHS was informed by the Safety Manager that a new RCA method will be used to investigate incidents in the future and a recent incident that is being classified as a potential Major Incident. CCHS was provided a copy of the new policy which is different from the current policy in how it categorizes incidents as well as the RCA method. This policy is I(A)-6 revision 18 (expected to be released Feb 2021). CCHS was informed that the facility is no longer able to utilize the TOP/CL method to investigate process safety incidents involving MCAR, potential MCAR, Major Incident, potential Major Incident, catastrophic release, or potential catastrophic release due to loss of personnel who were very experienced in performing TOP/CL on process safety incidents. CCHS was informed that the facility is transitioning to a new RCA method. There is no record of MRC communicating with CCHS about using a new RCA method for incident investigations; however this RCA method was reviewed during the audit. This policy classifies incidents using CORP-HSE-008 Appendix B & C, Risk Matrix & Consequence Guidance (rev 1-4/1/19) which uses frequency and consequence to classify incidents. From I(A)-6 from November 2019: Level 1 Tech study - used to determine physical or technical causes of an incident. The team is typically made up of only a couple of people within the department and does not include a union representative or hourly person. CCHS was informed by the Safety Manager that this type of investigation would not be used to investigate MCARs, Major Incidents, or potential MCAR or Majors.	Consider updating the incident investigation policy with the proper definitions of HCA and ISSA and their use as part of an incident investigation.	Incident Investigation procedure I(A)-6 will be reviewed to ensure all appropriate terms and definitions are included. MRC will include both HCA and ISSA in I(A)-6	11/1/2021

TOP/CL Level 2 - medium level investigation where the purpose is to discover both physical, behavioral and the underlying system causes that led to the incident. This includes organizational and safety culture causes. All Level 2 investigations require participation of at least 1 trained TOP/CL hourly investigator unless the CL facilitator is an hourly employee.

TOP/CL Level 3 - high level investigation where the purpose is to discover both physical, behavioral and underlying system causes that led to the incident. This includes organizational and safety culture causes. An investigation team and facilitated by the Causal Learning Focal Point or a facilitator with the competency to facilitate a Level 3 investigation. All Level 3 investigations require participation of at least 1 trained TOP/CL hourly investigator unless the CL facilitator is an hourly employee.

On page 19, the procedure states that the sponsor is responsible for making sure that an HCA (Hierarchy of Hazard Control Analysis) is performed on all action items that are considered major changes that could reasonably result in an MCAR. This should be ISS. On page 20, the policy states that the sponsor is responsible for making sure that HCA's are performed on all action items from a Major Incident.

The policy has definitions for MCAR, Major Incident, potentials for MCAR and Majors, and catastrophic release as follows:
-- MCAR: consistent with the ISO definition of an MCAR.
-- Major incident: consistent with the CalARP P4 definition.
-- Catastrophic release: consistent with the CalARP P4 definition.

CCHS reviewed the following incident investigation reports:

Major Incident - none

MCAR
(Investigated using the Cause and Effect RCA method which is part of the TOP/CL method)
-- Loss of flare pilots (incident date 7/6/18)

Potential Major Incidents

-- F-14012 (incident date 10/31/17)
-- FIM incident 2026352 (incident date 2/16/18)

(Investigated using the TOP/CL RCA method)
-- FIM incident 2020582 (incident date 2/8/18)
-- FIM incident 2032512 (incident date 2/16/18)

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
		-- FIM incident 2108968 (incident date 6/26/18) -- FIM incident 2189489 (incident date 10/18/18) -- FIM incident 2377677 (incident date 6/12/19) Potential MCAR -- F-14012 Furnace flooding (incident date 10/31/17) -- FIM incident 2026352 (incident date 2/16/18) (Investigated using the TOP/CL RCA method) -- FIM incident 2370831 (incident date 6/7/19) -- FIM incident 2032512 (incident date 2/16/18) -- FIM incident 2108968 (incident date 6/26/18) -- FIM incident 2189489 (incident date 10/18/18) -- FIM incident 2377677 (incident date 6/12/19) -- FIM incident 2305905 (incident date 3/19/19) CCHS reviewed incident 183118 (incident date 11/17/20) which was an ongoing investigation. This was an incident that was initially identified to CCHS with the potential for an environmental impact as well as process safety incident. CCHS interviewed the Safety Manager and the Process Safety Manager who said that although the incident was classified as a near miss, due to redundancies in the system, there was almost zero chance that this would have risen to the level of potential MCAR or potential Major Incident. CCHS was informed that although there were numerous interlocks in place, these interlocks were bypassed and the alarms silenced. MRC has several processes in place that require checking and monitoring systems and these checks discovered the issue with the bypasses.			

ID#	Question	Findings	Consider	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)]	Section 6.6 of the Contractors policy describes the contractor evaluation process. The process has three components; the first component relies on a third-party contractor to continuously monitor safety metrics. The second component requires the facility to annually review the overall safety performance. The third method relies on the contractors' periodic performance audit, which meets the CalARP regulatory obligations, including the individual review of completed training certificates from the contract company. MRC has also developed a detailed audit questionnaire to ensure the contractor is meeting their internal standard. The facility completed 8 contractor audits in 2020, which is about a third of the contract companies that work on or near the process. Per contractors policy, the MRC classifies contractors into 4 groups which are called categories. Only category 1 and 2 work near and around the process; from a regulatory compliance standpoint, the facility should audit all category 1 and 2 groups at least once every 5 years. A detailed explanation of the frequency at which contractors are audited should be included in the policy. This item is just a consider because the current contractor audit rate is appropriate. In reviewing the audit questionnaire, CCHS recommends that MRC add an audit question that verifies or asks the contractor to explain how they are meeting the SB54-chapter 795 requirement that at least 60 percent of the skilled journeypersons. As indicated in A47-01, the facility relies on the contractor to ensure compliance, and therefore it makes sense to ask during the contractor audit process. CCHS notes that during the CalARP audit, many contractors were supplying almost all journeyman levels, and therefore, this item is not a deficiency. CCHS was able to confirm per SME interview and multiple operator interviews that the periodic field audits occur; these field audits can be characterized as "cultural/habitual" and generally not documented. One interviewee described them more as stop-work moments. Per follow-up interview with SME, new to the role, recalls having performed a comprehensive field audit under the previous ownership. CCHS reviewed the previous field audit program and determined that it would meet the intent of the regulation. During this CalARP audit, CCHS could not ascertain contractor field evaluations; the facility needs to periodically evaluate and document the contractor's field performance, and consider using the permit audit process used two years ago.	Consider updating the Contractor Auditing question to verify that "at least 60 percent of the skilled journeypersons" as required per SB-54 chapter 795. Consider updating the Contractors policy to indicate the frequency contractor are audited (e.g., Cat 1 contractors every three years, Cat 2 every five years).	Incorporate questions into the management level audit form to include: • Explanation on how they are meeting the SB54-chapter 795 requirement that at least 60 percent of the skilled journeypersons.	2/1/2022

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A48-10	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)]	CCHS reviewed I(A)-14 Inspection of Fire Protection Equipment (rev. 8, dated July 2018) which provides the inspection frequency of certain kinds of equipment that is used during emergencies at MRC. The procedure includes the inspection of fire hydrants and fire monitors, fire hoses, portable fire extinguisher, fire alarm and detection systems, deluge, manual spray, and sprinkler systems, utilities GTG fire extinguishing systems, fire fighting vehicles, tank foam systems, raw/fire water piping, raw/fire water pumps, storm sewers. Table 6.01, Emergency Response Equipment Inspection Overview, lists the equipment, action, frequency, responsible party, record owner, and protocol. In the action column, the test include flow test and visual, visual and test, visual and pump tests. Quarterly inspections: fire monitors, deluge and spray systems Annual: hydrants and monitors, fire hose, portable extinguishers, alarm and detection systems, deluge and spray system, utilities GTG extinguishing systems, ER vehicles and apparatus, fire engines and pumps, tank foam systems. Every 5 years: raw/fire water piping Weekly: raw/fire water pumps Periodic: raw/fire water pumps, storm sewers in process units Varies: ER vehicles and apparatus CCHS reviewed inspection records for the emergency response equipment used by MRC. This included fire alarms, fire hose, PIV, foam piping reports, hydrants, vehicles, fire extinguishers, AED, deluge and sprinklers, emergency lighting. The inspection reports were from 2019 and 2020. CCHS also reviewed I(A)-65 Breathing Air Equipment (rev. 04, dated February 2018) which addresses the inspection, maintenance and testing of breathing air supply hoses, breathing air masks, SCBA (self contained breathing apparatus), 5 minute escape bottles, breathing air trailers, and breathing air regulator. There is a note in the procedure that the procedure does not apply to equipment supplied by contractors for their own use. CCHS reviewed a spreadsheet that lists all of the SCBA within MRC. The spreadsheet specifies the location of the SCBA, the regulator number, cylinder number, hydro date, next hydro date, last flow test date, next flow test date, and last overhaul. There	Consider locating the lost SCBA or documenting that the SCBA is no longer being used.	Update the SCBA list to show the SCBA is no longer being used.	8/31/2021

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
		are over 300 SCBA spread across the different units such as DCU, fire rescue, LOP, engine, truck. There are 6 cylinders that were overdue for hydro tests. Five of these were to be due in 2020, the sixth in Feb 2021. There were 13 flow test that were overdue, 3 of which were due in March 2020, the rest in March 2021. CCHS interviewed the SME who indicated that the SCBA have been lost which is why they have not been hydrotested. A consider item was issued to assist in resolving this issue.			

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A49-30	Does the owner or operator implement and document effective procedures that ensure: a) Employees, and employees of contractors have rights to anonymously report hazards; b) Hazards that present the potential for death or serious physical harm are prioritized, promptly responded to and corrected? [T19 CCR §2762.16(f)(2) & (g)]	Per SME interviews, the refinery had a 0-60 program that was used until PBF ownership took over in early 2020. The program encouraged and expected hazard reporting to go from first recognition in the field to emailing refinery personnel in a span of 60 minutes. The process for reporting concerns continued, although the email portion to the workforce was discontinued. For the last year, the process for reporting hazards has been to enter details into a reporting database. This database changed after the new ownership. Per interviews with USW representatives, most of the data entering into this newer database are now done by management. Typically, operators would inform the STL, who would inform the RTL (Refinery Team Leader) to make sure a report is entered into the tracking system by the end of the shift. Represented employees can contact their union reps if they want to report information anonymously. The reporting database sends summary reports to managers every 12 hours to update them on what has been entered or modified in the last shift. These summaries are reviewed during shift team meetings. Morning production meetings review these reports for the previous 24 hours. Per SME interviews, contractors can report hazards by completing Goal Zero cards, which are then dropped off into boxes located throughout the refinery. These cards can be completed anonymously. The facility has a Goal Zero team that collects these cards and reviews them for issues that need resolution, although they are not necessarily entered into the hazard reporting database described previously. The Goal Zero program is described in the Employee Health/Safety Suggestions policy I(A)-9 (rev 5, revised April 2017). CCHS interviewed USW representatives and obtained a different impression of how the Goal Zero program has been working. For example, the past practice of having USW review Goal Zero cards has been paused for the last year due to a significant drop in the number of cards submitted. CCHS did not further evaluate this issue, although it suggests additional attention is warranted. MRC has used another hazard reporting process intermittently called FOCUS (Focus On Changing Unsafe Situations). Refinery employees have used this process in the past to report safety suggestions. Before the PBF ownership, Shell discontinued the FOCUS program, so it has not been used for the last year. CCHS was also informed that MRC is bringing the FOCUS program back. The FOCUS process is mentioned under I(A)-9 and even refers to I(A)-18 as the "FOCUS Event Reporting System". CCHS	Consider verifying the Goal Zero, FOCUS, and 0-60 programs descriptions within I(A)-9 and I(A)-18 and work with USW reps to update them.	Work with USW reps to review and revise I(A)-9 Employee Health/Safety Suggestions procedure and I(A)-18 Incident Reporting procedure to describe employee policy for reporting hazards through Goal Zero, FOCUS, and Impact Reporting.	11/1/2021

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
		reviewed I(A)-18 (rev 10) and found it was renamed to "HSE201 Incident Reporting" on 10/5/19, and all mention of the FOCUS program was removed. CCHS was informed that MRC is currently updating I(A)-9 and I(A)-18 and considering combining the two into one policy. I(A)-18 also mentions the 0-60 program. Both I(A)-9 and I(A)-18 contained details on how the facility would respond to reported hazards. The facility's Stop Work policy I(A)-70 identifies that the employer shall respond in writing within 30 days to written hazard reports consistent with the question and listed regulatory citations. The facility's Injury and Illness Prevention Program I(A)-4 (rev 8, revised Dec 2020) identified the facility would investigate and take immediate action to resolve reported hazardous conditions.			

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
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]	As part of the CalARP audit. CCHS reviewed the following six PHA reports: -- Hydrocracker Unit (HCU) PHA, report dated December 2018, session dates from October 15-31, 2018 -- Volatiles Storage Facilities PHA, report dated June 2018, session dates from June 11-21, 2018 -- Aqueous Ammonia Storage Facilities PHA, report dated July 2019, session dates from May 29-30 -- Sulfur Recovery Units (SRU) 1 & 2 PHA, report dated December 2019, session dates from September 23 to October 7, 2019 -- Cogen Units 1 & 2 PHA, report dated June 2020, session dates from May 11-18, 2020 -- Straight Run Hydrotreater (SRHT) PHA, report dated April 2020, session dates from March 11-25, 2020. Documentation maintained within each of the PHA reports reviewed confirmed that 5 of the 6 PHAs completed the human factors (HF) latent conditions checklist (LCC) at the very start of the PHA (before any process nodes). The 2018 HCU PHA completed the HF LCC mid-way through the PHA sessions on 10/24/18. CCHS expects that HF LCCs be completed either once before the start of the PHA, or be completed during each of the PHA nodes. Per SME interviews, only one HF LCC is completed for a PHA. In that case, the HF LCC needs to be completed at the very beginning of every PHA. CCHS did not issue an ensure action item for this one case since the trend after the 2018 HCU PHA was in compliance. CCHS reviewed the facility's local PHA policy I(A)-50 and could not locate mention of completing the HF LCC at the very beginning of each PHA. Although it is not a regulatory requirement to state this within the policy, it is suggested as a best practice.	Consider modifying I(A)-50 to identify that the human factors latent conditions checklist needs to be completed by the PHA team at the beginning of the PHA before any process nodes are evaluated.	Update I(A)-50 to include completing the LCC at the beginning of the PHA.	12/15/2021

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)]	As previously described, each PHA/LOPA facilitator must be trained and go through an approval process to lead PHA and LOPA sessions. The approval process was a requirement under Shell and remained a requirement under PBF ownership. Per SME interviews, a training session is held on the first day of the PHA to review the process for conducting PHAs as well as to introduce LOPA, and its concepts to the PHA team. CCHS reviewed the 28 pages of training slides and confirmed 7 slides incorporated appropriate LOPA concepts (e.g., definitions, independence, explanation of IPLs, IPL vs. safeguard, calculating risk ranking). Per SME interviews, core PHA team members are provided the above training. CCHS confirmed through operator interviews that training is conducted at the beginning of the PHA session to go over the concepts, although CCHS was unable to locate training documentation or sign-in sheets. This type of documentation is maintained for HF LCC and ISS training. Such documentation is not definitively required for PHA/LOPA training, although it is suggested.	Consider maintaining documentation of PHA/LOPA training provided to the PHA team.	"MRC PHA Guidance" document will be updated to include details in the session data. This will include items like team training.	12/15/2021

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A52-01	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)]	CCHS reviewed the incident investigation policy I(A)-6 (rev. 17, dated 11/2019) which describes the RCA method used to investigate Major Incidents, MCARs, potential Major Incidents, potential MCARs. This method is referred to as TOP/CL (TOP - triangle of prevention/causal learning) and it focuses on deterring causal factors that include human factors. The causal factors cover direct cause, contributing causes and root causes. Both TOP/CL Level 2 and TOP/CL Level 3 are used to investigate process safety incidents, with the Level 2 investigation being for medium level investigations that requires a smaller team; and Level 3 for investigating Major Incidents, MCARs, and potentials of each. Human factors are considered for both Level 2 and Level 3 investigations. MRC uses a human factors checklist that covers most of the same main topics as the ISO LCC checklist. The topics evaluated in the checklist were experience/knowledge, stress/fatigue, shift work, work practices, conflict between work practice and procedure, clarity of procedure, complexity of tasks, HMI (human machine interface), physical work environment, communication systems, training, overtime, worker selection, climate/culture, management system. During the audit, CCHS was informed that the facility would no longer be using the TOP/CL methods as the RCA for investigating Process Safety Management (PSM) incidents. CCHS reviewed I(A)-6 (rev. 18, expected release Feb 2021) which states that PSM incidents which are classified as Major Incidents, MCARs, potential Major Incidents, potential MCARs, catastrophic releases, potential catastrophic releases will be investigated using a new method. This method has not been properly reviewed by CCHS but does seem to be related to an existing RCA method that was approved by CCHS in the past. During the audit, MRC formally submitted the new RCA method to CCHS for review. CCHS reviewed the following incident investigation reports which included human factors checklists. The checklists had 15 questions that covered topics such as experience level, shiftwork, procedure clarity, complexity, human machine/system interface, communications, climate, management system. Major Incident - none MCAR -Loss of flare pilots (incident date 7/6/18) Potential Major Incidents -- F-14012 (incident date 10/31/17) -- FIM incident 2026352 (incident date 2/16/18)	Consider documenting the team that performs the human factors evaluation for the incident investigations.	Update incident investigation policy to Include documentation of the team who performs the Human Factors evaluation for incident investigations.	2/1/2022

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
		-- FIM incident 2032512 (incident date 2/16/18) -- FIM incident 2108968 (incident date 6/26/18) -- FIM incident 2189489 (incident date 10/18/18) -- FIM incident 2377677 (incident date 6/12/19) -- FIM incident 2020582 (incident date 2/8/18) Potential MCAR -- F-14012 (incident date 10/31/17) -- FIM incident 2026352 (incident date 2/16/18) -- FIM incident 2032512 (incident date 2/16/18) -- FIM incident 2108968 (incident date 6/26/18) -- FIM incident 2189489 (incident date 10/18/18) -- FIM incident 2377677 (incident date 6/12/19) -- FIM incident 2305905 (incident date 3/19/19) -- FIM incident 2370831 (incident date 6/7/19)			
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]	Per interview, personnel responsible for developing and maintaining operating and maintenance procedures are trained in rules for writing effective instructions. CCHS randomly selected three mentors responsible for reviewing and maintaining operating procedures and confirmed their training records for 2/2018, 8/2018 and 7/2020. CCHS also randomly selected 5 maintenance procedure reviewers and was able to verify training for only two in 1/2021 and 2/2021.	Consider developing an audit program to review select procedures from different groups for consistency in application of A(A)-37 Create and Revise Maintenance Procedures.	Establish audit program for maintenance procedures. Document audit process in A(A)-37.	6/30/2022

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A54-01	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]	CCHS reviewed I(A)-53 - Management of Organizational Change Procedure (rev. 2/20/2018) which describes the scope of the procedure as: • Determination of MoOC applicability • Guidance on screening the nature of a proposed change for California Regulatory Requirements • Conducting a MoOC analysis when a proposed change has California Regulatory applicability • Conducting a MoOC analysis when a proposed change does not have California Regulatory applicability The procedure further defines applicable organizational changes as: • Change in the number of positions, or number of personnel within those positions. • The roles and/or responsibility to perform identified critical activities assigned to a specific position are substantially increased or modified. • Change to the organization structure (existing organizations are merged or divided). • Reduction in staffing levels, reducing classification levels of employees, changing shift duration, or substantively increasing employee responsibilities at or above 15%. The requirements also apply to contract partners in permanent positions. . Per interview with the SME, there have been about 9 organizational changes that met the criteria mentioned above since the previous CCHS audit. Three of the more significant MOOCs are as follows: -- Eliminating one staff position by combining the Safety Engineer position with the Industrial Hygienist position, completed 7/30/20. -- Safety Organization Re-Design by Combining the Health and Safety and Process Safety organization under one department manager, completed 8/2/19. -- HSE & Technology Organization Re-design by Combining Production Support Manager and CSE Manager into Process Controls and Process Technology Manager, completed 8/2/19. In reviewing the MOOC procedure I(A)-53, CCHS noted that it does not require MOOCs to include the required certification statement to be signed off by the Refinery Manager or designee. Also a review of the completed MOOCs indicated that the certification by the Refinery Manager or designee was not consistently completed. This certification is required by the CalARP Program 4 regulations for the MOOC program and an ensure action is issued in A54-15.	Consider updating the MOOC policy to require that the completed MOOCs need to include the required certification statement that is signed off by the Refinery Manager or designee.	MRC will revise I(A)-53 to clearly require certification of completed MoOC assessments by the refinery manager (or his/her designee).	9/30/2021

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A54-07	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]	The MoOC procedure, Section 6.3.2, describes how a Change Review Team will assess the impact of a proposed organizational change. The team begins with defining the existing situation and developing a detailed inventory of the job duties that are carried out by the affected positions. Any of the duties that are identified as critical to Health, Safety, Security, and Environment (HSSE), Product Quality (PQ), and Reliability are documented within the Critical Activities Mapping Table (Attachment B); the tasks are then distributed by the Department Manager to alternate personnel to ensure that these duties continue to be carried out effectively. Additional impact assessments include the Health and Safety Checklist for Management of Organizational Change (Attachment C of the procedure) which focuses on the following impacted areas: Health and Safety (H&S) Management, H&S Training, Safe Work Practices, OSHA PSM Management, Contractor Safety, Emergency Response, Safety and Health (S&H) Regulatory, Occupational Health, Operations Effectiveness H&S, and Craft Safety Effectiveness. Per interview and a review of staffing for Pressure Equipment Inspection (PEI) Department, last year the staffing included two full time equivalent Corrosion & Materials Engineers and one pf the full time equivalent positions was lost due to retirement. This left just one Corrosion & Materials Engineer position in place now for several months. The organization needs to assess staffing level for this program to confirm if the lost Corrosion & Materials Engineer position should be restored or an MOOC needs to be performed to document the reduction of this position. Per interview with SME, CCHS was informed that the staffing of the operations department for the refinery has been reducing from 5.2 faces per 4 person shift to 4.8 faces per 4 person shift based on the strategy from the new organization PBF Energy. There has been a significant number of retirements in operation since the change of ownership of the refinery in the past year. Follow-up communications indicated that the operations staffing for the refinery has currently reached the new lower threshold of 4.8 faces per 4 person shift. MRC should consider conducting an MOOC to assess the staffing level for operations to stay well above the new threshold of 4.8 faces per each 4 person shift.	Consider conducting an MOOC to assess the staffing level for operations so as to stay well above the new threshold of 4.8 faces per each 4 person shift.	Having considered MoOC assessment as a tool for validating the target number of individuals per shift operator position, we concluded that the measures that PBF currently uses (e.g., number of operators qualified on each job, overtime hours for each job) are more direct, and are adequate to manage fatigue.	N/A

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A58-01	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)]	CCHS reviewed the HCA procedure ((A)-43 (revised Oct 2019, rev. 08) which provides the HCA strategies and approaches in section 6.2. The five HCA strategies used were consistent with P4: -- Eliminate hazards to the greatest extent feasible using first order inherent measures -- Reduce any remaining hazards to the greatest extent feasible using second order inherent safety measures -- Effectively reduce remaining risks using passive safeguards -- Effectively reduce remaining risks using active safeguards -- Effectively reduce remaining risks using procedural safeguards CCHS reviewed the checklist that is used to perform HCA. The checklist, First and Second Order Inherent Safety Measures Checklist (no revision date) starts with two questions for the First Order Inherent box which are for Eliminate and Substitute. If questions are answered Y[es], the HCA team continues onto the Second Order Inherent box which contains questions for Minimize, Substitute, Moderate, Simplify. Each of these has multiple questions that are considered as part of HCA. The HCA reports specifies which category of HCA was used. In addition to the ones mentioned, the report has a separate category that includes Passive safeguards, Active safeguards, Procedural safeguards. CCHS reviewed procedure I(A)-43 Hierarchy of Hazard Control Analysis (HCA) which was revised in October 2019 (rev. 08) which is the process used to conduct HCAs at the facility. The procedure states that HCA and ISSA are used interchangeably in the document which is inaccurate. The HCA and ISSA are two different methods that are applied differently and thus must be treated separately. Section 6.0 is consistent with the CalARP P4 regulation which requires HCA to be applied to each covered process units as follows: -- Existing covered processes every 5 years -- Development and analysis of all PHA recommendations -- Development and analysis of incident investigation recommendations from a major incident -- During the design of major changes In section 6.4.2, HCA for PHA Recommendations, the policy states that an HCA shall be conducted in the analysis of all PHA recommendations which would typically be done using Attachment B. This would be used for recommendations that would not be considered major changes. The policy also states that if a recommendation does not require an MOC, the HCA	Consider updating the HCA policy I(A)-43 with the proper definitions of ISSA and HCA.	Revise I(A)-43 to define the Inherently Safer Systems Analysis required by County Industrial Safety Ordinance and define Hierarchy of Hazard Control Analysis required by State PSM & CalARP requirements.	11/1/2021

should be part of the PHA study with the same team members. If an MOC is required, the PHA can still complete the HCA using Attachment B, but the checklist will be finalized as part of the MOC process. CCHS reviewed Attachments B-E which were checklists for HCAs for different categories: Attachment B - PHA, Investigation, Major Change MOC; Attachment C - Major Change Capital Project - Assess/Select; Attachment D - Major Change Capital Project - Define; Attachment E - Major Change Capital project - IFC. Attachment F is the HCA full report template which is used to present a full HCA report that includes the individual HCA reports.

CCHS reviewed the ISSAs for existing process PHAs and HCA's on PHA recommendations below. There were no existing process HCA's performed.

2020
-- Cogen 1,2 PHA
ISS (on existing process dated 5/11/20)
HCA - there were no recommendations and so no HCA was completed

-- Straight Run SRHT PHA
ISS (performed on existing process but sheet did not have a date)
HCA - there were HCA summary reports for 6 of 8 recommendations. The final 2 had notes about the recommendations being completed as part of MOC's. The 6 that were reviewed did not have any associated actions related to HCA.

2019
-- Aqueous Ammonia Storage PHA
ISS (on existing process dated 5/29/19)
HCA - there were HCA summary reports for all 4 recommendations and the reports were dated 5/30/19.

-- SRU 1, 2 PHA
ISS (on existing process 9/23/19)
HCA - there were HCA summary reports for 8 of 9 recommendations. The dates of the HCA's were as follows:
-- Recommendation #1 - 3/25/20
-- Recommendation #2 - 2/10/20
-- Recommendation #3 - 11/24/19
-- Recommendation #4 - To be completed as part of project/and or MOC
-- Recommendation #5 - 11/14/19
-- Recommendation #6 - 11/14/19
-- Recommendation #7 - 11/14/19

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
		-- Recommendation #8 - 11/14/19 -- Recommendation #9 - 11/14/19 The final recommendation had a note that it would be completed as part of the MOC. Some of the HCA reports were listed as Second Order Inherent Safety Measure - Simplify. 2018 -- HCU PHA ISS (on existing process but the checklist did not have a date) No HCA report -- Volatiles storage PHA HCA - there were two HCA summary reports for 5/9/19 and 12/2/19. There have not been any major changes proposed as part of an MOC review; no recommendations from an RCA investigation for a Major Incident; and no recommended major change from an incident investigation of an MCAR that could reasonably result in an MCAR.			

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A58-07	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]	CCHS reviewed the HCA policy and confirmed that HCA's are to be documented, performed, updated, and revalidated by a team with expertise in engineering and process operations. The team will be made up of a person who is knowledgeable of the HCA methodology and at least one operating employee who currently works on the process and has specific knowledge of the process under review. The team shall include employee participation. CCHS reviewed the HCAs for PHA recommendations below and found that each had included teams with the appropriate knowledge, expertise and experience; however, as mentioned in A58-01, the HCA's were not completed for existing processes. 2020 -- Cogen 1,2 ISS team: unit operator, unit OSE, PHA facilitator HCA team: not performed -- Straight Run SRHT ISS team: no names on ISS checklist and no date (Note: CCHS reviewed a session document for session 1 with the topics covered including ISS (HCA) checklist, the date of the session, and the names of the participants) HCA team: HCA facilitator, unit OSE, unit operator 2019 -- Aqueous Ammonia Storage ISS team: unit operator, unit OSE, HCA facilitator HCA team: unit operator, unit OSE, HCA facilitator -- SRU 1, 2 ISS team: unit operator, unit OSE, HCA facilitator HCA team: unit operator, unit OSE, HCA facilitator 2018 -- HCU ISS team: no names on ISS checklist and no date HCA team: not performed -- Volatiles storage ISS team: unit operator, unit OSE, process safety engineer HCA team: not performed	Consider including the dates and names on the ISS checklist of the team that performed the ISS.	Update I(A)-43 procedure attachment for the ISS checklist template to include a heading or header with: • Date conducted • Name of Team members • Unit/Department	11/1/2021

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]	CCHS reviewed I(A)-43 which describes how an existing process HCA shall be performed using an ISS checklist as part of the PHA. This checklist was located in I(A)-50 Process Hazards Analysis (revised 12/9/19, rev. 10), Attachment F, Inherently Safer System Checklist which is the ISS checklist for the facility. CCHS reviewed Attachment F which is consistent with the CCHS Attachment C Inherently Safer System Checklist. There is no mention in the PHA policy of doing an HCA nor is there any reference to an HCA checklist. CCHS reviewed a list of 50 PHAs that have been performed on processes at the facility. Since the last audit, 12 PHAs have been revalidated. CCHS was informed that HCA's were not performed on all existing processes through the PHAs due to a misunderstanding of the differences between the ISO requirements for ISSA and the P4 requirements for HCA. The HCA's were only performed on PHA recommendations while ISS was performed on the actual processes. The facility is working on getting the HCA's done for the PHAs that have been either revalidated or are new since the regulation went into effect October 2017. CCHS reviewed the ISS's and HCA's for each of the PHAs in A58-07. 2020 -- Cogen 1,2 PHA ISS (dated 5/11/20) HCA - there were no recommendations and no HCA was completed. No process HCA was performed. -- Straight Run SRHT PHA ISS (no date) HCA - reports dated 3/24/20 for recommendations. No process HCA was performed. 2019 -- Aqueous Ammonia Storage PHA ISS (dated 5/29/19) HCA - reports dated 5/30/19 for recommendations. No process HCA was performed. -- SRU 1, 2 PHA ISS 9/23/19 HCA - there were HCA summary reports for 8 of 9 recommendations and report dates from Nov 2019 to Mar 2020. No process HCA was performed. 2018	Consider updating the PHA policy with the requirement to perform an HCA on existing processes and if done as part of a PHA, to document the results in the PHA.	There is no need to modify I(A)-50 since it would be redundant to I(A)-43 which describes the HCA process for existing processes.	N/A

-- HCU PHA
ISS (no date)
No HCA report
-- Volatiles storage PHA
HCA - there were two HCA summary reports for 5/9/19 and 12/2/19. No process HCA was performed.

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A58-12	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];	CCHS reviewed the HCA policy (section 6.9) which is consistent with the P4 CalARP regulation that requires that HCA reports be completed within 30 days of the HCA. The HCA report will include the composition of the team, responsibilities, qualifications, the methodology, a description of each hazard, relevant HCA questions asked and answered, the information available to the HCA team, the process used to determine inherent safety measures, documentation of any inherently safer options, human factors evaluation, findings and recommendations, and documented resolutions. New Process: CCHS reviewed HCA reports for two new processes, ER-3227 and ER-3257. These projects were in development and reviewed by CCHS during the last audit. At the time of the last audit, only the ISSAs were performed and the ISSA report for ER-3227 did not contain the required information. PHA recommendations: CCHS reviewed the HCA reports for the PHAs in A58-01 and found that the SRU 1 & 2 HCA report had the following: The recommendations had dates of (1) 3/25/20, (1) 2/10/20 and the rest (6) had 11/14/19. There was also one that had been incorrectly moved to a project MOC where it was assumed that an HCA would be performed. CCHS reviewed the ISSA for the SRU 1 & 2 process. The PHAs had the information in (a)-(i). Existing Process: The facility has not performed HCAs on existing processes but has performed ISSAs as mentioned in A58-01. CCHS reviewed all of the ISS's for the PHAs mentioned in A58-01. MOC: CCHS was informed by the Process Safety Manager that there have not been any major changes that resulted from MOC's other than those captured for the project MOC's that were reviewed during the previous audit. CCHS reviewed a sampling of MOC's that were selected for review during the audit and did not see any that would have been considered major changes. II: CCHS did not see any major changes that resulted from the incident investigations reviewed in A45-01 that could reasonably have resulted in an MCAR. RCA: CCHS reviewed the list of recommendations from RCA	Consider revising I(A)-43 to include the ISSA session dates to make it clear when the 30 day requirement would be begin.	Update I(A)-43 to clarify timing for completing ISSA & HCA reports.	11/1/2021

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
	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 Program Guidance Document]	investigations in A45-01 and did not identify any that were from a Major Incident.			

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A58-13	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]	CCHS reviewed the HCA policy which describes in section 6.7 that recommendations from an ISSA must be implemented to the greatest extent feasible. The justification for not implementing a recommendation must be documented. The adequacy of such justification will be reviewed by the ISSA facilitator as well as the USW PSM rep. If there are still concerns, the ISSA facilitator will contact CCHS. The criteria for declining to implement an ISSA recommendation are consistent with ISO Section 450-8.016(i)(3) and Section D.1.4 of the CCHMP Safety Program Guidance Document. CCHS reviewed the ISSA reports from PHAs in A58-01 and found the following: 2020 SRHT: -- For each ISS not implemented, the checklist had an explanation. For example, for the use of compact heat exchangers, there was a note that the heat exchangers in place are more safe than the compact heat exchangers which could cause a worse safety issue. -- CCHS found wording used in the LOPA documentation that seemed to imply that additional ISS may be feasible: "Additional barriers considered grossly disproportionate to risk reduction achieved". Per SME interviews, this generic wording was used by Shell to identify no further evaluation was necessary since acceptable tolerability criteria had already been met. 2019 SRU 1 & 2: -- For consequence 3.8.2, CCHS found the risk calculation incorrectly put the number at 1E-3 when in fact the number is 1E-4. Underneath the calculation is another note: Meets tolerability criteria. CCHS was informed that there was no further documentation for this particular scenario. CCHS interviewed the ISSA SME's who said that there is a new approach that is being used to evaluate risks and IPL's. As part of the new approach, MRC provides better documentation on the decisions made regarding options that were not implemented and the associated risk calculations.	Consider updating the Risk calculation in the 2019 SRU 1 & 2 PHA in node 3.8.2 to the correct number.	Document correction of typo in PHA folder for 2019 SRU 1 and 2.	9/30/2021

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A58-19	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	CCHS reviewed section 6.8 of the HCA policy which describes how HCA recommendations arising from HCA analyses shall be implemented in a timely manner. Each recommendation needs an action plan that includes the timeline for implementation. Once recommendations have been agreed upon, and deadlines accepted, they will be entered into the action item tracking database by the HCA facilitator. An HCA recommendation can be declined for reasons that are consistent with T19 CCR §2762.16(e)(2)-(4) and (10). CCHS did not identify any action items from the ISSA's nor any recommendations from the process HCA's since these were not performed. CCHS reviewed HCA's and ISSA's performed on PHA recommendations and found that most had been closed within 1 year and none of the recommendations were rejected. However, in the PHA for LOP flare, there is a note in the HCA summary report for 3 recommendations that are to be completed within 30 months of the PHA (completed 12/15/19) issuance date which would be 6/15/2022. All three have been assigned projects for turnaround.	Consider adding to the HCA policy the need to complete action items associated with a PHA within one year unless a turnaround is required.	Update I(A)-43 procedure to identify process for completing actions resulting from analysis of PHA recommendations.	11/1/2021

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A59-03	Did the Stationary Source establish a methodology for evaluating work groups? [Section F.3 of the CCHMP Safety Program Guidance Document]	Per the 2018 HSSE PS Culture Assessment report, the respondents were summarized by work type into: -- Hourly (operations or maintenance) -- Staff (engineers, managers) -- Contract Partner, routine (long-term) -- Contract Partner, T/A (short-term, temporary) There were also 17 unanswered responses for work arrangement from the 506 survey forms received.	Consider to further classify work type: the hourly into operations and maintenance; and staff into subgroups such as administrative, engineering and Health & Safety personnel to gauge if there are insights from a different role.	The site procedure on conducting the Culture Survey, I(A)-71, will be modified to describe the respondent's further work type classification to gain better insight into response.	11/11/2021
A59-04	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]	CCHS reviewed the I(A)-71 PS Culture Assessment Policy (rev. March 2019) which identified that the facility hopes to obtain an overall participation rate of 30% and for smaller groups, for example, operating departments or turnaround maintenance, the target rate was at least 20% participation. Per the survey report (p. 8), the response rate is listed as: -- Hourly (operations or maintenance): 45% -- Staff (engineers, managers): 58% -- Contract Partner, routine (long-term): 44% -- Contract Partner, T/A (short-term, temporary): 19% The report noted that the survey was conducted near the end of a turnaround when there were fewer then average number of contract partners on site.	Consider better timing to improve the participation rate of the short-term contract partners.	The site procedure on conducting the Culture Survey, I(A)-71, will be modified to discuss planning of the survey to time it with maintenance activities involving larger numbers of turnaround and project contract partners.	11/11/2021

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
A59-05	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]	The 2018 HSSE Culture Assessment Report stated in the goals and objectives that the assessment included an evaluation of the effectiveness of the following elements of process safety leadership: • Hazard reporting program (3 questions) • Response to reports of hazards (2 questions), • Procedures to ensure that incentive programs do not discourage reporting of hazards (3 questions), • Procedures to ensure that process safety is prioritized during upset or emergency conditions (2 questions), and • Management commitment and leadership (3 questions) CCHS noted in the report findings, discussions and assessment specific to the above elements. Though there were no specific discussions on the elements, the report also identified 9 general questions that are kept the same from the 2010 and 2015 PSCA that would help assess: • Safety, Health, Environmental, and Process Safety programs performance, and • Individual performance and accountability with respect to the above CCHS also reviewed the 27 questions survey form and identified 3 questions that address Peer perception and accountability (questions 8,10,11). CCHS reviewed the PSCA policy and noted that section 6.1 of the policy states the PSCA would include an evaluation of the effectiveness of all 8 elements of process safety leadership as outlined in these questions. CCHS finds the topics are covered in the survey; however, the elements are not adequately discussed in the assessment report. Per interview with SME, the survey questions are custom developed before each survey deployment. CCHS noted that the policy does not include questions and the mapping to the required element to this question.	Consider including the mapping of all 8 elements of process safety leadership to the survey questions in the report.	The site procedure on conducting the Culture Survey, I(A)-71, will be modified to list the elements of process safety leadership and require a mapping of future survey questions to these elements.	11/11/2021

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
S01-09	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]	Level III permit must meet all the conditions of Level II permit. The policy states for a Level II and III permit, the hierarchy of conditions are: -- Work in areas free of flammable material, -- Eliminate ignition sources use using alternate equipment or methods, -- Implement control to have only one of the conditions of either flammable materials or ignition source during hot work. Written permits are not required for Level II/III type work in Designated Hot Work Locations.	Consider adding to the hierarchy of conditions where practical, to move work to a safe designated location.	Add a step to I(F)-3 in section 6.4.1 to ensure that the consideration is made to remove the hot work from the unit whenever possible.	11/15/2021
S01-12	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]	The policy specified for Level II and Level III permits that fire watch is required and shall be maintained at the Hot Work job site for a minimum of 30 minutes after the completion of Hot Work. The craft representative signing the permit is responsible to ensure the personnel performing Fire Watch duties understand the responsibilities listed on the back of the pink copy of the Safety Permit. If electronic permits are used, a separate document should be provided with fire watch duties. The 2019 NFPA 51B standard requires that the fire watch be maintained for 60 minutes after the completion of hot work operations. The facility should consider updating the plant policy to maintain a firewatch from 30 minutes to 60 minutes to be consistent with 2019 NFPA standard. Section 7.4 of the policy listed the responsibilities of fire watch which includes: -- Having suitable fire protection equipment is readily available; -- Paying special attention to areas with the potential for release of flammable liquids or vapors; -- Understand how to summon Emergency Services if fire observed but unable to be extinguished; -- Make proper notification to MRC Health & Safety Dept.	Consider revising the Safety Permit procedure with the updated 2019 NFPA 51B requirement to maintain a fire watch for at least 1 hour after completion of the hot work.	Consistent with the current requirement, and as currently documented in I(F)-3, fire watch will be maintained for ½ hour after completion of hot work.	N/A

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
S03-09	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)]	CCHS reviewed the policies in S03-08 that addressed the requirement to test machine or equipment to verify effectiveness of LOTO. CCHS did a live navigation of the MRC C(F)-5 Tracking database which is used to store information on past energy isolation and to document active permits. CCHS reviewed permit SP15618 which was located in Cracked Products. The database indicated that the permit required a Zero Energy Plan but the permit itself did not need a Zero Energy Plan. The SME said that this could be due to a misunderstanding of the label of Zero Energy Plan in the database, that some people may be interpreting it as meaning that the Zero Energy section was evaluated. There were several other instances of this.	Consider updating the MRC C(F)-5 Tracking database so that it is clear when a Zero Energy Package is needed and provide additional training to the users of the database.	Update the C(F)-5 tracking SharePoint and cover the change/requirement in lunch and learn.	5/1/2022

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
S03-12	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)]	CCHS reviewed C(F)-4 Lockout of Electrically Driven and Powered equipment which has a revision history of 10/2017 and the most recent 4/21/20. CCHS interviewed the SME for LOTO and was informed that the procedure had not gone through an annual review process. CCHS reviewed C(F)-5 which describes in section 7.5 the responsibilities of the Health & Safety Manager and Supervisor to annually review the procedure. A certificate will be created that documents the following: -- List of periodic inspections of process isolation that includes the names of individuals participating in isolation review, date of the review and description of equipment or vessel isolated -- Statement regarding program effectiveness -- Description of updates to program (if there were any) -- Description of review and discussion between MRC union safety reps and/or safety department reps on above information CCHS reviewed MRC Permitted Work Audit form (rev. 08, dated 4/20/17) which is used to document in field reviews of active permit documents, the JSA (job safety analysis) associated with the permit document, equipment conditions, PPE & other safety requirements, working at height/fall protection, electrical LOTO, process isolation, all levels of hot work and confined space entry. CCHS reviewed the following: -- SMR Permitted Work Audit (dated 01/22/18) type Level I and PRCS -- SMR Permitted Work Audit permit S1433410 (dated 07/30/19) type Level III and PRCS -- SMR Permitted Work Audit permit 2018/00025285SPLOG2 (dated 07/25/18) type Level I & III -- SMR Permitted Work Audit permit S1349423 (dated 03/12/18) type Level I and PRCS -- SMR Permitted Work Audit permit S1441602 (dated 8/10/19) type Level III -- SMR Permitted Work Audit permit S1423202 (dated 1/22/19) type PRCS -- SMR Permitted Work Audit permit S1425411 (dated 4/16/19) type Level III -- SMR Permitted Work Audit permit S1402263 (dated 3/21/19) type PRCS Level I - low energy Level II - hot work (new piping/structural steel/etc.)	Consider attaching copies of the actual Safe Work Permits to the audit forms.	Update the new audit form and add the requirement to attach a copy of the permit to the completed audit form.	11/15/2021

ID#	Question	Findings	Consider	Proposed Remedy	Due Date
		Level III - hot work (all hot work not covered by Level II) PRCS - permit required confined space CCHS was informed that MRC did not do any field audits of LOTO in 2020 due to a combination of being short staffed and the social distancing requirements that went into effect as a result of the pandemic.			