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Environmental Health Division

CALARP INSPECTION SUMMARY
Valero Benicia Refinery
3400 East Second Street, Benicia



Introduction:

The Solano County CUPA conducted a comprehensive Cal-ARP Audit/Inspection of Valero Benicia Refinery's safety programs, policies, and procedures. This inspection, conducted over 6 months between November 2017 and April 2018 was performed to assess compliance with the requirements of California Accidental Release Prevention (Cal-ARP) Program 4. The focus of the inspection was on Utilities that includes Electrical System, Fire Water System, Fuel-fired Packaged Boilers, Cooling Towers, Flare Stack, Waste Water Treatment, Raw Material Storage, Anhydrous Ammonia system, Aqueous Ammonia system, Sulfuric Acid System, Sulfur Recovery Unit, and molten Sulfur Loading. During this inspection Solano County spent 485 hours inspecting, preparing reviewing and documenting the inspection process with 276 hours of the inspection process onsite at Valero Benicia Refinery reviewing over 1000 pages of program documentation, conducting field audits, and interviewing 22 subject matter experts.

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Summary of Inspection Report:

OVERVIEW OF VALERO'S PROGRAM 4 IMPLEMENTATION: Via discussions with Valero personnel and review of documentation provided, Solano County CUPA verified that Valero has addressed and is implementing the Cal-ARP Program 4 requirements listed below:

- Valero has developed a work plan and increased staffing levels to complete the required Cal-ARP Program 4.
- Valero has developed a Process Hazard Analysis (PHA) development plan spreadsheet that lists planned PHA completion dates for the various refinery process units according to risk and whether the potential for a major incident could occur.
- Valero Benicia Refinery has adopted Process Safety Culture Assessment indicators and is in the process of meeting the Process Safety Culture Assessment (PSCA) requirements, by March 31, 2019.
- Valero Benicia Refinery is in the process of implementing Human Factors (HF) program requirements, which will be effective by March 31, 2019,
- Valero Benicia Refinery is in the process of implementing the Safeguard Protection Analysis (SPA) requirements, which will be effective after 2020.
- Valero Benicia Refinery is in the process of implementing the Hazard Control Analysis (HCA) requirements, which will be 50% completed by September 29, 2020, and 100% completed by September 30, 2022.
- Valero Benicia Refinery is in the process of implementing Damage Mechanism Review (DMR) requirements which will be 50% completed by September 29, 2020, and 100% completed by September 30, 2022.

Key Inspection Report Findings:

- After the May 5, 2017 incident, Valero developed a 27-item checklist to be implemented when PG&E notifies Valero they will be on a single power source
- Solano County CUPA required that Valero develop the checklist into an operating procedure that requires a Management of Change (MOC) which is a written process to manage changes in this procedure that requires both employee and management review. Valero has complied with this requirement
- Solano County CUPA found that during the May 5, 2017 incident from the power outage, the control house operator had to manually open control valves to the flare system. If this control valve would have been in open position it is possible that one of the atmospheric venting relief valves may not have vented.
- Solano County CUPA required that Valero verify that this control valve's future status will always be visible on the control board operator's screen, automatically open and verify that all similar valves operate in same manner. Valero has complied with this requirement.
- Solano County CUPA found while inspecting the Hydrocracker Unit that the Anhydrous Ammonia load-in line had a manual valve located before the pressure relief valve that was not open as required by generally recognized good engineering practices.
- Solano County CUPA directed Valero to develop protective measures to ensure that the relief valve function as designed within 30 days of signing the report for review and concurrence. Solano County CUPA has concurred with Valero's process to develop and implement protective measure to ensure all relief valves function as designed.

- Solano County CUPA verified that Valero has a process to anonymously report safety concerns that meets Program 4 requirements.
- Solano County CUPA verified that Valero has an established process to stop work and employees and contractors are aware of their right to refuse to perform a task here doing so could reasonable result in physical harm and death
- Solano County CUPA verified that in case of power outage, some refinery units can be operated on treated process water or wash water for a duration of time to provide more time to safely shutdown the unit.
- Solano County CUPA verified that raw water can be used as fire suppression water and Valero has a fire water storage pond that holds approximately 1,000,000 gallons of water.
- Solano County CUPA verified that Valero has enough boiler feed make up water to provide for extended boiler operation and to maintain adequate steam to the flares to maintain normal operations during a power outage

Additional Information:

Federal, State and Local Agencies that regulate the Valero Benicia Refinery and Their Functions:

- US EPA- for above ground storage tanks and the risk management plan program
- CA ARB and the BAAQMD- Air emissions and releases
- Cal OSHA-worker safety
- Regional Water Quality Control Board- waste water treatment plant, and releases
- Department of Toxic Substances Control- Hazardous waste disposal
- Cal Fish and Wildlife Division of Oil Spill Prevention and Response, oil spills into the water
- US Coast Guard, oil spills into the water

Information Links:

- CAL EPA created a regulatory portal for all CUPA Inspections and Chemical information from the California Environmental Reporting System where all information for all regulated facilities subject to regulatory requirements of the Unified Program in California including Valero Benicia Refinery is available at <https://siteportal.calepa.ca.gov/nsite/#>
- Solano County CUPA information is at www.solanocounty.com/depts/rm/environmental_health/hazmat/default.asp