

Safety Audit Summary

Air Products and Chemicals at Shell Martinez Refinery

110 Waterfront Road, Martinez

At Air Products and Chemicals at Track 1 Tesoro Refinery

Solano Way, Martinez

Introduction

Contra Costa Health Services (CCHS) conducted the third comprehensive audit/inspection of the safety programs, policies, and procedures developed by Air Products and Chemicals, Inc. (APCI) at Shell Martinez Refinery (AP-Shell) and at Tesoro's Golden Eagle Refinery (AP-Tesoro). This safety audit conducted in January 2007, was performed to determine compliance with the California Accidental Release Prevention (CalARP) Program and the more comprehensive Contra Costa County's Industrial Safety Ordinance (ISO) Safety Program. The prevention programs address maintenance, operating procedures, contractor safety, personnel training, incident investigations and understanding hazards at the plant. The inspection also examines the management systems in place to implement these programs and the plant's emergency response program to make sure that the plant is prepared to respond to an emergency involving a hazardous chemical.

The audit verifies that AP-Shell and AP-Tesoro plants have addressed Contra Costa County's specific requirements for managing additional safety programs beyond those already required under State and Federal regulations. These additional safety programs include:

- Effectively managing organizational changes at the facility so there is minimal impact to emergency response and operations;
- Conducting detailed incident investigations to fix the systems or safety programs that were at fault, instead of assigning blame to an employee, in order to prevent possible future similar incidents from occurring;
- Reviewing the facility's operations for signs of hidden problems that could lead to possible significant incidents. Identifying these signs and correcting them are the primary purposes of the human factors program;
- Assessing ways to improve new and existing equipment/processes to reduce the impact of the hazards and make them safer to run.

During a comprehensive safety audit, CCHS reviews individual safety programs through answering up to 480 questions. The CCHS 2007 safety audit at APCI Martinez plants resulted in 16 corrective actions for APCI to implement and 7 other items that are not required but may assist in accident prevention. Identified below is a summary of some of the findings, both good and bad, within the various safety programs. For ease of presentation, the safety programs have been grouped into three broad topics: management systems, process/equipment issues, and the County ISO requirements.

Management System

- Management Oversight: Results of Process Hazard Analysis, including the consequences that were found, safeguards and the recommendations/action items were communicated to the corresponding operation and maintenance personnel, so they will understand the consequences discussed, the safeguards in place, and additional actions being taken.
- Changes in Process and Equipment: A change tracking system was in place to manage temporary and permanent changes to equipment and procedures; however, the facility needs to review all records to show how recommendations formulated during the changes are resolved and documented. Also the facility needs to incorporate a final close out approval step with a date for all changes including the computer generated and tracked changes.
- Training: The facility has a system in place to document training of personnel, but needs to verify that training is provided at least once every three years for each employee operating a process to ensure that the employee understands and adheres to the current operating procedures of the process.
- Compliance Audit: The facility documented that completed compliance audits have been performed to verify that all CalARP programs are in place and working.
- Contractor Safety: APCI has an auditing process that periodically re-examines the contracting company's safety performance to confirm that it is acceptable, or verifies that each contract employee is sufficiently trained by the contract owner to safely perform his or her job. the contract owner to safely perform his or her job.
- Emergency Response: An emergency response plan was developed to protect workers, the public, and the environment from harm due to possible emergencies.

Process/Equipment Issues

- Mechanical Integrity: APCI has long-term contracts with engineering design firms that design the equipment for the Hydrogen process. In addition, Air Products tracks trends in equipment performance for all of their hydrogen plants worldwide to identify potential equipment problems and additional modification. Tests and inspections were performed on process equipment in accordance with their Mechanical Integrity program.
- Process/Equipment Safety Information: Safety and design information for process equipment was found to be well-documented and accessible

to personnel. e well-documented and accessible to personnel.

- Process Hazard Analysis (PHA): APCI completed the five-year update requirement to review their PHA and seismic issues within processing units on a timely basis
- Operating Procedures: The facility did not ensure that all interrelated procedures are reviewed and that gaps and overlaps are eliminated. The facility had not developed a formal schedule to convert all the procedures to the new consistent format per their policy.

Industrial Safety Ordinance (ISO)

Requirements

- The facility performed compliance audits that verified how well the ISO Safety Programs have been implemented.
- The facility management change plan did not address changes in responsibilities for maintenance programs and whether operating and emergency response procedures need to be updated accordingly associated with an organizational change.
- The facility did not ensure that human systems are properly considered in the incident investigation for Major Chemical Accidents or Releases (MCAR) and any other incident that could reasonably have resulted in an MCAR event.
- CCHS also identified deficiencies in the following: implementing reviews for signs of hidden problems that could lead to possible significant incidents within operating procedures; requiring employees to periodically review APCI's Human Factors Program to assess its effectiveness; and developing and documenting systems/design improvements to existing processes to reduce the hazard and make the process safer.

Next Steps

The results of the entire safety audit are now available for review and CCHS is looking to receive public comments. Written comments should be sent via email to ARPTeam@hsd.cccounty.us or addressed to Contra Costa Health Services Hazardous Materials Programs, c/o Randy Sawyer, 4333 Pacheco Blvd. Martinez, CA 94553. CCHS will respond to all written comments. Check CCHS website (cchealth.org) for comment period.

Additional Information

For more information, call 925-646-2930 or logon to the CCHS website: cchealth.org. To review the complete safety audit report, visit the Martinez Library at 740 Court Street, Martinez, CA 94553 or call 925-646-2286 for an appointment to view the report at CCHS' office.