Annual Performance Review and Evaluation Report

December 5, 2006

By Contra Costa Health Services
Hazardous Materials Programs
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The main goal of the Industrial Safety Ordinance is to prevent chemical accidents from occurring that could have a detrimental impact to the community surrounding chemical facilities and petroleum refineries. This is accomplished by requiring the regulated facilities to implement a safety program that is designed to be the most stringent in the United States, if not the world. The Industrial Safety Ordinance is designed to include participation from all of the stakeholders, including industry, agencies, elected officials, and the public.

PUBLIC PARTICIPATION
The Hazardous Materials Program has a very strong public outreach process and is constantly looking at ways to improve this process. The following items were implemented this year based on recommendations from interested stakeholders:

- Public meeting to be held with existing venues
  - General Chemical Audit Findings Presentation to the Bay Point Latino Community with other like organizations – over 100 people attended
  - General Chemical Audit Findings Presentation in cooperation with the Bay Point Municipal Advisory Committee – 40 people attended
  - Shell Oil, Tesoro Golden Eagle Refinery, and Air Products facilities at the Shell Refinery and the Golden Eagle Refinery Presentations at the Martinez Farmer’s Market and Italian Festival
- Audit findings given in easily read format in both English and Spanish
- Information on regulated businesses in an easily read format in English and Spanish
- Industrial Safety Ordinance Information Sheet in English and Spanish

AUDITS
Audits of the regulated businesses are required at least once every three years to ensure that the facilities have the required programs in place and are implementing the programs. The audits that were completed this year are:

- Tesoro Golden Eagle Refinery – November 2005
- General Chemical Richmond Works – July 2006
- ConocoPhillips Rodeo Refinery – September 2006
- Shell Martinez Refinery – November 2006

GENERAL CHEMICAL BAY POINT WORKS
The Accidental Release Prevention Program Engineers inspected General Chemical Bay Point Plant and met with the representatives of that site monthly. This was done because of the poor results of implementing the required programs under the Industrial Safety Ordinance. The meetings and inspections help to ensure that General Chemical does implement the required programs.
MAJOR CHEMICAL ACCIDENTS
AND RELEASES
Another measure of the effectiveness of the Industrial Safety Ordinance is by the number and severity of the Major Chemical Accidents and Releases that have occurred. Since the last report to the Board there has been four Major Chemical Accidents and Releases. Three of the releases are considered minor while the fourth release is considered medium. The medium release occurred at the General Chemical Richmond Works plant when there was a release of sulfur dioxide and sulfur trioxide that required contract workers at the Chevron Richmond Refinery to seek medical attention.

INDUSTRIAL SAFETY ORDINANCE
AMENDMENTS
The Board approved amendments to the Industrial Safety Ordinance in June that will strengthen the required Safety Programs at the regulated businesses. The amendments include:
• Expanding the Human Factors Programs to include maintenance operations
• Conduction a management of Organization change for temporary changes exceeding 90 days
• Increasing the regulated businesses’ security by requiring a Security and Vulnerability Analysis to be done and re-evaluated at least every 5 years
• Improve the overall safety at these sites by requiring a Safety Culture Assessment.

CONCLUSION
The number and severity of the Major Chemical Accidents and Releases have been decreasing since the implementation of Industrial Safety Ordinance. The implementation of the Industrial Safety Ordinance has improved and, in most cases, being done as required by the ordinance. It is believed that by continuing the implementation of the Industrial Safety Ordinance and strengthening the requirements of the Ordinance that the possibility of accidents that could impact the community is decreased.
The Board of Supervisors passed the Industrial Safety Ordinance because of accidents that have occurred at the oil refineries and chemical plants in Contra Costa County. The effective date of the Industrial Safety Ordinance was January 15, 1999. The ordinance applies to oil refineries and chemical plants with specified North American Industry Classification System (NAICS) codes, that were required to submit a Risk Management Plan to the U.S. EPA and are a program level 3 stationary sources as defined by the California Accidental Release Prevention (CalARP) Program. The ordinance specifies the following:

- Stationary sources had one year to submit a Safety Plan to Contra Costa Health Services stating how the stationary source is complying with the ordinance, except the Human Factors portion (completed January 15, 2000)
- Contra Costa Health Services develop a Human Factors Guidance Document (completed January 15, 2000)
- Stationary sources had one year to comply with the requirements of the Human Factor Guidance Document that was developed by Contra Costa Health Services (completed January 15, 2001)
- For major chemical accidents or releases, the stationary sources are required to perform a root cause analysis as part of their incident investigations (ongoing)
- Contra Costa Health Services may perform their own incident investigation, including a root cause analysis (ongoing)
- All of the processes at the stationary source are covered as program level 3 processes as defined by the California Accidental Release Prevention Program
- The stationary sources are required to consider Inherently Safer Systems for new processes or facilities or for mitigations resulting from a process hazard analysis
- Contra Costa Health Services will review all of the submitted Safety Plans and audit/inspect all of the stationary source’s Safety Programs within one year of the receipt of the Safety Plans (completed January 15, 2001) and every three years after the initial audit/inspection (ongoing)

Six stationary sources that are now covered by the Industrial Safety Ordinance are:

- Air Products at the Shell Martinez Refining Company
- Air Products at the Tesoro Golden Eagle Refinery
- Shell Martinez Refining Company
- General Chemical West in Bay Point
- ConocoPhillips Rodeo Refinery
- Tesoro Golden Eagle Refinery

Contra Costa Health Services completed and issued the Contra Costa County Safety Program Guidance Document on January 15, 2000. The stationary sources were required to comply with the Human Factors section of this guidance document by January 15, 2001.
Contra Costa Health Services has reviewed all of the Safety Plans submitted to the department and are now in the process of completing the third round of audits for all of the stationary sources as required by the ordinance. In addition, Contra Costa Health Services has performed a specialized audit for all the stationary sources for their human factors programs and for Inherently Safer Systems completed in 2002. The status of the reviews and audits are discussed within the report.

ANNUAL PERFORMANCE REVIEW AND EVALUATION REPORT

The Industrial Safety Ordinance specified that the contents of the annual performance review and evaluation report contain the following:

1) A brief description of how Health Services is meeting the requirements of the ordinance as follows:
   a) Effectiveness of the Department’s program to ensure stationary source’s compliance with the ordinance
   b) Effectiveness of the procedures for records management
   c) Number and type of audits and inspections conducted by Health Services as required by the ordinance
   d) Number of root cause analyses and/or incident investigations conducted by Health Services
   e) Health Services process for public participation
   f) Effectiveness of the Public Information Bank
   g) Effectiveness of the Hazardous Materials Ombudsperson
   h) Other required program elements necessary to implement and manage the ordinance

2) A listing of stationary sources covered by the ordinance, including for each:
   a) The status of the stationary source’s Safety Plan and Program
   b) A summary of all stationary sources’ Safety Plan updates and a listing of where the Safety Plans are publicly available
   c) The annual accident history report submitted by the regulated stationary sources and required by the ordinance
   d) A summary, including the status, of any root cause analyses and incident investigations conducted or being conducted by the stationary sources and required by the ordinance, including the status of implementation of recommendations
   e) A summary, including the status, of any audits, inspections, root cause analyses and/or incident investigations conducted by Health Services, including the status for implementing the recommendations
   f) Description of inherently safer systems implemented by the regulated stationary source
   g) Legal enforcement actions initiated by Health Services, including administrative, civil, and criminal actions

3) Total penalties assessed as a result of enforcement of the ordinance

4) Total fees, service charges, and other assessments collected specifically for the support of the ordinance

5) Total personnel and personnel years used by the jurisdiction to directly implement or administer the ordinance

6) Comments from interested parties regarding the effectiveness of the local program that raise public safety issues

7) The impact of the ordinance in improving industrial safety
EFFECTIVENESS OF CONTRA COSTA HEALTH SERVICES’ IMPLEMENTATION OF THE INDUSTRIAL SAFETY ORDINANCE

Health Services has developed policies, procedures, protocols, and questionnaires to implement both the California Accidental Release Prevention Program and the Industrial Safety Ordinance. These policies, procedures, protocols, and questionnaires for these programs are listed below:

- Audits/Inspections Policy
- Conducting the RMP/Safety Plan Completeness Review Protocol
- RMP Completeness Review Questionnaires
- Safety Plan Completeness Review Questionnaires
- Conducting Audits/Inspections Protocol
- Safe Work Practices Questionnaires
- CalARP Program Audit Questionnaires
- Safety Program Audit Questionnaires
- Conducting Employee Interviews Protocol
- Employee Interview Questionnaires
- Public Participation Policy
- Dispute Resolution Policy
- Reclassification Policy
- Covered Process Modification Policy
- CalARP Internal Performance Audit Policy
- Conducting the Internal Performance Audit
- CalARP Internal Audit Performance Audit Submission
- Fee Policy
- Notification Policy
- Unannounced Inspection Policy
- Risk Management Plan Public Review Policy

Health Services has developed the Contra Costa County CalARP Program Guidance Document and the Contra Costa County Safety Program Guidance Document. These documents give guidance to the stationary sources for complying with the Industrial Safety Ordinance. The policies, procedures, protocols, and questionnaires, are available through Health Services. The guidance documents can be downloaded through Health Services Website: http://www.cchealth.org/groups/hazmat/industrial_safety_ordinance_guidance.php

EFFECTIVENESS OF THE PROCEDURES FOR RECORDS MANAGEMENT

Health Services has setup hard copy and computer files for each of the stationary sources. The files include the following folders:

- Annual status reports
- Audits & Inspections
- Communications
- Completeness Review
- Emergency Response
- Incident Investigation
- Trade Secret Information

The paper files for the stationary sources are kept in a central location. The Accidental Release Prevention Program has a file setup on the Health Services Network where the files for each of the different stationary sources are found and are accessible to each of the Accidental Release Prevention Program Engineers and the Program Director. The Accidental Release Prevention Program files also contain regulations, policies, information from the U.S. EPA, the Governor’s Office of Emergency Services, the Chemical Safety and Hazards Investigation Board, and other information pertinent to the engineers. The risk management and safety plans received are kept at two different Health Services locations: the Hazardous Materials Program Offices and the Accidental Release Prevention Program Offices.
NUMBER AND TYPE OF AUDITS AND INSPECTIONS CONDUCTED

Health Services was required to audit and inspect all seven (currently six) regulated stationary sources that were required to comply with the Industrial Safety Ordinance within one year after the initial submittal of their Safety Plans. Health Services reviewed all of the Safety Plans and audited/inspected all of the stationary sources’ Safety Programs within that year (2000). Health Services performed focused audits of the stationary sources for their Human Factors Programs (this was not included in the original audit/inspection, since the stationary sources were not required to have their Human Factor Program in place until January 2001) and Inherently Safer Systems in 2001 and 2002. Additional focused audits were performed to look at how two stationary sources would manage the organizational change in case there was a strike and non-striking personnel were used instead of the striking personnel (2002). Health Services has completed the second round of audits for all of the Industrial Safety Ordinance stationary sources in 2003 and 2004 and began a third round of audits in Fall 2005, which will be completed in the Spring of 2007.

When Health Services reviews a Safety Plan, a Notice of Deficiencies is produced that documents what changes to their Safety Plan a stationary source are required to make before Health Services determines that the Safety Plan is complete. The stationary source has sixty to ninety days to respond to the Notice of Deficiencies. When the stationary source has responded to this Notice of Deficiencies, Health Services will review the response. Health Services will either determine that the Safety Plan is complete or will work with the stationary source, until the Safety Plan is determined to be complete. When the Safety Plan is deemed complete, Health Services will open a public comment period on the Safety Plan and will present the plan in a public meeting or venue. Health Services will respond to all written comments in writing and when appropriate use the comments in the audit/inspection of the regulated stationary sources.

Health Services will issue Preliminary Audit Findings after an audit/inspection is complete. The stationary source will have ninety days to respond to these findings. Health Services will review the response from the stationary source on the Preliminary Audit Findings. When the stationary source has developed an action plan to come into compliance with the regulations, Health Services will issue the Preliminary Audit Findings for public comment and will present the findings in a public meeting or venue. Health Services will consider any public comments that were received during the public comment period and if appropriate will revise the Preliminary Audit Findings. When this is complete, Health Services will issue the Final Audit Findings and will respond in writing to any written public comments received. Table I lists the status of Health Services review of the different stationary sources Safety Plans and audit and inspections of their Safety Programs.
<table>
<thead>
<tr>
<th>Business Name</th>
<th>Safety Plan (SP) Received</th>
<th>Notice of Deficiencies (NOD) Issued</th>
<th>Safety Plan Complete</th>
<th>SP Public Meeting Date</th>
<th>Audit/Inspection</th>
<th>Audit Public Meeting</th>
<th>Human Factors (HF) Update to SP</th>
<th>NOD Issued - HFSP Determined Complete</th>
<th>HF Audit/Inspection</th>
<th>HF Audit Public Meeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Products - Shell</td>
<td>1/14/00 6/26/03 7/26/06</td>
<td>6/15/00</td>
<td>8/30/00</td>
<td>9/13/00 5/8/03</td>
<td>11/22/00 2/27/04</td>
<td>5/8/03 9/24/06</td>
<td>1/16/01 5/10/01 6/19/01 5/3/02</td>
<td>5/8/03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Products - Tesoro</td>
<td>1/14/00 6/26/03 7/26/06</td>
<td>6/15/00</td>
<td>8/30/00</td>
<td>9/13/00 5/6/03</td>
<td>11/22/00 2/27/04</td>
<td>5/6/03 9/24/06</td>
<td>1/16/01 5/10/01 6/19/01 5/3/02</td>
<td>5/6/03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Chemical/Bay Pt. Works</td>
<td>1/14/00 12/10/03</td>
<td>6/12/00</td>
<td>12/20/00 3/17/04</td>
<td>1/2/01 5/1/03 11/16/05</td>
<td>8/11/00 6/20/03 8/29/05</td>
<td>1/2/01 11/16/05 1/31/06</td>
<td>1/15/01 7/23/01 11/6/01 5/20/02</td>
<td>5/1/03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ConocoPhillips - Rodeo</td>
<td>1/15/00 8/10/05 3/28/06</td>
<td>3/14/00</td>
<td>5/30/00 8/9/02</td>
<td>6/15/00 4/9/02</td>
<td>6/30/00 8/1/03 8/15/06</td>
<td>4/9/02 6/22/04 7/8/04</td>
<td>1/12/01 9/10/01 3/18/02 11/5/01</td>
<td>4/9/02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shell Martinez Refinery</td>
<td>1/14/00 7/22/02 1/11/06</td>
<td>7/19/00</td>
<td>4/9/01 11/2/06*</td>
<td>5/8/03 9/24/06</td>
<td>10/31/00 11/26/04 10/23/06</td>
<td>5/8/03 9/24/06</td>
<td>1/16/01 11/9/01 1/3/02 4/29/02</td>
<td>5/8/03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tesoro Golden Eagle Refinery</td>
<td>1/14/00 6/21/02</td>
<td>8/16/00</td>
<td>1/31/01 6/21/03</td>
<td>5/6/03 9/15/00</td>
<td>5/6/03 5/6/03 9/24/06</td>
<td>1/12/01 9/18/01 12/14/01 12/3/01</td>
<td>5/6/03</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*complete at end of public comment period
NUMBER OF ROOT CAUSE ANALYSES AND/OR INCIDENT INVESTIGATIONS CONDUCTED BY HEALTH SERVICES

Health Services has not performed any incident investigations, including a root cause analysis within the last year. Health Services has reviewed the reports submitted to the department and has commented and requested additional information on the stationary sources’ own incident investigations and root cause analyses for Major Chemical Accidents or Releases. A listing of the Major Chemical Accidents or Releases can be found on the Health Services website at the following address: http://www.cchealth.org/groups/hazmat/accident_history.php. This list of accidents includes accidents that occurred prior to the adoption of the Industrial Safety Ordinance.

HEALTH SERVICES PROCESS FOR PUBLIC PARTICIPATION

Health Services, in 2005, worked with the community in developing material that would describe the Industrial Safety Ordinance using a number of different approaches. The approaches include a display board describing the Industrial Safety Ordinance, fact sheets and one-page summaries of audit findings on the stationary sources that are regulated by the Industrial Safety Ordinance, Industrial Safety Ordinance webpage information, a Spanish and English video on performing Hazardous Materials Programs inspection, including the Industrial Safety Ordinance, and a Spanish and English translation of a comic strip introducing the “ISO Four.” Examples of this information are included in Attachment A. The community representatives suggested that Health Services look at venues that the Health Services’ Preliminary Audit Findings and the stationary source’s Safety Plans can be presented and input from the community can be received. Stand-alone meetings have not been successful. Health Services created a venue where presentations were done on the Industrial Safety Ordinance, Community Warning System, Contra Costa County CAER Group, Integrated Pest Management, Household Hazardous Waste, and Citizens Emergency Response Team (CERT) in Spanish to the Bay Point Latino Community on November 16, 2005. Over one hundred people attended this event. A second Spanish presentation was given on November 8, 2006 to the Bay Point Latino Community and over 25 People attended.

The Shell Martinez Oil Refinery, Tesoro Golden Eagle Refinery, and Air Products at the Shell and Tesoro Refineries’ Preliminary Audit Findings were presented to the community at the Martinez Farmer’s Market and Italian Festival held on September 24, 2006 in downtown Martinez. Many people stopped by and asked questions on the Hazardous Materials Programs and the Industrial Safety Ordinance and looked through the audit findings of the four facilities listed above. This venue worked well in providing the information to the community.

EFFECTIVENESS OF THE PUBLIC INFORMATION BANK

The Hazardous Materials Programs section of Health Services Website http://www.cchealth.org/groups/hazmat/ include the following information:

- Industrial Safety Ordinance
  - Description of covered facilities
  - Risk Management Chapter Discussion
    - Copy of the ordinance
  - Land Use Permit Chapter Discussion
    - Copy of the ordinance
**Effectiveness of the Hazardous Materials Ombudsman**

The Board of Supervisors created the Hazardous Materials Ombudsman position in 1997. This position was filled in April 1998. The Board believed that the ombudsman would be a conduit for the public to express their concerns about how Hazardous Materials Programs personnel are performing their duties. Attachment B is a report from the Hazardous Materials Ombudsman on the effectiveness of the position.
OTHER REQUIRED PROGRAM ELEMENTS NECESSARY TO IMPLEMENT AND MANAGE THE INDUSTRIAL SAFETY ORDINANCE

The California Accidental Release Prevention (CalARP) Program is administered by Contra Costa Health Services. The Industrial Safety Ordinance expands on this program. Stationary Sources are required to submit a Risk Management Plan to Health Services that is similar to the Safety Plans that are submitted. Health Services reviews these Risk Management Plans and performs the CalARP Program audit simultaneously with the Industrial Safety Ordinance audit.

Health Services performs Unannounced Inspections of the stationary sources that are part of the CalARP Program and are also required to submit a Risk Management Plan to the U.S. EPA. These inspections look at a focused portion of the CalARP Program or Industrial Safety Ordinance requirements, as well as elements from the other Hazardous Materials Programs.
THE STATUS OF THE REGULATED STATIONARY SOURCES’ SAFETY PLANS AND PROGRAMS
All of the stationary sources that are regulated by the Industrial Safety Ordinance were required to submit their Safety Plans to Health Services by January 15, 2000 and to have their Safety Programs completed and implemented. The stationary sources were also required to have a Human Factors Program in place that follows the County’s Safety Program Guidance Document by January 15, 2001. The status of each of the regulated stationary sources is given in Table I and includes the following:

- When the latest updated Safety Plan was submitted
- When the Notice of Deficiencies were issued
- When the plan was determined to be complete by Health Services
- When the public meeting was held on the Safety Plan
- When the audits were complete
- When the public meetings were held on the preliminary audit findings
- When the Human Factors to the Safety Plan were revised
- When the Notice of Deficiencies were issued for the Human Factors revised Safety Plan
- When the Human Factors Safety Plan was determined to be complete
- When the Audit/Inspection was completed
- When the Human Factors Audit Findings Audit preliminary findings Public Meeting was held

LOCATIONS OF THE REGULATED STATIONARY SOURCES SAFETY PLANS
Each of the regulated stationary sources was required to submit their Safety Plan to Health Services on January 15, 2000 and an updated Safety Plan that includes the implementation of the stationary source’s Human Factors Program by January 15, 2001. These plans are available for public review at the Hazardous Materials Programs Offices at 4333 Pacheco Blvd., Martinez. When Health Services determines that the Safety Plan is complete and prior to going out for a forty-five day public comment period, Health Services will place the plan in the library(ies) closest to the regulated stationary source. Below in Table II is a listing of the regulated stationary sources with the location of each of their Safety Plans.
<table>
<thead>
<tr>
<th>Regulated Stationary Source</th>
<th>Location 1</th>
<th>Location 2</th>
<th>Location 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Products at Shell</td>
<td>Hazardous Materials Programs Office</td>
<td>Martinez Public Library</td>
<td></td>
</tr>
<tr>
<td>Air Products at Tesoro</td>
<td>Hazardous Materials Programs Office</td>
<td>Martinez Public Library</td>
<td></td>
</tr>
<tr>
<td>Shell Refining – Martinez</td>
<td>Hazardous Materials Programs Office</td>
<td>Martinez Public Library</td>
<td></td>
</tr>
<tr>
<td>General Chemical West</td>
<td>Hazardous Materials Programs Office</td>
<td>Bay Point Public Library</td>
<td></td>
</tr>
<tr>
<td>Bay Point Works</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ConocoPhillips Rodeo Refinery</td>
<td>Hazardous Materials Programs Office</td>
<td>Rodeo Public Library</td>
<td>Crockett Public Library</td>
</tr>
<tr>
<td>Tesoro Golden Eagle Refinery</td>
<td>Hazardous Materials Programs Office</td>
<td>Martinez Public Library</td>
<td></td>
</tr>
</tbody>
</table>
### TABLE III
**INHERENTLY SAFER SYSTEMS**

<table>
<thead>
<tr>
<th>Regulated Stationary Source</th>
<th>Inherently Safer System Implemented</th>
<th>Design Strategy</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Products at the Shell Martinez Refinery</td>
<td>No new inherently safer systems implemented</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Products – Tesoro</td>
<td>No new inherently safer systems implemented</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ConocoPhillips Rodeo Refinery</td>
<td>Reduction of inventory (three times)</td>
<td>Inherent</td>
<td>Minimization</td>
</tr>
<tr>
<td></td>
<td>Simplifying the process (once)</td>
<td>Inherent</td>
<td>Simplify</td>
</tr>
<tr>
<td></td>
<td>Revised equipment design features (once)</td>
<td>Passive</td>
<td>Minimization</td>
</tr>
<tr>
<td>General Chemical West Bay Point Works</td>
<td>No new inherently safer systems implemented</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shell Martinez Refinery</td>
<td>Reduction of inventory by elimination of dead leg (once)</td>
<td>Inherent</td>
<td>Minimization</td>
</tr>
<tr>
<td></td>
<td>Dead leg removal (four times)</td>
<td>Inherent</td>
<td>Simplify</td>
</tr>
<tr>
<td>Tesoro Golden Eagle Refinery</td>
<td>Remove out of service or unnecessary equipment or piping (four separate times)</td>
<td>Inherent</td>
<td>Simplify</td>
</tr>
<tr>
<td></td>
<td>Improved capacity, temperature, and/overpressure design rating of equipment (three separate times)</td>
<td>Passive</td>
<td>Simplify</td>
</tr>
<tr>
<td></td>
<td>Reduced potential of a hazard or the frequency by changing design features, and/or installation of blinds (eight separate times)</td>
<td>Passive</td>
<td>Simplify</td>
</tr>
<tr>
<td></td>
<td>Reduced the potential of a hazard by eliminating the hazard or moving to an alternate location (two separate times)</td>
<td>Passive</td>
<td>Moderate</td>
</tr>
</tbody>
</table>
The Industrial Safety Ordinance requires the regulated stationary sources to do an incident investigation with a root cause analysis for each of the major chemical accidents or releases as defined by the following: “Major Chemical Accident or Release means an incident that meets the definition of a Level 3 or Level 2 incident in the Community Warning System incident level classification system defined in the Hazardous Materials Incident Notification Policy, as determined by Contra Costa Health Services; or results in the of a regulated substance and meets one or more of the following criteria:

1. Results in one or more fatalities
2. Results in greater than 24 hours of hospital treatment of three or more persons
3. Causes on and/or off-site property damage (including clean-up and restoration activities) initially estimated at $500,000 or more. On-site estimates shall be performed by the regulated stationary source. Off-site estimates shall be performed by appropriate agencies and compiled by Health Service
4. Results in a vapor cloud of flammables and/or combustibles that is more than 5,000 pounds

The regulated stationary source is required to submit a report to Health Services thirty days after the root cause analysis is complete. The record of the major chemical accidents or releases that have occurred within the last year and the status of each of these incidents investigations are included in Table IV.
## Major Chemical or Accidental Release List

<table>
<thead>
<tr>
<th>Regulated Facility</th>
<th>Date of MCAR</th>
<th>Level</th>
<th>MCAR Description</th>
<th>Onsite Impact</th>
<th>Offsite Impact</th>
<th>Date RCA Submitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhodia</td>
<td>7/26/2006</td>
<td>2</td>
<td>Rhodia Inc. Martinez Plant (Rhodia) located at 100 Mococo Road in Martinez, reported via the Community Warning System a release of ammonia gas from their sulfur dioxide pollution control device stack at approximately 7:50 a.m. on Wednesday, July 26. The notification was issued as a public health advisory (a Level 2 incident). It was not a Level 3 Shelter-in-Place because the white cloud release was confined to the Rhodia site and it was not expected to be a public health hazard. Rhodia officials did not report any injuries associated with this event. The facility had to replace the stainless steel piping associated with the ammonia flow transmitter system.</td>
<td>None</td>
<td></td>
<td>72-hr report only, RCA not required</td>
</tr>
<tr>
<td>General Chemical - Richmond</td>
<td>6/23/2006</td>
<td>Med</td>
<td>The main turbine tripped and the shutdown interlock on the combustion air blower did not work correctly, so the blower pressured up the upstream side of the system which is normally under a vacuum. The plant shutdown.</td>
<td>The plant shutdown.</td>
<td>Four Chevron employees were exposed. No other public appears to be affected. Wind at the time of the release was blowing towards Chevron.</td>
<td></td>
</tr>
<tr>
<td>ConocoPhillips</td>
<td>5/1/2006</td>
<td>3</td>
<td>Cogeneration Turbine &quot;C&quot; tripped off. The electrical systems powered from the generator lost power resulting in the shutdown of some units including the wet gas recovery compressor which is believed to have resulted in liquid to the flare system which caused the flare gas recovery compressor to shutdown which resulted in the flaring event. The steam system slumped due to the loss of the &quot;C&quot; turbine which resulted in lower that desired steam to the flare tip resulting in some incomplete combustion or a &quot;smokey&quot; flare.</td>
<td>Some units shutdown</td>
<td>Smokey Flare for about 10 to 15 minutes</td>
<td></td>
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<tr>
<td>Regulated Facility</td>
<td>Date of MCAR</td>
<td>Level</td>
<td>MCAR Description</td>
<td>Onsite Impact</td>
<td>Offsite Impact</td>
<td>Date RCA Submitted</td>
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<tr>
<td>Shell Oil Products U.S. Martinez Refinery</td>
<td>3/26/2006 (Minor)</td>
<td>3</td>
<td>At 4:15pm, on Sunday 3/26/06, Shell Martinez Refinery reported via the Community Warning System a release of sulfur dioxide gas from the stack of Sulfur Recovery Plant #3 (SRU#3). The notification was issued as a Shelter-In-Place event. Community Warning System sirens were sounded. Shell identified the release as a Shelter-In-Place because a visible plume was seen drifting across Shell Avenue and facility personnel at the time believed the plume could pose a health hazard. Refinery officials did not report any injuries associated with this event. Refinery officials did not report any visible external damage to equipment. There may have been elevated temperatures in one of the catalyst beds that resulted in producing sulfur dioxide gas. CCHS Hazardous Materials did not receive word of any injuries or offsite impacts associated with this release. Following the notification, Hazardous Materials Program staff responded to the incident within ten minutes by assessing the area around the refinery. Hand held monitoring equipment did not detect any sulfur dioxide or hydrogen sulfide. A slight sulfur dioxide odor was detected at Shell Avenue and Marina Vista. Feed to the process was shut off which quickly stopped the visible pluming. TENS zones 3 and 2 were activated. Visible pluming stopped within 15 minutes. Shell Avenue was closed for 25 minutes. Shell downgraded the event to a CWS Level 0 within 40 minutes after the event started.</td>
<td>Shutdown SRU#3 briefly to assess for damage, found none, then returned to normal operation.</td>
<td>Visible plume released from SRU#3 stack. Level 3 called with sirens and TENS activated. Pluming stopped in 15 minutes.</td>
<td>8/8/2006</td>
</tr>
<tr>
<td>Tesoro Golden Eagle Refinery</td>
<td>3/24/2006 (Minor)</td>
<td>2</td>
<td>Fire at #2 HDS at the F-20 furnace outlet piping at 15:38 hrs. Operations personnel shut down unit and activated fire monitors on the unit. Flange failure led to fire and unit shut down.</td>
<td>No community complaints were received by BAAQMD</td>
<td>Pending</td>
<td></td>
</tr>
<tr>
<td>Regulated Facility</td>
<td>Date of MCAR</td>
<td>Level</td>
<td>MCAR Description</td>
<td>Onsite Impact</td>
<td>Offsite Impact</td>
<td>Date RCA Submitted</td>
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<tr>
<td>Shell Oil Products U.S. Martinez Refinery</td>
<td>11/8/2005 (Med)</td>
<td>2</td>
<td>At the FCC Unit, a 1 to 2 foot diameter slurry filter was taken off line to clean the filter. While the maintenance team was in the process of placing the clean filter back in the filter unit or housing, they noticed a small leak through the block valve, which quickly became big, and one person was not able to vacate fast enough, the material jet was approximately 200 feet in the air. The event started on 11/8/05 at about 8:24 pm. It was downgraded to a level 0 at about 2:54 am on 11/9/05. The event took so long to get under control because the liquid was hot, about 700F at 80 psig. One contractor was sent to San Pablo Medical Center with 1st, 2nd, and 3rd degree burns on head on arm. 150 barrels of material was released and comprised of cat cracked slurry oil (heavy, dark oil) and lighter flushing oil (diesel type). Slurry oil comprised about 1% of total material. No hydrocarbon or H2S was observed in facility air samples. Some flaring occurred and resulted in estimates of 62.6 lbs SO2 and 0.9 lbs NOx from the flare system. Estimates of oil/slurry quantity released still being determined. Oil droplets were observed on cars and pavement southwest of the refinery. Approximately 3000 insurance claims from community members have been filed as of the 30-day report. Preliminary discussions indicate that the parallel second filter or spare was on line. There are flanges in the system, but a blind flange was not used to block in the slurry filter; only a single block valve was used.</td>
<td>One contractor was injured with burns to head and arm. No fire occurred. Some flaring occurred, Oil and catalyst slurry spray residue coated neighboring equipment and took days to clean up. Oil/catalyst slurry mist coated vehicles and pavement southwest of the refinery. No offsite injuries reported. Approximately 150 gallons of total material was estimated to travel offsite.</td>
<td>3/16/2006</td>
<td></td>
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<tr>
<td>Tesoro Golden Eagle Refinery</td>
<td>10/26/2005 (Minor)</td>
<td>2</td>
<td>Partial power outage at the refinery around midnight and early morning hours, resulted in upset and flaring at the Chemical Plant. Power outage lead to ammonia recovery unit shutdown to reduce acid gas load to sulfur plant.</td>
<td>A plume was visible from off-site and potentially contained Sulfur Dioxide. Odor patrol from Tesoro was in the Clyde area and reported no odor impact. Ground Level Monitors did not detect any sulfur dioxide or hydrogen sulfide.</td>
<td>4/13/2006</td>
<td></td>
</tr>
</tbody>
</table>
MAJOR CHEMICAL ACCIDENTS AND RELEASES
Health Services has analyzed the Major Chemical Accidents and Releases (MCAR) that have occurred since the implementation of the Industrial Safety Ordinance. The analysis includes the number of MCAR’s and the severity of the MCAR’s. Three different levels of severity were assigned:

- **Serious** – A fatality, serious injuries, or major onsite and/or offsite damage occurred
- **Medium** – An impact to the community occurred, or if the situation was slightly different the accident may have been considered major, or there is a recurring type of incident at that facility
- **Minor** – A release where there was no or minor injuries, the release had no or slight impact to the community, or there was no or minor onsite damage

Below are charts showing the number of MCAR’s from January 1999 through September 2006 for all stationary sources in Contra Costa County MCAR’s, the MCAR’s that have occurred at the County Industrial Safety Ordinance stationary sources, and a chart showing the MCAR’s that have occurred at the County and the City of Richmond Industrial Safety Ordinance stationary sources. The charts also show the number of serious, medium, and minor MCAR’s for this period. NOTE: The charts do not include any transportation MCAR’s that have occurred.
LEGAL ENFORCEMENT ACTIONS INITIATED BY HEALTH SERVICES
As part of the enforcement of the Industrial Safety Ordinance and the CalARP Program, Health Services issues Notice of Deficiencies on the Safety and Risk Management Plans and issues Audit Findings on what a stationary source is required to change to come into compliance with the regulations. Table I shows the action that has been taken by Health Services. Health Services has not taken any action through the District Attorney’s Office for noncompliance with the requirements of the Industrial Safety Ordinance.
PENALTIES ASSESSED AS A RESULT OF ENFORCEMENT
No penalties have been assessed this year for noncompliance with the Industrial Safety Ordinance.

TOTAL FEES, SERVICE CHARGES, AND OTHER ASSESSMENTS COLLECTED SPECIFICALLY FOR THE INDUSTRIAL SAFETY ORDINANCE
The fees charged for the Industrial Safety Ordinance are to cover the time that the Accidental Release Prevention Engineers use to enforce the ordinance, the position of the Hazardous Materials Ombudsman, outreach material, and to cover a portion of the overhead for the Hazardous Materials Programs. The fees charged for administering this ordinance for the fiscal year 2006 – 2007 is $320,959.

TOTAL PERSONNEL AND PERSONNEL YEARS USED BY HEALTH SERVICES TO IMPLEMENT THE INDUSTRIAL SAFETY ORDINANCE
The Accidental Release Prevention Programs Engineers have reviewed resubmitted Safety Plans, prepared and presented information for public meetings, performed audits of the stationary sources for compliance with both the California Accidental Release Prevention Program and Industrial Safety Ordinance and did follow-up work after a Major Chemical Accident or Release. The following is a breakdown of the time that was spent on the Industrial Safety Ordinance:

- Accidental Release Prevention Programs Engineers Time: 838 personnel hours or .42 personnel years
  - Three ISO/CalARP Program audits were done in 2006. It takes four or five engineers four weeks to perform an ISO/CalARP Program audit for a total of 640 or 800 hours per audit. Approximately 1/3 of the time is dedicated to the Industrial Safety Ordinance for a total of 213 or 267 hours per audit for a total of 693 hours.
  - Follow-up work to audits –30 hours
  - It took approximately forty hours to prepare and hold public presentation at the Martinez Farmer’s Market and Italian Festival and another forty hours for the presentation to the Bay Point Latino Community and the Bay Point MAC.
  - Review and meeting with stationary sources on Root Cause Analysis Reports took approximately 20 hours.
  - Reviewing information for the website 15 hours.

- Health Services Communications Office in preparing material for presentations and public meetings total approximately 500 personnel hours or 0.25 personnel years
- Unannounced Inspections approximately
40 personnel hours on the Industrial Safety Ordinance or 0.02 personnel years
- Total of 1378 hours is the approximate personnel time spent on the Industrial Safety Ordinance or 0.69 personnel years.

This is not including the ombudsman time spent helping prepare for the public meetings, working with the engineers on questions arising from the Industrial Safety Ordinance, and answering questions from the public on the Industrial Safety Ordinance.

COMMENTS FROM INTERESTED PARTIES REGARDING THE EFFECTIVENESS OF THE INDUSTRIAL SAFETY ORDINANCE

Comments and questions were raised from the public comment period. Some of the comments and questions were for stationary sources that are covered by the Richmond Industrial Safety Ordinance. Attachment C is a copy of the questions and comments that were received and Health Services response to these questions and comments.

THE IMPACT OF THE INDUSTRIAL SAFETY ORDINANCE ON IMPROVING INDUSTRIAL SAFETY

Four programs are in place to reduce the potential of an accidental release from a regulated stationary source that could impact the surrounding community. The four programs are the Process Safety Management Program administered by Cal/OSHA, the federal Accidental Release Prevention Program administered by the U.S. EPA, the California Accidental Release Prevention Program administered by Health Services, and the Industrial Safety Ordinance administered by Health Services. Each of the programs is very similar with the Industrial Safety Ordinance being the most stringent. The prevention elements of the program level 3 regulated stationary sources under the federal Accidental Release Prevention Program is identical to the Process Safety Management Program. The main differences between the federal Accidental Release Prevention and the CalARP Programs are as follows:

- The number of chemicals regulated
- The threshold quantity of these chemicals
- An external events analysis, including seismic and security and vulnerability analysis, is required
- Additional information in the Risk Management Plan
- Health Services is required to audit and inspect stationary sources at least once every three years
- The interaction required between the stationary source and Health Services.

The differences between the CalARP and the Industrial Safety Ordinance Safety Programs are as follows:

- Stationary sources are required to include a root cause analysis with the incident investigations for Major Chemical Accidents or Releases
- The stationary sources are required to consider inherently safer practices
- All of the process at the regulated stationary source are covered
- Managing changes in the organization for operations and emergency response
- The implementation of a Human Factors Programs
The Board of Supervisors amended the County’s Industrial Safety Ordinance to expand the requirement of the ordinance in 2006. These amendments are as follows:

- Expand the Human Factors section of the Industrial Safety Ordinance to include the following:
  - Maintenance procedures
  - Management of Organizational Changes
- Maintenance personnel
- A job task analysis for each of the positions that work in operations, maintenance, emergency response and Health and Safety
- Include temporary changes in the Management of Organizational Change
- A requirement that the stationary sources perform a Security and Vulnerability Analysis and test the effectiveness of the changes made as a result of the Security and Vulnerability Analysis
- The stationary sources perform a Safety Culture Assessment

All of these requirements will and have made a changes in the probability of an accident occurring.

Chevron and General Chemical West Richmond Works submitted their Safety Plans to Health Services, which have been reviewed by Health Services. The public comment period for these plans ended in January 2004. Public meetings held in 2004 in North Richmond and Richmond discussed Chevron and General Chemical West Richmond Works audit findings. The second Industrial Safety Ordinance/CalARP Program audits for these facilities occurred in 2006.

CITY OF RICHMOND INDUSTRIAL SAFETY ORDINANCE

The City of Richmond passed their version of the Industrial Safety Ordinance on December 18, 2001 that became effective on January 17, 2002. Richmond’s Industrial Safety Ordinance mirrors the County’s Industrial Safety Ordinance. Richmond’s Industrial Safety Ordinance covers two stationary sources: Chevron and General Chemical West Richmond Works.
Antiguamente conocida como Equilon Martinez Refining Company (MRC), la refinería Shell Oil Products U.S. Martinez Refinery (Shell Martinez Refinery) se encuentra en aproximadamente 880 acres en el condado Contra Costa, parcialmente dentro de los límites de la ciudad de Martinez, CA. Esta planta que trabaja las 24 horas del día, dice tener 720 empleados a tiempo completo y un adicional de 200 contratistas en las instalaciones para realizar trabajos contratados. La refinería Shell Martinez Refinery se encuentra sobre propiedad industrial. La tierra alrededor de la refinería Shell Martinez Refinery es una combinación de espacios industriales y abiertos, conservación medioambiental y fines residenciales. La refinería Shell Martinez Refinery procesa aproximadamente 165,000 barriles (1 barril = 42 galones) de petróleo crudo que se convierte en gasolina, combustible de aviación, combustible diesel y productos asfálticos. La planta produce suficiente gasolina para llenar 252,000 automóviles, suficiente combustible diesel para llenar 13,125 camiones de 18 ruedas y suficiente combustible de aviación para abastecer a 21 aviones (747), por día.

Sustancias peligrosas almacenadas o producidas en las instalaciones y sus efectos inmediatos sobre la salud.

- **Gases inflamables**: pueden ser levemente irritantes para la garganta, la nariz y los pulmones. Pueden causar molestias oculares.
- **Sulfuro de hidrógeno**: gas incoloro, corrosivo y tóxico, con olor a huevo podrido. Puede irritar la garganta, la nariz y los pulmones. Causa dolor de cabeza, mareos y dificultades respiratorias.
- **Amoníaco anhidro**: gas incoloro, corrosivo e irritante. Tiene un fuerte olor sofocante. La inhalación puede causar irritación en la garganta, la nariz y los pulmones. Puede causar respiración entrecortada, dolor de cabeza, nauseas y vómitos.
- **Amoníaco líquido**: líquido incoloro con olor fuerte. Puede causar nauseas, dificultades respiratorias y convulsiones. Se fabrca mediante la disolución de amoníaco anhidro en agua.
QUESTIONS ASKED
BY THE PUBLIC DURING THE MARTINEZ OUTREACH
(9/24/2006 FARMER’S MARKET)

• **What do you do?**
  We work for Contra Costa County Health Services, Hazardous Materials Programs. We have engineers that oversees the California Accident Release Prevention Program and the Industrial Safety Ordinance and we also have HazMat Specialists that inspects business plan facilities and respond to hazardous materials incidents.

• **Why are you here?**
  A community members panel recommended that Health Services utilize existing venue where public are already congregated to make available information about our programs. This approach may help to improve the public’s understanding of our programs and make us more available to address questions and issues that the general public may have without the extra burden of setting aside another time to just come ask us questions.

• **Where can I drop off my left over paints and solvents?**
  We have brochures that cover household hazardous waste locations and hours of operations.

• Several individuals visiting the CCHS table asked for and reviewed the audit reports for the facilities audited by CCHS.

• A few of the individuals visiting the CCHS table asked for the duration of a typical audit conducted by the CalARP team and the frequency of these audits. CCHS staff responded that for major facilities, the compliance audits conducted by CCHS staff takes about four weeks and the audits are conducted about once every three years. CCHS added that the unannounced Inspection Program allows the CalARP/HAZMAT Program staff to conduct additional inspections that usually takes about two to five days to perform in which CCHS staff would conduct specific audit of selected areas of the safety program requirements.

• There were general interest in the pamphlets, and written material available in addition to our staff education background and training requirements.

• The HazMat response truck was available for tour during this event.
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HAZARDOUS MATERIALS
OMBUDSMAN EVALUATION FOR
THE PERIOD
FROM NOVEMBER, 2005
THROUGH OCTOBER, 2006

I. Introduction


The goals of section 450-8.022 of the Industrial Safety Ordinance for the Hazardous Materials Ombudsman are:

1) To serve as a single point of contact for people who live or work in Contra Costa County regarding environmental health concerns, and questions and complaints about the Hazardous Materials Programs.

2) To investigate concerns and complaints, facilitate their resolution, and assist people in gathering information about programs, procedures, or issues.

3) To provide technical assistance to the public.

The Hazardous Materials Ombudsman currently accomplishes these goals through the following program elements:

1) Continuing an outreach strategy so that the people who live and work in Contra Costa County can know about and utilize the program.

2) Investigating and responding to questions and complaints, and assisting people in gathering information about programs, procedures, or issues.

3) Participating in a network of environmental programs for the purpose of providing technical assistance.

This evaluation covers the period from November, 2005 through October, 2006 for the Hazardous Materials Ombudsman program. The effectiveness of the program shall be demonstrated by describing that the activities of the Hazardous Materials Ombudsman meet the goals established in the Industrial Safety Ordinance.

II. Program Elements

1. Continuing an Outreach Strategy

This period, efforts were focused on maintaining the outreach tools currently available. Copies of the Ombudsman Brochure were translated into Spanish and were distributed to the public at meetings, presentations, public events, and through the mail. A contact person was also established in Public Health that could receive calls from the public in Spanish and serve as an interpreter to respond to these calls. In addition to explaining the services provided by the position, the brochure also provides the phone numbers of several other related County and State programs. The web page was maintained for the program as part of Contra Costa Health Services web site. This page contains information about the program, links to other related web sites, and information about upcoming meetings and events. A toll-free phone number is still published in all three Contra Costa County phone books in the Government section.

The Ombudsman also made 18 presentations to community groups, civic organizations and other groups on various topics that promoted the services of the Ombudsman.
2. Investigating and Responding to Questions and Complaints, and Assisting in Information Gathering

A. Responding to Questions and Complaints

During this period, the Hazardous Materials Ombudsman received 321 requests for assistance from the general public. This was a 24% increase over last year. Over 95 percent of these requests occurred via the telephone, and have been requests for information about environmental issues. Requests via e-mail are slowly increasing, mainly through referrals from Health Services main web page. Most of these requests concern problems around the home such as asbestos removal, household hazardous waste disposal, pesticide misuse, and lead contamination.

Information requests about environmental issues received via the telephone were generally responded to within one business day of being received. Many of the information requests were answered during the initial call. Some requests required the collection of information or written materials that often took several days to compile. Telephone requests were responded to by telephone unless written materials needed to be sent as part of the response.

Complaints about the Hazardous Materials Programs have been received via telephone and in writing. Persons that have made complaints via telephone have been also asked to provide those complaints in writing. During this period, the Hazardous Materials Ombudsman received two inquiries about activities or actions of the Hazardous Materials Programs. Both complaints were about the proposed hazardous materials fees being assessed against their businesses. In regards to the first complaint, the Ombudsman supported the position that the fees being assessed by the Hazardous Materials Programs were justified. The key consideration was whether the material being stored by the business qualified as a hazardous material. The Ombudsman independently determined that the material did meet the definition of a hazardous material. The second complaint is still under investigation.

B. Assisting in Information Gathering

Many of the environmental pollution issues that Contra Costa residents are concerned about are on-going regulatory programs or industrial activities. Helping people to participate in these regulatory activities or to effectively advocate their interests about an industrial activity usually means providing them with more information or advice than can be done with a single phone call. Often these issues are complex and can take months to resolve. Some of this is done through technical assistance, which will be covered in the next section.

Another way of helping the public to gather information is to ensure the public has the opportunity to be informed about, and participate in, important decisions related to environmental protection. The Hazardous Materials Ombudsman has done this by organizing, promoting and facilitating public involvement in important hazardous materials issues. These are as follows:

- **Industrial Safety Ordinance Public Participation** – The ordinance requires that public meetings be held at various stages of the process. The Hazardous Materials Ombudsman has worked closely with the Hazardous Materials Programs staff and the Board of Supervisors to develop an intensive public outreach strategy for the Industrial Safety Ordinance. During this period, the Ombudsman helped the Hazardous Materials Program conduct a Spanish-language public meeting in Bay Point in November, 2005, a meeting in Bay Point in January, 2006 about General Chemical and an outreach effort in Martinez for four Central County facilities in October, 2006.

- **Post-Chemical Incident Surveys** – As a result of discussions held at a Protecting the Public conference in 1999, the Hazardous Materials Ombudsman took the lead in developing a telephone survey that would be administered to people in the area affected by a chemical accident. During 2001, funding was secured to develop the survey, a consultant was hired to create the survey, and the first survey was initiated.
after an incident at a refinery in October, 2001. In 2002, four additional surveys were conducted after level 2 and 3 incidents at facilities. In 2003 two additional surveys were completed after level 3 incidents, one at a refinery and one resulting from a railroad incident. Another survey was conducted after a release from a refinery in October, 2004. A ninth survey was conducted in March of 2006 after a release from the Shell Refinery in Martinez. The results of these surveys were shared with various committees of the Contra Costa CAER group to help them with planning their activities.

- Laotian Telephone Emergency Notification Project – As a result of a major fire at a refinery in Richmond in 1999, the Laotian community in the Richmond area was concerned about the lack of understanding of many Laotians about the Community Warning System and what to do in the event of a release. They requested the County to develop a way to send the Telephone Emergency Notification System message, which is part of the Community Warning System, to Laotian households in four Laotian languages. The Hazardous Materials Ombudsman worked with the Director of the Hazardous Materials Programs and the Laotian Organizing Project to develop a pilot methodology. In 2001, $140,000 of funding was secure to implement the pilot project and a project coordinator was hired. In 2002 the Hazardous Materials Ombudsman hired 4 outreach staff and supervised all 5 staff people to implement this pilot program. The pilot project was completed in the spring of 2003.

At that time, the Board of Supervisors directed the Ombudsman to participate in an evaluation of a new technology to provide automated telephone alerts in various languages. The Ombudsman hired 2 Laotian staff to test this technology in 100 Laotian homes. This test was completed in early 2004 and the recommendation to pursue this new technology instead of the methodology used in the first pilot study was accepted by the Internal Operations Committee of the Board of Supervisors. In 2005 the Hazardous Materials Ombudsman worked with the Community Warning System Program in the Sheriff’s Office to begin installing 300 of these alert boxes. The installation of these boxes is on-going.

3. Participating in a Network of Environmental Programs for the Purpose of Providing Technical Assistance.

Technical assistance means helping the public understand the regulatory, scientific, political, and legal aspects of issues. It also means helping them understand how to effectively communicate their concerns within these different arenas. This year, the Ombudsman continued to staff a number of County programs, as well as participate in other programs to be able to provide technical assistance to the participants and the public.

- CAER (Community Awareness and Emergency Response) - This non-profit organization addresses industrial accident prevention, response and communication. The Ombudsman participated in the Emergency Notification subcommittee of CAER.

- Hazardous Materials Commission – In 2001, the Ombudsman took over as staff for the commission. As staff to the commission, the Ombudsman conducted research, prepared reports, and facilitated Commission meetings.

- Public and Environmental Health Advisory Board – As staff to the Environmental Health subcommittee of PEHAB, the Ombudsman completed a report on pest management issues in the County in March, 2001. In response to this report, the Board of Supervisors asked Health Services and the County Agricultural Commissioner to convene a Task Force to develop an Integrated Pest Management Policy for the County. The Ombudsman represented Health Services as co-chair of this Task Force. The policy was adopted by the Board of Supervisors in November of
2002. During this period the Ombudsman continued to represent Health Services on the Task Force as they implemented the policy.

- Asthma Program – The Ombudsman participated in the Public Health Department’s asthma management team as a resource on environmental health issues. The Ombudsman also participated in county-wide asthma coalition meetings, and represented the Asthma program at regional meetings pertaining to asthma issues, particularly diesel pollution. The Ombudsman provided extensive technical support on the development of an Asthma Coalition Report summarizing the environmental factors influencing asthma rates in Contra Costa County. The Ombudsman also co-wrote a grant to CalTrans that secured funding to allow Asthma Advocates and other County residents get involved in land-use issues related to diesel pollution and goods movement.

- Environmental Justice – In September of 2003, the Board of Supervisors adopted an Environmental Justice policy. At that time they directed each County Department to designate an existing staff member as a representative to a County-wide Environmental Justice committee. The Ombudsman was designated by the Health Services Director to be the representative for the Health Services Department. The Ombudsman is also actively working with the Public Health Division to develop their Environmental Justice Program.

- LEAP – During this period the Ombudsman provided extensive technical assistance to LEAP (Latino Environmental Action Project), a Public Health program in Bay Point. The role of the Ombudsman in this project was to help community residents understand the risk presented to them by various environmental sources of pollution so that they could better determine which of these, if any, were of concern to them.

The Hazardous Materials Ombudsman also attended workshops, presentations, meetings and trainings on a variety of environmental issues to be better able to provide technical assistance to the public. These were sponsored the Federal Environmental Protection Agency, the State Department of Health Services, the Bay Area Air Quality Management District, the Regional Water Quality Control Board and CalEPA.

III. Program management

The Hazardous Material Ombudsman continued to report to the Public Health Director on a day-to-day basis during this period, while still handling complaints and recommendations about the Hazardous Materials Programs through the Health Services Director. The duties of the Hazardous Materials Ombudsman also included direct supervision of two contract employees for the Laotian Telephone Emergency Notification System project and managing the contract for the Industrial Safety Ordinance Post-Incident surveys, which began in 2001.

IV. Goals for 2007

In 2007, the Ombudsman will provide essentially the same services to Contra Costa residents as was provided in 2006. The Ombudsman will continue respond to complaints about the actions of the Hazardous Materials Programs; answer questions that come from the public and assist them in understanding regulatory programs; staff the Hazardous Materials Commission and the Public and Environmental Health Advisory Board; provide technical support to the Asthma program and the Public Health Collaboration unit; and participate in the Integrated Pest Management Taskforce, CAER committees, the Environmental Justice Committee and the Laotian Telephone Emergency Notification System multi-lingual project. In particular, the Ombudsman will oversee the implementation of the Caltrans goods movement grant and continue to provide technical support to the LEAP project. The Ombudsman will continue to manage the contract for the post chemical-incident surveys, but the Industrial Safety Ordinance public participation program will be managed by the Hazardous Materials Programs as part of their normal activities.
In 2007, the Ombudsman will continue efforts to re-distribute his brochures throughout the County, and will give presentations to community groups and governmental agencies to promote the services of the position.
Annual Performance Review and Evaluation Submittal

June 27, 2006

*Attach additional pages as necessary

1. Name and address of Stationary Source: ConocoPhillips
   Rodeo Refinery, 1380 San Pablo Avenue, Rodeo, CA 94572

2. Contact name and telephone number (should CCHS have questions):
   John Driscoll 510-245-4466

3. Summarize the status of the Stationary Source’s Safety Plan and Program (450-8.030(B)(2)(i)):
   The 2005 Safety Plan resubmittal is in the process of being modified after review by CCHS.

4. Summarize Safety Plan updates (i.e., brief explanation of update and corresponding date) (450-8.030(B)(2)(ii)):
   The original Safety Plan for this facility was filed with Contra Costa Health Services on January 14, 2000. A revised plan was filed on April 7, 2000 with the updated recommendations requested by CCHS. A Human Factors Amendment was submitted on January 15, 2001. In conjunction with CCHSs required 2nd public meeting on our plan and audit findings, we submitted a complete revision of the plan to reflect the change in ownership of our facility and to update where needed. We took this opportunity to include Human Factors within the plan instead of having it as an amendment. On August 9, 2002 the plan was resubmitted. Public meetings for our plans were held on June 22, 2004 in Rodeo and July 8, 2004 in Crockett. As required the Plan was fully updated in August 2005 on the 3 year cycle. The Plan has been reviewed by CCHS and is currenting being revised with recommended changes. The RMP was submitted for public notice from 1/27/06 through 3/13/06 without comment.

5. List of locations where Safety Plans are/will be available for review, including contact telephone numbers if the source will provide individuals with copies of the document (450-8.030(B)(2)(ii)): CCHS office, 4333 Pacheco Blvd., Martinez and the Crockett and Rodeo libraries.

6. Provide any additions to the annual accident history reports (i.e. updates) submitted pursuant to Section 450-8.016(E)(2) of County Ordinance 98-48 (450-8.030(B)(2)(iii)) (i.e., provide information identified in Section 450-8.016(E)(1) for all major chemical accidents or releases occurring between the last accident history report submittal (January 15) and the annual performance review and evaluation submittal (June 30)):
   There has been one addition to the accident history : 5-1-06 Flaring Event

At 0947, on Monday, May 1st 2006, the Pacific Gas & Electric (PG&E) electrical supply breaker to the “C” electrical distribution bus transformer was disconnected to perform maintenance on the transformer. The electricity for the “C” distribution bus was then supplied solely (islanded) by the “C” Gas Turbine Generator (GTG). The “C” GTG tripped off line, deenergizing the “C” bus and simultaneously reducing the steam production rate. The loss of electrical power caused some process unit and equipment shutdowns which resulted in flaring.
At 1005, the refinery steam supply decreased below the quantity required to maintain smokeless burning of the flare gas at the main refinery flare. The duration of the flare smoking was approximately 10 minutes.

A CWS (Community Warning System) Level 3 was immediately initiated for the community to “Shelter in Place” due to visible smoke. Emergency operating procedures for the affected units and a steam usage curtailment were implemented. Emergency response personnel performed air monitoring both on and off site, with only trace indications of sulfur dioxide & odor off-site in the Cummings Skyway/Crockett area.

Refinery operators restarted critical equipment, increased alternative steam production, and restored sufficient steam supply to the flare to prevent smoking at 1015. The event was reduced to a CWS Level 1 (“Shelter in Place” was lifted) at 1115 and called an “All Clear” at 1445.

In addition to visible smoke from the flare, NO2 & SO2 Reportable Quantities were exceeded. The calculated released amounts are: NO2 - 80 lbs; SO2 - 8300 lbs.

The following agencies were immediately notified: Contra Costa Health Services (CCHS) via the CW, the Bay Area Air Quality Management District (BAAQMD), Rodeo/Hercules Fire Dept., Crockett/Carquinez Fire Dept., NRC, and the County and State Office of Emergency Services (OES). Those responding were CCHS, BAAQMD and the Rodeo/Hercules Fire Department.

Average wind speed was approximately 3 mph, out of the South and variable. The weather was clear and sunny with temperatures approximately 65 degrees F.

No injuries were reported on or offsite.

7. Summary of each Root Cause Analysis (Section 450-8.016(C)) including the status of the analysis and the status of implementation of recommendations formulated during the analysis (450-8.030(B)(2)(iv)):

For the 5-1-06 Flaring Event a Root Cause Analysis was performed utilizing the Reason method, the Human Factors checklists, and other tools. The following root causes were determined.

1. The generator trip was caused by the turbine control system. The controls will not support the stable operation of the GTG in an islanded condition.

2. The electrical switching procedure did not adequately specify GTG operating conditions. The switching procedure directed Operations to shed loads or manually reduce the power output of the generator to be “null”, but did not specify a maximum power level or for the GTG to be operated below the EGT limit (as mentioned earlier is now recommended by the turbine controls system vendor). Additionally, the procedure did not specify requirements for refinery steam demand conditions prior to islanding.

3. The “B” and “C” COEN fire eye cooling air blowers are both powered from the “C” Bus. In the event of a single electrical fault at this source, both duct burners will shutdown. The COEN burners were tripped by the low fire eye cooling air pressure switch when the blowers shut down.
4. The “C” GTG controls contractor did not provide sufficient operator training for using the new TRICONEX™ control system in island mode or sufficient operating and maintenance manuals for the islanded condition.

5. The MOC conducted for the control system change to the “C” GTG did not fully address the non-standard operating conditions. The unidentified need for operating in islanded situations should have emphasized the requirement for additional testing or new operating limitations for the “C” GTG. Additionally, the HAZOP did not identify changes due to electrical load creep from other projects (ULSD, etc).

Recommendations /Preventive actions resulting from the Root Cause:

1. Perform an engineering study of turbine and generator controls to address the following:
   a. Revise and test the TRICONEX™ controls to operate reliably in an island condition.
   b. Evaluate raising or eliminating the EGT limit during an island condition.
   c. Review alarm and shutdown trip points for EGT, under-frequency, and overfrequency protection.
   d. Implement changes made to “C” GTG on “B” GTG.
   e. Do not island prior to the completion of the above recommendations.
   
   Target completion date: July 31, 2007

2. Modify procedures for islanding to include operations and electrical tasks and review and address the following:
   a. Designate the Shift Superintendent as the owner of the electrical distribution system with final authority for approval of switching procedures.
   b. Evaluate specifying a 15-20% reserve electrical load limit prior to islanding.
   c. Evaluate implementing an electrical load shedding procedure/scheme to address a PG&E power outage and minimize its impact on the refinery.
   d. Evaluate specifying required initial conditions, such as minimal steam demand, prior to islanding operations to minimize the effect of the loss of a single GTG.
   
   Target completion date: June 30, 2007

3. Evaluate the COEN system for more reliable operations:
   a. Change the “B” COEN Blower power supply to “B” Bus.
   b. Evaluate moving the low air pressure switch tap so it will detect back up air to the blowers.
   
   Target Completion date: March 31, 2007

4. Obtain islanding-related manuals, procedures, and training on the controls from the contractor.
   
   Target Completion date: September 30, 2006

5. Ensure non-standard control modes are adequately addressed in future HAZOP evaluations of control projects. Also include significant changes to infrastructure in project PHAs.
   
   Target Completion date: December 31, 2006
8. Summary of the status of implementation of recommendations formulated during audits, inspections, Root Cause Analyses, or Incident Investigations conducted by the Department (450-8.030(B)(2)(v)):
   CCHS conducted a review of our Safety Plan and noted recommendation are currently being addressed.

9. Summary of inherently safer systems implemented by the source including but not limited to inventory reduction (i.e., intensification) and substitution (450-8.030(B)(2)(vi)):
   See attached

10. Summarize the enforcement actions (including Notice of Deficiencies, Audit Reports, and any actions turned over to the Contra Costa County District Attorney’s Office) taken with the Stationary Source pursuant to Section 450-8.028 of County Ordinance 98-48 (450-8.030(B)(2)(vii)): None

11. Summarize total penalties assessed as a result of enforcement of this Chapter (450-8.030(3)): No penalties have been assessed against any facility.

12. Summarize the total fees, service charges, and other assessments collected specifically for the support of the ISO (450-8.030(B)(4)); CalARP Program fees for these eight facilities are -$325,581, the Risk Management Chapter of the Industrial Safety Ordinance fees are - $296,179.

13. Summarize total personnel and personnel years utilized by the jurisdiction to directly implement or administer this Chapter (450-8.030(B)(5)): 4000 hours were used to audit/inspect and issue reports on the Risk Management Chapter of the Industrial Safety Ordinance.

14. Copies of any comments received by the source (that may not have been received by the Department) regarding the effectiveness of the local program that raise public safety issues(450-8.030(B)(6)):
   No comments have been received regarding the effectiveness of the local program.

15. Summarize how this Chapter improves industrial safety at your stationary source (450-8.030(B)(7)):
   Industrial Safety has been improved by expanding safety programs to cover all operating units. PHAs are performed on all units and recommendations that are generated have a faster implementation timeframe. Root Cause Analysis is conducted for all major chemical accidents and releases.

16. List examples of changes made at your stationary source due to implementation of the Industrial Safety Ordinance (e.g., recommendations from PHA’s, Compliance Audits, and Incident Investigations in units not subject to CalARP regulations; recommendations from RCA’s) that significantly decrease the severity or likelihood of accidental releases:
   The Refinery’s project to revamp/reformat operating procedures has been completed. Human factor checklist have been applied in the updating of the procedures as well as in the application of performing Process Hazards Analysis (PHA) on all units and in conducting incident investigation on major chemical and accident
17. Summarize the emergency response activities conducted at the source (e.g., CWS or CAN activation) in response to major chemical accidents or releases:

Please refer to item #6 for the emergency response to the 5-1-06 flaring event.
<table>
<thead>
<tr>
<th>Reference</th>
<th>Primary Strategy</th>
<th>Source</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>021-06</td>
<td>Inherent</td>
<td>Facility</td>
<td>The inherent level of risk reduction was implemented by minimizing the inventory of hazardous materials on site.</td>
</tr>
<tr>
<td>06-178</td>
<td>Inherent</td>
<td>Facility</td>
<td>The inherent level of risk reductions was implemented by simplifying the process reducing the potential for release.</td>
</tr>
<tr>
<td>200-19-R4</td>
<td>Passive</td>
<td>PHA</td>
<td>The passive level of risk reduction was implemented by minimizing the hazard through equipment design.</td>
</tr>
<tr>
<td>05-090</td>
<td>Inherent</td>
<td>Facility</td>
<td>The inherent level of risk reduction was implemented by minimizing the amount of hazardous material.</td>
</tr>
<tr>
<td>106-119-155</td>
<td>Inherent</td>
<td>Facility</td>
<td>The inherent level of risk reduction was implemented by minimizing inventory on site through elimination of tankage.</td>
</tr>
</tbody>
</table>
Annual Performance Review and Evaluation Submittal

*Attach additional pages as necessary

1. Name and address of Stationary Source: General Chemical Bay Point Works, 501 Nichols Road, Bay Point, California 94565

2. Contact name and telephone number (should CCHS have questions): Reza Lorestany, (925) 458-7365

3. Summarize the status of the Stationary Source’s Safety Plan and Program (450-8.030(B)(2)(i)): GCC-BPW Stationary Source’s Safety Plan and Program are currently in place. They are undergoing enhancement as part of normal improvement as well as findings from CCHS audit in August 2005.

4. Summarize Safety Plan updates (i.e., brief explanation of update and corresponding date) (450-8.030(B)(2)(ii)): No update to the Safety Plan has occurred in the previous review period. The next planned update is scheduled to occur in the 2nd half of 2006.

5. List of locations where Safety Plans are/will be available for review, including contact telephone numbers if the source will provide individuals with copies of the document (450-8.030(B)(2)(ii)): CCHS Office, 4333 Pacheco Boulevard, Martinez; Bay Point Library (library closest to the stationary source).

6. Provide any additions to the annual accident history reports (i.e. updates) submitted pursuant to Section 450-8.016(E)(2) of County Ordinance 98-48 (450-8.030(B)(2)(iii)) (i.e., provide information identified in Section 450-8.016(E)(1) for all major chemical accidents or releases occurring between the last accident history report submittal (January 15) and the annual performance review and evaluation submittal (June 30)): There has been no major chemical accident or release during the current reporting period.

7. Summary of each Root Cause Analysis (Section 450-8.016(C)) including the status of the analysis and the status of implementation of recommendations formulated during the analysis (450-8.030(B)(2)(iv)): There were no RCAs conducted during this time period.

8. Summary of the status of implementation of recommendations formulated during audits, inspections, Root Cause Analyses, or Incident Investigations conducted by the Department (450-8.030(B)(2)(v)): An audit was conducted by the Dept. in Aug. 2005 and resulted in 132 findings. To date, more than half of the findings have been completed and the remainder are expected to be closed by the December 31, 2006.
9. Summary of inherently safer systems implemented by the source including but not limited to inventory reduction (i.e., intensification) and substitution (450-8.030(B)(2)(vi));
   One Inherently Safer System (ISS) was implemented during the previous review period. Multiple scrubbers were replaced with one new scrubber. The ISS served to minimize inventory as well as simplify the process.

10. Summarize the enforcement actions (including Notice of Deficiencies, Audit Reports, and any actions turned over to the Contra Costa County District Attorney’s Office) taken with the Stationary Source pursuant to Section 450-8.028 of County Ordinance 98-48 (450-8.030(B)(2)(vii)); No enforcement actions were taken during this time period.

11. Summarize total penalties assessed as a result of enforcement of this Chapter (450-8.030(3)); No penalties have been assessed against any facility.

12. Summarize the total fees, service charges, and other assessments collected specifically for the support of the ISO (450-8.030(B)(4)); CalARP Program fees for these eight facilities are $325,581 the Risk Management Chapter of the Industrial Safety Ordinance fees are $296,179.

13. Summarize total personnel and personnel years utilized by the jurisdiction to directly implement or administer this Chapter (450-8.030(B)(5)); 4000 hours were used to audit/inspect and issue reports on the Risk Management Chapter of the Industrial Safety Ordinance.

14. Copies of any comments received by the source (that may not have been received by the Department) regarding the effectiveness of the local program that raise public safety issues (450-8.030(B)(6)); The facility has not received any comment (that may not have been received by the department).

15. Summarize how this Chapter improves industrial safety at your stationary source (450-8.030(B)(7)); The chapter helps to minimize the potential risk and exposure to the employees, the community, and the environment.

16. List examples of changes made at your stationary source due to implementation of the Industrial Safety Ordinance (e.g., recommendations from PHA’s, Compliance Audits, and Incident Investigations in units not subject to CalARP regulations; recommendations from RCA’s) that significantly decrease the severity or likelihood of accidental releases.
   Several PHAs were conducted for processes and some are subject to CalARP regulations. Many recommendations from the PHAs have been completed.

17. Summarize the emergency response activities conducted at the source (e.g., CWS or CAN activation) in response to major chemical accidents or releases.
   There has been no emergency response activities associated with this facility during the period.
Annual Performance Review and Evaluation Submittal

June 29, 2006

*Attach additional pages as necessary*

1. Name and address of Stationary Source: Shell Martinez Refinery  
   3485 Pacheco Blvd.  
   Martinez, CA 94553

2. Contact name and telephone number (should CCHS have questions): Ken Axe, (925) 313-5371

3. Summarize the status of the Stationary Source’s Safety Plan and Program (450-8.030(B)(2)(i)): SMR’s Safety Program is being implemented. Inherently Safer Systems analyses for existing processes are being conducted, and are expected to be complete for all processes at SMR by August 15, 2008. SMR’s Safety Plan was last updated in January 2006.

4. Summarize Safety Plan updates (i.e., brief explanation of update and corresponding date) (450-8.030(B)(2)(ii)): The January 2006 update of the SMR Safety Plan included the following changes: removed reference to (closed) Stretford Unit and Lubes plant; added reference to (new) Flexsorb Unit; updated accident history with 11/8/2005 slurry release; reflected reduced headcount from 1060 to 920 (employees and contractors); updated department names; updated Safety Plan sections on Procedures, Training, and PHA Action Items; incorporated language in the Incident Investigation section to the effect that CCHS may elect to conduct RCA’s.

5. List of locations where Safety Plans are/will be available for review, including contact telephone numbers if the source will provide individuals with copies of the document (450-8.030(B)(2)(ii)): CCHS Office, 4333 Pacheco Boulevard, Martinez; Martinez Public Library (library closest to the stationary source).

6. Provide any additions to the annual accident history reports (i.e. updates) submitted pursuant to Section 450-8.016(E)(2) of County Ordinance 98-48 (450-8.030(B)(2)(iii)) (i.e., provide information identified in Section 450-8.016(E)(1) for all major chemical accidents or releases occurring between the last annual performance review report and the current annual performance review and evaluation submittal (12-month history):________
   11/8/2005 Catalytic Cracking Unit Gas Plant Slurry Release (see Attachment 1)
   3/26/2006 Sulfur Recovery Unit #3 Sulfur Dioxide Release (see Attachment 1)

7. Summary of each Root Cause Analysis (Section 450-8.016(C)) including the status of the analysis and the status of implementation of recommendations formulated during the analysis (450-8.030(B)(2)(iv)):________
   11/8/2005 Catalytic Cracking Unit Gas Plant Slurry Release RCA: final RCA report complete; see Attachment 1 for summary of RCA and status of implementation of recommendations.

8. Summary of the status of implementation of recommendations formulated during audits, inspections, Root Cause Analyses, or Incident Investigations conducted by the Department (450-8.030(B)(2)(v)):________
   All recommendations are complete following the CCHS on-site audit of SMR during the fall of 2000. All recommendations are complete following CCHS’s unannounced inspection that occurred in January 2002. All recommendations are complete following CCHS’s audit of SMR’s Human Factors and Inherently Safer Systems in April 2002. 36 of 37 recommendations from CCHS’s November 2003 RMP/PSM/ISO Audit have
been closed: a single action item remains open. The county has conducted no RCAs or Incident Investigations at SMR.

9. Summary of inherently safer systems implemented by the source including but not limited to inventory reduction (i.e., intensification) and substitution (450-8.030(B)(2)(vi)): (see Attachment 2)

10. Summarize the enforcement actions (including Notice of Deficiencies, Audit Reports, and any actions turned over to the Contra Costa County District Attorney’s Office) taken with the Stationary Source pursuant to Section 450-8.028 of County Ordinance 98-48 (450-8.030(B)(2)(vii)): None

11. Summarize total penalties assessed as a result of enforcement of this Chapter (450-8.030(3)): No penalties have been assessed against any facility.

12. Summarize the total fees, service charges, and other assessments collected specifically for the support of the ISO (450-8.030(B)(4)): CalARP Program fees for these eight facilities are - $325,581, the Risk Management Chapter of the Industrial Safety Ordinance fees are - $296,179.

13. Summarize total personnel and personnel years utilized by the jurisdiction to directly implement or administer this Chapter (450-8.030(B)(5)): 4000 hours were used to audit/inspect and issue reports on the Risk Management Chapter of the Industrial Safety Ordinance.

14. Copies of any comments received by the source (that may not have been received by the Department) regarding the effectiveness of the local program that raise public safety issues(450-8.030(B)(6)): None received.

15. Summarize how this Chapter improves industrial safety at your stationary source (450-8.030(B)(7)): SMR has integrated requirements of the Industrial Safety Ordinance into our Health, Safety, and Environment Management System; in the context of our HSE MS, the ISO requirements help drive continual improvement in our HSE performance.

16. List examples of changes made at your stationary source due to implementation of the Industrial Safety Ordinance (e.g., recommendations from PHA’s, Compliance Audits, and Incident Investigations in units not subject to CalARP regulations; recommendations from RCA’s) that significantly decrease the severity or likelihood of accidental releases: (see Attachment 1 for changes made as a result of 11/8/2005 RCA)

17. Summarize the emergency response activities conducted at the source (e.g., CWS or CAN activation) in response to major chemical accidents or releases: 11/8/2005 Catalytic Cracking Unit Gas Plant Slurry Release was responded to by CCHS personnel; CWS Level 2 3/26/2006 Sulfur Recovery Unit #3 Sulfur Dioxide Release was responded to by CCHS personnel; CWS Level 3, CAN activation
Attachment 1

11/8/2005 Catalytic Cracking Unit Gas Plant Slurry Release

Date, time, and approximate duration of the release: November 8, 2005; 20:20-20:42; approximately 22 minutes (pressurized slurry release duration) – time to final isolation approximately 4½ hours

Chemicals released: slurry (heavy gas oil with CCU catalyst), flushing oil

Estimated quantity released in pounds: 58,000 lbs (150 bbls)

Type of release event and its source: pressurized liquid release through partially opened 8” valve upstream of Debutanizer Slurry Strainer; release initially formed some aerosol/small droplets

Weather conditions at the time of the release: initial wind speed 3.5 mph, wind direction out of NE, no rain

On-site impacts: contractor injury (thermal burn); substantial deposit of slurry on surrounding equipment and on ground in vicinity of release requiring cleanup

Known off-site impacts: offsite deposition of slurry droplets south and east of Refinery resulting in more than 3000 claims related to cleaning of cars and property

Initiating event and contributing factors: Debutanizer Slurry Strainer was taken out of service for maintenance to address plugging in slurry system that provides heat to Debutanizer Reboiler

Root cause(s): inlet block valve to Debutanizer Slurry Strainer was not completely closed, most likely due to plugging in the valve seat; single block valve isolation was applied to taking the strainer out of service for maintenance

Off-site responders notified: Contra Costa County Health Services; Contra Costa County Sheriff; Martinez Police Department; Contra Costa Consolidated Fire Department

Operational or process changes that resulted from the investigation of the release (status of implementation of recommendations):

1. Install Double Block and Bleed (DBB) on the Debutanizer Slurry Strainers: installed January 19, 2006

2. Documentation processes to communicate status of unusual strainer line-up:
   b. Provide additional guidance to operators on how to properly communicate changes to strainer valve line-up positions and conditions in shift reports: last of six training sessions delivered June 9, 2006

3. Revise isolation procedure and provide training: the revised isolation procedure will be issued July 1, 2006 after incorporating comments received during the training sessions; the last of six training sessions was completed on June 9, 2006
3/26/2006 Sulfur Recovery Unit #3 Sulfur Dioxide Release (see Attachment 1)

Date, time, and approximate duration of the release:  March 26, 2006; 16:03-16:22; 19 minutes

Chemicals released:  sulfur dioxide

Estimated quantity released in pounds:  approximately 255 pounds

Type of release event and its source:  gas emission from atmospheric stack at tailend of SRU #3

Weather conditions at the time of the release:  wind speed ranged from 1 to 6.3 mph; conditions were partly cloudy and the temperature was 63 degrees; wind direction in the vicinity of the release was from NNE

On-site impacts:  on-site plume, no exposures/injuries

Known off-site impacts:  offsite plume (across Shell Avenue); SMR received approximately 35-45 community calls as a result of the CWS shelter-in-place sirens and CAN phone messages; Ground Level Monitors (GLM) located on the refinery fence line did not detect any H₂S or SO₂; Contra Costa County Health Services conducted monitoring in the community during the incident and did not detect any hazardous concentrations of SO₂; SMR also deployed personnel to conduct monitoring in the community and found no detectable amount of SO₂ or H₂S

Initiating event and contributing factors:  an operational upset in the Flexsorb (FLS) unit reduced the available acid gas supply to SRU #3; due to the low flow rates the temperature increased approximately 180°F in the Catalytic Oxidizer; the increase in temperature heated the Cat Ox bed and caused the oxidation of sulfur previously deposited on the catalyst bed resulting in emissions of SO₂, which at peak temperatures became visible

Root cause(s):  un-oxidized sulfur built up on the Cat Ox catalyst on occasions when the bed temperature was not maintained above a minimum required temperature (not specified by catalyst vendor); a sudden drop in flow rate through F-109 resulted in rapid temperature increase in the Cat Ox bed and oxidation of the sulfur to SO₂

Off-site responders notified:  Contra Costa County Health Services; Contra Costa County Sheriff; Martinez Police Department; Contra Costa Consolidated Fire Department

Operational or process changes that resulted from the investigation of the release (status of implementation of recommendations):  pending finalization of RCA
Attachment 2

<table>
<thead>
<tr>
<th>ISS Item Number</th>
<th>ISS Type</th>
<th>Source/Study</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M20051956-001</td>
<td>Minimization</td>
<td>MOC</td>
<td>Dead leg minimization</td>
</tr>
<tr>
<td>M20051956-004</td>
<td>Minimization</td>
<td>MOC</td>
<td>Dead leg minimization</td>
</tr>
<tr>
<td>M20051956-006</td>
<td>Minimization</td>
<td>MOC</td>
<td>Dead leg minimization</td>
</tr>
<tr>
<td>M20052249-001</td>
<td>Minimization</td>
<td>MOC</td>
<td>Remove unused propane line (dead leg), inventory reduction</td>
</tr>
<tr>
<td>M2006928-001</td>
<td>Minimization</td>
<td>MOC</td>
<td>Dead leg removal</td>
</tr>
</tbody>
</table>
Annual Performance Review and Evaluation Submittal

June 23, 2006

*Attach additional pages as necessary

1) Name and address of Stationary Source: Air Products

   Shell Martinez Refinery, 110 Waterfront Road, Martinez, CA 94553

2) Contact name and telephone number (should CCHS have questions):

   Michael Cabral, (925) 372-9302

3) Summarize the status of the Stationary Source’s Safety Plan and Program (450-8.030(B)(2)(i)):

   The Stationary Source’s Safety Plan is complete per CCHS requirements and submitted to CCHS for review. The Program has been implemented, as required.

4) Summarize Safety Plan updates (i.e., brief explanation of update and corresponding date) (450-8.030(B)(2)(ii)):

   Date: 22 June 2006 - update: Section 7 (Annual Accident History) and Section 8 (Annual Performance Review and Evaluation Submittal)

5) List of locations where Safety Plans are/will be available for review, including contact telephone numbers if the source will provide individuals with copies of the document (450-8.030(B)(2)(ii)):

   CCHS Office, 4333 Pacheco Boulevard, Martinez; Martinez Library (library closest to the stationary source); Air Products – See contact in #2, above.

6) Provide any additions to the annual accident history reports (i.e. updates) submitted pursuant to Section 450-8.016(E)(2) of County Ordinance 98-48 (450-8.030(B)(2)(iii)) (i.e., provide information identified in Section 450-8.016(E)(1) for all major chemical accidents or releases occurring between the last accident history report submittal (January 15) and the annual performance review and evaluation submittal (June 30)):

   None

7) Summary of each Root Cause Analysis (Section 450-8.016(C)) including the status of the analysis and the status of implementation of recommendations formulated during the analysis (450-8.030(B)(2)(iv)):

   No events triggered this requirement since the previous Annual Performance Review and Evaluation Submittal.

8) Summary of the status of implementation of recommendations formulated during audits, inspections, Root Cause Analyses, or Incident Investigations conducted by the Department (450-8.030(B)(2)(v)):

   APCI submitted proposed remedies to the audit findings to Contra Costa County before 16 August 2004. All outstanding actions of this audit were completed by 16 August 2005. In addition, CCCHS completed an unannounced inspection on 18 January 2006. A response to proposed remedies from three Action Items was accepted by CCCHS on March 27th, 2006. APCI has completed the remedies as proposed for each Action Item.

9) Summary of inherently safer systems implemented by the source including but not limited to inventory reduction (i.e., intensification) and substitution (450-8.030(B)(2)(vi)):

   1) Plant uses aqueous ammonia rather than anhydrous ammonia in its emission control system. This helps reduce the off-site consequence of an ammonia release.

   2) Plant is designed without a liquid hydrogen backup system. This reduces the inventory of hazardous chemicals on-site.
3) Plant switched from 99% monoethanolamine to 85% monoethanolamine in order to eliminate the need for insulation around the water treatment tanks. This reduces the potential for a fire.

10) Summarize the enforcement actions (including Notice of Deficiencies, Audit Reports, and any actions turned over to the Contra Costa County District Attorney’s Office) taken with the Stationary Source pursuant to Section 450-8.028 of County Ordinance 98-48 (450-8.030(B)(2)(vii)): No enforcement actions were taken since the previous Annual Performance Review and Evaluation Submittal.

11) Summarize total penalties assessed as a result of enforcement of this Chapter (450-8.030(3)): No penalties have been assessed against this facility since the previous Annual Performance Review and Evaluation submittal.

12) Summarize the total fees, service charges, and other assessments collected specifically for the support of the ISO (450-8.030(B)(4)): CalARP Program fees for these eight facilities are - $314,013, the Risk Management Chapter of the Industrial Safety Ordinance fees are - $319,669.

13) Summarize total personnel and personnel years utilized by the jurisdiction to directly implement or administer this Chapter (450-8.030(B)(5)): 4000 hours were used to audit/inspect and issue reports on the Risk Management Chapter of the Industrial Safety Ordinance.

14) Copies of any comments received by the source (that may not have been received by the Department) regarding the effectiveness of the local program that raise public safety issues(450-8.030(B)(6)): None

15) Summarize how this Chapter improves industrial safety at your stationary source (450-8.030(B)(7)): Air Products is committed to the safe operation of our facilities and has implemented applicable requirements outlined in the ISO, as well as the CalARP regulation. The Human Factors program is implemented, and has helped the site maintain a safety record of no recordable or Lost Time Injuries since the last plan submittal. Likewise, there have been no events that resulted in offsite impact. This Chapter has helped reinforce the need to maintain and follow a structured safety program to help ensure the safety of our employees and the communities in which we operate.

16) List examples of changes made at your stationary source due to implementation of the Industrial Safety Ordinance (e.g., recommendations from PHA’s, Compliance Audits, and Incident Investigations in units not subject to CalARP regulations; recommendations from RCA’s) that significantly decrease the severity or likelihood of accidental releases: Air Products has developed and implemented a Human Factors Program as required by the Industrial Safety Ordinance. Per the request of CCCHS, the site clarified issues associated with the Management of Change by creating a site-specific Tier IV document. In addition, the Air Products Corporate Assurance Department formulated an internal audit template developed specifically to verify compliance to the elements of the CCC ISO program.

17) Summarize the emergency response activities conducted at the source (e.g., CWS or CAN activation) in response to major chemical accidents or releases: There were no emergency response activities to this site since the previous Annual Performance Review and Evaluation submittal.
ANNUAL PERFORMANCE REVIEW AND EVALUATION SUBMITTAL
JUNE 30, 2006
*Attach additional pages as necessary

1. Name and address of Stationary Source:

Tesoros Golden Eagle Refinery
150 Solano Way
Martinez, CA 94553

2. Contact name and telephone number (should CCHS have questions):

James Jeter at (925) 372-3169 or Sabiha Gokcen at (925) 370-3620.

3. Summarize the status of the Stationary Source’s Safety Plan and Program (450-8.030(B)(2)(i)):

The original Safety Plan and two Safety Plan updates have been submitted (see below). Contra Costa Health Services has completed four audits of the safety programs. The first audit was in September, 2000 on the safety programs. The second audit was in December, 2001 and focused on Inherently Safer Systems and Human Factors. An unannounced inspection occurred in March, 2003. A CalARP/ISO audit was in August, 2003. The most recent CalARP/ISO audit was in November-December, 2005. All safety program elements required by the ISO have been developed and are being implemented.

4. Summarize Safety Plan updates (i.e., brief explanation of update and corresponding date) (450-8.030(B)(2)(ii)):

The original Safety Plan for this facility was filed with Contra Costa Health Services on January 14, 2000. An amended plan, updated to reflect CCHS recommendations and ownership change, was filed on November 30, 2000. A Human Factors Amendment was submitted on January 15, 2001. A Power Disruption Plan was submitted, per Board of Supervisor request, on June 1, 2001. An amended Safety Plan, updated to reflect ownership change was submitted on June 17, 2002.

5. List of locations where Safety Plans are/will be available for review, including contact telephone numbers if the source will provide individuals with copies of the document (450-8.030(B)(2)(ii)): CCHS Office, 4333 Pacheco Boulevard, Martinez library

6. Provide any additions to the annual accident history reports (i.e. updates) submitted pursuant to Section 450-8.016(E)(2) of County Ordinance 98-48 (450-8.030(B)(2)(iii)) (i.e., provide information identified in Section 450-8.016(E)(1) for all major chemical accidents or releases occurring between the last accident history report submittal (January 15) and the annual performance review and evaluation submittal (June 30)):

The accident history was updated in the 2005 update. Since that update, there have been three incidents that meet the Major Chemical Accident or Release criteria in the last year.

August 24, 2005 – Fire on the FCCU (see attached root cause report)

October 26, 2005 – Power Outage (see attached root cause report)

March 24, 2006 – Fire on #2 HDS Unit. The investigation of this incident is complete, however the report is still being written.

7. Summary of each Root Cause Analysis (Section 450-8.016(C)) including the status of the analysis and the status of implementation of recommendations formulated during the analysis (450-8.030(B)(2)(iv)):
Root Cause Analysis information is included in attachments for #6.

8. Summary of the status of implementation of recommendations formulated during audits, inspections, Root Cause Analyses, or Incident Investigations conducted by the Department (450-8.030(B)(2)(v)):

“CCHS Information”: CCHS completed an audit on September 15, 2000, December, 2001, August, 2003 and November/December, 2005. There are no RCA or Incident Investigations that have been conducted by the Department.

9. Summary of inherently safer systems implemented by the source including but not limited to inventory reduction (i.e., intensification) and substitution (450-8.030(B)(2)(vi)):

Golden Eagle is submitting a list of the Inherently Safer Systems (ISS) that meet the criteria for Inherent or Passive levels only and that were completed within the last year (see attached).

10. Summarize the enforcement actions (including Notice of Deficiencies, Audit Reports, and any actions turned over to the Contra Costa County District Attorney’s Office) taken with the Stationary Source pursuant to Section 450-8.028 of County Ordinance 98-48 (450-8.030(B)(2)(vii)):

“CCHS Information”: CCHS issued a Administrative Preliminary Audit Findings on February 13, 2006 based on a CalARP/ISO audit/inspection. Tesoro responded to the Preliminary findings on June 6, 2006.

11. Summarize total penalties assessed as a result of enforcement of this Chapter (450-8.030(3)):

“CCHS Information”: No penalties have been assessed against any facility.

12. Summarize the total fees, service charges, and other assessments collected specifically for the support of the ISO (450-8.030(B)(4)):

“CCHS Information”: CalARP program fees for these nine facilities were $325,581. The Risk Management Chapter of the Industrial Safety Ordinance fees were $296,179.

13. Summarize total personnel and personnel years utilized by the jurisdiction to directly implement or administer this Chapter (450-8.030(B)(5)):

“CCHS Information”: 4000 hours were used to audit/inspect and issue reports on the Risk Management Chapter of the Industrial Safety Ordinance.

14. Copies of any comments received by the source (that may not have been received by the Department) regarding the effectiveness of the local program that raise public safety issues(450-8.030(B)(6)):

This facility has not received any comments to date regarding the effectiveness of the local program.

15. Summarize how this Chapter improves industrial safety at your stationary source (450-8.030(B)(7)):

Chapter 450-8 improves industrial safety by expanding the safety programs to all units in the refinery. In addition, the timeframe is shorter to implement recommendations generated from the Process Hazard Analysis (PHA) safety program than state or federal law. This has resulted in a faster implementation of these recommendations.

Chapter 450-8 also includes requirements for inherently safer systems as part of implementing PHA recommendations and new construction. This facility has developed an aggressive approach to implementing inherently safer systems in these areas.

Chapter 450-8 has requirements to perform root cause analyses on any major chemical accidents or releases (MCAR). This facility has applied that rigorous methodology to investigate any MCARs that have occurred since January, 1999.
Chapter 450-8 requires a human factors program. This facility has developed a comprehensive human factors program and is in the process of implementing the program.

16. List examples of changes made at your stationary source due to implementation of the Industrial Safety Ordinance (e.g., recommendations from PHA’s, Compliance Audits, and Incident Investigations in units not subject to CalARP regulations; recommendations from RCAs) that significantly decrease the severity or likelihood of accidental releases.

This question was broadly answered under question 15 above. Some examples of changes that have been made due to implementation of the ordinance are as follows. There are some units that were not covered by RMP, CalARP or PSM. Those units are now subject to the same safety programs as the units covered by RMP, CalARP and PSM. They have had PHAs performed on them according to the timeline specified in the ISO and the PHA recommendations have been resolved on the timeline specified in the ISO. A list of inherently safer systems as required by the ISO for PHA recommendations and new construction is attached to this filing as mentioned in the response to question 9. With respect to Compliance Audits, there was a compliance audit performed in June, 2003 in addition to the CCHS audits mentioned above. All audit findings are being actively resolved. Root Cause Analysis findings and recommendations for MCARs are listed in the response under question 6.

17. Summarize the emergency response activities conducted at the source (e.g., CWS or CAN activation) in response to major chemical accidents or releases:

Please refer to #6 which has the CWS classifications for the major chemical accidents and releases as well as any information regarding emergency responses by agency personnel.

ROOT CAUSE ANALYSIS REPORT
TESORO GOLDEN EAGLE REFINERY
AUGUST 24TH FCCU FIRE

Summary of Event:
At approximately 16:15 hours on August 24, 2005, a fire started at the Mini Blower (which is near the Main Blower) of the Fluid Catalytic Cracking Unit (FCCU) creating a smoke plume that had no off site impact. This incident is a CWS level 2 event due to the visibility of the smoke plume from offsite. Golden Eagle Operations personnel began immediate operational actions to shut down the unit in a controlled manner and take appropriate action to quench the fire. Refinery emergency response crews quickly responded to the scene and the Emergency Operations Center (EOC) was activated. Notifications were made to requisite outside agencies and to Golden Eagle personnel. One odor complaint was received from Bay Point, but it was unconfirmed by BAAQMD inspectors. During and after the less than one hour fire, Golden Eagle dispatched Odor Science and Engineering personnel throughout the community from Clyde to Bay Point to assess possible community impact. Other than the one odor complaint, no community impact was detected or reported. No reportable quantities of hazardous compounds were exceeded. At approximately 17:05 hours, the event was declared under control, and at 17:22 hours, the all clear was submitted to the CCCHSD.

The fire was determined to be the result of a complete failure of the FCCU Mini Blower. The failure, and likely severe vibration prior to the failure, damaged the associated lube oil piping. The resulting loss of lube oil containment provided the fuel consumed in the fire. Although the ignition source cannot be confirmed, it is likely that hot metal fragments (from bearing housings, etc.) were present at the time of ignition.

During the investigation, it was determined that the Mini Blower was deadheaded following the activation of an emergency shutdown (ESD) associated with a trip of the Main Blower, the initiating event of this incident. Deadhead operation means there was no flow through the compressor. Deadhead operation resulted in
accelerated Mini Blower speed, which exceeded both the electronic and mechanical over-speed trip settings. However, these existing safeguards failed to protect the Mini Blower from the over-speed condition. As a result of the incident investigation, the investigation team recommended changes in system design, procedures, and testing practices to prevent the recurrence of a similar event.

**Chronology of event:**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:14:27 hrs.</td>
<td>Main Blower turbine trips off-line (trip/throttle valve closes). Process data and alarm history indicate smooth unit and blower operation prior to trip.</td>
</tr>
<tr>
<td>16:14:36 hrs.</td>
<td>FCCU emergency shutdown (ESD) activates on low-low Regenerator Riser flow. ESD logic includes diversion of Mini Blower flow from Regenerator rings to vent.</td>
</tr>
<tr>
<td>16:14:38 hrs.</td>
<td>Regenerator air ring valve closes; Mini Blower vent valve remains closed.</td>
</tr>
<tr>
<td>16:14:39 hrs.</td>
<td>Mini Blower discharge pressure increases and discharge flow decreases, Mini Blower speed increases. Mini Blower is deadheaded.</td>
</tr>
<tr>
<td>16:14:41 hrs.</td>
<td>Mini Blower speed begins rapid acceleration, exceeding electronic (Trisen) and mechanical (bolt) over-speed trip settings (6600 RPM and 6900 RPM, respectively).</td>
</tr>
<tr>
<td>16:14:43 hrs.</td>
<td>First Mini Blower shutdown alarm: Trisen initiates shutdown signal, received by Triconex (PLC). However, the Mini Blower turbine does not trip (speed is 7620 RPM).</td>
</tr>
<tr>
<td>Various</td>
<td>Continuous fluctuations in Mini Blower speed, discharge flow, and discharge pressure. Classic symptoms of compressor surge. Mini Blower discharge pressure is generally off-scale (greater than 50 PSIg).</td>
</tr>
<tr>
<td>16:14:49 hrs.</td>
<td>Mini Blower vent valve position still fully closed. Mini Blower speed is 8010 RPM.</td>
</tr>
<tr>
<td>16:14:53 hrs.</td>
<td>Mini Blower speed is 6470 RPM.</td>
</tr>
<tr>
<td>16:14:55 hrs.</td>
<td>Mini Blower common vibration/temperature alarm is received from Bently Nevada. Mini Blower speed is 8730 RPM.</td>
</tr>
<tr>
<td>16:15:00 hrs.</td>
<td>Mini Blower auxiliary lube oil pump starts. Possible start of lube oil leak. No related low lube oil pressure alarm is received.</td>
</tr>
<tr>
<td>16:15:02 hrs.</td>
<td>Mini Blower speed is 6670 RPM.</td>
</tr>
<tr>
<td>16:15:06 hrs.</td>
<td>Mini Blower speed is 6492 RPM. Mini Blower vent valve is still closed.</td>
</tr>
<tr>
<td>16:15:08 hrs.</td>
<td>Mini Blower speed is 11281 RPM (last recorded speed).</td>
</tr>
<tr>
<td></td>
<td>Mini Blower suffers complete damage and fire.</td>
</tr>
<tr>
<td>16:15:18 hrs.</td>
<td>Mini Blower vent valve position is 47.6%.</td>
</tr>
<tr>
<td>16:15 hrs.</td>
<td>Fire at FCCU near Main and Mini Blowers</td>
</tr>
<tr>
<td>16:18 hrs.</td>
<td>CWS level 2 notification issued over CWS terminal</td>
</tr>
<tr>
<td>16:25 hrs.</td>
<td>Notified BAAQMD</td>
</tr>
<tr>
<td>16:30 hrs.</td>
<td>Unit secured, no injuries</td>
</tr>
<tr>
<td>16:43 hrs.</td>
<td>OS&amp;E personnel dispatched to monitor community</td>
</tr>
<tr>
<td>16:55 hrs.</td>
<td>CCHS personnel arrive on scene</td>
</tr>
<tr>
<td>17:00 hrs.</td>
<td>Fire is out</td>
</tr>
<tr>
<td>17:05 hrs.</td>
<td>Under control issued.</td>
</tr>
<tr>
<td>17:22 hrs.</td>
<td>All clear issued to refinery</td>
</tr>
<tr>
<td>17:29 hrs.</td>
<td>CCHS issues all clear over CWS.</td>
</tr>
</tbody>
</table>

**Agency Notification and Response:**
The following agencies were immediately notified: Contra Costa Health Services (CCHS) via the CWS, the Bay Area Air Quality Management District (BAAQMD) via the CWS, Contra Costa Fire Protection District, and the Contra Costa County Office of Emergency Services. Agencies responding with personnel to the site included CCHS, BAAQMD, Contra Costa Sheriff, Cal-OSHA and the Contra Costa Fire Protection District (CCCFPD). CCCFPD responded with two Engines (5 and 9), two Quints (6 and 12) and a Battalion Chief; they were ready to assist as mutual aid if needed.

**Emergency Response Actions:**
Operations personnel shut down the FCCU and activated fire monitors on the unit. Refinery emergency response crews immediately responded to the scene with additional fire fighting equipment. CCCFPD was ready to assist as mutual aid if needed.

**Material Released:**
The material that burned was lube oil. The amount of lube oil estimated to be combusted in the fire is 3,665 pounds.

**Meteorological Conditions:**
The weather was clear on 8/24/05. The wind was from the West at 4-9 MPH. The temperature was about 73 degrees F.

**Injuries:**
No injuries were reported on or offsite.

**Community Impact:**
A CWS level 2 incident was declared due to the visibility of the smoke plume from the fire. One odor complaint was received from Bay Point. It was unconfirmed by the BAAQMD inspector. In addition, Odor Science and Engineer personnel indicated that there were no odors found in the surrounding communities during the incident (Clyde, Concord, Bay Point areas).

**Incident Investigation of the event:**
A Root Cause Analysis investigation was performed utilizing Causal Mapping for developing a causal factor tree. This report fulfills the requirements set forth in County Ordinance 98-48 the “Industrial Safety Ordinance” for conducting a Root Cause Analysis for a CWS Level 2 incident.

**Areas of focus during investigation:**

The FCCU has a regenerator/reactor circulation system for the catalyst used in the cracking reaction of the heavy hydrocarbons. The catalyst is used for cracking in the reactor section and then it is circulated to the regenerator section to restore its catalytic properties. Two blowers, the Main Blower and the Mini Blower, provide air to the reactor, which is used for both catalyst movement and catalyst regeneration.
The incident initiated with the trip of the Main Blower turbine. An FCCU emergency shutdown (ESD) activated by low-low Regenerator Riser flow was initiated at approximately 16:14:36 hours, which resulted in deadhead operation of the Mini Blower a few seconds later. This deadhead condition resulted in the acceleration of the blower speed above the trip settings for the over-speed safeguards in place for equipment protection. These safeguards did not activate, which allowed sustained over-speed operation at ever increasing speeds. Related increases in blower vibration and bearing temperatures resulted in complete damage to the Mini Blower at approximately 16:15:18 hours.

The investigation primarily focused on three areas: Why did the Main Blower trip? Why did the Mini Blower become deadheaded? Why did the Mini Blower over-speed safeguard fail?

The Blower Control System: The Main Blower has a Trisen electronic governor with surge control capabilities. The Trisen surge control output signal goes to the surge control valve and the speed output signal goes to a Moore Fieldpac valve positioner. The Fieldpac receives a Trisen input as well as its own local input. The Fieldpac output signal is a high select of the two inputs and goes to a Blac hydraulic actuator which operates the steam admission valve.

In addition to being a speed controller, the Trisen is also programmed to initiate trip events and has input/output channels connected to the Triconex Digital Control System (DCS). For over-speed there are two systems which dump the oil pressure, tripping the trip/throttle valve: 1) A mechanical over-speed bolt opens a valve which dumps the oil pressure off the trip/throttle valve hydraulic actuator. 2) A solenoid controlled by the Triconex which dumps the oil pressure off the trip/throttle valve hydraulic actuator.

The Mini Blower is similar to the Main Blower, with the following differences: 1) The Mini Blower does not have a surge control valve, so the Trisen does not have any surge control capabilities. 2) The Mini Blower also does not have a Blac hydraulic unit. The steam admission valve on the Mini Blower is controlled by a Valtek pneumatic actuator.

A trip of the Main Blower turbine was the initiating event of this incident. Data collected indicates that the first Main Blower shutdown signal was initiated by Trisen. Process data confirms that unit and blower operation were smooth and normal for several hours prior to the trip. No process alarms were recorded in the alarm history in the four hours prior to the incident. It appears the Trisen control system of the Main Blower detected a “memory glitch” and rebooted to return to normal status. The reboot process shuts down the Main Blower.

Mini Blower Deadhead Operation: The loss of flow from the Main Blower resulted in the activation of an automatic FCCU emergency shutdown (ESD) on low-low Regenerator Riser flow at 16:14:36 hours. The logic of this ESD completes several actions designed to quickly stabilize the unit operation following the loss of the Main Blower, and minimize the possibility of equipment damage resulting from the related process upset. Included in the logic is the diversion of the Mini Blower discharge flow from the Regenerator air rings to the vent (atmosphere) to prevent the backflow of hot catalyst into the blower case. Diversion of the Mini Blower discharge flow is accomplished by the concurrent closing of the Regenerator air ring valve with the opening of the Mini Blower vent valve.

Following activation of the ESD during the incident, the air ring valve closed within three seconds. However, the vent valve remained completely closed until at least 16:15:08 hours, when the alarm history indicates that the valve began to open. Therefore, the Mini Blower was completely deadheaded for more than 28 seconds. The vent valve was still less than 50 percent open at the time the blower suffered complete damage at approximately 16:15:18 hours (42 seconds after it was given a signal to close). The slow response time for the Mini Blower vent valve was subsequently determined to be caused by an undersized solenoid valve, which overly restricted the air flow from the actuator upon activation.

Sustained Mini Blower Over-speed: As a result of deadhead operation, the Mini Blower speed continued to increase, including a rapid acceleration from 6720 RPM to 7020 RPM (within one second) at approximately 16:14:41 hours. This speed exceeds
both the electronic and mechanical over-speed trip settings (6600 RPM and 6900 RPM, respectively). A Trisen trip signal was recorded at 16:14:43 hours, which was recognized by the Triconex PLC. However, neither the steam admission valve nor the trip/throttle valve closed as evidenced by the blower speed (7620 RPM) and no significant decrease in the steam flow to the turbine.

The Mini Blower thrust vibration and radial outboard bearing temperature entered “alarm” status and a common Bently Nevada vibration/temperature alarm was recorded at 16:14:58 hours with the Mini Blower speed at 8730 RPM. Within the next five seconds, the Mini Blower thrust and outboard bearings entered “danger” status, and the Bently Nevada initiated a shutdown signal on high-high vibration at 16:15:03 hours. Again, based on the recorded steam flow to the turbine, the trip/throttle valve did not respond. Also during this period, the alarm history indicates that the Mini Blower auxiliary lube oil pump started at 16:15:00 hours. However, there was no associated low lube oil pressure alarm recorded. Nonetheless, the automatic start of this pump was likely in response to reduced lube oil pressure, and may have indicated the start of a Mini Blower lube oil leak.

The last recorded Mini Blower speed by the Bently Nevada System 1 was 11281 RPM at 16:15:08 hours. The trip/throttle valve was recorded closed by the alarm history at 16:15:16. The steam flow to the turbine (decrease) and the 600# steam supply pressure (increase) at this time were consistent with the valve closing. The trip/throttle valve did not close in time to protect the Mini Blower from complete failure.

The mechanical over-speed valve (dump valve) was found in the tripped (open) position after the incident. However, physical evidence observed during disassembly indicated the dump valve was still closed at the time bearing damage was occurring. Bearing metal debris was found in a recess in the dump valve which is only exposed when the valve is in the closed position. This indicates that the bearing damage was occurring while the dump valve was closed. Vibration data shows no indication of bearing problems until well into the over-speed event. Furthermore, the mechanical over-speed components were inspected, and there was no indication that the dump valve itself was stuck.

Based on the evidence, it is not possible to conclusively determine why the trip/throttle valve failed to close. Therefore, the incident investigation team concluded that sustained Mini Blower over-speed was caused by either (1) both the mechanical over-speed valve and the trip solenoid valve failing to operate – a double failure, or (2) the hydraulic piston in the trip/throttle valve actuator failing to move.

Root Cause # 1: There was a spurious trip of Main Blower operation by the Trisen control system.

Root Cause # 2: An undersized solenoid in the Mini Blower vent valve hindered timely opening of the valve, which resulted in Mini Blower deadhead operation.

Root Cause # 3: The trip system for the Mini Blower failed to trip the blower.

Additional Finding #1: Failure of some Main Blower speed pickups since the last unit turnaround implies that the pick-ups may have been installed with insufficient clearance from the speed pick-up gear.

Additional Finding #2: Descriptors in the DCS alarm history can be unclear or misleading. The significance and priority of blower common-trouble alarms may not be universally understood by all operators.

Additional Finding #3: The various data historians used during the analysis of this incident had clocks with settings that deviated from “actual time” by as little as 58 seconds and by as much as more than 13 minutes. There was only 41 seconds between the trip of the Main Blower and the destruction of the Mini Blower. Therefore, precise synchronization of the historians was crucial to the accurate determination of the sequence of events and incident causes.

Additional Finding #4: The Bently Nevada “System 1” data historian provided data that was vital to the timely evaluation and analysis of this incident.
Many critical pieces of machinery with Bently Nevada protection systems do not have the “System 1” data historian installed.

**Additional Finding #5:** The existing procedure for the trip testing of turbine-driven rotating equipment was found to be vague with respect to testing requirements for unspared equipment.

**Additional Finding #6:** The FCCU Main Blower and Mini Blower control systems and safeguards have similarities and commonalities with those of other major rotating equipment throughout the refinery.

### Corrective Actions and Anticipated Date of Completion

<table>
<thead>
<tr>
<th>Corrective Actions</th>
<th>Anticipated Date of Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Review current procedure for installation and gap setting of speed pickups.</td>
<td>Main Blower – 3/31/07</td>
</tr>
<tr>
<td>[addresses Additional Finding #1]</td>
<td>Main Blower Complete</td>
</tr>
<tr>
<td>2. Consider modification of Fieldpak to allow governor valve to close for both Main and Mini Blowers. [addresses Root Cause #3]</td>
<td>Secondary Blower Complete</td>
</tr>
<tr>
<td>3. Consider modifying Trisen trip initiators for both Main and Mini Blowers.</td>
<td>Secondary Blower Complete</td>
</tr>
<tr>
<td>[addresses Root Cause #1]</td>
<td>Main Blower Complete</td>
</tr>
<tr>
<td>4. Confirm close-to-open time for Mini Blower vent valve to decrease stroke time (close-to-open). [addresses Root Cause #2]</td>
<td>Main Blower Complete</td>
</tr>
<tr>
<td>5. Ensure procedures call for timely response to local and remote common trouble alarms for Main and Mini Blowers. [addresses Additional Finding #2]</td>
<td>Main Blower – 4/30/06</td>
</tr>
<tr>
<td>6. Evaluate mechanical trip systems and determine best means for reducing the possibility that mechanical malfunction could prevent an over-speed trip for both Main and Mini Blowers. [addresses Root Cause #3]</td>
<td>Main Blower – 3/31/07</td>
</tr>
<tr>
<td>7. Determine whether Main Blower Trisen speed pick-up alarm (bad probe) label can be made more descriptive. [addresses Additional Finding #2]</td>
<td>Main Blower Complete</td>
</tr>
<tr>
<td>8. Consider surge protection for the Mini Blower, including a surge valve upstream of the check valve. [addresses Root Cause #2]</td>
<td>Main Blower Complete</td>
</tr>
<tr>
<td>10. Consider removing Trisen as a Main Blower trip initiator after alternate trip means have been secured (related to #11). [addresses Root Cause #1]</td>
<td>Main Blower Complete</td>
</tr>
<tr>
<td>11. Evaluate installation of redundant control system in lieu of the Trisen and Fieldpak for speed control. [addresses Root Cause #1]</td>
<td>Main Blower Complete</td>
</tr>
<tr>
<td>12. Determine whether Main Blower Trisen speed pick-up alarm (bad probe) label can be made more descriptive. [addresses Additional Finding #2]</td>
<td>Main Blower Complete</td>
</tr>
<tr>
<td>13. Consider surge protection for the Mini Blower, including a surge valve upstream of the check valve. [addresses Root Cause #2]</td>
<td>Main Blower Complete</td>
</tr>
<tr>
<td>14. Review applicability of this investigation finding to other rotating equipment throughout the refinery. [addresses Additional Finding #6]</td>
<td>Main Blower Complete</td>
</tr>
<tr>
<td>15. Consider surge protection for the Mini Blower, including a surge valve upstream of the check valve. [addresses Root Cause #2]</td>
<td>Main Blower Complete</td>
</tr>
<tr>
<td>16. Consider means to routinely update clocks of process and mechanical data historians throughout the refinery. [addresses Additional Finding #5]</td>
<td>Main Blower Complete</td>
</tr>
<tr>
<td>17. Consider surge protection for the Mini Blower, including a surge valve upstream of the check valve. [addresses Root Cause #2]</td>
<td>Main Blower Complete</td>
</tr>
<tr>
<td>18. Evaluate procedure for trip testing major rotating equipment. Update procedure to clarify when trip tests should be conducted on unspared equipment. Communicate requirements to Maintenance and Operations. [addresses Additional Finding #5]</td>
<td>Main Blower Complete</td>
</tr>
</tbody>
</table>

** ROOT CAUSE ANALYSIS REPORT**

**TESORO GOLDEN EAGLE REFINERY**

**OCTOBER 26TH POWER OUTAGE**

**Summary of Event:** At approximately 11:50 PM on October 26, 2005, the refinery experienced a power outage which affected a portion of the refinery 12 KV electrical distribution system. The power from the Foster Wheeler Cogen plant bus to Switching Station #7 was lost. This resulted in no electrical power to #4 HDS unit, 50 Unit, the field charge pump for #1 HDS, portions of the #3 Water treating plant and wastewater treatment plant and various buildings and shops through the refinery. The Plant Information (PI) data collection system was housed in one of the buildings that lost power. There was also a large dip in the voltage of the 12 KV system that caused several pieces of equipment that are powered by other feeders to shutdown, including the oxygen enrichment skid at the Sulfur recovery unit (SRU). The loss of the oxygen enrichment skid resulted in the Sulfur Dioxide in the chemical plant stack plume.

Initially, a CWS level 0 was declared for this incident. However, a plume from the chemical plant stack was visible from off site and it potentially contained Sulfur Dioxide; therefore the incident was upgraded to a CWS level 2. Golden Eagle Operations personnel took immediate action to either reduce unit rate or shutdown the process units. The Emergency Operations Center (EOC) was activated and notifications were made to required outside agencies and to Golden Eagle personnel. Golden Eagle dispatched Odor Science and Engineering personnel to Clyde to assess possible community impact; no community impact was detected or reported. The Ground Level Monitors (GLMs) did not detect any Sulfur Dioxide or Hydrogen Sulfide. Industrial Hygiene monitoring (by Tesoro personnel and CCHS personnel) was
conducted and no chemicals of concern were detected offsite. A brief timeline follows:

<table>
<thead>
<tr>
<th>Time (hrs)</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>23:50 hrs</td>
<td>Power outage at the refinery</td>
</tr>
<tr>
<td>23:50 hrs</td>
<td>CWS level 0 notification issued over CWS terminal</td>
</tr>
<tr>
<td>00:07 hrs</td>
<td>Ammonia Recovery Unit (ARU) shutdown to reduce acid gas load to Sulfur plant</td>
</tr>
<tr>
<td>00:15 hrs</td>
<td>CWS level 2 notification issued CWS terminal</td>
</tr>
<tr>
<td>00:40 hrs</td>
<td>Contra Costa County Sheriff personnel arrive</td>
</tr>
<tr>
<td>00:45 hrs</td>
<td>BAAQMD notified</td>
</tr>
<tr>
<td>00:46 hrs</td>
<td>CCHS reports that their personnel detect no odors/chemicals of concern</td>
</tr>
<tr>
<td>01:00 hrs</td>
<td>Oxygen ratios reestablished to units in chemical plant</td>
</tr>
<tr>
<td>01:07 hrs</td>
<td>CWS level 0 notification issued over CWS terminal</td>
</tr>
<tr>
<td>01:20 hrs</td>
<td>Refinery personnel detect no chemicals of concern in downwind area</td>
</tr>
<tr>
<td>01:35 hrs</td>
<td>OS&amp;E personnel detect no odors in the community of Clyde</td>
</tr>
</tbody>
</table>

**Agency Notification and Response:**
The following agencies were immediately notified: Contra Costa Health Services (CCHS) via the CWS, the Bay Area Air Quality Management District (BAAQMD) via the CWS and phone, Contra Costa Fire Protection District, and the Contra Costa County Office of Emergency Services.

Agencies responding with personnel to the site included CCHS and Contra Costa Sheriff. [Note: Notifications over the CWS terminal: CWS level 0 notifies Contra Costa Health Services (CCHS). CWS level 2 notifies CCHS, Contra Costa OES, Contra Costa Sheriff and BAAQMD with a message. Additional notice informs Contra Costa Fire Protection District, California Highway Patrol, California Dept. of Health, San Ramon Valley Fire, Martinez Police, Antioch Police, Pinole Police and Richmond Police.]

**Emergency Response Actions:**
Golden Eagle Operations personnel took immediate action to either reduce unit rate or shutdown the process units.

**Material Released:**
A visible plume was emitting from the Sulfur Plant stack, which contained Sulfur Dioxide and Sulfur Trioxide. An estimated amount of 1860 pounds of Sulfur Dioxide and 24 pounds of Sulfur Trioxide was released.

**Meteorological Conditions:**
The weather was partly cloudy on 10/26-27/05, with wind from the West at 5-12 MPH. The temperature was about 54 degrees F.

**Injuries:**
No injuries were reported on or offsite.

**Community Impact:**
A CWS level 2 incident was declared due to the visibility of the plume from the chemical plant stack and it potentially contained Sulfur Dioxide. Odor Science and Engineer personnel indicated that there were no odors found in the surrounding communities during the incident (Clyde, Concord, Bay Point areas). The GLMs did not detect any Sulfur Dioxide or Hydrogen Sulfide. In addition, Tesoro personnel and CCHS conducted Industrial Hygiene monitoring and detected no chemicals of concern offsite.

**Focus of the incident investigation:**
The incident investigation focused on two primary areas, the cause of the power outage and the impact of the power dip on the oxygen enrichment skid at the chemical plant.

An investigation by Foster Wheeler concluded that the most likely initiating event was an electrical arc-over on two insulators in their switchyard on Structure #3. These insulators are in the two circuits that feed power from Switching Station #7 to Switching Station #1 and are located on the downstream side of the reactors in these circuits. This arc over may have been caused by moisture in the atmosphere from rain earlier in the day. All maintenance procedures for these insulators were appropriate as specified by industry standards and had been followed. These insulators had been cleaned and spray coated with silicon grease 18 months prior to the incident. Normal industry practice is to conduct this operation every 3-5 years.
This failure should have only interrupted the electrical power to Switching Station #1, it should not have affected Switching Station #7 (SS#7). The reverse current relays in the feeder circuits from the Foster Wheeler bus to SS #7 had operated and opened both feeders even though the fault was downstream from them. The loss of the oxygen enrichment skid was most likely due to a system wide power dip from 12.47 KV to approximately 10.3 KV.

**Root Cause # 1:** The oxygen enrichment system unexpectedly tripped due to a power dip.

**Root Cause # 2:** Upon loss of the oxygen skid, unit rate was not reduced quickly at the SRU and ARU.

**Root Cause # 3:** The reverse current relay settings were too sensitive.

**Root Cause #4:** There was an electric arc over in Foster Wheeler’s switch yard most likely due to dirty insulators.

**Root Cause #5:** There is no additional backup power beyond the UPS batteries for the equipment that contains the PI system. As a result, it took longer than expected to stabilize the units due to the loss of the PI system.

<table>
<thead>
<tr>
<th>Corrective Actions</th>
<th>Anticipated Date of Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Evaluate electrical controls for the oxygen enrichment skid at the chemical plant and determine if improvements can be made.</td>
<td>9/1/2006</td>
</tr>
<tr>
<td>2 Review procedures with operators on taking timely and appropriate action on these units when there is an exceedance of environmental permit limits.</td>
<td>6/1/2006</td>
</tr>
<tr>
<td>3 Replace reverse relays with ones with less sensitive relay settings.</td>
<td>complete</td>
</tr>
<tr>
<td>4 Replace insulators. Change maintenance practice to eliminate greasing and clean insulators more frequently. (This is Foster Wheeler’s action item)</td>
<td>complete</td>
</tr>
<tr>
<td>5 Consider improvements to back up power supply in the VAX room in the warehouse.</td>
<td>12/31/2006</td>
</tr>
<tr>
<td>Item</td>
<td>Level of Risk Reduction (Inherent or Passive)</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>A004-2003-154</td>
<td>Passive</td>
</tr>
<tr>
<td>A004-2003-273</td>
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</tr>
<tr>
<td>A004-2003-397</td>
<td>Inherent</td>
</tr>
<tr>
<td>A004-2003-155</td>
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</tr>
<tr>
<td>A0031-2004-155</td>
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<tr>
<td>A031-2004-173</td>
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<td>Item</td>
<td>Level of Risk Reduction (Inherent or Passive)</td>
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<tr>
<td>------------------</td>
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<tr>
<td>A031-2004-222</td>
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<tr>
<td>A033-2004-054</td>
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<td>A039LPG-2003-011</td>
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<tr>
<td>A039LPG-2003-023</td>
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<tr>
<td>A039LPG-2003-024</td>
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<td>A054N-2004-139</td>
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<td>A068-2004-089</td>
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<tr>
<td>A068-2004-540</td>
<td>Passive</td>
</tr>
<tr>
<td>Item</td>
<td>Level of Risk Reduction (Inherent or Passive)</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>A068-2004-547</td>
<td>Inherent</td>
</tr>
<tr>
<td>A068-2004-554</td>
<td>Passive</td>
</tr>
</tbody>
</table>
Annual Performance Review and Evaluation Submittal

June 22, 2006

*Attach additional pages as necessary

1) Name and address of Stationary Source: Air Products
Tract 1, Tesoro Refinery (Golden Eagle - Avon), Solano Way, Martinez, CA 94553

2) Contact name and telephone number (should CCHS have questions): Michael Cabral, (925) 372-9302

3) Summarize the status of the Stationary Source’s Safety Plan and Program (450-8.030(B)(2)(i)): The Stationary Source’s Safety Plan is complete per CCHS requirements and submitted to CCHS for review. The Program has been implemented, as required.

4) Summarize Safety Plan updates (i.e., brief explanation of update and corresponding date) (450-8.030(B)(2)(ii)): Date: 22 June 2006 - update: Section 7 (Annual Accident History) and Section 8 (Annual Performance Review and Evaluation Submittal)

5) List of locations where Safety Plans are/will be available for review, including contact telephone numbers if the source will provide individuals with copies of the document (450-8.030(B)(2)(iii)): CCHS Office, 4333 Pacheco Boulevard, Martinez; Bay Point Library (library closest to the stationary source); Air Products – See contact in #2, above.

6) Provide any additions to the annual accident history reports (i.e. updates) submitted pursuant to Section 450-8.016(E)(2) of County Ordinance 98-48 (450-8.030(B)(2)(iii)) (i.e., provide information identified in Section 450-8.016(E)(1) for all major chemical accidents or releases occurring between the last accident history report submittal (January 15) and the annual performance review and evaluation submittal (June 30)): None

7) Summary of each Root Cause Analysis (Section 450-8.016(C)) including the status of the analysis and the status of implementation of recommendations formulated during the analysis (450-8.030(B)(2)(iv)): No events triggered this requirement since the previous Annual Performance Review and Evaluation submittal.

8) Summary of the status of implementation of recommendations formulated during audits, inspections, Root Cause Analyses, or Incident Investigations conducted by the Department (450-8.030(B)(2)(v)): APCI submitted proposed remedies to the audit findings to Contra Costa County before 16 August 2004. All outstanding actions of this audit were completed by 16 August 2005. In addition, CCCHS completed an unannounced inspection on 18 January 2006. A response to proposed remedies from three Action Items was accepted by CCCHS on March 27th 2006. APCI has completed the remedies as proposed for each Action Item.

9) Summary of inherently safer systems implemented by the source including but not limited to inventory reduction (i.e., intensification) and substitution (450-8.030(B)(2)(vi)): (1) Plant uses aqueous ammonia rather than anhydrous ammonia in its emission control system. This helps reduce the off-site consequence of an ammonia release. (2) Plant is designed without a liquid hydrogen backup system. This reduces the inventory of hazardous chemicals on-site.

10) Summarize the enforcement actions (including Notice of Deficiencies, Audit Reports, and any actions turned over to the Contra Costa County District Attorney’s Office) taken with the Stationary Source pursuant to Section 450-8.028 of County Ordinance 98-48 (450-8.030(B)(2)(vii)): No enforcement actions were taken since the previous Annual Performance Review and Evaluation Submittal.
11) Summarize total penalties assessed as a result of enforcement of this Chapter (450-8.030(3)): __No penalties have been assessed against this facility since the previous Annual Performance Review and Evaluation Submittal.__

12) Summarize the total fees, service charges, and other assessments collected specifically for the support of the ISO (450-8.030(B)(4)): CalARP Program fees for these eight facilities are - $325,581 the Risk Management Chapter of the Industrial Safety Ordinance fees are - $296,179.

13) Summarize total personnel and personnel years utilized by the jurisdiction to directly implement or administer this Chapter (450-8.030(B)(5)): __4000 hours were used to audit/inspect and issue reports on the Risk Management Chapter of the Industrial Safety Ordinance.__

14) Copies of any comments received by the source (that may not have been received by the Department) regarding the effectiveness of the local program that raise public safety issues(450-8.030(B)(6)): __None__

15) Summarize how this Chapter improves industrial safety at your stationary source (450-8.030(B)(7)): __Air Products is committed to the safe operation of our facilities and has implemented applicable requirements outlined in the ISO, as well as the CalARP regulation. The Human Factors program is implemented, and has helped the site maintain a safety record of no recordable or Lost Time Injuries since the last plan submittal. Likewise, there have been no events that resulted in offsite impact. This Chapter has helped reinforce the need to maintain and follow a structured safety program to help ensure the safety of our employees and the communities in which we operate.__

16) List examples of changes made at your stationary source due to implementation of the Industrial Safety Ordinance (e.g., recommendations from PHA’s, Compliance Audits, and Incident Investigations in units not subject to CalARP regulations; recommendations from RCA’s) that significantly decrease the severity or likelihood of accidental releases: __Air Products has developed and implemented a Human Factors Program as required by the Industrial Safety Ordinance. Per the request of CCCHS, the site clarified issues associated with the Management of Change by creating a site-specific Tier IV document. In addition, the Air Products Corporate Assurance Department formulated an internal audit template developed specifically to verify compliance to the elements of the CCC ISO program.__

17) Summarize the emergency response activities conducted at the source (e.g., CWS or CAN activation) in response to major chemical accidents or releases: __There were no emergency response activities to this site since the previous Annual Performance Review and Evaluation Submittal.__