

Twentieth Anniversary of the Industrial Safety Ordinance



Twentieth Anniversary of the Industrial Safety Ordinance

In December 1998, Contra Costa County's Board of Supervisors adopted a landmark Industrial Safety Ordinance requiring regulated facilities in the County to implement comprehensive safety programs. The requirements of the Industrial Safety Ordinance (ISO) aimed to prevent chemical accidents are some of the most stringent in the United States, if not the world. The goal is for facilities to implement safety programs, instill a safety culture and management systems that prevents incidents that could have detrimental impacts to the surrounding communities. In addition, ISO mandated participation from industries, agencies, elected officials and the public at large.

During the 1990s, there were high severity incidents that occurred that caused major damage onsite, large community impacts or caused serious injuries or fatalities onsite that occurred almost every year. Below is a history of these incidents.

These incidents were of serious concern to the surrounding communities and the Board of Supervisors. The Board of Supervisors worked with refinery and chemical plant representatives, representatives of Oil, Chemical and Atomic Workers (OCAW)¹ and community members to develop the Industrial Safety Ordinance. The Board passed this ordinance in December 1998 and it became effective on January 15, 1999. There were two high severity incidents that occurred in February and March 1999 at facilities that are covered by either the County's or the City of Richmond's Industrial Safety Ordinances.² Since those two incidents, there has only been one incident of that severity, which was the 2012 Chevron Richmond Refinery Crude Unit fire.

History

1990's Major Chemical Accidents and Releases

Below is a listing of major accidents and releases that occurred in the County during the 1990s³.

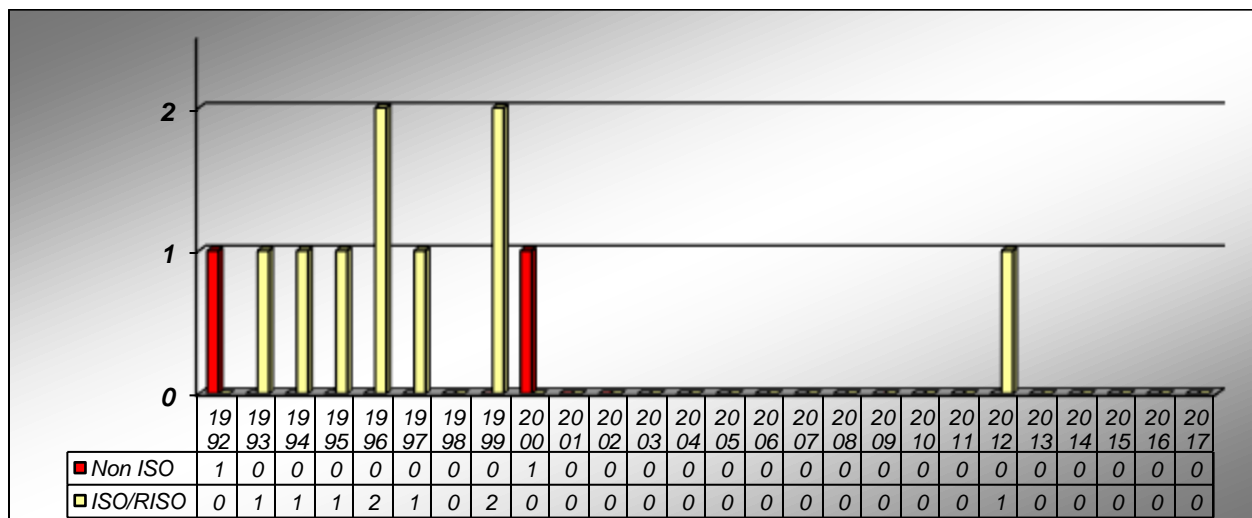
- May 1992 lube spent acid was released and ignited. One worker died and another was seriously injured and there was a major impact from the smoke and gas cloud that was formed.
- August 1993 four to eight tons of sulfur trioxide was released that reacted with the water in the air to produce a sulfuric acid cloud and more than 20,000 people sought medical attention.

¹ OCAW is now part of the United Steel Workers.

² The City of Richmond adopted the County's Industrial Safety Ordinance that became effective in February 2002.

³ Note that two of these incidents were at facilities that are not covered by either the County's or the City of Richmond's Industrial Safety Ordinance.

- September 1994 there was a release that occurred over 16 days that impacted the workers at the refinery and the surrounding community where more than 1,200 people sought medical attention at a special clinic established because of this release.
- June 1995 there was a crude unit fire where the refinery established alternative housing at a motel during and after the fire for more than 100 families.
- April 1996 there was a major release and fire at a catalytic gas unit that caused millions of dollars of damage at the facility and impact to the surrounding community from the smoke.
- May 1996 there was an accidental release of hot coke⁴ that ignited and caused millions of dollars of damage at the facility.
- January 1997 there was a runaway reaction at a hydrocracker unit, which caused increased temperatures and pressures and the outlet piping from the hydrocracker failed, killing one worker and injuring 46 contractor employees.
- February 1999 there was a crude unit fire where four employees died and one was seriously injured.
- March 1999 a six-inch valve failed at a gasoline process unit and a gas release occurred that exploded and ignited, causing millions of dollars of damage to the facility and smoke impacting the surrounding community.⁵



Major Chemical Accidents or Releases

Hazardous Materials Programs analyzed the Major Chemical Accidents or Releases (MCAR)

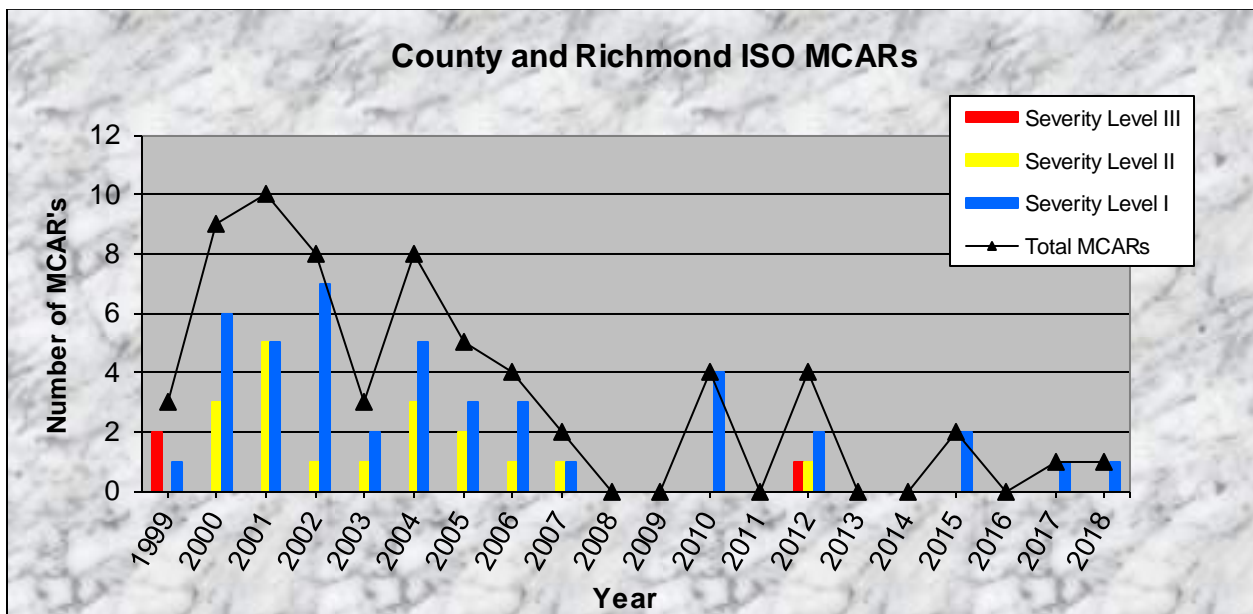
⁴ Coke is a petroleum byproduct of some refineries. Coke is similar to coal. A delayed coker is one type of equipment that is used to produce this coke. The coke is formed in a delayed coker at high temperatures and then cooled. When the coke is cooled it is then dropped from the coker to a containment area below the delayed coker. This accident occurred when the coke was dropped before it was cooled properly, which caused a major fire.

⁵ August 2012 a pipe failed on the Crude Unit Atmospheric Column. Gas oil was released, formed a vapor cloud and ignited. There were six minor injuries to emergency responders at the facility. Over 15,000 people sought medical attention as a result of the fire. This was the first Major Chemical Accidental Release that meets severity level 3 criteria since May 1999.

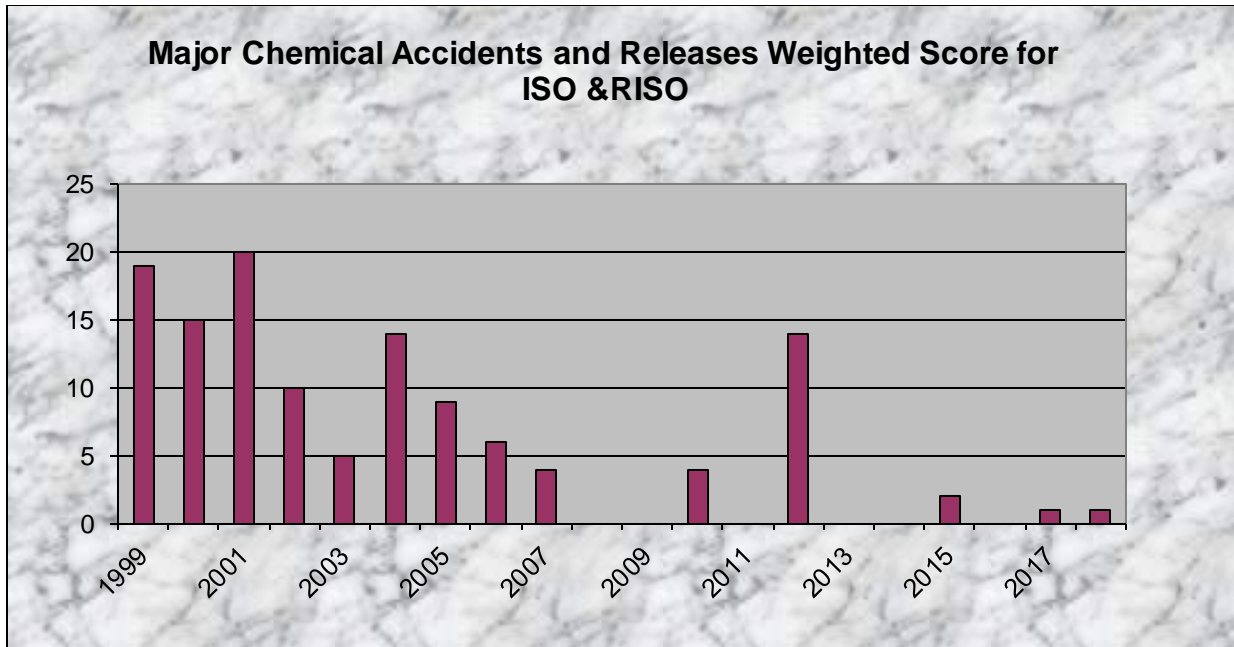
that occurred since the implementation of the Industrial Safety Ordinance. The analysis includes the number of MCARs and the severity of the MCARs. Three different levels of severity were assigned:

- *Severity Level III*—A fatality, serious injuries or major on-site and/or off-site damage occurred
- *Severity Level II*—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
- *Severity Level I*—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 is a chart showing the number of MCARs from January 1999 through 2018 for the stationary sources subject to either the County’s or the City of Richmond’s Industrial Safety Ordinances.



A weighted score has been developed, giving more weight to the higher severity incidents and a lower weight to the less severe incidents. The purpose is to develop a metric of the overall process safety of facilities in the County, the facilities that are covered by the County and the City of Richmond Industrial Safety Ordinances. A severity level III incident is given 9 points, severity level II is given 3 points and severity level I is given 1 point. Below is a graph of this weighted scoring.



Conclusion

The success of the implementation of the Industrial Safety Ordinance has been recognized by the United State Chemical Safety and Hazard Investigation Board, by Congress with presentation to two Senate subcommittees, and California adopted regulations for petroleum refineries that used the Industrial Safety Ordinance as the model.

The success can be attributed to the changes the ordinance required, the work of the engineers implementing the program, and the culture change that occurred by the regulated facilities. What was at one time okay is no longer okay.