

# Accidental Release Prevention Process Safety Management Systems



Randall L. Sawyer  
Chief Environmental  
Health and Hazardous  
Materials Officer

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# Presentation Discussion Points

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- ◉ Process Safety Management Systems brief history
- ◉ Accident history
- ◉ Industrial Safety Ordinance (ISO) Process Safety Management Systems
- ◉ Updates to California Accidental Release Prevention (CalARP), Cal/OSHA Process Safety Management (PSM)

# History

- Major Accidents in the County:
  - Rhone Poulenc Fire 1992
  - General Chemical Richmond Sulfur Trioxide Release 1993
  - Unocal Catacarb® Release 1994
  - Shell Cat Gas Fire 1996
  - Tosco Hydrocracker Fire 1997
  - Tosco Crude Unit Fire 1999
  - Chevron Isomax Unit Fire 1999
  - MBA Polymer Fire 2000
  - Kinder Morgan Walnut Creek Pipeline Fire 2004
  - Chevron Crude Unit Fire 2012

# History

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- California Risk Management and Prevention Program 1986
- OSHA Process Safety Management 1992
- EPA Risk Management Program 1997
- California Accidental Release Prevention Program 1997
- Industrial Safety Ordinance Adopted January 1999
- 2001 City of Richmond Adopted the Industrial Safety Ordinance
- Amendments to County ISO in 2002 and 2006, 2014

# Major Chemical Accident or Release Definition

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- Community Warning System Level 2 or 3 is declared
- Or results in the release of a regulated substance and meets one or more of the following criteria:
  - Results in one or more fatalities;
  - Results in at least twenty-four hours of hospital treatment of each of at least three persons;
  - Causes on- and/or off-site property damage (including clean-up and restoration activities) initially estimated at five hundred thousand dollars or more.
  - Results in a vapor cloud of flammables and/or combustibles that is more than five thousand pounds.

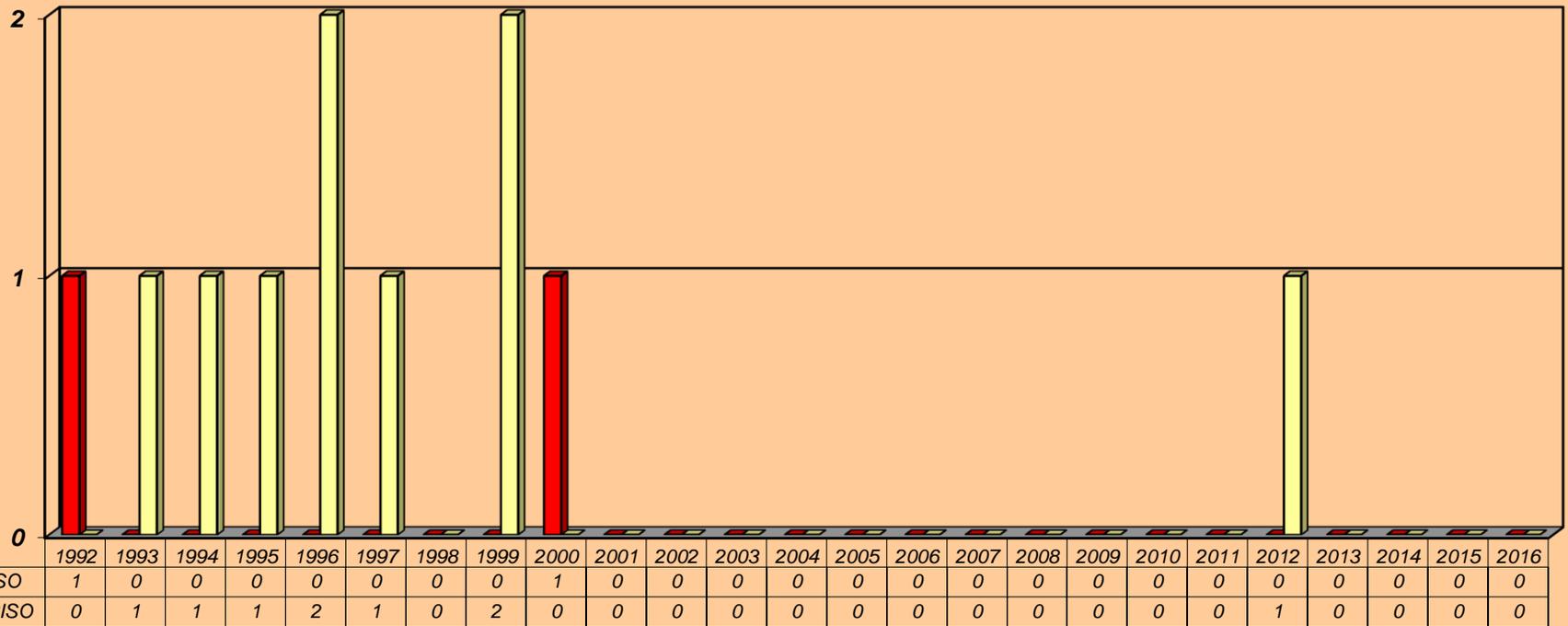
# Major Chemical Accident or Release Severity Levels

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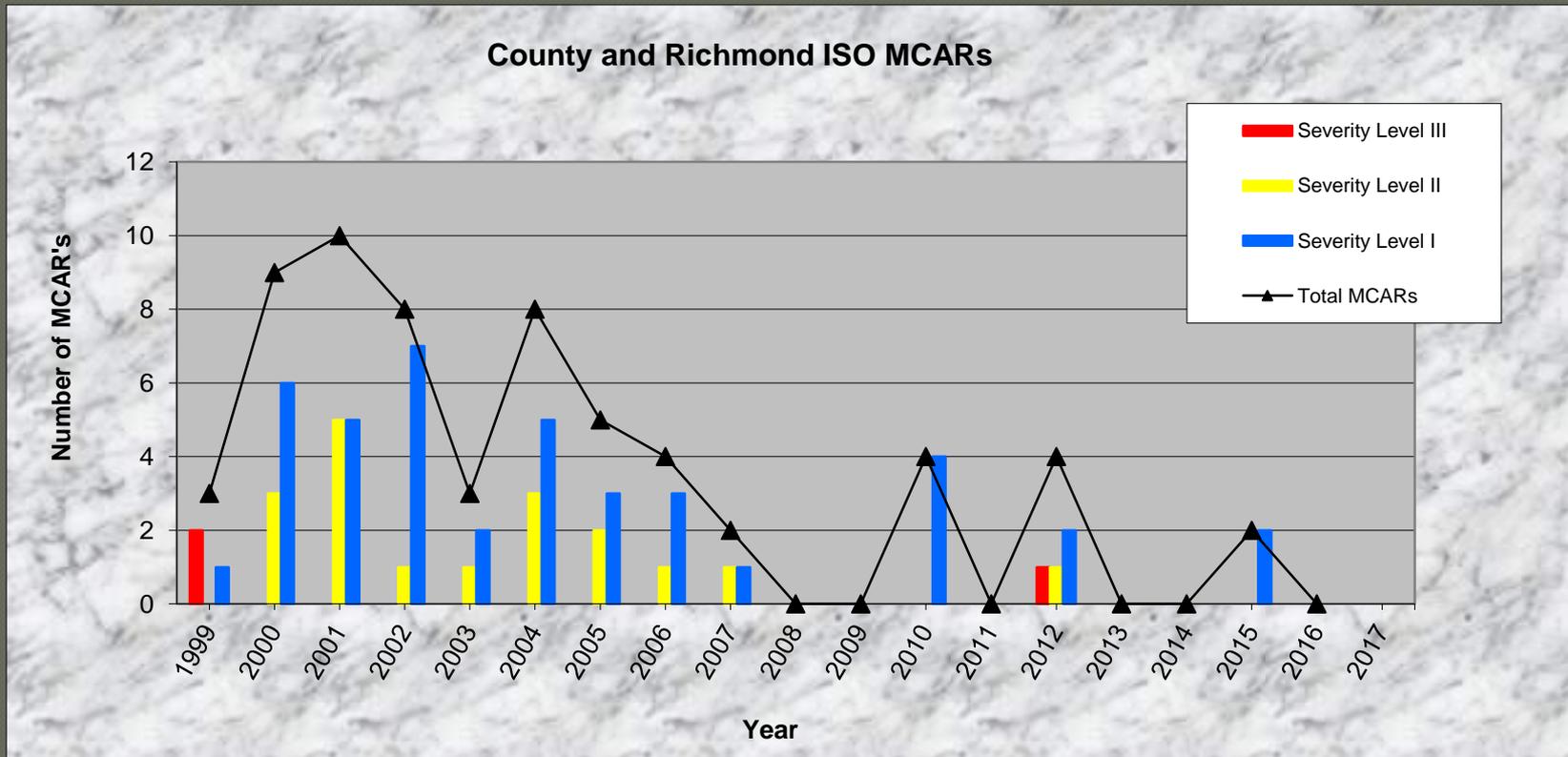
## ○ Severity Levels

- **Severity Type 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
- **Severity Type 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 Type III** – A fatality, serious injuries, or major onsite and/or offsite damage occurred

# Major Chemical Accidents or Releases Severity Type III (1990s – now)



# Accident History

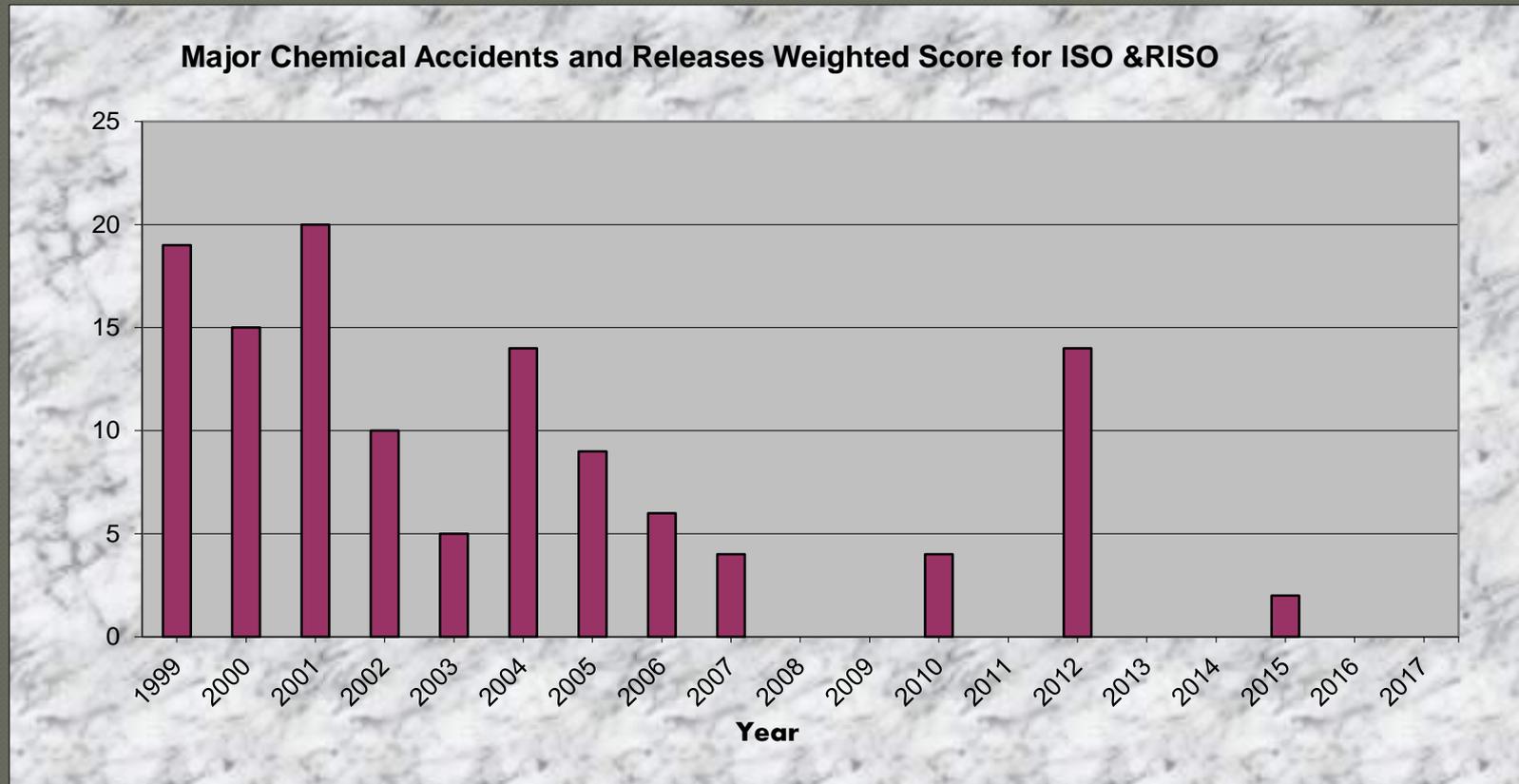


# Accident History

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- County and the City of Richmond Industrial Safety Ordinances, weighted score:
  - Severity Type III - 9 points
  - Severity Type II - 3 points
  - Severity Type I - 1 point

# Accident History



# ISO Management Systems

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- Facilities need to thoroughly understand their processes so they can be operated safely
  - Mechanical Integrity
  - Process Safety Information
  - Process Hazard Analysis – Seismic & Security Vulnerability Analysis
  - Inherently Safer Systems

# ISO Management Systems

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- Facilities need to design the operation of the process with workers in mind
  - Human Factors / Latent Conditions
  - Written Operating and Maintenance Procedures
  - Training
  - Safe Work Practices (hot work, lockout tagout, line opening, confined space entry)
  - Contractors Training

# ISO Management Systems

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- Facilities need to manage changes to staff, policies, procedures, and equipment effectively
  - Management of Organizational Change
  - Management of Change
  - Pre Start-up Safety Review

# ISO Management Systems

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- Facilities need to get employees involved with developing and maintaining the safety programs
- Facilities need to have an emergency response program in case an incident occurs

# ISO Management Systems

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- Facilities need to be able to learn from incidents and close calls without assigning blame
  - Incident Investigations
  - Root Cause Analysis
  - Near Miss Reporting

# ISO Management Systems

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- Management ***MUST*** remain actively involved in all safety programs
  - Safety Culture Assessments
  - Internal Compliance Audits
  - Develop a monitoring system to effectively implement the safety management systems

# ISO Management Systems

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In response to U.S. Chemical Safety and Hazard Investigation Board 2012 recommendations:

- Required Safeguard Protection Analysis
- Revised the requirement when to perform an Inherently Safer Systems Analysis

# ISO Management Systems

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- Requirement to develop Process Safety Performance Indicators – Four common indicators:
  - Overdue inspection for piping and pressure vessels
  - Past due PHA recommended actions
  - Past due investigation recommended actions
  - American Petroleum Institute/American Chemistry Council Tier 1 and Tier 2 incidents

# CalARP Program 4

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- ❑ As of October 1, 2017 California adopted the County's Industrial Safety Ordinance Safety Management Systems for Petroleum Refineries with some modifications
  - ❑ Changes to the California Accidental Release Prevention Program (Program 4) - Local Unified Program Agencies
  - ❑ Added new Process Safety Management regulations for Petroleum Refineries – Cal/OSHA

# Hazardous Materials Programs:

- ◉ Vision: A Clean, Healthy, and Safe Environment
- ◉ Mission Statement: The mission of the Contra Costa Health Services Hazardous Materials Programs is to protect human health and the environment by promoting pollution prevention, increasing process safety knowledge and environmental awareness, responding to incidents, and implementing consistent regulatory compliance and enforcement programs.

CONTRA COSTA  
HEALTH SERVICES

Randy Sawyer  
Contra Costa Health Services  
4585 Pacheco Blvd., Suite 100  
Martinez, CA 94553  
(925) 335-3210  
Randy.sawyer@hsd.cccounty.us