

# Office of Recommendations

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**U.S. Chemical Safety and  
Hazard Investigation Board**

## **Highlighted Recommendations in FY24**

- Most Notable Recommendations that were Closed
- Responsive Recommendation Recipients

## **Office of Investigations & Recommendations Advocacy Highlights for FY24**

## **FY24 Recommendations Data/Information**

- Issued Recommendations/Status Changes
- Closed Out Investigations

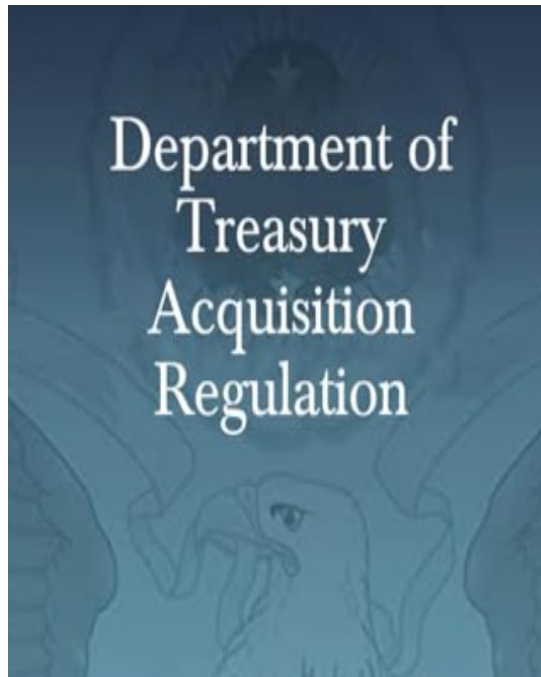
## Donaldson Enterprises, Inc. Fatal Fireworks Disassembly Fire & Explosion



- April 8, 2011
- Explosion and fire of seized fireworks inside a storage magazine
- 5 Fatalities, 1 Injury

CSB Recommendation R4 to Treasury – Office of Procurement Exec:  
Incorporate NFPA 401 by reference into the formal policies established by R2 and R3 specific to contractor selection and oversight.

## Donaldson Enterprises, Inc. Fatal Fireworks Disassembly Fire & Explosion



Dept of Treasury, OPE Implementation of R4:

- R2 and R3 were implemented within 11 months of the release of the investigation report
- NFPA 401 published in December of 2023; recommendation was closed March 2024
- Acquisition Procedures Update No. 24-06 issued July of 2024

**Closed – Acceptable Action**

## Tesoro Anacortes Refinery Fatal Explosion & Fire



- April 2, 2010
- Catastrophic heat exchanger failure during a maintenance operation
- Explosion and fire caused seven worker fatalities

CSB Recommendation No. 2010-08-I-WA-R5 (R5) to Washington State:

Augment your existing process safety management regulations for petroleum refineries in the state of Washington with more rigorous goal-setting attributes.

## Tesoro Anacortes Refinery Fatal Explosion & Fire

OFFICE OF THE CODE REVISER  
STATE OF WASHINGTON  
FILED

**DATE: December 27, 2023**

**TIME: 10:24 AM**

**WSR 24-02-037**

### Washington Implementation of R5:

- Adopted rule WAC 296-67 Part B on December 27, 2023
- Effective December 27, 2024
- Applies to petroleum refineries
- Damage Mechanism Reviews
- Hierarchy of Hazard Controls Analyses
- Effectiveness of Safeguards
- Root Cause Analysis
- Stop Work Authority

**Closed – Acceptable Alternative Action**

## Philadelphia Energy Solutions (PES) Refinery Fire and Explosion



- June 21, 2019
- pipe elbow in hydrofluoric acid (HF) alkylation unit ruptured
- Large vapor cloud ignited causing multiple explosions and fire

CSB Recommendation No. 2019-04-I-PA-R2 (R2) to EPA:

Revise 40 C.F.R. Part 68 to require petroleum refineries with HF alkylation units to conduct a safer technology and alternatives analysis (STAA) and to evaluate the practicability of any inherently safer technology (IST) identified. Conduct every 5 years as a part of the PHA

(photo courtesy of ABC News)

## Philadelphia Energy Solutions (PES) Refinery Fire and Explosion



### EPA Implementation of R2:

- Final Rule published March 11, 2024
- Effective May 10, 2024
- Meets all recommendation requirements
- STAA and IST conducted every 5 years with PHA

**Closed – Acceptable Action**



## **Highlighted Recommendations: Responsive Recommendation Recipients**

- Cenovus – 14 recs: 6 closed, responses for the rest indicating full or partial implementation
- Kuraray – 12 recs: responded to all, 6 closed, 5 advanced, add'l responses indicating full or partial implementation
- Optima Belle – 4 recs, all closed
- Wacker – 4 recs, 3 closed, 1 advanced
- TPC Group – 3 recs, all closed

## Office of Investigations and Recommendations Advocacy Highlights:

- Magazine Articles – 2
- Presentations – 14
- Standards Develop Meetings – 10
- Federal Register Comments – 3
- Issuance of the CSB Safety Study: Remote Isolation of Process Equipment

## FY24 Recommendations Data/Information:

- **46** New Recommendations Issued

- **7** - Yenkin-Majestic

(from CSB investigation reports)

- **13** - Didion

- **12** - Foundation Food Group

- **4** - Wendland

- **7** - BP Husky

- **3** - CSB Safety Study: Remote Isolation of Process Equipment

***To prevent future chemical incidents, and in the interest of driving chemical safety excellence to protect communities, workers, and the environment, the CSB makes the following safety recommendations:***

## FY24 Recommendations Data/Information:

- **46** Recommendations Closed
  - **40** Acceptable
  - **1** Unacceptable
  - **5** Superseded

## **FY24 Recommendations Data/Information:**

- **28** Recommendations Advanced (moved to a new 'Open' status)
  - **21** Acceptable
  - **7** Unacceptable

## FY24 Recommendations Data/Information:

- When I arrived in August of 2016 there were a total of 781 recs.
- As of July 25, 2024, the CSB has issued its...
- On Sept. 30, 2024...
  - 851 closed (85%)
  - 149 open (15%)



## **FY24 Recommendations Data/Information:**

- **6 Investigations with All Recommendations Closed in FY24**

- 1) Motiva Enterprises Sulfuric Acid Tank Explosion (Delaware City, DE)

- Incident Details: On July 17, 2001 - Hot work to repair a catwalk above a sulfuric acid storage tank farm. A spark ignited flammable vapors in one of the tanks.
- Consequences: 1 fatality, 8 injured, significant environmental damage
- Report released on August 28, 2002, with 19 recommendations

## **FY24 Recommendations Data/Information:**

- **6 Investigations with All Recommendations Closed in FY24**

- 2) Xcel Energy Company Hydroelectric Tunnel Fire (Georgetown, CO)

- Incident Details: October 2, 2007 – While coating the inside of a hydroelectric power plant tunnel with epoxy using highly flammable solvents a fire erupted in the tunnel 1,000 feet underground.
    - Consequences: 5 fatalities, 3 injured
    - Report released on August 25, 2010, with 20 recommendations



## **FY24 Recommendations Data/Information:**

- **6 Investigations with All Recommendations Closed in FY24**

- 3) Oil Tank Safety Study

- Incident Details: Multiple incidents that occurred in Mississippi, Oklahoma, and Texas. The incidents involved rural unmanned oil and gas storage sites that lacked fencing and signs warning of the hazards, which might have otherwise deterred members of the public from using them as places to gather.
    - Consequences: 44 fatalities, 25 injured
    - Report released on October 27, 2011, with 6 recommendations

## FY24 Recommendations Data/Information:

- **6 Investigations with All Recommendations Closed in FY24**

- 4) Donaldson Enterprises, Inc. (DEI) Fatal Fireworks Disassembly Explosion and Fire (Waipahu, HI)

- Incident Details: April 8, 2011 – While disposing of imported fireworks seized in Honolulu, Hawaii, by federal law enforcement personnel, an explosion and fire occurred at a magazine.
    - Consequences: 5 fatalities, 1 injured
    - Report released on January 17, 2013, with 12 recommendations

## **FY24 Recommendations Data/Information:**

- **6 Investigations with All Recommendations Closed in FY24**

- 5) Arkema Inc. Chemical Plant Fire (Crosby, TX)

- Incident Details: August 29, 2017 – flooding from Hurricane Harvey disabled the refrigeration system at the plant, which manufactures organic peroxides. As the trailers increased in temperature the peroxides spontaneously combusted.
    - Consequences: 1.5-mile radius evacuation
    - Report released on May 24, 2018, with 5 recommendations

## **FY24 Recommendations Data/Information:**

- **6 Investigations with All Recommendations Closed in FY24**

- 6) TPC Port Neches Explosions and Fire (Port Neches, TX)

- Incident Details: November 27, 2019 – a series of explosions occurred after a butadiene released from a process unit resulting from excessive ‘popcorn polymer’ build up due to a dead leg in the piping system.
    - Consequences: 5 members of the public injured, 3 workers injured, 4-mile radius evacuation, waterways shut down, significant environmental damage
    - Report released on December 19, 2022, with 5 recommendations

## **FY24 Recommendations Data/Information:**

- **6 Investigations with All Recommendations Closed in FY24**
  - **In summary for some perspective, 6 investigations addressing:**
    - 55 fatalities
    - 45 injured
    - Significant public impact (evacuations, shelters in place, closures of highways and waterways)
    - Significant property and environmental damage
  - **67 Recommendations issued; all are Closed**