

May 2026

Environmental, Safety & Security Sequential Safety Meeting



ANACORTES REFINERY

ESS Safety Metrics



DSA Eligible	OSHA rec	ORIR	AFPM 1a/1p	H2S >50 ppm	PSE 1/2	DEI 3/4
	1	0.38	0/0	0	0/0	1/0
	-	0.30	3	≤3	≤3	≤0

•**ORIR:** OSHA Recordable Injury

•**Anacortes**

1 - Chipped Tooth

•**AFPM 1a: Actual Incident** - serious injury that caused a fatality, hospitalization, or other life-altering event.

•**AFPM 1p: Potential Incident** - an incident with the potential for fatality, hospitalization, or other life-altering event, including near misses.

•**Anacortes**

•**PSE:** Process Safety Event, refer to R-12-007




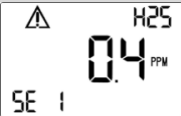
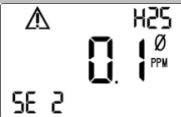
•**DEI:** Designated Environmental Incident, refer to R-13-027



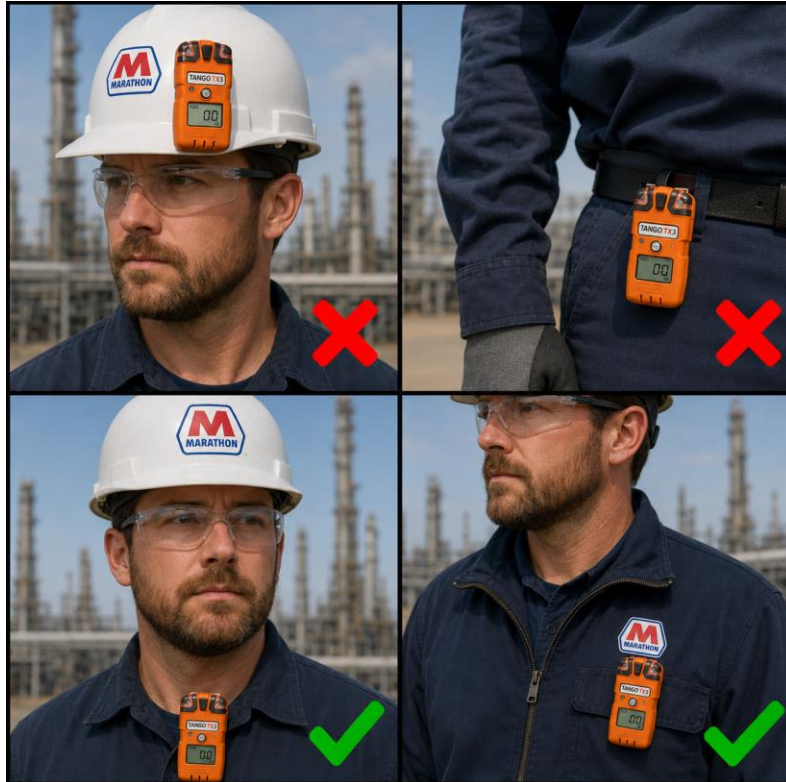
Start Safe and Stay Safe: Personal H2S Monitors



R:\ANR_INFO\All_Users_Full_Access\Proc_eng\Safety\WIN_20260501_06_32_12_Pro.mp4

Symbol	Warning Event	Description
	Calibration Due	The instrument requires calibration. Should be chirping!
	Low Battery	Need to visit tool room or safety trailer for a new battery.
	Battery is completely dead	Battery is completely dead. Need to visit tool room or safety trailer for a new battery.
	Sensor Error 1	Monitor needs to be replaced. Please visit the safety trailer.
	Sensor Error 2	Monitor needs to be replaced. Please visit the safety trailer.

Start Safe and Stay Safe: Personal H2S Monitors



H2S monitors must be worn in the breathing zone and outside of the outermost layer. The breathing zone is an area approximately one-foot square around the nose and mouth. Monitors must be worn so that they are likely to be seen and/or heard if the device alarms.

Suggested placement:

- Shirt collar or pocket
- Upper half of the shirt
- In cold weather, must be placed on the outermost layer of clothing.

H2S monitors may not be worn on the belt, on the hard hat or under the outer layer. H2S monitors are not a tool for locating a source of H2S.



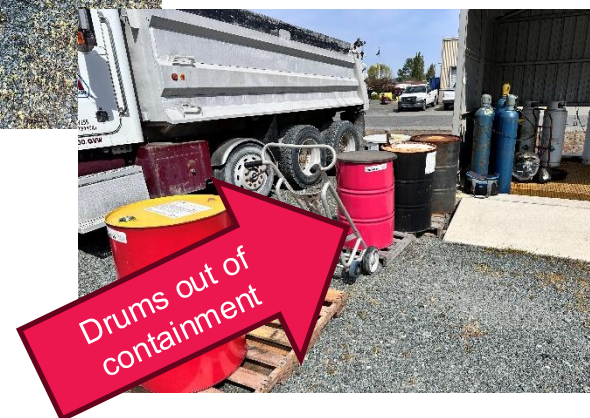
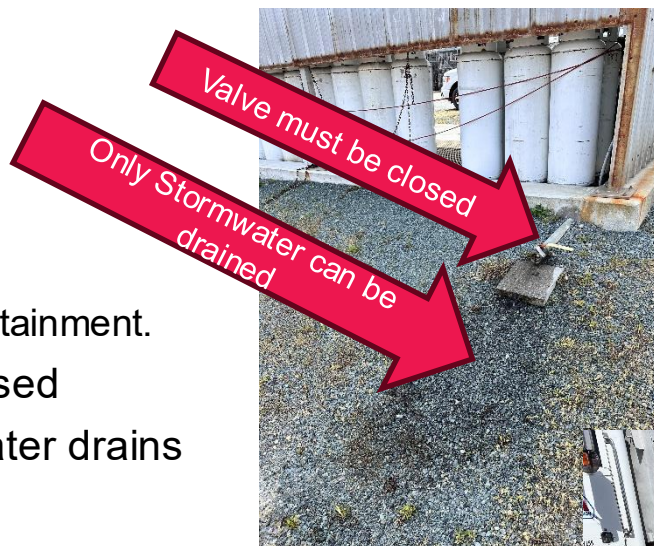
- Purpose of the SPCC
 - Prevent oil discharges
 - Establish facility-specific controls and containment measure
 - Define response and countermeasure procedures
 - Demonstrate regulatory compliance
 - Document management commitment, inspections, and training
- Purpose of the SWPPP
 - Plan to identify sources stormwater pollution and best management practices

● Everyone's Responsibility

- Reporting spills
 - Cleaning up drips
- Proper storage of oils
 - >55 gallons need to be on containment.
- Containment drains kept closed
- Only Stormwater in Stormwater drains

● Questions:

- What does SPCC stand for?
- What does SWPPP stand for?
- What can drain to the stormwater system?



Anacortes 2026 Completed Learning Teams

*“Our goal is to learn enough that we realize, given the **conditions** they faced and the **information** they had, the **tools and equipment** they used and the **pressure** they were under, that we would probably have made the same decision.” - Edwards*



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2026 Completed Learning Teams

- TAR LOTO, Permitting-Learn about LOTO, Permitting and Handover to understand the human factors of these processes that are leading to LOPC's; exposures or their potential
- Dates of the Meeting(s): January 6/7, 2026
- Air Hoists-Learn why air hoists are not properly stowed when not in use.
- Dates of Meeting(s): September 16/17, 2025





Anacortes Refinery

Air Hoists



Learn why air hoists are not properly stowed when not in use.

There is a series of similar events at Anacortes (11 incidents since 2021) that span multiple people, equipment and groups and the action leading to the incident is the same

Team Members

- Facilitator-Trent Kies
- Scribe-Chris Swenson
- Operations: Bret Fritch, Nick Burroughs
- Maintenance: Garret Hong, Ryan Thomas
- Business Partners from Brinderson and Kone Cranes
- Sponsor-Brady Emmons



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Problem Statements Overview

- Hoist stowage locations are not adequate and/or easy to identify
- Hoists are exposed to the elements causing failure/maintenance issues
- Control on hoists are not standardized, and lever controls often have issues
- Hoist operators are not always trained in use/stowage procedures




Recommendations

- Standardize hoist stowage locations throughout the refinery
- Update the monthly PM to include running hoists monthly
- Modify annual inspection PM to load test hoists
- Standardize all hoist controls throughout the refinery
- Develop a signoff as part of the work permit that includes:
 - Require a signature from the servicing group rep that the hoist user has the site training and is qualified
 - Implement a signoff once work is complete that the hoist is stowed properly
- Update site specific training material to include:
 - Changes implemented from the learning team
 - Clarify that state required rigging/signaling training is mandatory to utilize hoists
 - Require training to be hands on in the field



Human Factors of TAR LOTO, Permitting and Handover Work Processes leading to LOPC's/exposures or their potential

PROCESS SAFETY  **WIN OF THE WEEK**

Anacortes Learning Team

A recent Learning Team review of TAR-related LOTO, permitting, and handover incidents delivered meaningful, operator-driven insights into how work is performed during high-pressure shutdown and break-in periods. The review highlighted key human factors—such as perceived time pressure, handover complexity, and fatigue—that can challenge consistent LOTO execution, while reinforcing verification as the final and most critical safeguard before equipment handover.

Strong cross-functional participation helped surface practical opportunities to improve consistency across zones, strengthen training and refreshers, and better support operators during TAR execution. These learnings are actively informing clearer expectations, reinforcing Stop Work behaviors, and strengthening the overall safety culture to reduce risk and improve outcomes during future TARs and routine maintenance activities.

Team Members

- Facilitator-Marc Ranieri
- Scribe-Chris Swenson
- Operations: Keyan Price; Danny Lockwood; Pauline Vance; Jennifer Nash
- Sponsor-Amber Larsen



Problem Statements/Recommendation(s)

- Inconsistency in LOTO from Operator to Operator and currently no established repository for saving plans
- Lack of continued refresher training/exercises for veteran Operators to ensure understanding of quality LOTO.
- Perceived pressure felt by operators to get equipment LOTO'd and ready for Break-in Maintenance and TAR/Project work as quickly as possible.
- Recurring inadvertent exposures to process during equipment prep to personnel at the refinery.

There are 10 recommendations for these problem statements; a few noted below:

- Consider reinstating or recreating the LOTO database to save developed LOTO plans, especially for larger, more complex equipment, to be utilized across all operating zones. In order for this to be successful and sustainable, guidance for utilizing and maintaining the database needs to be created and owner(s) identified.
- Review LOTO training/scope review in TAR bootcamp for Operators and enhance as appropriate.



Access completed learning teams via the Anacortes HOP Share Point site

HOP

The screenshot shows the SharePoint interface for the 'Process Safety' group. The top navigation bar includes 'SharePoint', a search box, and utility icons. The main navigation menu lists various departments: Anacortes Refinery, HOP, Engineering, ESS, Process Safety Council, Government Affairs, Human Resources, IT, Maintenance, Operations, Planning and Economics, Supply Chain, Technical Services, and Product Quality. The 'Process Safety' group is selected, showing a 'PS' icon and the group name. The group is a private group with 3 members. The main content area features a blue banner with the text 'HOP Human Organizational Performance' and 'H. O. P.' in large letters. The left sidebar contains navigation options: Home, News, Conversations, Notebook, Shared Documents, Pages, and Calendar.



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PSE1 MPC PROCESS SAFETY ADVISORY

GARYVILLE ENGINEERED PLUG CONDENSATE BURN INC #493349

PSA 26-04

Published 4/30/2026

On September 17, 2025, a contractor was exposed to hot condensate while removing an engineered isolation plug from a coke drum overhead line after completion of hot work. The contractor sustained thermal burns as a result.

➤ This incident was categorized as a PSE1 due to a lost time injury.

Causal Factors:

- The hazard of the hot condensate entering the system was not identified.
- The plug's vent did not drain the hot condensate collecting upstream while in use. Besides the plug's vent, there were no means to verify whether liquid had accumulated upstream of the plug prior to its removal.
- The contractor perceived the line of fire to be the open flange facing downward.

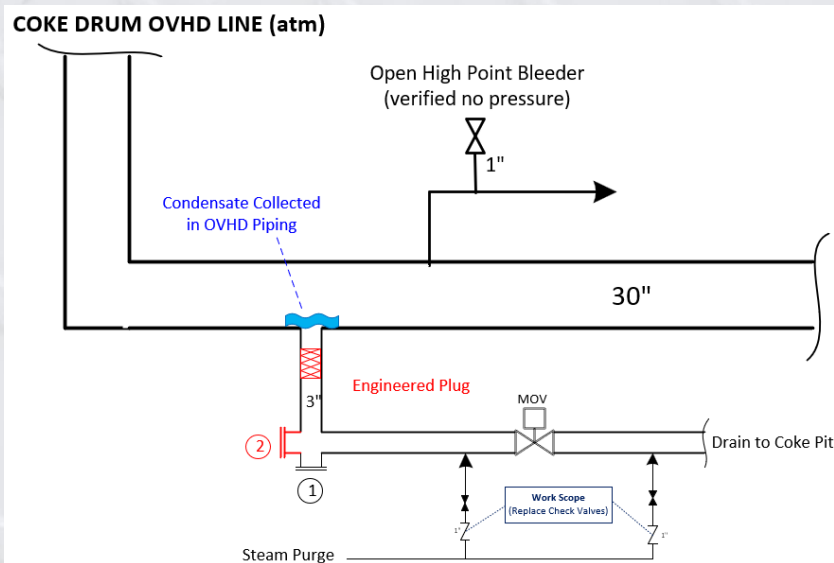


Figure 1

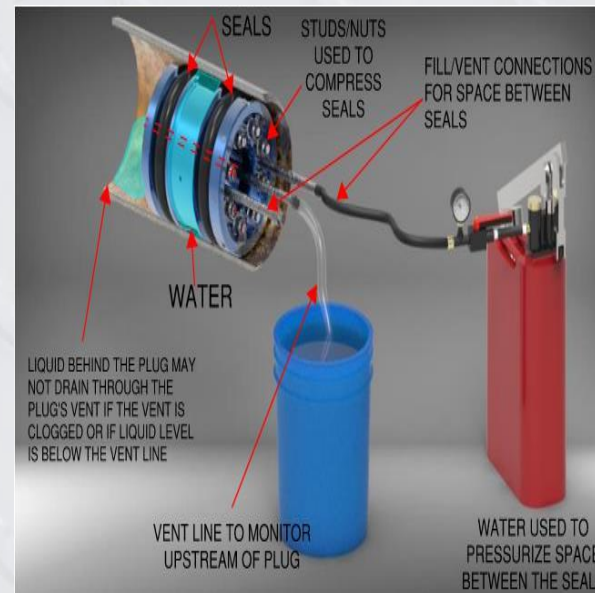


Figure 2

“THE REST OF THE STORY”: On September 16, 2025, an engineered plug was installed on a 3"-line branching from the bottom of the 30" coke drum overhead line. The plug was used to isolate the line for hot work to replace two check valves. Prior to installation, cold condensate was observed dripping from the open flange. Operations personnel walked the line again to verify isolation before starting work. A high-point bleeder was left open to verify the 30" line was not pressurized. On September 17, following the completion of the check valve installation, the contractors began the process to remove the plug. The plug contains a vent line used to monitor pressure buildup upstream of the plug. The contractor's practice is to run a wire through the vent line to ensure there is nothing obstructing the vent line. After using the wire and verifying nothing was discharged from the vent line, the contractor proceeded to loosen and remove the plug by sliding it down the vertical pipe. Unbeknownst to the contractors, a 150-pound steam purge was leaking by, resulting in a build-up of hot condensate behind the plug. As the plug moved downward, condensate discharged from the open flange 2 (see Figure 1) and burned the contractor. Two potential explanations exist for why the vent line did not drain the hot condensate upstream of the plug: (1) a mixture of water and coke fines may have clogged the plug's vent and seals, and/or (2) a vacuum created by the coke drum's natural draft may have retained the condensate in the line until the plug was removed.

- Operations
- Maintenance
- Inspection
- Engineering



DISCUSSION TOPICS:

- **If you are involved with work that may require an engineered plug, please consider the following:**
 - *Could this engineered plug be an unreliable source of zero energy verification?*
 - *Could the process/service that the plug is being used in obstruct the vent/seals of the plug?*
 - *Could a vacuum be present in the system and prevent liquid from draining until the plug is removed from the line?*
 - *Is the vent of the plug positioned above the liquid level in horizontal and vertical orientations?*
 - *Are there other methods besides the vent line to verify zero energy with another low point bleeder? If not, review safeguards for using and removing the plug.*
 - *Are you aware of the line of fire? If there are multiple outlets downstream of the plug, the line of fire becomes difficult to determine.*
 - *Is there a possibility of thermal energy sources? If so, can you mitigate the source or provide appropriate PPE? How do you ensure appropriate PPE is available for use? Is it possible for contractors to bring hot suits if thermal risk is present?*

Global Action

Recommendations	Assigned to:	Due Date:
Review this advisory with your leadership team and cascade to your entire organization to ensure site-wide review to improve process safety hazard recognition.	Site VPs	6/30/2026
Assemble a team to manage the risk of installation and removal of engineered isolation plugs. Update RSP "Hot Work by Engineered Isolation Plug Approval Form" and e-permit as appropriate.	Greg Lentz	10/31/2026

Bring It Up!!!



If there are Safety questions or concerns you wish to discuss, please bring them up!