

February 2025



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	Permit deviations
	1	>0.30	0/0	1	0/0	0/0	1
	-	0.30	3	≤ 3	≤ 3	≤ 1	TBD

- Recordable (459825)– on 1/3/2025 Tank 136 employee eye irritation (debris).
- Deviation (464567) – 1/21/2025 wastewater discharge permit deviation.
- H2S Exposure (463011) - 1/28/2025 Operators H2S meter alarmed while taking sample (52 ppm).

DSA: Distinguished Safety Award. The most prestigious AFPM (American Fuel & Petrochemical Manufacturers) award.

ORIR: OSHA Recordable Injury Rate = (number of recordables/(contractor + employee hours worked))

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.

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

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

Ways to Start Safe and Stay Safe PPE Edition



SAFETY
IS IN YOUR HANDS



WEAR GLOVES

Start Safe PPE Selection



Starting Safe with Proper PPE Selection

- Reference R-11-023 Personal Protective Equipment for additional information.

General Requirements (Essential PPE)

- At a minimum, all employees, contractors, vendors, and visitors shall wear:
 - FRC, safety glasses, protective footwear, personnel H₂S monitor and hard hats (with goggles attached) in the following work areas:
 - Process areas of refineries
 - Pipelines: During performance of maintenance, inspection, or operation tasks
 - Loading racks: Non-Marathon Anacortes Refinery drivers exempt from FRC, H₂S monitor requirement
 - Tank Farms
 - Docks and Wharfs: Ship personnel exempt
 - Hearing protection shall be worn in operating units, and in high noise areas.
 - Appropriate hand protection (Ex: leather or work gloves) shall be immediately available for use when present at any areas listed above.



Start Safe - PPE Recommendations for Specific Service Activities

- Recommendations can be found in R-11-023, starting on Page 19
- Covers PPE Recommendations For -
 - Eye Protection
 - Hand Protection
 - Foot Protection
 - Respiratory Protection
 - Skin Protection

 Marathon Petroleum Company LP	REFINERY-WIDE	R-11-023
ANACORTES REFINERY	Personal Protective Equipment (PPE)	Page 19 of 33

19.0 ATTACHMENT 1 – PPE RECOMMENDATIONS

19.1 Chemical: Acid

Activity	Feet	Skin (1)	Eye	Hand	Respiratory (2)	Other
Changing blinds	Neoprene Boots	Approved Chemical Gear	Acid Hood	Neoprene Gloves (3) (taped)	Supplied Air	Water hose running nearby
Sampling	Safe Footwear	FRC	Goggles	Neoprene Gloves	N/A	
Loading/Unloading T/Truck	Safe Footwear	Approved Chemical Gear	Goggles & Face shield	Neoprene Gloves (3)	N/A	
Removing/Replacing Instrumentation	Neoprene Boots	Approved Chemical Gear SL	Acid Hood	Neoprene Gloves (3)	Supplied Air	
Performing PH Analysis	Safe Footwear	FRC	Goggles	Neoprene Gloves (3)	N/A	
Removing equipment after blinding or placing equipment back into service (drained & de-pressured)	Neoprene Boots	Approved Chemical Gear	Goggles & Face shield	Neoprene Gloves (3)	N/A	
Shop Activities (after washing)	Safe Footwear	FRC	Goggles	Neoprene Gloves (3)	N/A	
Equipment Entry [decontaminated (neutral pH, hydrocarbon free) but not dry]	Neoprene Boots	Approved Chemical Gear	Goggles & Face shield	Neoprene Gloves (3)	N/A	
Minor Leaks (including packings, bleeders, DP cells)	Neoprene Boots	Approved Chemical Gear	Acid Hood	Neoprene Gloves (3)	Supplied Air	

Footnotes:

1. Approved chemical suits have built in hoods and boots. If the user may choose to use the built in boot or the neoprene boots in the Safety Equipment Room.
2. For more information on respiratory protection and cartridge selection, see R-14-008. Air sampling may be required to determine proper respiratory protection requirements.
3. Where the potential of exposure from splash or overhead work exists, additional skin and head protection may be required.

Recommendations for Removing Face Shields, Goggles and Full-Face Respirators

- Treat Goggles, Face Shields, and Respirators like they are contaminated.
- Use a slow and controlled manner when removing.

Removing a Face Shield

- Bend forward.

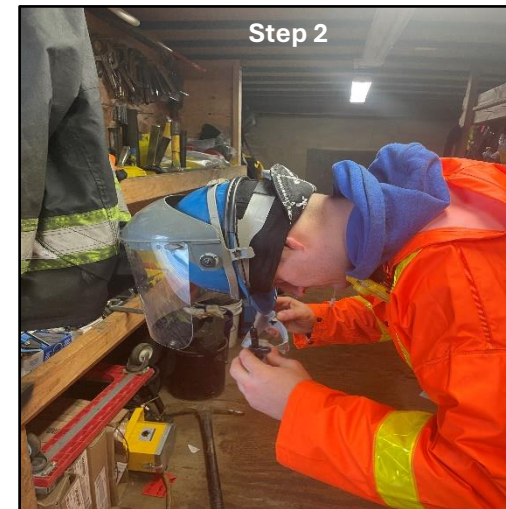
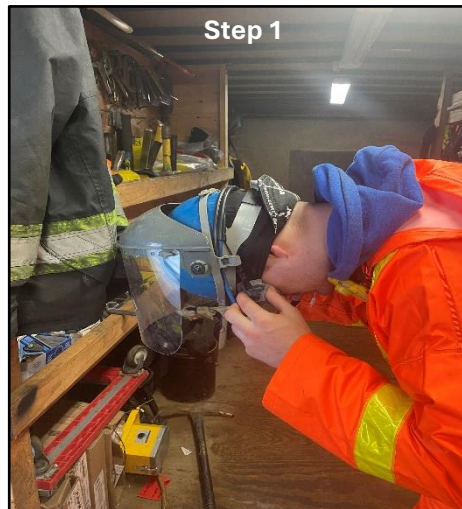
- Use two fingers on outer edges.
- Pull away from face and lift away.



Removing Goggles and Full-Face Respirators

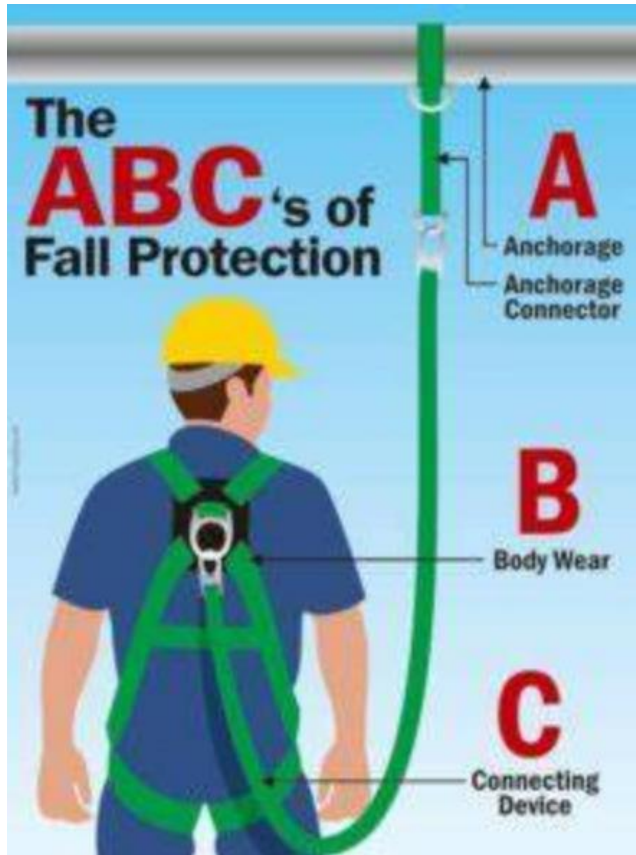
- Bend Forward

- Use two fingers on both outer edges.
- Close your eyes and exhale as you remove them.
- Pull away from face and lift away.



Fall Protection

Proper Set up and Connection



Safety Trauma Straps



Engagement Questions

What is the minimum cut level glove for working with stainless steel or using a razor knife?

- ANSI Cut Level 4



What type of respirator cartridge is used for CO?

- None – CO is an Asphyxiant, Supplied Air above 25ppm

What is required to be worn under a Face-Shield while grinding?

- Sealed Eye Protection – Spoggles or Goggles

What other tools are available to select the appropriate PPE?

- What about for Invasive work?



Aerosol Puncture Device Use & Locations

East Side of Paint Shop



South Side of Shop 2



Garage (old style), in the back room by the antifreeze and used oil filter drums.



More locations are coming soon!

Environmental - How to use American Gas Products (AGP) Aerosol Puncture device:



How to use American Gas Products (AGP) Aerosol Puncture device:

Step 1: Pull the Spring Plunger and lift top up.

Step 2: Set Aerosol can **upright** in the lower chamber

Step 3: Lower the top cover all the way until the Spring Plunger locks.

Step 4: To puncture, push the Red Handle down.

Hold down for a few seconds then slowly raise.

Let the can depressure and drain before removing.

Step 5: Remove can and **replace** top half to keep drum sealed.



PLACE THE EMPTY CANS IN THE BINS AT THE PUNCTURE DEVICE FOR PROPER RECYCLING

Do not put in regular trash cans.

Cans **MUST** be upright to work correctly.

Once cans are punctured, they can go in a scrap steel bin or aerosol collection drum.

- **NO Bug Sprays**, bug spray should be used up entirely. Only puncture when/if completely empty!
- **NO Adhesives**, they should be used up entirely. Only puncture when/if completely empty!
- Please do not puncture an aerosol can with any other object. Please take empty cans to the puncture device, puncture and dispose of in the provided drum for recycling as steel.
- Do not put empty punctured cans or unpunctured cans in the regular trash.





Tank 231 Mixer Seal Leak(PSE2)

June 4, 2024

Anacortes Refinery – Zone C Unit #18 (MX-0853)

Investigation Summary

Team Leader

Joseph Sarr, Environmental Specialist

Team Member

Chris Swenson, USW H&S Rep

Investigation Sponsor

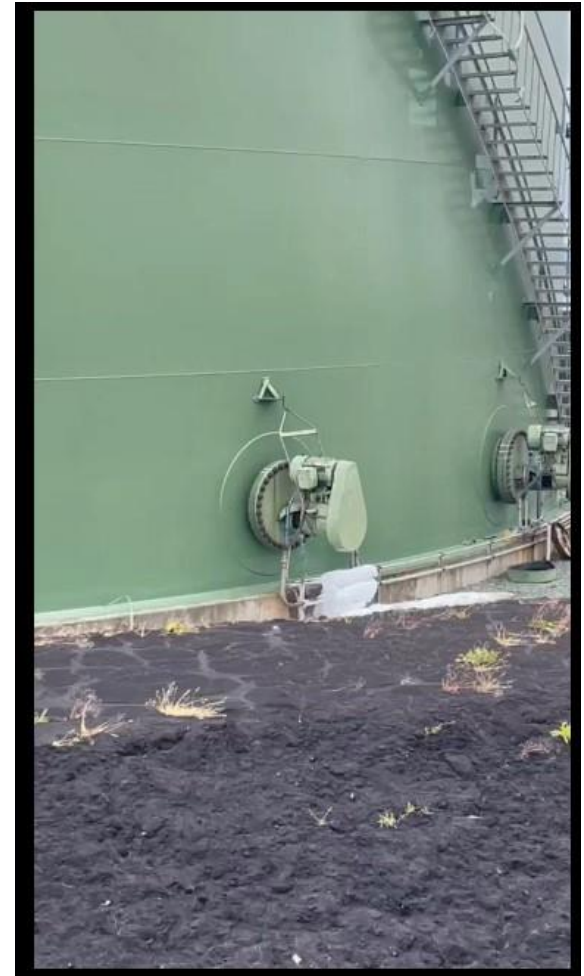
Steve Schram, Maintenance Manager

Intelix #: 431511

Event Summary



- On June 4th, 2024, at approximately 11:45 AM, a contractor was driving down the road and noticed material (“foam” like substance) in the Tank 231 yard.
- The contractor promptly notified operations who responded and observed a leak at the tank’s mixer seal. Operations, maintenance, and fire brigade responded. The road was barricaded, fire trucks were staged, and power was shut off to the tank yard. Machinists donned the proper PPE and back seated the mixer seal to stop the leak.
- There were no injuries.
- Due to the leak volume, estimated 1.47 bbl., this incident is a Tier 2 Process Safety Event.
- The tank remains in service with no mixers.
- No adjustment to the next out of service date of March 2040 has been made to replace mixers.
- A Category 2 investigation was initiated on June 17th, 2024



Investigation Summary



Investigation Findings:

- Tank 231 had been in service since 1994, and the mixers were original equipment
- Mixers had been refurbished when tank was out of service for API inspection 2019-2020.
- MX-835 leaked in 2021. Investigation attributed the leak to shaft coating failure, being the original coating on the shaft.
- SP-43-15-TMI_CHKLIST includes a check of the mixer shaft for visible damage during mixer installation.
- RSP 1308 PSM/RMP Mechanical Integrity does not identify mixer service life.
- Vibrational analysis of mixers sometimes skipped if the mixer is not in operation during scheduled inspection.

Causal Factors/Recommendation(s)/OFI's



Causal Factor 1:

Tank mixers were not replaced when the tank was out of service.

- The tank mixers were not replaced when the tank was out of service in 2019-2020. Both mixers eventually failed. Corporate guidance SP-47-05 notes reinstalling mixers utilizing checklist SP-43-15-TMI_CHKLST. Both mixers were refurbished and reinstalled according to maintenance records.
- The recommendation to replace mixers has been adopted informally by the tank group since TK231 was out of service in 2019-2020.
- MX-835 leaked in 2021 and cause was attributed to failure of shaft coating due to the service life of the mixer. Mixers were left in place with plan to replace shafts during next tank outage scheduled for 2040, Intellex recommendation 270318. The failure mechanism has not been determined for MX-853 that leaked June 4th, 2024 as the mixer cannot be removed to perform failure analysis while the tank is in service.

Rec 1: Update refinery guidance to require replacing mixers at the schedule service interval by adding to local tank outage checklist.

Chase Bouma 1/16/2026

OFI's

Evaluate replacing mixers ahead of 2040 inspection window.

Joshua Bertch 1/16/2026

Evaluate mixers to be potential higher risk for developing leaks.

Joshua Bertch 1/16/2026

PSE1 MPC PROCESS SAFETY ADVISORY

ST. PAUL PARK ASPHALT TANK ROOF DAMAGE INC# 390960

PSA 25-01

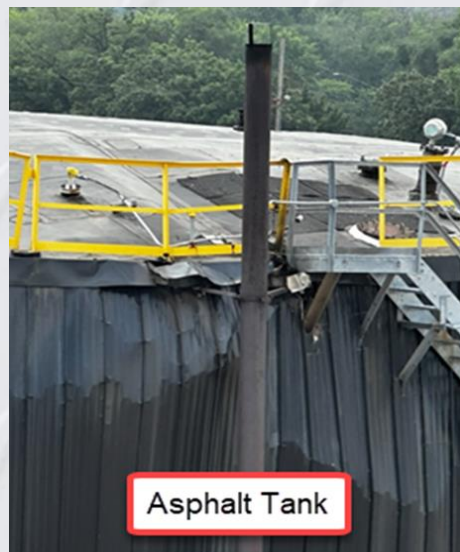
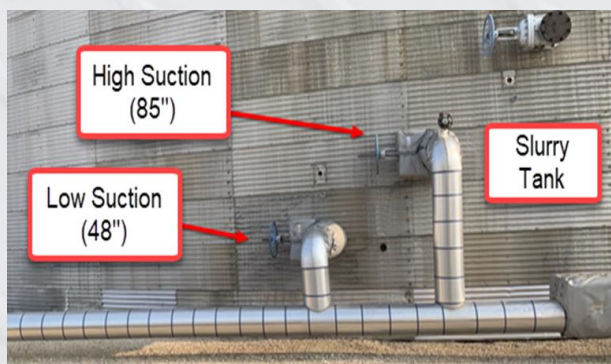
Published 1/13/2025

- On August 5, 2023, St. Paul Park (SPP) initiated the routine transfer of material between two blended pitch (asphalt) tanks. This asphalt transfer used a section of line that had previously been used for loading barges with slurry. During the barge loading, water from the slurry tank entered the transfer line section common to both activities. This common line was not cleared after the barge loading as specified in the operating guideline. Shortly after starting the asphalt transfer, water and slurry were pushed into the hot asphalt tank, which rapidly vaporized and damaged the roof.
- This incident was categorized as a PSE1 due to the direct costs (exceeded threshold of \$100,000) for repairing the tank.



Causal Factors:

- Floating free water was transferred out of the slurry tank via the high suction nozzle into the common transfer line.
- Approximately 1,700 feet of 8-inch piping (105 barrels) was not cleared after slurry barge loading and pushed into the hot asphalt tank.



[Click here for detailed drawings of the transfer line-ups](#)



Marathon
Petroleum Company LP

“THE REST OF THE STORY”: Slurry barge loading was the source of the water and preceded the asphalt transfer that resulted in the event. During slurry barge loading, both the high suction and low suction valves were open at the slurry tank. Operations was aware of the concerns regarding catalyst accumulation in the bottom of the tank but were unaware of the free-floating water on top of the slurry. Previous RADAR rounds did not adequately measure or detect the free-floating water. Having both suction valves open and drawing the tank level below the high suction allowed this free water to enter the piping that is common to barge loading and asphalt transfer. At the conclusion of barge loading, the loading piping was cleared from the manifold to the barge using nitrogen, but not from the manifold back to the slurry tank. The decision to not clear the line back to the slurry tank was based on product quality considerations. Moving the small volume of slurry remaining within the common line (relative to the tank transfer volume) into the asphalt tank was thought to be inconsequential as the presence of water was still not known.

While inspecting the tank damage, it was determined that the stair platform was welded on to the frangible roof joint. When the tank failed, the wall started to buckle which could have resulted in loss-of-integrity of the wall and an uncontrolled release of liquid from the tank. The standard for building tanks states that the frangible joint cannot be welded on.

• DISCUSSION TOPICS:

- See information on [Tank Farm Temperature Hazards](#)

- Review previous event: [PSA 22-03 SPP Sweet Gasoil Tank 69 Rupture](#)

• Operations

–Are there routine tasks at your site that are not covered by operating procedures that are high consequence or high risk? For the procedures that do exist, do they adequately explain the risk/consequences? Consider if procedures need to be updated or created.

–Are there items in RADAR/Go Plant (e.g., hand gauging) that are quantifiable, but ask for yes/no responses (i.e., does not allow for trending when it should)?

–Is there understanding at your site on which tanks might have water as a top layer? Water is always present in slurry on the top.

–Are there tank/vessel draws with multiple nozzle options that you do not fully understand why one nozzle may be selected over the other(s)?

–Are you following the Black Oil Release Practice RSP-1501-000?

–Does your site use common lines for hot and cold tank movement activities? If so, are there step by step procedures to ensure water is cleared out before switching from cold to hot service?

• Inspection

–Consider that tank attachments such as platforms could impact the proper function of frangible roof joints and should be verified during tank outages.

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.	Division Managers	3/31/2025
Update RSP-1501-000, Black Oil Release, to advise on slurry tank level and transfer management techniques to account for both solids and water. Include guidance on nozzle selection, management practices to prevent water being transferred as final product, and the hazards of water in the transfer line. Communicate changes to refineries.	Brad Martin	2/28/2026
Review slurry tank rounds to ensure proper guidance on finding and documenting water in slurry tanks and nozzle management to prevent that water from entering the transfer piping.	Operation Managers/Product Control Managers	7/31/2025
If your site uses common lines for hot and cold tank movement activities, verify there are step-by-step procedures to ensure water is cleared out before switching from cold to hot service or hot to cold service.	Operation Managers/Product Control Managers	2/28/2026
Update SP-90-13, Above Ground Storage Tank Inspection Program, to ensure no items are welded on top of or to the tank frangible roof joint that could limit its performance or opening when needed (such as a platform or stairs).	Kenny Spriggs	2/28/2026

Bring It Up!!!



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