Marathon Petroleum Cor	npany LP	Refine		RY-WIDE		R-11-012		
ANACORTES REFIN	IERY	Active Flare		e System Work			Page 1 of 9	
RESPONSIBLE DEPT.	Con	ITENT	CUSTODIAN		Approvi	ed <b>B</b> Y		LEGACY NUMBER:
HES&S		Jedd	Larson		Shannon	Logan		SR-14
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#### **1.0 INTRODUCTION**

#### 1.1 Purpose

The purpose of this procedure is to safely evaluate and identify risks associated with work on the Flare System and other systems containing high levels of  $H_2S$ .

#### 1.2 Scope

This procedure pertains to all work associated with the Marathon Anacortes Refinery Flare System and other systems containing high levels of  $H_2S$ .

#### 2.0 REFERENCES

#### 2.1 Marathon Standards, Policies & Procedures

• RSP-1121-030, Live Flare Header Invasive Work

#### 3.0 ROLES AND RESPONSIBILITIES

#### 3.1 Refinery Management

Review live flare header invasive work justification and approve work to proceed.

#### 3.2 Owning Department Supervision

Populates the Live Flare Header Invasive Work Approval Form to determine if live flare header invasive work is justified (see form within Appendix B).

Participates in pre-planning activities to ensure job will be performed safely while considering all safety precautions.

#### 3.3 Maintenance Supervision

Participates in pre-planning activities to ensure job will be performed safely while considering all safety precautions.

#### 3.4 Maintenance Representative

Present at the site of the live flare header invasive work for the duration of the work.

#### 3.5 Operator (in unit where live flare header invasive work occurs)

Present at the site of the live flare header invasive work for the duration of the work.

## **3.6 Board Operators and Outside Operators (in units that impact the flare header being opened)**

Aware of live flare header invasive work which impacts their area and reports any abnormal flare usage or changes in operation to supervision immediately.

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#### 3.7 Safety Representative and/or Fire Chief

Participates in planning process and ensure all necessary safety precautions are in place.

#### 4.0 PRELIMINARY EVALUATION

Before the live flare header work is performed, a preliminary evaluation shall be completed by the Owning Department supervision to ensure work is justified.

The following questions shall be answered on Live Flare Header Invasive Work Approval & Hazard Mitigation Form as part of the evaluation (see Appendix B):

- Are alternate means of relief available if a relief device is removed?
- Is the live flare header work required to be completed before the next scheduled outage?
- Have other options been evaluated to avoid opening the live flare header?
- Can rate reduction or unit shutdown be executed to avoid opening the live flare header?
- Can hot taps or stopples be performed to avoid opening the live flare header?

Once the preliminary evaluation is complete, the plan will be presented to refinery management for approval. At a minimum, the Owning Department Manager, Maintenance Manager, and ES&S Manager will review the evaluation and grant approval to proceed with planning the live flare header invasive if the work is justified. If approval is granted, pre-planning activities may begin for the live flare header work.

#### 5.0 ACTIVE FLARE SYSTEM

All work on the Flare Line must be evaluated for hazardous activities via the permit to work process. The Work Classification Table describes the risk levels and necessary authorizations (see R-11-005).

Whenever work is to be performed within the active Flare System, outside of a block valve, the Shift Supervisor or a person designated by the Shift Supervisor will contact the Utility Board Operator. The Utility Board Operator will verify the H<sub>2</sub>S level by checking the Instantaneous Flare Gas Analyzer (08AI1129AC, K.O. Drum V857 Outlet). If the H<sub>2</sub>S level is above 4000 ppm on the day of work to be executed, Operations, Maintenance, and Safety Superintendents must be notified to determine if work should continue, and if so to note any mitigations required to safely execute this work while ensuring the safety of surrounding areas (downwind, or in immediate area). If H<sub>2</sub>S levels are below 4000 ppm on the Instantaneous Flare Gas Analyzer (08AI1129AC, K.O. Drum V857 Outlet), the Utility Board Operator will contact each Board Operator from the other zones to ensure this work is safe to proceed. The Utility Board Operator will fill out Flare Work Notification Form (within Appendix A), and file it when completed. When multiple instances of work are being performed in the flare, the Utility Board Operator will fill out a separate Flare Work Notification Form for each job. The Utility Board Operator will inform each Board Operator for all instances of work being performed in the Flare System.

Each Board Operator will contact their immediate Supervisor, and all Unit Operators (in each zone) to ensure they have no units flaring or are at risk of flaring (unit start-ups/shutdowns or unit upsets) while work is being conducted while the flare is open. All Unit Operators (in each zone) must be made aware that work will be being performed in the Flare. If a unit Supervisor, or Unit Operator deems it unsafe for work in the flare, they will immediately contact the Utility Board Operator who will then contact the unit Supervisor (who is asking to perform the work in the flare system) to not proceed.

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Zones that work on multiple channels (Ex: Zone A channels 3 and 8, Zone B channels 4 and 7, Zone C channels 5 and 6), need to ensure all Outside Operators are aware of the proposed work. The Utility Board Operator will activate the Alertus Emergency Communication System in the Central Control Room and Operations Shelters when all zones report back that it is safe to proceed, which will show the zone or area working in the Flare. After the Utility Board Operator has made notifications and activated the Alertus Emergency Communication System, they can notify the originating department that notifications have been made, and the work can proceed. In cases where multiple instances of work in the Flare System are being performed, the Utility Board Operator should set the Alertus Emergency Communication System to the zone where the work is expected to last longest.

Operating personnel should monitor process systems that relieve to the Flare System, to ensure that inadvertent releases do not occur. If venting to the Flare System is anticipated and unavoidable, the zone working in the Flare must be notified prior to venting.

Additional things to consider prior to granting permission to proceed:

- Wind & Wind direction.
- Simultaneous Operations (SIMOPS) in and around the work area, as well as any personnel down wind.
- Is this work approved by either the Operations Manager, or the EHS Manager? If not, this work MUST be postponed until approval is granted.

The Operating Department originating the permit for work on the Flare System shall notify the Utility Board Operator when work on the Flare System is completed. If more than one instance of work is being performed on the Flare System, the Utility Board Operator will switch the Alertus Emergency Communication System over to the Zone where the work is still being conducted. Once all work on the Flare System is completed, the Utility Board Operator, after notifying all other Board Operators, will then turn off the Alertus Emergency Communication System display. All other Board Operators will notify the Operators in their respective areas or zones that work in the Flare is complete. The Shift Supervisor will close out the Live Flare Header Invasive Work Approval Form. The completed form shall be sent to the Safety Department.

#### 6.0 REQUIREMENTS FOR ACTIVE FLARE LINES WORK

The following requirements are in place to ensure that live flare header invasive work can be performed safely. Pre-planning will be done with a goal to minimize the time the live flare header is open, unless an emergency exists, and preplanning is not practical. Planning must be coordinated between the Safety, Operations Department, and Maintenance Departments with consideration of all safety aspects such as ignition sources, accessibility of the work area, and emergency exit routes.

- Area is required to be Barricaded per requirements set forth in R-11-005 Section 8.22.
- If possible, a slight nitrogen purge should be introduced into the flare header near the opening location. This will help clear the piping and allow for a slight positive pressure.
- A pressure gauge must be installed as close as possible to the flare opening point. The pressure gauge must be capable of reading vacuum pressure as well as slight positive pressure.
- Oxygen must never be allowed to enter the live flare header. The flare header shall not be opened if the pressure is negative or greater than 2.0 PSIG.

**Note**: Flare pressure must be kept between 0 PSIG and 2 PSIG.

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- If available, low point bleeders shall be checked, confirmed clear, and any liquids shall be drained from the piping in the vicinity where the opening will occur.
- No ignition sources shall be present in the immediate area where the flare header will be opened. Open roadways shall be considered as a possible ignition source.

Note: All hot work permits in the area of the live flare header work must be suspended.

• Preparations shall be made to provide the necessary coverage to allow the job to be worked continuously until completion. Weather conditions (i.e., lightning, etc.) are to be evaluated prior to starting the work.

# Note: All active flare work that has a spec blind in place downstream that can be turned to the closed position prior to beginning the actual task shall be done (e.g., removing a PSV with a spec blind downstream).

- A safe means of egress shall be provided in the event of an emergency:
  - The work area must be clear and free of obstructions.
  - When scaffold is required for access, the scaffold should be oversized and ideally two means of access to the deck should be provided. The scaffold shall be a complete scaffold and built so the need for personal fall protection is minimized.
  - A second means of egress is recommended on permanent platforms with only one means of access.
  - Breathing air lines shall be routed so that an unobstructed means of egress is possible.
- A Fire Watch shall stand by with a fire extinguisher and fire monitor or fire hose with a spray nozzle. In the event of a release, a water fog shall be used to reduce any vapor cloud, if possible. This can be filled by the required Operator standing by, or the required Back-up stand-by already in the appropriate PPE.
- Arrangements shall be made for clear communications between those performing the live flare header work and the support crews such as:
  - $\circ$   $\;$  Use of breathing mask with built in communication devices, and
  - Agreed upon hand signals.
- Any equipment needed to expedite the flare opening shall be located at the work site at the time of invasive work. This includes replacement relief valves or blind flanges.
- The live flare header invasive work shall be performed in breathing air equipment and bunker gear. At least one back-up person familiar with the job scope and hazard mitigation plan (Section C of Appendix B) shall be located at the work site and equipped with the same PPE as the workers opening the flare system. A pre-joint jobsite visit shall be conducted with Refinery Safety, Operations, Craft and ERT where the back-up persons response equipment and protective measures will be determined prior to starting the job. The protective measures shall be documented by Refinery Safety or the Refinery Fire Chief on the Live Flare Header Invasive Work Approval & Hazard Mitigation Form (Appendix B).
  - **Note**: If contractors are performing this invasive work it will be their responsibility to supply their own bunker gear as Marathon does not supply this type of PPE to contractors.
  - **Note**: Non-sparking tools shall be used to perform all work associated with the live flare header invasive work.

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#### 7.0 PPE REQUIREMENTS

The minimum personal protective equipment (PPE) required is the following:

- Fresh Air: Supplied-Air Respirator with Escape Bottle
- Bunker Gear
- Approved Chemical Gear
- Rubber boots
- Chemical gloves
- Orange vest for Fire Watch

Reference: See Procedure R-11-023 for additional information

#### 8.0 FUTURE MITIGATION

To minimize the amount of live flare header invasive work, any relief valve that is known to require inspection at intervals that result in live flare header work, should have block valve(s) installed during the next scheduled turnaround or major maintenance.

#### 9.0 TRAINING

Affected Operations personnel shall receive training on these requirements through LMS.

#### **10.0 REVIEW AND REVISION HISTORY**

Revision #	Preparer	Date	Description
0	Mark Willand	11/21/2021	Reformatted and Numbered per Document Control Policy, R-63-001.
1	Trent Kies	4/6/2022	Removed requirement to send quarterly summary report to corporate – Section 5.0
			Added rescue planning and personnel requirements to Section 7.0.
			Added Utilities Board Operator name to R-11-012-F01.
			Added warning for unit upsets with lines for verifying supervisor notification per zone to R-11-012-F01
			Replaced sample of RSP-1121-030-FORM1 with updated 2/4/2022 version
2	Jedd Larson	12/15/2022	Added verbiage to Sec. 6 that requires barricade tape be used when opening systems that contain H2S. It also states anyone inside the barricade must be in supplied Air.
3	John Hagen	6/12/2023	Added verbiage to section 5.0 to outline the steps the Utilities Board Operator takes whenever there are multiple crafts working in the flare at the same time.
4	Trent Kies	7/25/2024	Changed title to Active Flare System Work. Removed 6.0 Flare lines, fuel gas, sour water strippers & H2S line. Added Note to Sec 6.0. Updated TOC. Line-by-line review.

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#### 11.0 APPENDIX A – FLARE WORK NOTIFICATION FORM (R-11-012-F01)

-	an Company o	IN-	FINERY-WIDE		Nº TE GTATION
ANACORTES	REFINERY	Flare V	Nork Notificati	ion	Page 1 of 1
<u> </u>					I REVIDION: 4
Utilities Board O Zone initiating w Contact Ext.: Type of work to  H <sub>2</sub> S as measured	perators Name: vork in Flare: be done/estima d on 08AI1129A	Person re  ted length of job. C	equesting notificatio	Da	te:
WARNING: If Op	H <sub>2</sub> S level is abo perations, Maint would continue a	ve 4000 ppm on th tenance, and Safet and if so to note an	he day of work to b y Superimentents ny mitigations ruqui	e executed, Are must be notified ired to safely exe	ea Team Lead for d to determine if work ecute this work while
en	nsuring the safet	y of surrounding a	al ea.		
sn er Wind Øirection a Area Team Lead S	ind continue, a nsuring the safet and Speed	cover 4000ppm ) 25			
sn er Wind Direction a Area Team Lead S <b>Unit</b>	ind Continue, a suring the safet and Speed Signature for work In Flare C	v of surrounding a cover 4000ppm) 25 Working	(Area Team Lead wh	here work will be Out of Flare	performed)
sn er Wind Direction a Area Team Lead S	ing the safet	v of surrounding a cover 4000ppm) 25 Working	(Area Team Lead wh in the Flare Reported Back	here work will be Out of Flare	performed) e Contact Name
sn en Wind Direction a Area Team Lead S	ind Continue, a nouring the safet and Speed Signature for work In Flare C	v of surrounding a cover 4000ppm) 25 Working	(Area Team Lead wh in the Flare Reported Back	here work will be Out of Flare	performed) e Contact Name
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sn en Wind Direction a Area Team Lead S	ing the safet	v of surrounding a cover 4000ppm) 25 Working	(Area Team Lead when the Flare Reported Back	here work will be Out of Flare	performed)
wind Direction a Area Team Lead S Unit Unit WARNING: Ea or Unit 23 Notified: Unit 24 Notified:	and Speed ignature for work In Flare C ach Board Opera he) to ensure th hit upsets) while	tor will contact the work is being contact (Nar (Nar (Nar	(Area Team Lead when the Flare Reported Back Control of the Flare Contro	out of Flare	performed)
wind Direction a Area Team Lead S Unit WARNING: Ea or Unit 23 Notified: Jnit 24 Notified:	and Speed Signature for work In Flare C	tor will contact the work is being contact the (Nar	(Area Team Lead white in the Flare Back Back Control of the second secon	out of Flare Out of Flare rvisor, and all U of flaring (unit s are is open.	performed)
wind Direction a Area Team Lead S Unit Unit WARNING: Ea or Unit 23 Notified: Init 25 Notified:	ach Board Opera ne) to ensure the nit upsets) while	tor will contact the work is being contact the work is being contact the (Nar	(Area Team Lead white in the Flare Reported Back	out of Flare Out of Flare rvisor, and all U of flaring (unit : are is open.	nit Operators (in each
wind Direction a Area Team Lead S Unit Unit WARNING: Ea or Unit 23 Notified: Init 25 Notified:	and Speed signature for work In Flare C ach Board Opera he) to ensure th hit upsets) while	tor will contact the work is being contact work is being contact (Nar (Nar	(Area Team Lead when the Flare Reported Back Control of the Flare Contro	out of Flare	nit Operators (in each

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## 12.0 APPENDIX B – LIVE FLARE HEADER INVASIVE WORK APPROVAL & HAZARD MITIGATION FORM (RSP-1121-030-FORM1)

For the most up-to-date, working copy of this form, go to http://cbgrs20/red/copyout.aspx?lib\_no=32&doc\_no=3147.

Marathon Petroleum Company LP

Live Flare Header Invasive Work Approval & Hazard Mitigation Form (RSP-1121-030-FORM1)

A. Work Scope Information						
Affected Unit(s):	d Unit(s): Originator:		2			
Affected Flare:		Line Size:				
Relief Device Tag Name:		Planned Date of Work:				
Date:						
Description of work:						
All prerequisite questions must be answered.			YES	NO	N/A	Name/Signature/Date
B. Live Flare Header Invasive	Work Evaluation - By Owning Departmen	t Supervision (	all answ	ers mus	t be YE	S or N/A to proceed with work)
Are alternate means of relief available if a relief device is removed? If yes, explain			6	D		
Is the live flare header work requ	t ougant					
Have other options been evaluate • Unit shutdown or rate • Hot taps or stopples If yes, explain why these options						
C. Additional Hazard Mitigati	on Steps (to be completed by Safety or Fire	Chief):				
Attended Fixed Fire Monitor? If Attended Hand Lines? If yes, ho Rescue Equipment? If yes, list w Staged Fire Truck? If yes, list w Note: A fire watch shall stand by used to reduce any vapor cloud i	yes, how many (total)	re hose with a s Il be performed	pray noz in breat	zle. In thing air	the even	t of a release, a water fog shall be ent and bunker gear.
D. Required Approvals - all indicated persons must sign Signatures						
Area Team Leader						
Maintenance Supervisor						
HES&S Manager						
Owning Department Manager						
Maintenance Manager						

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Live Flare Header Invasive Work Approval & Hazard Mitigation Form (RSP-1121-030-FORM1)

E. Final Pre-Job Checklist (all answers must be answered to proceed with work) This Initial Line Subsequent Comments Line Break section must be completed by the Owning Department Shift Foreman immediately prior to Break starting work. YES All questions must be answered. NO YES NO Are all the units that impact the area where the live flare header will be opened in steady state operation? Has all Maintenance work been stopped that could result in a process upset that impacts the flate header with invasive work? Have all operators and Owning department supervision in areas impacted by the work been П П notified that the work will be performed? Has any abnormal use of the affected flare header been suspended? Is an operator and Maintenance representative on site within visual distance of the work? If a location is available, is a nitrogen purge being used? Has a pressure gauge been installed that is capable of reading both vacuum and a slight positive pressure? Is flare header pressure greater than 0 psig but less than 2.0 psig? П If available, has liquid been drained from low point bleeders in the vicinity Have all ignition sources been removed from the immediate work area Have affected roadways been closed? (Note which roads.) Has the area of live flare header work been cleared of nor 4.04 sonnel? This includes caution tape or other barriers to prevent unintentional access Have preparations been made to provide the necessary complete to allow for the job to be worked continuously until completion, including evaluation of weather conditions? п П Is a safe means of egress provided with unobstructed escape routes? Are the additional hazard mitigation steps identified in Section C in place? Have arrangements been made for clear communication between workers and support crew? Have a toolbox meeting and JJSV be completed? Have the bolts been replaced one at a time on the applicable flange(s) to allow for easy disassembly and re-assembly? П П Are all tools involved in the flare header work non-sparking? Is all equipment on site that is needed to expedite the duration the live flare header is opened? Are workers equipped with required PPE and is there at least one backup person at the work site familiar with the job scope & hazard mitigation plan and equipped with equivalent PPE? Is there clear communication between Maintenance and the Owning department on the exact start and stop times of live flare header invasive work? List any other required PPE: Owning Department Supervisor Sign and Date: Maintenance Coordinator Sign and Date: F. Close Out. Completed by Shift Foreman. Live Flare Header Invasive Work Start Time: Live Flare Header Invasive Work Finish Time:

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