Authored By: Mary K. Alberts	**Blanchard Refining Company LLC** **Galveston Bay Refinery**	Doc No.: RSW-000037-GB Rev No: 0
Doc Custodian: Safety Supervisor	**PR-27 Live Flare Header Invasive Work**	Refinery Safe Work Procedure
Approved By: Von J. Meeks		
Date Approved: 2/25/2019	Next Review Date: 5/31/2024	Effective Date: 5/15/2019

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1.0 Purpose

The purpose of this document is to define recommended practices for live flare header invasive work.

2.0 Scope

The scope of this document applies to all live flare header work performed within the Galveston Bay Refinery.

3.0 Procedure

3.1 Roles and Responsibilities

3.1.1 Refinery Management

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

3.1.2 Owning Department Supervision

3.1.2.1 Populates the Live Flare Header Invasive Work Approval Form to determine if live flare header invasive work is justified.

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

3.1.3 Maintenance Supervision

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

3.1.4 Maintenance Representative

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

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

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

3.1.6 Operators (in units that impact the flare header being opened)

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

3.1.7 Safety Representative

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

3.2 General Requirements

3.2.1 Background

In certain situations, MPC allows work to be completed on live flare headers. This work is primarily comprised of installing/removing blinds from live flare piping, and the removal or installation of a relief valve that is not equipped with a discharge block valve. Since opening a live flare header poses inherent risks, it should be reserved **ONLY** for situations where failure to complete the work is deemed to present greater risk than opening the live flare header. On occasions when live flare header must be opened to the

atmosphere, special precautions and manager approval are required as outlined in this document.

3.2.2 Preliminary Evaluation

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

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

3.2.2.2.1 Are alternate means of relief available if a relief device is removed?

3.2.2.2.2 Is the live flare header work required to be completed before the next scheduled outage?

3.2.2.2.3 Have other options been evaluated to avoid opening the live flare header?

3.2.2.2.4 Can a rate reduction or unit shutdown be executed to avoid opening the live flare header?

3.2.2.2.5 Can hot taps or stopples be performed to avoid opening the live flare header?

3.2.2.3 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.

3.2.3 Requirements

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. Planning must be coordinated between the Safety, Operations/Product Control, and Maintenance Departments with consideration of all safety aspects such as ignition sources, accessibility of the work area, and emergency exit routes.

3.2.3.1 All units that impact the area where the live flare header will be opened must be in steady state operation, including avoidance of routine pump swapping.

3.2.3.2 Any maintenance work that would result in a process upset that would impact the flare header being opened, shall not occur during the invasive flare work.

3.2.3.3 All operators and Owning Department supervision in areas impacted by the work shall be notified that live flare header will be opened to atmosphere.

3.2.3.4 No abnormal use (equipment prep, etc.) of the affected flare header shall be executed during the time of the invasive work. Changes in the status of flare usage shall be reported immediately.

3.2.3.5 An Operator and Maintenance representative must remain within visual sight of the work site for the entire time that live flare header is open to atmosphere.

3.2.3.6 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.

3.2.3.7 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.

3.2.3.8 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.

3.2.3.9 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.

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

3.2.3.11 Roadway(s) shall be closed near the location where the flare header will be opened.

3.2.3.12 Access shall be restricted to the area of the live flare header invasive work and the area shall be cleared of all non-essential personnel. Caution tape or other barriers must be in place to prevent unintentional access to the area.

3.2.3.13 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.

3.2.3.14 A safe means of egress shall be provided in the event of an emergency:

3.2.3.14.1 The work area must be clear and free of obstructions.

3.2.3.14.2 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 “green tagged” so the need for personal fall protection is minimized.

3.2.3.14.3 A second means of egress is recommended on permanent platforms with only one means of access.

3.2.3.14.4 Breathing air lines shall be routed so that an unobstructed means of egress is possible.

3.2.3.15 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.

3.2.3.16 Arrangements shall be made for clear communications between those performing the live flare header work and the support crews such as:

3.2.3.16.1 Use of breathing mask with built in communication devices, and

3.2.3.16.2 Agreed upon hand signals.

3.2.3.17 A JJSV meeting and What-If Drill shall be conducted with Owning Department and Maintenance. At a minimum, the meeting shall discuss:

3.2.3.17.1 The scope of work,

3.2.3.17.2 Wind direction,

3.2.3.17.3 Escape routes,

3.2.3.17.4 Precautions, and

3.2.3.17.5 Communication Plan (hand signals, etc.).

3.2.3.18 Prior to opening the flare header, bolts shall be replaced one stud at a time on the applicable flange(s). This ensures easy disassembly/reassembly and minimizes exposure time to the live flare.

3.2.3.19 Non-sparking tools shall be used to perform all work associated with the live flare header invasive work.

3.2.3.20 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.

3.2.3.21 The live flare header invasive work shall be performed in breathing air equipment and bunker gear or equivalent.

3.2.3.21.1 Contract company will provide PPE and ensure the personnel performing the work have been trained to use the PPE.

3.2.3.21.2 Back-up personnel trained and competent in rescue shall be located at the work site equipped with a Self-Contained Breathing Apparatus (SCBA), bunker gear or equivalent and all required rescue equipment when the flare header is open.

3.2.3.21.3 Any work in the HF Alky unit shall follow Alky PPE requirements.

3.2.3.22 Clear communication shall exist between Maintenance and Operations/Product Control as well as field operators and board operators, especially related to the exact start and stop time of the live flare header invasive work. If any unit conditions change that could result in a potential release to the flare, work must stop immediately and the flare header must be closed.

3.2.4 Reporting

3.2.4.1 The completed work approval form shall be sent to the Health & Safety Supervisor.

3.2.4.2 On a quarterly basis, a summary report for all live flare header work shall be sent to the Refining Safety & Security Manager and Refining Operations Coordinator. The report should include a description of each live flare header job and the reason that the job was performed. This information will be used to track live flare header work frequency and ensure that adequate measures are in place to minimize these occurrences. These forms shall be kept per the records retention policy.

3.2.5 Future MItigation

3.2.5.1 In an effort 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.

4.0 Definitions

None

5.0 References

5.1 RSP-1121-030 Live Flare Header Invasive Work

6.0 Attachments

6.1 Attachment A: Live Flare Header Invasive Work Approval & Hazard Mitigation Form

7.0 Revision History

Revision Number	Description of Change	Written by	Approved by	Revision Date	Effective Date
0	Original Issue to align with RSP-1121-030 under MOC 51717.	M. K. Alberts	V. J. Meeks	2/25/2019	5/15/2019

Attachment A: Live Flare Header Invasive Work Approval & Hazard Mitigation Form

Marathon Petroleum Company LP

Live Flare Header Invasive Work Approval & Hazard Mitigation Form

(PR-27 Attachment A)

A. Work Scope Information			
Affected Unit(s):		**Originator:**	
Affected Flare:		**Line Size:**	
Relief Device Tag Name:		**Planned Date of Work:**	
Date:		M.O. #:	
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 Department Supervision (all answers must be YES or N/A to proceed with work)				
Are alternate means of relief available if a relief device is removed? If yes, explain_____	☐	☐	☐	
Is the live flare header work required to be completed before the next scheduled outage? If yes, explain_____	☐	☐		
Have other options been evaluated to avoid opening the live flare header? • Unit shutdown or rate reduction • Hot taps or stopples If yes, explain why these options where not pursued:	☐	☐		

C. Required Approvals – all indicated persons must sign	**Signatures**
Area Team Leader	
Maintenance Supervisor	
HES&S Manager	
Owning Department Manager	
Maintenance Manager	

Marathon Petroleum Company LP

Live Flare Header Invasive Work Approval & Hazard Mitigation Form

(PR-27 Attachment A)

D. Final Pre-Job Checklist (all answers must be answered to proceed with work) This section must be completed by the Owning Department Shift Foreman immediately prior to starting work.	**Initial Line Break**		**Subsequent Line Break**		**Comments**
All questions must be answered.	**YES**	**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 flare header with invasive work?	☐		☐		
Have all operators and Owning department supervision in areas impacted by the work been 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?	☐		☐		
If available, has liquid been drained from low point bleeders in the vicinity of the work?	☐		☐		
Have all ignition sources been removed from the immediate work area?	☐		☐		
Have affected roadways been closed? (Note which roads, and notify the SOC.)	☐		☐		
Has the area of live flare header work been cleared of nonessential personnel? This includes caution tape or other barriers to prevent unintentional access.	☐		☐		
Have preparations been made to provide the necessary coverage to allow for the job to be worked continuously until completion, including evaluation of weather conditions?	☐		☐		
Is a safe means of egress provided with unobstructed escape routes?	☐		☐		
Is a fire watch on standby with a fire extinguisher and fire monitor or hose?	☐		☐		
Have arrangements been made for clear communication between workers and support crew, including all affected units?	☐		☐		
Has a tool box meeting been completed?	☐		☐		
Has a JJSV been completed?	☐		☐		
Have the bolts been replaced one at a time on the applicable flange(s) to allow for easy disassembly and re-assembly?	☐		☐		
Are all tools involved in the flare header work non-sparking?	☐		☐		
Have all required equipment and replacement parts been verified and on site to expedite the duration the live flare header is opened?	☐		☐		
Are workers equipped with appropriate respiratory protection and PPE? Are backups in place, trained and competent in rescue, equipped with SCBA and required rescue equipment?	☐		☐		
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:				
E. Close Out. Completed by Shift Foreman.					
Live Flare Header Invasive Work Start Time:	Live Flare Header Invasive Work Finish Time:				