

Live Flare Header Invasive WorkDocument No.: **RSW-SAF-083-DT**Approval Date: **08-29-19**Revision No.: **5**Next Revision Date: **08-29-24**Document Custodian: **Environmental, Safety and Security**Page
1 of 6**1.0 PURPOSE**

- 1.1 This document is to define requirements for live flare header invasive work. It is written in accordance with RSP-1121-030.

2.0 SCOPE

- 2.1 This document applies to all Contractors, Subcontractors, and Employees working on Michigan Refining Division (MRD) owned, controlled, or permitted locations, as well as work performed under a contract to Marathon Petroleum Company, LP (MPC) MRD.

3.0 ROLES & RESPONSIBILITIES**3.1 Refinery Management**

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

3.2 Owing Department Supervision

- 3.2.1 Populates the Live Flare Header Invasive Work Approval Form to determine if live flare header invasive work is justified.
3.2.2 Participate in pre-planning activities to ensure job will be performed safely.

3.3 Servicing Group Supervision

- 3.3.1 Participate in pre-planning activities to ensure job will be performed safely.

3.4 Servicing Group Representative

- 3.4.1 Present at the site of the live flare header invasive work for the duration of the work. This is a coordinator level employee or higher.

3.5 Owing Department Representative (Operations)

- 3.5.1 Present at the site of the live flare header invasive work for the duration of the work.
3.5.2 Operators in units that impact the flare header being opened must be aware of live flare header invasive work and report any abnormal flare usage or changes in operations to supervision immediately.

3.6 Safety Representative

- 3.6.1 Participate in planning process and ensure all necessary safety precautions are in place.

4.0 GUIDELINES

4.1 In certain situations, work is allowed 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 risks 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.

4.2 Preliminary Evaluation

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

4.2.2 The following questions shall be answered as part of the evaluation (see Appendix A):

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

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

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

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

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

4.2.3 Once the preliminary evaluation is complete, the plan will be presented to refinery management for approval. At a minimum, the Owing 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.

4.3 Requirements

4.3.1 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 Servicing Group representatives with consideration of all safety aspects such as ignition sources, accessibility of the work area, and emergency exit routes.

4.3.1.1 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.

- 4.3.1.2 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.
- 4.3.1.3 All Operators and Owning Department supervision in areas impacted by the work shall be notified that live flare header will be opened to atmosphere.
- 4.3.1.4 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.
- 4.3.1.5 An Operator and Servicing Group representative must remain within visual sight of the work site for the entire time that live flare header is open to atmosphere.
- 4.3.1.6 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.
- 4.3.1.7 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.
- 4.3.1.8 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.
- 4.3.1.9 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.
- 4.3.1.10 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.
- 4.3.1.11 Roadway(s) shall be closed near the location where the flare header will be opened.
- 4.3.1.12 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.
- 4.3.1.13 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.
- 4.3.1.14 A safe means of egress shall be provided in the event of an emergency:

- 4.3.1.14.1 The work area must be clear and free of obstructions.
- 4.3.1.14.2 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 so that fall protection is not required.
- 4.3.1.14.3 A second means of egress is recommended on permanent platforms with only one means of access.
- 4.3.1.14.4 Breathing air lines shall be routed so that an unobstructed means of egress is possible.
- 4.3.1.15 A fire watch shall stand by with a fire extinguisher and fire monitor or charged 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.
NOTE: The backup team, in bunker gear, can be used as fire watch.
- 4.3.1.16 Arrangements shall be made for clear communications between those performing the live flare header work and the support crews such as agreed upon hand signals or the use of breathing masks with built in communication.
- 4.3.1.17 A JJSV meeting shall be conducted with Owning Department and Servicing Group. At a minimum, the meeting shall discuss:
 - 4.3.1.17.1 The scope of work,
 - 4.3.1.17.2 Wind direction,
 - 4.3.1.17.3 Escape routes,
 - 4.3.1.17.4 Precautions, and
 - 4.3.1.17.5 Communication Plan (hand signals, etc.).
- 4.3.1.18 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.
- 4.3.1.19 Non-sparking tools shall be used to perform all work associated with the live flare header invasive work.
- 4.3.1.20 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.
- 4.3.1.21 The live flare header invasive work shall be performed in breathing air equipment and bunker gear. Back-up personnel

trained and competent in rescue shall be located at the work site equipped with the same or greater level of PPE as that of the person performing the live flare header invasive work. For purpose of this procedure two ERT members will satisfy the back-up requirement. It will be the responsibility of the Maintenance Planner/Coordinator to schedule this coverage.

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.

4.3.1.22 Clear communication shall exist between the Servicing Group 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.

4.3.1.23 Every effort should be made to ensure any required quality control verifications take place at the time of the invasive work, while the ERT personnel are at the jobsite. This includes the verification of a gasket install required on both sides of the blind.

4.3.2 Reporting

4.3.2.1 The completed work approval form shall be sent to the local Safety Department. 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.

4.3.3 Future Mitigation

4.3.3.1 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.

5.0 REFERENCES

- 5.1 RSP-1121-030: Live Flare Header Invasive Work
- 5.2 RSW-SAF-078-DT Invasive Work Standard Practice

6.0 APPENDICES

- 6.1 [Form A: Live Flare Header Invasive Work Approval & Hazard Mitigation Form](#)

7.0 TRAINING

7.1 The course code # is 12SAFGEN238

8.0 REVISION HISTORY

| Revision Number | Description of Change | Written By | Approved By | Revision Date |
|------------------------|---|-------------------|--------------------|----------------------|
| 1 | Added Note that Backup team can perform fire watch. Added training section with the CBT number. | S. Wolf | Safety Supervisor | 11/12/14 |
| 2 | Updated link to Form A: Live Flare Header Invasive Work Approval & Hazard Mitigation Form | S. Wolf | J. Rabideau | 01/08/15 |
| 3 | Corrected footer date updating | F. Ebbert | J. Rabideau | 10/30/15 |
| 4 | Added best practice to ensure quality control takes place while the ERT is onsite. | S. Kumpar | J. Murowany | 06/02/17 |
| 5 | Schedule five-year review, no current updates | Al Morales | H. Sheard | 08/29/19 |