

Doc Custodian: Safety Professional	Marathon Petroleum Company LP Refining	Doc No: RSW-0147-GV Rev No: 8
Approved By: Safety Supervisor		Garyville Refining Safe Practice
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1.0 Objective

- 1.1 The following procedure is intended to manage personnel exposure to the hazards of lightning.

2.0 Definitions

- 2.1 **Elevated structure** – any structure that is above the top level of a pipe rack or fin fan deck or where no metal structure is above personnel.
- 2.2 **Essential Work** – is outdoor work that must occur to prevent an imminent process safety event, critical maintenance/turnaround work that poses a greater personal safety or process safety risk by terminating, or to complete critical plant functions that pose a greater personal safety or process safety risk by terminating.
- 2.3 **Non essential work** – Non-Essential Work is any work without Overhead Protection that can be delayed without creating the hazard of an imminent personnel or process safety event.
- 2.4 **Overhead Protection** - is any fixed structure, including Coker derricks, with adequate grounding.
- 2.5 **Protective Shelter** – any building such as a Zone Shop, comfort station, operator shelter, work trailer, etc.
- 2.6 **Protective Space** – any Protective Shelter or location with adequate Overhead Protection to provide protection from lightning.

3.0 Roles and Responsibilities

3.1 Operations Shift Foreman/Supervisor, Maintenance/Turnaround Coordinator, and Safety

- 3.1.1 Upon notification of a Lightning Warning, communicate to the site work to discontinue any work outside of a Protective Space per the Lightning Safety Guidance Drawing in Appendix A.
- 3.1.2 Ensure that all stakeholders agree on any confined space entry job that will continue through a Lightning Warning has proper protection for the confined space attendant and rescue personnel.
- 3.1.3 Responsible for determining work activities, not in Protective Spaces, are “Essential Work” and may continue during a Lightning Warning.

3.2 Security

- 3.2.1 Monitor Early Warning Detection System and communicate alert/all clear announcements to the site.

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3.3 Owing Department Permit Writer

3.3.1 Upon notification of a Lightning Warning, the Owing Department Permit Writer must ensure that all work unprotected work has been stopped, the Safe Work Permits suspended and personnel seek shelter .

3.3.2 Once the lightning alert is cancelled, the Owing Department Permit Writer must determine if the Safe Work Permit can be reinstated with the appropriate air monitoring and communication with the Servicing Group or whether a new Safe Work Permit will be required to get the work stated again.

4.0 References

- 4.1 Storm Geo Weather Service
- 4.2 National Weather Service
- 4.3 National Lightning Safety Institute

5.0 Procedure

- 5.1 The Storm Geo program shall be continually monitored by the Security Operations Center to track the potential for lightning.
- 5.2 Confined space entries (including excavations utilizing conductive shoring systems) and non-essential work performed on elevated structures must cease when lightning has been detected within 6 miles of the refinery and personnel shall seek protective shelter.
- 5.3 When lightning is detected within 6 miles of the refinery, the Security Operations Center shall notify all personnel via radio and the plant wide notification system that lightning has been detected in the area.

5.3.1 The following Lightning Warning Announcement shall be communicated:

Attention All Personnel
Attention All Personnel
Lightning has been detected in the area!
All work in confined spaces and areas that do not have
overhead protection shall cease until further notice!

- 5.4 The Shift Supervisor will instruct personnel to return to work when 30 minutes has elapsed from the last lightning strike within 6 miles of the refinery.

5.4.1 The following Lightning Warning Clear Announcement shall be communicated:

Attention All Personnel
Attention All Personnel
No Lightning has been detected in the area!
All personnel may resume normal work activities!

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6.0 Work Continuation Determination

6.1 Work in a Protective Space can continue during a lightning event using the Appendix A diagram as guidance. This would include work under Overhead Protection, such as:

- 6.1.1 Work on pumps, compressors, equipment below the fin fan deck.
- 6.1.2 Removal of a blind from a scaffold that is below the pipe rack.
- 6.1.3 Work on the Crude Overhead exchangers that is not on the upper most level.
- 6.1.4 Tasks on the Coker structure no higher than the fifth and a half deck.
- 6.1.5 Work in an Analyzer Building.
- 6.1.6 Loading activities under the covered sulfur truck loading rack and asphalt rail loading rack.
- 6.1.7 Confined space entry work with adequate Overhead Protection for the hole watch and emergency responders.

6.2 The Operations Shift Foreman/Supervisor and Maintenance/Turnaround Coordinator and Safety are responsible for determining when work activities, not in Proactive Spaces, may continue during a Lightning Warning because it meets the definition of "Essential Work" as defined in Section 2.2.

NOTE: Any approvals for work continuation will be documented in writing through email or similar means with all affected parties copied and shall include the work location, Justification for work continuance, any special requirements / mitigations and documented on the work permit by the permit writer.

6.3 Examples of **Essential Work** that may continue include but are not limited to:

- 6.3.1 Responding to a process unit upset with potential of PSM consequences,
- 6.3.2 Completing a Hot Tap, stopple job, or clamping job already in progress,
- 6.3.3 Responding to a plant emergency event,
- 6.3.4 Work activities required to safe the unit to prevent eminent PSM consequences,
- 6.3.5 Ground-level movement to or between Protective Shelters (e.g., building to building, building to vehicle), or
- 6.3.6 Evacuation.

6.4 Examples of **Non-Essential Work** that must be terminated during a Lightning Warning include but are not limited to:

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- 6.4.1 Work on the Crude Overhead Exchangers on the upper most level.
- 6.4.2 Painting or Stack Testing on a heater stack above the pipe rack.
- 6.4.3 Work on the derrick of the Coker structure.
- 6.4.4 Tank entry or work on the roof of a tank.
- 6.4.5 Pulling wire in the cable tray of the top level in the pipe rack.
- 6.4.6 All crane work shall be stopped, and the booms be lowered to less than thirty (30) feet above grade when possible. If a Lightning Warning is made during a lift, it is acceptable to continue the lift until the load is in a safe position. Operators of cranes and lifts may evacuate the equipment and seek refuge in a Protective Shelter.
- 6.4.7 Elevated loading activities on the LPG rail loading racks or RBS truck racks where no overhead protection is provided.
- 6.4.8 Work in open areas with no overhead protection.

7.0 Dock Personnel

- 7.1 If the refinery is under a lightning warning, no vessel / barge mooring operation will commence.
- 7.2 If the process of mooring a vessel / barge has commenced, and a lightning warning is announced, the dock foreman will decide if weather permits to continue securing the vessel / barge.
 - 7.2.1 The Dock Foreman is to shut down all mooring operations if he / she feels the incoming weather poses a significant hazard to his / her crew.
 - 7.2.2 The Dock Foreman is to notify the pilot that mooring will resume when the lightning warning all clear is announced.

8.0 Sheltering

- 8.1 Upon receiving the communication that lightning has been detected within six (6) miles of the site, all MPC Employees and Contractors performing Non-Essential work shall secure their job sites immediately and shall take cover in a Protective Shelter.
 - 8.1.1 Permanent/substantial buildings (metal construction is acceptable if properly grounded),
 - 8.1.2 Blast trailers or blast resistant tents, if designed for lightning protection and properly grounded,
 - 8.1.3 Fully enclosed all-metal vehicles, or
 - 8.1.4 Zone/maintenance shops

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9.0 Revision History

Revision Number	Description of Change	Written by	Approved by	Revision Date	Effective Date
0	Converted to Control Format. Provided additional examples of restricted work.	Roger Gautreau	Refinery Management Team (RMT)	6/23/2008	6/30/2008
1	Reduced warning distance to 6 miles. Provided guidance on working near structures.	Roger Gautreau	Refinery Management Team (RMT)	7/9/08	7/14/2008
2	5.2.8 was changed	Ritchie Hofmann	Refinery Management Team (RMT)	9/1/2009	9/1/2009
3	No changes – 3 year review	Safety	Safety	9/1/2012	9/1/2012
4	Section 6.0 was added to provide guidance to dock personnel in the event of a lightning warning	Safety Department	Product Control Manager	12/10/2012	12/10/2012
5	No changes – 3 year review	Safety	Safety	9/1/2015	9/1/2015
6	No changes – 3 year review	Safety	Safety	8/23/2018	8/23/2018
7	Changes to duties of shift supervisor to security operations center. Changed proprietary system name to	Safety	Safety	06/29/2021	08/23/2021
8	1. Added definition of essential work - Essential Work – is outdoor work that must occur to prevent an imminent process safety event, critical maintenance/turnaround work that poses a greater personal safety or process safety risk by terminating, or to complete critical plant functions that pose a greater personal safety or	Safety	VPP/RLT	07/27/23	07/27/23

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	<p>process safety risk by terminating.</p> <p>2. The updated policy will allow work in Confined Spaces to continue during a Lightning Alert contingent on there being adequate overhead protection for the Confined Space Attendant and Emergency Responders.</p> <p>3. The Operations Shift Foreman/Supervisor and Maintenance/Turnaround Supervisor and Safety will be responsible for determining when work activities, not in Proactive Spaces, may continue during a Lightning Warning because it meets the definition of “Essential Work” as defined in Section 2.2.</p>				
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Appendix A: Lightning Safety Guidance Drawing

The following drawings are provided as guidance for approved work during a lightning alert. Sites should develop site specific drawing or plot plans of safe locations based on this appendix.

X	Work that shall be stopped in a Lightning Warning if not deemed Essential Work.
R	<ul style="list-style-type: none"> Review for adequate Overhead Protection for hole watch and emergency responders for confined space to continue. Review equipment manufacture requirements necessary before proceeding.
OK	Work allowed to continue in a Lightning Warning.

Note: Overhead Protection for confined space attendant and emergency responders shall be confirmed if work is allowed within a confined space during a lightning alert.

