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Approved By: Safety Supervisor		Hydrogen Sulfide (H₂S) Exposure Control		Garyville Refining Safe Practice
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# 1.0 PURPOSE

1.1 This Standard is to establish the minimum expectations for implementing the Hydrogen Sulfide (H<sub>2</sub>S) Exposure Control Program for Marathon Petroleum Company LLC's (MPC) Louisiana Refining Division (LRD).

# 2.0 APPLICATION

2.1 This standard applies to all MPC and Contractor employees that may be potentially exposed to  $H_2S$  at the LRD.

# 3.0 IMPLEMENTATION

3.1 The implementation of the requirements outlined in this standard shall be adhered to on this standard's effective date.

# 4.0 **RESPONSIBILITIES**

- 4.1 The LRD Safety Supervisor shall be this standard's administrator and is responsible for overseeing the implementation of this standard.
- 4.2 The LRD Safety Department must periodically review this standard.

# 5.0 **DEFINITIONS**

#### 5.1 Breathing Zone

- 5.1.1 The volume surrounding a worker's nose and mouth from which the worker draws breathing air over the course of a work period. This zone can be pictured by inscribing a sphere with a radius of about 10 inches centered at the worker's nose.
- 5.1.2 Because of this 10-inch distance, it is acceptable for a personal H<sub>2</sub>S monitor detector to be worn on the side of a hard hat, but not at the back of a hard hat.
- 5.1.3 Because of directed airflow into a laboratory hood below the sash opening and possible eddies created depending on the sash height, it is recommended that personnel working at a laboratory hood wear their H<sub>2</sub>S monitor on their upper collar, close to the shoulder. This more adequately represents the user's breathing zone, located above the sash opening.
- 5.2 *Ceiling:* OSHA has established an acceptable ceiling concentration of 20 ppm.
- 5.3 *Immediately Dangerous to Life or Health (IDLH):* The NIOSH IDLH concentration for H<sub>2</sub>S is 100 ppm. IDLH is an atmospheric concentration of H<sub>2</sub>S that poses an immediate threat to life or would cause irreversible or delayed adverse health effects or would interfere with an individual's ability to escape from a dangerous atmosphere. The purpose for establishing this IDLH was to determine a concentration from which a worker could escape without injury or without irreversible health effects in the event of respiratory protection equipment failure (e.g. stoppage of air flow in a supplied-air respirator) and a concentration above which only highly reliable respirators are required.
- 5.4 *Maximum Peak*: OSHA maximum peak above the ceiling is 50 ppm. The maximum peak concentration must not be exceeded more than once during an 8-hour shift, for no longer than

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10 minutes, and no other measurable exposure occurs.

- 5.5 **Safety Data Sheet (SDS)**: A written or printed document concerning a hazardous chemical that is prepared in accordance with OSHA 29 CFR 1910.1200.
- 5.6 **Short-Term Exposure Limit (STEL)**: MPC Occupational Exposure Limit (OEL) is 15 ppm, as measured over a 15 minute period.
- 5.7 **Small Incidental Release**: A small incidental release is defined as an incident where the source of the H<sub>2</sub>S is known and is isolated to a small area (e.g. opening a bleeder on a process line, loading operations such as asphalt or sulfur, etc.).
- 5.8 *Parts Per Million:* The abbreviation used in this document for parts per million is ppm.
- 5.9 *Permissible Exposure Limit (PEL):* In the case of H<sub>2</sub>S, the Federal OSHA PELs are the Ceiling and Maximum Peak limits.
- 5.10 *Time-Weighted Average (TWA):* MPC OEL is 10 ppm, as an eight-hour average exposure.
- 5.11 *Elevated Readings:* Any concentration exceeding the permissible exposure limits.

# 6.0 REQUIREMENTS

- 6.1 H<sub>2</sub>S HAZARD ASSESMENT
  - 6.1.1 H<sub>2</sub>S AREA IDENTIFICATION
    - 6.1.1.1 Evaluations of potential exposures may be conducted quantitatively and analyzed to ensure statistical validity per the Marathon Exposure Assessment Methodology (EXAM) as described in the LRD Industrial Hygiene Standard Practice, RSW-0118-GV.
    - 6.1.1.2 Work area atmosphere surveys have been and continue to be conducted during routine and turn-around operations where H<sub>2</sub>S may be present.
    - 6.1.1.3 Surveys include area and source measurements with direct reading instruments (MSA Altair 5x, RAE systems MultiRAE, ISC MX6, etc.) and are to be conducted by Safety, Operations, Product Control and IH Consultant personnel.
    - 6.1.1.4 The review of other objective data providing similar information (e.g., laboratory analysis of a gas stream) and the review of incident and injury records to determine problem sources of H<sub>2</sub>S.
  - 6.1.2 ROUTINE AIR MONITORING
    - 6.1.2.1 Personal breathing zone monitoring is performed to evaluate full-shift, short-term and peak exposures experienced by MPC and contract employees. Representative work shift and peak exposure concentration monitoring is conducted in accordance with the LRD Annual Air Monitoring Plan.
    - 6.1.2.2 All monitoring is conducted using approved equipment and established procedures.
    - 6.1.2.3 All monitoring performed to estimate the exposure of employees is reviewed by

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the LRD Industrial Hygienist; this includes notifying employees of the monitoring results. Results of LRD personnel, contractor personnel and work area monitoring are posted on the LRD Industrial Hygiene webpage. Over exposure results will be provided directly to the respective LRD employee or to the supervisor of the Contractor employee, and confirmation of receipt is obtained.

**NOTE:** The purpose of these surveys is to determine if there are work operations or job tasks where there is the potential for regular or intermittent exposure to  $H_2S$ , and to identify any locations where  $H_2S$  is present at concentrations above the published exposure limits.

# 6.1.3 ELEVATED READINGS EXPERIENCED DURING ROUTINE AIR MONITORING

- 6.1.3.1 In the event that an elevated full-shift, short-term or peak exposure occurs, a survey must be conducted by the Safety Department to identify the source.
- 6.1.3.2 Once a work area location or job task with potential for H<sub>2</sub>S exposure in excess of the established limits has been identified, equipment repair, design modifications, procedural changes or PPE requirements will be implemented to eliminate the exposure.
- 6.1.3.3 Any observed problems must be corrected and additional personal monitoring (follow-up) must be performed to confirm that elevated exposures do not persist. This survey and personal monitoring must be conducted in the same areas during the same job activities as those that were performed during the initial monitoring that resulted in the elevated exposures.

# 6.1.4 H<sub>2</sub>S RELEASE EVENT AIR MONITORING

6.1.4.1 Air Monitoring for H<sub>2</sub>S shall be conducted by an employee that has successfully completed instrument training. The personnel performing air monitoring shall wear the appropriate PPE after there has been a release of H<sub>2</sub>S that has caused a personal or fixed H<sub>2</sub>S detector to alarm. The air monitoring is performed to establish the airborne concentration of H<sub>2</sub>S and to determine the following:

**NOTE:** All Safety, SERT members, and AMT members are trained.

- 6.1.4.1.1 The level of PPE that must be worn by employees responding to the incident.
- 6.1.4.1.2 Establishment of temporary exclusion zones.
- 6.1.4.1.3 Clearance monitoring to determine when the event is over.
- 6.1.4.1.4 Air monitoring shall be conducted during the response activities to assess changing conditions as well as employee exposure.
- 6.1.4.1.5 During an air release of high H<sub>2</sub>S, the Air Monitoring Team is dispatched to conduct air monitoring downwind and off-site, as safe conditions warrant, and communicate all air monitoring data back to the incident commander/AMT Leader, as detailed in the LRD Emergency Response Plan.

**NOTE:** Small incidental releases where the source of the H<sub>2</sub>S is readily apparent (e.g.

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sample station, opening a bleeder) may not require all the shown above actions (e.g. Establishment of exclusion zones).

6.1.5 EMPLOYEE EXPOSURE LIMITS

6.1.5.1 These values are outlined in the table below:

H₂S CONCENTRATION (ppm)	DURATION OF EXPOSURE	TYPE OF LIMIT	SOURCE
10	8 hour	TWA	MPC
15	15 minute	STEL	MPC
20	Any amount	PEL Ceiling	OSHA
50	10 minute	PEL Maximum Peak	OSHA
100	Any amount	IDLH	NIOSH

# 6.1.6 PERSONAL PROTECTIVE EQUIPMENT HAZARD ASSESSMENT

- 6.1.6.1 All LRD employees, who could be required to work in an area where elevated H<sub>2</sub>S is likely, are included in the LRD Respiratory Protection Program.
- 6.1.6.2 Respiratory protection in atmospheres containing concentrations of H<sub>2</sub>S above the TWA is limited to pressure demand respirators (SCBA or airline respirator with a 5 minute escape pack), unless task has specifically been approved for Air Purifying Respirator (See 6.3.1.4 for List of Approved Tasks).

**NOTE:** Contractors are responsible for conducting a PPE Hazard Assessment in compliance with OSHA regulations for their affected employees.

#### 6.2 ENGINEERING CONTROLS & WORK PRACTICES

- 6.2.1 Engineering and safe work practice control measures will be utilized to maintain employee exposure within the published exposure limits.
- 6.2.2 Where exposures cannot be maintained below the published exposure limits, controls must be used to reduce exposures to the lowest practical level and provide employees with appropriate respiratory protection.
- 6.2.3 Examples of engineering controls include, but are not limited to:

6.2.3.1 Exhaust hoods

6.2.3.2 Vapor collection systems

6.2.3.3 Closed loop sample systems

6.2.3.4 Sewer enclosures

6.2.3.5 Relocation of control valves remote from draining sites

6.2.3.6 Air movers as local or dilution ventilation

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6.2.4 Examples of safe work practices include, but are not limited to:

- 6.2.4.1 Equipment preparation by Operations
- 6.2.4.2 Limiting access
- 6.2.4.3 Training
- 6.2.4.4 PPE
- 6.2.4.5 Stationary H<sub>2</sub>S detectors
- 6.2.5 Interim H<sub>2</sub>S Exposure Controls
  - 6.2.5.1 Interim measures may be required while engineering controls are being developed and implemented. For example:
    - 6.2.5.1.1 Respiratory protection will be used in the interim when engineering controls and work practices are being installed or implemented.
    - 6.2.5.1.2 The Industrial Hygienist/Safety Department must be involved during the hazard assessment of the design process to ensure all H<sub>2</sub>S control measures are adequately implemented.
    - 6.2.5.1.3 The Industrial Hygienist/Safety Department must be notified when new H<sub>2</sub>S control equipment is installed or old H<sub>2</sub>S control equipment is modified that could affect the employee's exposure levels.
- 6.2.6 Fixed H<sub>2</sub>S Monitor Detectors
  - 6.2.6.1 The following must be considered when determining the locations of fixed H<sub>2</sub>S detectors:
    - 6.2.6.1.1 The initial and periodic Process Hazard Analysis (PHA)
    - 6.2.6.1.2 Incident investigations of personal H<sub>2</sub>S alarms
    - 6.2.6.1.3 H<sub>2</sub>S concentrations of process streams

# 6.3 EMPLOYEE H<sub>2</sub>S PROTECTION REQUIREMENTS

#### 6.3.1 RESPIRATORY PROTECTION REQUIREMENTS

- 6.3.1.1 Respiratory protection will be required if airborne H<sub>2</sub>S concentrations are unknown or engineering and/or work practice controls do not reduce airborne H<sub>2</sub>S to less than 10 ppm. This may include but is not limited to a potential exposure from a source containing H<sub>2</sub>S listed below:
  - 6.3.1.1.1 Opening a bleeder on equipment that may contain  $H_2S$ .
  - 6.3.1.1.2 Blowing down instrument transmitters containing  $H_2S$  where mitigation procedures are not in place.

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- 6.3.1.1.3 Initial line breaking where H<sub>2</sub>S analysis cannot be confirmed or a potential exposure may occur from trapped H<sub>2</sub>S or unconfirmed drainage/purging.
- 6.3.1.1.4 Chemical cleaning of equipment with the use of acids or solvents that may produce  $H_2S$  from reaction (Consult with vendor on potential  $H_2S$  generation and mitigation procedures).
- 6.3.1.1.5 Gauging of storage tanks containing sour product.
- 6.3.1.1.6 Blowing down process equipment sight glasses.
- 6.3.1.1.7 Cleaning of tank sludge material that could generate  $H_2S$  when disturbing the sludge.
- 6.3.1.1.8 Mixing of acids into tanks, sumps or vacuum trucks with sulfidic caustic present where  $H_2S$  could be generated.
- 6.3.1.1.9 Entering H<sub>2</sub>S restricted areas of a vacuum truck discharge hose.
- 6.3.1.1.10 Obtaining process samples where engineering controls are not present or not functional.
- 6.3.1.2 The level of respiratory protection required for entry into an area, under the conditions described above, during emergency or non-emergency operations is limited to Pressure-Demand Supplied Air Respirators (SARs) unless task has specifically been approved for Air Purifying Respirator (See 6.3.1.4):
  - 6.3.1.2.1 Self-Contained Breathing Apparatus (SCBA) or
  - 6.3.1.2.2 Supplied-air airline respirator with 5 minute escape pack
- 6.3.1.3 At least one back-up person equipped with a respirator specified from above must be present and remain on stand-by at a safe distance when personnel enter an area after an  $H_2S$  alarm event.
  - **Note:** The SGS attendant serves as the back-up person at the sulfur loading rack while loading sulfur trucks.
- 6.3.1.4 Tasks approved to don Air Purifying Respirators (APR) for H<sub>2</sub>S exposure are based upon statistical analysis of monitoring data per the MPC EXAM Process:
  - 6.3.1.4.1 Tank gauging & Sample Collection at Bulk Gas Oil Tank
  - 6.3.1.4.2 Tank gauging & Sample Collection at Asphalt Bulk Storage Tank
  - 6.3.1.4.3 Sampling Tank 55-3 Water & Oil Pumps (ground level)
  - 6.3.1.4.4 Loading asphalt rail cars (*Performed by SGS*).
  - 6.3.1.4.5 Sulfur Truck Trailer Loading Ground level only.

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- 6.3.1.4.6 Tank Gauging at Tank 55-4 South Naphtha and 55-6 (HGO - Heavy Gas Oil) in Unit 41.
- 6.3.1.4.7 WWTP Tanks 100-2 (Storm Water), 100-3 (Spare Storm/Equalization Tank), 100-4 (Equalization Tank), 100-5 (Storm Water), 250-3 (Storm Water), 20-3 (Bio Sludge), 25-2 (Slop Oil), and 3-1(Clean Slop Oil).
- 6.3.1.5 Entry into a confined space where the H<sub>2</sub>S concentration is above the TWA level shall be conducted in accordance with the LRD Confined Space Entry Standard.
- 6.3.1.6 Personnel required to wear respiratory protection are included in the LRD respiratory protection program, and must adhere to the requirements of the LRD Respiratory Protection Standard.
- 6.3.1.7 The use of APRs is allowed for activities where breathing air is <u>not</u> normally required (e.g., RAM Level 2 or 3) and H2S is an identified hazard. The use of APRs for this purpose is for **escape only** should their personal H2S monitor alarm they need to evacuate the area.

#### 6.3.2 PERSONAL H<sub>2</sub>S DETECTORS

6.3.2.1 All LRD personnel, contractors, and visitors who enter

- 6.3.2.1.1 A process unit battery limit
- 6.3.2.1.2 A tank dike area, a dock area,
- 6.3.2.1.3 Rail or truck loading area
- 6.3.2.1.4 Designated areas of the laboratory
- 6.3.2.1.5 Any other area of the refinery where there is known or suspected  $H_2S$  (including roadways) must wear a Personal  $H_2S$  Detector at all times.
- 6.3.2.2 Personal H<sub>2</sub>S Detector Requirements
  - 6.3.2.2.1 The personal  $H_2S$  detector must be worn in the breathing zone.
  - 6.3.2.2.2 The personal  $H_2S$  detector must be worn on the outermost garment and not covered or obscured.
  - 6.3.2.2.3 All MPC personal H<sub>2</sub>S detectors must have event logging capabilities.
  - 6.3.2.2.4 All personal H<sub>2</sub>S detectors must have the ability to record and recall the peak exposure levels in a data log.
    - 6.3.2.2.4.1 All current detectors not capable of recalling peak exposures in a data log are permitted until their useful life has expired; however, all high alarms must be treat as an exposure above 50ppm.

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- 6.3.2.2.4.2 No newly acquired detectors are permitted onsite if they cannot recall peak exposures in a data log.
- 6.3.2.2.5 The alarm set point for all personal H<sub>2</sub>S detectors must be: Low Alarm: 10 ppm, High Alarm: 15 ppm

### 6.3.3 OBTAINING PERSONAL H<sub>2</sub>S DETECTORS

- 6.3.3.1 Marathon personal H<sub>2</sub>S detectors will be assigned to MPC employees and direct MPC supervised contractor employees.
  - 6.3.3.1.1 Only the detector assigned to that employee may be used by that employee. Borrowing of personal detectors is not permitted.
- 6.3.3.2 A supply of personal H<sub>2</sub>S detectors will be maintained in Safety for:
  - 6.3.3.2.1 LRD employees
  - 6.3.3.2.2 Direct MPC supervised contractor employees.
  - 6.3.3.2.3 MPC employees who may travel to the refinery as part of their normal work requirements.
  - 6.3.3.2.4 H<sub>2</sub>S detectors may be provided for visitors and contractors who will only be on-site for a short time and are not performing physical work. Spare detectors for these individuals are supplied and maintained by the ES&S Senior Administrative Assistant..
  - 6.3.3.2.5 Replacement of damaged LRD employee detectors.
- 6.3.4 PERSONAL H<sub>2</sub>S DETECTOR TESTING
  - 6.3.4.1 Daily functional testing (if recommended by the manufacturer) shall be conducted before use each shift. This test is to ensure the user that the audible, vibrating, and visual alarms as well as the sensor are working properly.
    - 6.3.4.1.1 LRD employees must verify the " $\sqrt{}$ " daily on the Tango TX1.
  - 6.3.4.2 Calibrations must be conducted every 30 days, or sooner, for all MPC personal H<sub>2</sub>S detectors assigned to personnel and departments, including spares for traveling MPC employees and visitors.
  - 6.3.4.3 Records containing monthly calibration data for all MPC personal H<sub>2</sub>S detectors must be maintained.
  - 6.3.4.4 Calibrations must be in accordance with the manufacturer's specifications.
  - 6.3.4.5 Each calibration station must have step-by-step instructions available to ensure that personnel know the correct procedure for performing the test. See Appendix A
  - 6.3.4.6 Calibration stations are located in the:

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Central Control Building	PITT Building
Central Machine Shop	Red Roof Inn
Laboratory	All Domain & Zone Facilities
Main Office Building	Blend Building
Old Administrative Building	Maintenance Building
OTC Building	-

#### 6.3.5 EVACUATION REQUIREMENT IN THE EVENT OF AN H<sub>2</sub>S ALARM

6.3.5.1 If an LRD or contractor employee's personal  $H_2S$  detector alarms, or a fixed  $H_2S$  detector alarms, personnel in the immediate area **MUST** evacuate immediately to a safe distance, and notify appropriate Operations or Safety personnel of the alarm.

#### 6.3.6 ENTRY REQUIREMENTS FOR ELEVATED H<sub>2</sub>S LEVELS

- 6.3.6.1 The level of respiratory protection required for entry into an area where the concentration of H<sub>2</sub>S is or may be greater than 10 ppm, regardless if it is during emergency or non-emergency operations, is limited to a Pressure-Demand Supplied Air Respirator (SAR), with the exception provided in section 6.1.6.2.1.
  - 6.3.6.1.1 Self-Contained Breathing Apparatus (SCBA) or
  - 6.3.6.1.2 Supplied-air airline respirator with 5 minute escape pack.
- 6.3.6.2 At least one back-up person equipped with a respirator specified above must be present and remain on stand-by at a safe distance when personnel enter an area after an  $H_2S$  alarm event.
- 6.3.6.3 Personnel who enter an area where the concentration of H<sub>2</sub>S is or may be greater than 10 ppm AND are wearing a pressure demand SAR are not required to wear their personal H<sub>2</sub>S detector (The detector must be worn when respirator is removed). All other personnel in the surrounding area or stand-by personnel that have not yet donned their pressure demand SAR are required to wear their personal H<sub>2</sub>S detector according to this Standard.

# 6.3.7 ALARM EVENT REQUIREMENTS

6.3.7.1 Apply the following alarm event requirements:

- 6.3.7.1.1 Every occurrence of an alarm on a personal  $H_2S$  detector (regardless of respiratory protection) must be documented along with the maximum concentration, source of  $H_2S$ , all personnel involved (including detector serial number), and personnel notified.
- 6.3.7.1.2 By the end of the work day or shift, all alarm events must be documented in Intelex by the MPC Person or Coordinator responsible for the work being conducted when the alarm occurred.
- 6.3.7.1.3 In the event a personal H<sub>2</sub>S detector alarms with the use of supplied air respiratory protection, or if a personal H<sub>2</sub>S detector alarms due to a known interference or cross-sensitivity issue, it must be entered as a Category 0 (document and close) incident.

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6.3.7.1.4

- 6.3.7.1.5 Every incident that causes an H<sub>2</sub>S alarm event above 10 ppm without the use of appropriate respiratory protection must be investigated. The investigation should focus on how to prevent the initiating event as well as how to minimize personnel exposure should a similar event occur in the future. All events between 10 ppm and 50 ppm will be investigated as a Category 1, greater than 50 ppm – Category 2.
- 6.3.7.1.6 Any alarm event greater than 10 ppm shall initiate an immediate investigation in accordance with the LRD Incident Reporting and Investigation Standard. If, through the initial investigation, it is found that an alarm event was incidental (e.g. sample station, open bleeder), if the alarm event was already investigated as a Category 2 incident, or if the alarm event has an immediate known root cause that does not require further investigation, then the level of the investigation may be reduced (i.e. Category 2 to 1, Category 1 to 0). A thorough explanation must be provided to justify the reduction.
- 6.3.7.1.7 In all alarm events, measures must be taken immediately, if necessary, to mitigate any future employee exposure.

6.3.7.1.7.1 A calibration of the personal H<sub>2</sub>S monitor must be performed after each alarm event.

- 6.3.7.1.8 Since the OSHA Maximum Peak for H<sub>2</sub>S is 50 ppm, personnel that are exposed to 50 ppm H<sub>2</sub>S or greater without respiratory protection must be protected from any additional H<sub>2</sub>S exposure for the remainder of that work shift.
  - 6.3.7.1.8.1 Reassignment for the remainder of the shift to a job that would have limited exposure to H<sub>2</sub>S; or
  - 6.3.7.1.8.2 Replacement by another qualified worker; or
  - 6.3.7.1.8.3 Continuation of normal duties with the recognition that any job that has the potential for H<sub>2</sub>S exposure must be

done in a pressure demand SCBA or SAR OR by another qualified worker.

6.3.7.1.9 Potential exposures include but are not limited to the following:

> **Catching Product Samples** Draining / Depressurizing Equipment Line Breaking **Blowing Down Sight Glasses** Process Invasive Work

# 6.3.8 AREA RE-ENTRY AFTER AN ALARM EVENT

6.3.8.1 For re-entry after an alarm, the area atmospheric conditions must be verified by

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Operations or Safety personnel. The personnel performing the atmospheric monitoring must wear the appropriate PPE and Pressure Demand SAR. The atmospheric conditions must be approved for re-entry before personnel can return to the area where the alarm occurred.

6.3.8.2 For specific PPE and back-up personnel requirements, see <u>Entry Requirements</u> for Elevated H<sub>2</sub>S Levels.

### 6.4 EMERGENCY MEDICAL ATTENTION & MEDICAL SURVEILLANCE

- 6.4.1 To ensure that adequate and appropriate medical attention is received in the event of an exposure, MPC and Contractor employees must report any exposure to their supervisor and/or a MPC Operator immediately. Any individual exposed to 100 ppm H2S or greater or experiencing symptoms (e.g. headache) from any level of H2S exposure must immediately report to LRD Medical for evaluation. First aid for H<sub>2</sub>S exposure will be provided in accordance with current H<sub>2</sub>S SDS recommendations.
- 6.4.2 A medical examination will be required prior to the time of initial assignment when a person is required to work in an area where H<sub>2</sub>S exposures might exceed the TWA or STEL during 10 or more days within a one year period. Annual medical surveillance evaluations would also be performed on any employee who experienced this level of work place exposure.

**NOTE:** Based on H<sub>2</sub>S exposure control measures required by the LRD, it is not likely that any person in the refinery will work under conditions that will result in exposures that require ongoing medical surveillance.

6.4.3 The results of all medical evaluations shall be sent directly to the office of the Medical Director and are to be treated as confidential. Medical will consult with local management and recommend further evaluations, work restrictions, or removal of an employee from a work assignment with potential H<sub>2</sub>S exposure as necessary to ensure employee health and safety.

#### 6.5 CONTRACTOR H<sub>2</sub>S PROTECTION REQUIREMENTS

#### 6.5.1 REFINERY'S RESPONSIBILITY FOR COMMUNICATING H<sub>2</sub>S HAZARDS

- $6.5.1.1 H_2S$  hazards will be communicated to all contractor firms working at the refinery via the site orientation.
- 6.5.1.2 Contractors and sub-contractors will be reviewed periodically for compliance with the applicable requirements of this standard practice.

# 6.5.2 CONTRACTOR PERSONAL H<sub>2</sub>S DETECTOR REQUIREMENTS

- 6.5.2.1 Each contractor and sub-contractor employee who enters a process unit battery limit, a tank farm, a dock area, a rail or truck loading area, designated areas of the laboratory, and any other area of the refinery (including adjacent roadways) where there is known or potential H<sub>2</sub>S must wear a personal H<sub>2</sub>S detector at all times.
  - 6.5.2.1.1 LRD will inform contractors of the requirement that they **MUST** evacuate if their personal H<sub>2</sub>S detector alarms via the site orientation.

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6.5.2.1.2 Contractor employees must inform their LRD permit writer and Contractor Coordinator that they had an event that caused a personal  $H_2S$  detector to alarm.

**NOTE:** Inform the first Marathon employee with a radio to locate the LRD permit writer.

- 6.5.2.1.3 Contractor personal  $H_2S$  detectors should adhere to the requirements of section 6.3.2.2.
- 6.5.2.1.4 Nested contractor employers must provide monthly bump test/calibration reports to MPC Safety.
- 6.5.2.1.5 Contractor employers must provide a means to capture unreported alarms.
- 6.5.3 Contractors must provide personal  ${\rm H}_2{\rm S}$  detectors for their employees
  - 6.5.3.1 Contractor employers are required to provide personal H<sub>2</sub>S detectors for their personnel who will perform work in process unit battery limits, a tank farm, a dock area, rail or truck loading area, designated areas of the laboratory, and any other area of the refinery where there is a potential for H<sub>2</sub>S exposure.
  - 6.5.3.2 Contractor employers must provide their employees with a means to bump test and/or calibrate personal H<sub>2</sub>S detectors.
  - 6.5.3.3 Each contractor must have procedures for the maintenance, bump testing, calibration (if required by manufacturer) and recordkeeping of all contractor personal  $H_2S$  detectors.
  - 6.5.3.4 Exceptions may be made by the refinery to provide an MPC personal H<sub>2</sub>S detector on a case-by-case basis for Contractors who will only be at the refinery for a short time (e.g. one day).
- 6.5.4 CONTRACTOR RESPIRATORY PROTECTION & H<sub>2</sub>S TRAINING PROGRAM
  - 6.5.4.1 All contractor employees who could be required to enter or work in an area where  $H_2S$  may be present must be included in their employers' Respiratory Protection Program if the employee will be expected to utilize respiratory protection to limit exposure to  $H_2S$ .
  - 6.5.4.2 All contractors must have an H<sub>2</sub>S training program that effectively communicates the hazards of H<sub>2</sub>S to their employees, who have the potential to be exposed to H<sub>2</sub>S, and the means the contractor firm will use to provide personal protection. Training must be conducted prior to their initial assignment at the refinery and training records are to be made available to the refinery on request.

# 6.6 ADMINISTRATIVE REQUIREMENTS

#### 6.6.1 RECORDKEEPING

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- 6.6.1.1 The Industrial Hygienist and the Medical department will maintain files of employee exposure and medical records for the retention periods required by the Access to Employee Exposure and Medical Records Standard (29 CFR 1910.1020).
- 6.6.1.2 The following files must be maintained at the refinery:
  - 6.6.1.2.1 Employee Exposure Monitoring records (Industrial Hygiene)
  - 6.6.1.2.2 Personal H<sub>2</sub>S monitor detector Alarm and Investigation Reports (Intelex)
  - 6.6.1.2.3 Employee Exposure Notifications (Health Services)
  - 6.6.1.2.4 These files must be maintained in accordance with MPC records retention policy.

# 6.6.2 AUDITING

- 6.6.2.1 LRD will audit their H<sub>2</sub>S Exposure Control Program periodically. The audit program will contain the following elements:
  - 6.6.2.1.1 Review of the LRD employee compliance with calibration requirements to ensure that all LRD personal H<sub>2</sub>S detectors in-use are calibrated at least every 30 days.
  - 6.6.2.1.2 Review of all reported incidents of personal H<sub>2</sub>S detector and fixed detector alarms to determine if certain areas or activities have a greater potential for H<sub>2</sub>S exposure.
  - 6.6.2.1.3 Annual dedicated self-assessment will be performed by the Tier 1 Safety Audit Program.

#### 6.7 HAZARD COMMUNICATION

6.7.1 Pursuant to the LRD HazCom Standard, the following information must be communicated to employees and contractors:

 $6.7.1.1\ H_2S\ Hazards$ 

6.7.1.2 Substances containing H<sub>2</sub>S

6.7.1.3 The protective measures for working safely with  $H_2S$ .

**NOTE:** This includes Safety Data Sheets, labels and hazard warnings, and employee information and training.

- 6.7.2 H<sub>2</sub>S SIGNS
  - 6.7.2.1 Appropriate caution and warning signs must be posted in locations of the plant that are identified in the  $H_2S$  hazard assessment that have the potential to have elevated concentrations of  $H_2S$ .
  - 6.7.2.2 Additional signage should be considered in certain areas or near specific tasks

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where additional  $H_2S$  PPE will be required.

- 6.7.3 Safety Data Sheets
  - 6.7.3.1 The Safety Data Sheet (SDS) for hydrogen sulfide is available for review on "MPCConnect".
  - 6.7.3.2 A hard copy of the SDS can also be printed from any computer in the refinery.

### 7.0 TRAINING

- 7.1 Computer Based Training (CBT) and testing is provided by the Training Department.
- 7.2 An H<sub>2</sub>S CBT that effectively communicates the hazards of H<sub>2</sub>S is provided to LRD employees who have the potential to be exposed to H<sub>2</sub>S and includes the following elements:
  - 7.2.1 This training must be conducted at the time of their initial assignment.
  - 7.2.2 There must be an annual  $H_2S$  refresher.
  - 7.2.3 There must be accurate  $H_2S$  training documentation and records.
  - 7.2.4 Information regarding the hazards of H<sub>2</sub>S must be made readily available to all MPC and Contractor employees.

#### 8.0 RECORDKEEPING

8.1 All records associated with this Standard and its implementation shall be maintained in accordance with Marathon Petroleum Corporation Enterprise Records and Information Management Policy (MPC6003).

# 9.0 REFERENCES

- 9.1 OSHA: 29 CFR 1910.1000, Table Z-2 Air Contaminants
- 9.2 OSHA: 29 CFR 1910.1020, Access to Employee Exposure and Medical Records
- 9.3 MPC Hydrogen Sulfide Exposure Control Program, HLT-2002
- 9.4 LRD Industrial Hygiene Standard Practice, RSW-0118-GV
- 9.5 LRD Incident Reporting and Investigation Standard Practice, RSW-0124-GV
- 9.6 LRD Confined Space Entry Standard Practice, RSW-0106-GV
- 9.7 LRD Respiratory Protection Standard Practice, RSW-0117-GV
- 9.8 LRD HazCom Standard Practice, RSW-0139-GV
- 9.9 LRD Emergency Response Plan, 311.359
- 9.10 DOC. LIB. NO.: 311.29

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# **10.0 APPENDICES**

10.1 Appendix A: ISC Tango Calibration Instructions

# **11.0 REVISION HISTORY**

Revision Number	Description of Change	Written by	Approved by	Revision Date	Effective Date
1	Change procedural format	Safety	Refinery Management Team (RMT)	11/13/2008	1/1/2009
2	Revised Section 6.3.7	Safety	Refinery Management Team (RMT)	4/01/2010	4/01/2010
3	Revised Section 6.1.4.1, 6.3.1.3 and 6.3.8.1	Safety	Refinery Management Team (RMT)	11/18/2011	11/18/2011
4	Changed MSDS to SDS	Safety	Safety	8/20/2013	8/20/2013

Revision Number	Description of Change	Written by	Approved by	Revision Date	Effective Date
5	Revised reference to Marathon Corporate HES&S Standard References & ACGIH	Safety	Safety	9/3/13	9/3/13
6	Revised to coincide with Corporate H <sub>2</sub> S Standard, and included EXAM in 6.1.1.1	Jessica Myers	VPP Committee- 5/27/2014 RLT-5/29/2014	5/30/2014	5/30/2014
7	Updated 6.3.7.1.2 concerning the incident report	Amanda Hall	VPP Committee 7/17/2014 RLT 8/7/2014	8/14/2014	8/14/2014
8	Three year review/revision. Minor verbiage changes	Jessica Myers	Safety Department	10/8/2014	10/8/2014
9	Expanded on incident investigation requirements under 6.3.7.1.4	S. Kumpar	RLT/VPP	10/18/2014	10/18/2014
10	Updated entire standard for Tango requirements and updated contractor requirements	Jessica Myers	VPP Committee 1/13/2015 RLT 1/15/2015	1/8/2015	1/15/2015
11	Updated how to wear monitors and assignment of monitors in sections 6.1 6.1,6.3.2.2.2,6.3.3.1 and 6.33.1.1	Jessica Myers	VPP Committee 11/17/15	10/28/15	12/17/15
12	3 year review. Added definition for breathing zone, included requirement for peak datalogs.	Jessica Myers	VPP Committee 7/7/2016 RLT 8/11/2016	7/1/2016	7/1/2016
13	Minor clarification regarding expectation for reporting to	Roger Gautreau	RLT 01/11/2018	01/12/2018	01/12/2018

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	LRD medical post exposure in section 6.4.1.				
14	Revised sections 6.3.7.1.2 and 6.6.1.2.2 to reflect the conversion from KMS to Intelex	Roger Gautreau	Required by MOC 46515	06/25/2018	06/25/2018
15	Triennial review - updated to include approved APR task.	Alexander Mapel	Safety	07/30/2019	07/30/2019
16	Updated to include approved APR tasks	Alexander Mapel	Safety	03/16/2020	03/16/2020
17	Updated to include approved new APR tasks for Unit 41.	Alexander Mapel	Safety	09/03/2020	09/03/2020
18	Updated to include new APR-approved tasks in WWTP, allowance for APR use where breathing air not normally required (RAM 2 or 3), changed requirement to report to medical from 50 ppm alarm to 100 ppm alarm of when experience symptoms	Brendan Mullins	RLT 5/5/2022	6/1/2022	6/1/2022

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# APPENDIX A ISC TANGO NORMAL CALIBRATION INSTRUCTIONS





If your monitor fails the test, verify that the test gas cylinder is not empty by checking the gauge on the cylinder regulator. If your monitor fails, the cylinder is not empty and other monitors pass, return your monitor to <u>Safety</u> to exchange it for a new monitor.

Gas cylinders are designed to detect gas levels, and automatically order replacement cylinders when levels are low. The iGas card must be correctly inserted into the reader for this to work.

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# **ISC TANGO MANUAL CALIBRATION INSTRUCTIONS**

