Doc Custodian: Safety Professional Approved By: Safety Supervisor		: Safety	Marathon Petroleum Company LP Refining Industrial Hygiene		Doc No: RSW-0118-GV Rev No: 10	
		Safety			Garyville Refining Safe Practice	
	Revision Appr	oval Date: 11-12	2-2021	Next Review Date: 7	11-12-2026	
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1.0 PURPOSE

1.1 The purpose of this program is to inform Marathon Petroleum Company (MPC) and Contractor employees of the information used to develop a comprehensive Industrial Hygiene Program that is necessary to minimize exposure to the different types of chemical and physical stressors found at the Louisiana Refining Division (LRD) adhering to corporate standard HLT-2001 "Industrial Hygiene Program".

2.0 APPLICATION

2.1 This standard practice shall apply to all MPC and Contractor employees that will be exposed to occupational and environmental health hazards while working at the LRD.

3.0 IMPLEMENTATION

3.1 LRD shall assure compliance with the requirements outlined in this standard practice on the effective date.

4.0 **RESPONSIBILITIES**

4.1 The Division's Safety Supervisor is designated as the administrator of this Program and is responsible for its implementation and revisions.

5.0 DEFINITIONS

- 5.1 <u>Action Level</u> The level of a harmful or toxic substance/activity that, if exceeded, initiates certain required activities, such as medical surveillance, increased industrial hygiene monitoring, or biological monitoring.
- 5.2 <u>Bayesian Analysis</u> A statistical calculation used to estimate the probability that the true exposure profile falls into a particular exposure control category.
- 5.3 <u>Exceedance Fraction</u> The estimate of the proportion of the exposure distribution that exceeds a defined limit at a specific confidence interval.
- 5.4 <u>Health Risk Rating (HRR)</u> An algorithm designed to risk rank a Qualitative Exposure Assessment.
- 5.5 <u>Marathon Exposure Assessment Methodology (EXAM)</u> A comprehensive strategy for the qualitative and quantitative assessment, statistical analysis, control banding and reassessment of occupational exposure risks.
- 5.6 <u>Nested Contractor</u> Maintenance contracted personnel onsite performing work continuously throughout the year without rotating personnel.
- 5.7 <u>Qualitative Exposure Assessment</u> A method to evaluate and risk rank potential exposures, in the absence of quantitative data, based on the integration of process information, practices and professional judgment.
- 5.8 <u>Quantitative Exposure Assessment</u> The process of obtaining representative air, bulk, wipe or noise samples using traditional industrial hygiene and analytical methods.
- 5.9 <u>Similar Exposure Group (SEG)</u> A group of persons who experience exposures similar enough that assessing the exposures of any member of the group is predictive of exposures of all members of the group.
- 5.10 <u>Similar Exposure Task (SET)</u> A routine work element or series of work elements, identified with a specific SEG that has a potential for exposure.
- 5.11 <u>Qualitative Reassessment</u> The cyclical continuous refinement and validation of qualitative exposure assessments scheduled within EXAM and calculated based on risk.

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6.0 REQUIREMENTS

- 6.1 Anticipation and Recognition of Potential for Significant Exposures
 - 6.1.1 Qualitative assessments to identify activities performed by Operations, Product Control, Maintenance (MPC & Nested Contractor) or Construction personnel that could result in elevated exposures are accomplished through the use of the Marathon Exposure Assessment Methodology (EXAM) (see HLT-2001). Key elements therein include:
 - 6.1.1.1 Determination of Similar Exposure Groups (SEG) and Similar Exposure Tasks (SET) for positions with potential exposures.
 - 6.1.1.2 Identification of routine and non-routine tasks for each SEG.
 - 6.1.1.3 Calculation of Health Risk Ratings (HRR) for each SEG/SET combination.
 - 6.1.1.4 All SEG/SET combinations are risk ranked based on the HRR to determine the sampling strategy for quantitative assessments.
 - 6.1.1.5 Qualitative reassessments are performed at a frequency based on risk in accordance with EXAM.
 - 6.1.1.6 Coordinate with Corporate Occupational and Environmental Hygiene (OEH) necessary changes to maintain the LRD SEGs and/or SETs.
 - 6.1.1.7 All results and updates to qualitative assessments are maintained in the Corporate OEH electronic database.
 - 6.1.2 Information about process stream constituents/contaminants and building material composition acquired from the following sources, in conjunction with respective exposure limits, provide insight into what types of exposures could be experienced in different areas of the refinery. These sources could also identify new or previously unrecognized exposures that may need inclusion in EXAM as well as those sources that need removal or modification in EXAM.
 - 6.1.2.1 Process information from the Tech Services and Operations departments
 - 6.1.2.2 Process stream analysis data from the Laboratory
 - 6.1.2.3 Change of Chemical/Catalyst Forms and SDSs
 - 6.1.2.4 Operations/Tech Services
 - 6.1.2.5 Service/Engineering/Maintenance/Safety/Environmental Team Meetings
 - 6.1.2.6 Data from surveys of work areas for chemical and physical stressors (e.g. lead in paint, noise, asbestos)
 - 6.1.2.7 Historical monitoring and/or sampling & analytical data
 - 6.1.2.8 Fugitive emission monitoring data
 - 6.1.2.9 Waste Profile Data from the Environmental Department
 - 6.1.2.10 Complaints/concerns raised by MPC or Contractor personnel
 - 6.1.2.11 Periodic walk-through / surveys of the refinery by HES Professionals
 - 6.1.2.12 Historical monitoring and/or sampling and analytical data

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- 6.1.2.13 Information from HES Professionals or consultants working at other refineries
- 6.1.2.14 HESS Team Audits
- 6.1.2.15 Managers Audits
- 6.1.2.16 HAZOP Studies
- 6.1.2.17 What-If meetings
- 6.1.2.18 Management of Change process or pre-startup safety reviews
- 6.1.2.19 New design projects and pre-bid meetings
- 6.1.2.20 Updated regulations or industry recommendations
- 6.1.2.21 PSI Investigations
- 6.1.3 Coordinate with Corporate OEH changes necessary to maintain the LRD EXAM up-to-date and relevant exposure profiles inclusive of processes, jobs/tasks, work schedules, work practices, and materials.
- 6.2 Quantitative Evaluation of Chemical & Physical Stress or Exposures
 - 6.2.1 Evaluations of potential exposures will be conducted quantitatively and analyzed to ensure statistical validity per the Marathon Exposure Assessment Methodology, which includes:
 - 6.2.1.1 Industrial hygiene monitoring using the method outlined in the Marathon IH Measurement Procedures Manual. The LRD Annual Monitoring Plan will be implemented in accordance with the results of the qualitative assessment process as characterized in HLT-2001 "Industrial Hygiene Program".
 - 6.2.2 The exposure assessment strategies employed by the LRD have been developed to address the evaluation of exposures that could occur during routine, non-routine and emergency response activities.
 - 6.2.2.1 Routine Activity exposure assessments are conducted:
 - 6.2.2.1.1 In accordance with the LRD Annual Monitoring Plan (developed for MPC and select Contractor personnel). Yearly revisions to this monitoring plan are maintained in the Industrial Hygiene Electronic Database.
 - 6.2.2.2 Non-Routine Activity exposure assessments are conducted:
 - 6.2.2.2.1 If elevated chemical and/or physical stressor levels are detected by realtime monitoring instruments during:
 - 6.2.2.2.1.1 A work area survey by Operations or Safety personnel.
 - 6.2.2.2.1.2 Pre-entry confined space testing by Safety personnel.
 - 6.2.2.2.1.3 Periodic testing of confined spaces by Operations personnel.
 - 6.2.2.2.1.4 Testing of coating material for lead indicates content >0.1ug of lead/cm² of coating.
 - 6.2.2.2.2 During turnaround, maintenance activities have been associated with heavy metal contaminant (e.g. Arsenic) exposures in excess of the Action

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Level. These activities include:

- 6.2.2.2.1 Chipping / clean-up of refractory from confined spaces.
- 6.2.2.2.2 Dumping of catalysts from hydrotreater and isomerization reactors or defluorinators.
- 6.2.2.2.3 Abrasive blasting of heater tubes.
- 6.2.2.2.3 In the event that the analysis of samples collected during initial assessment of a specific coating removal indicated the release of elevated airborne lead concentrations.
- 6.2.2.2.4 If airborne chemical concentrations require the personnel entering a work area to wear air purifying respiratory protection.
- 6.2.2.2.5 At the request of MPC or Contractor personnel due to personal concerns.
- 6.2.2.2.6 To document the effectiveness of exposure control measures.
- 6.2.2.3 **Emergency Response Activity** potential exposure assessments are evaluated:
 - 6.2.2.3.1 in accordance with the LRD Emergency Response Plan, which reviews and considers possible exposure scenarios that could occur during uncontrolled releases.
 - 6.2.2.3.2 by Safety, ERT and/or Air Monitoring Team personnel as necessary to define Hot and Warm Zones, and to determine downwind impact on persons in the refinery and the community.
- 6.2.3 Methods Used to Assess Chemical & Physical Stressor Exposures
 - 6.2.3.1 Wipe sampling is used to measure surface contamination. It is used to evaluate the effectiveness of housekeeping and decontamination procedures.
 - 6.2.3.2 Real-Time Monitoring Instruments Used to Conduct Work Area Surveys
 - 6.2.3.2.1 Area surveys are used to define the extent of contamination or to measure the effectiveness of engineering controls. Use of real-time monitoring/data logging instrumentation provides the means to achieve more timely and improved exposure control measures. Instrument calibration and monitoring data shall be submitted into the Industrial Hygiene Electronic Database. The range of each monitoring instrument identified below is defined, by contaminant, in the LRD Hazard Characterization and Respiratory Protective Equipment Selection Guide contained in Appendix RSW-A-002-GV as well as the Atmospheric Monitor Selection Tool, RSW-A-060-GV.
 - 6.2.3.2.2 **Gas Detection Monitors** are used to evaluate the rate and extent of contaminant (LEL, H₂S, SO₂, CO, Mercaptans, Disulfides and volatile organic compounds (VOCs and Benzene)) concentration reduction in vessels during decontamination, as well as O₂ levels during inerting. This "continuous monitoring" has led to improvements in the decontamination operation and minimization of exposures. These instruments, particularly the Photo Ionization Detectors (PIDs), are used extensively to survey work area and non-work area atmospheres during non-routine operations such as maintenance turnarounds. The low concentration detection limits of these instruments allow us to identify contaminants and their sources before they become significant exposures. Calibrations are conducted by

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	the owning department by using a computer automated calibration system (e.g. Industrial Scientific DSX System).
6.2.3.2.3	The Portable XRF (Niton) is used to identify and quantify metal alloy of coatings and metals.
6.2.3.2.4	The Respirable Aerosol Monitor is used to quantify airborne particulate concentration to assess the need for, or the effectiveness of, exposure control measures.
6.2.3.2.5	The Sound Level Meter/Octave Band Filter is used to identify high noise areas and determine frequencies of high noise emissions needed for Engineering to specify noise suppression equipment and barriers.
6.2.3.2.6	Personal Heat Stress Monitor is used to better evaluate control measures (engineering, administrative and PPE) employed to manage personal heat stress.
6.2.3.3 Instrument	s Used to Conduct Personal Exposure Assessments
6.2.3.3.1	Personal air sampling is used to measure an individual's exposure to airborne contaminants. Workplace air is usually sampled over an 8-hour period, or for the duration of the work shift. However, task-based sampling can be performed if the employee's only exposure for the day occurs over a shorter duration than 8 hours.
6.2.3.3.2	To attain more timely assessment of exposure control measures, real-time monitoring instruments with data logging capabilities are used to simultaneously map instantaneous noise levels and work area or breathing zone concentrations of H ₂ S, SO ₂ , CO, and organic vapors during specific tasks and/or full shifts.
6.2.3.3.3	The need for compound specific (e.g. benzene) short term exposure limit (STEL) sampling is based on short term (15 minute) average concentrations of VOCs detected by the MultiRAE and the exposure source content. If any of the short term average VOC concentrations detected/logged exceed 5 ppm benzene, specific short term sampling will be conducted to quantify benzene exposure.
6.2.3.3.4	Sampling pumps are used to draw air from an employee's breathing zone into a collection media, which is sent to an analytical laboratory for analysis. Laboratory results provide exposure data for the duration of employee monitoring.
6.2.3.4 Air Sampl Assessme	ing and Analytical Procedures Used to Conduct Personal Exposure nts
6.2.3.4.1	Breathing zone and work area air samples are collected and analyzed in accordance with the National Institute of Occupational Safety and Health (NIOSH), Occupational Safety and Health Administration (OSHA) or American Petroleum Institute (API) Air Sampling and Analytical Methods and the Corporate Industrial Hygiene Measurement Procedures Manual.

- 6.2.3.4.2 Only American Industrial Hygiene Association (AIHA) accredited laboratories are used for air sample analysis. LRD utilizes Bureau Veritas North America, Inc. (Novi, Michigan) for routine air sample analysis.
- 6.2.3.5 Air monitoring/sampling instrument calibration data, personal information, work area descriptions, descriptions of work activities, and control measures employed to

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minimize exposures and air monitoring instrument results used to develop personal exposure assessments are reported within the Industrial Hygiene Electronic Database.

- 6.2.4 Exposure Assessment Method Quality Control is achieved by:
 - 6.2.4.1 Using sampling and analytical methods in accordance with the Corporate Industrial Hygiene Measurement Procedures Manual.
 - 6.2.4.2 Conducting monitoring instrument and sampling train calibrations prior to each use.
 - 6.2.4.3 Conducting calibration verification checks of monitoring instruments and sampling trains after each use.
 - 6.2.4.4 Calibration of monitoring instrument and sampling train calibration equipment (e.g. flow meters, sound generators) in accordance with manufacturer recommendations.
 - 6.2.4.5 Comparisons of airborne concentration data results compiled by LRD Safety with results provided by Bureau Veritas North America Laboratory Services and the Industrial Hygiene Sampling Database. Following established field monitoring techniques.
- 6.3 Exposure control measures are established when exposures exceed the established exposure limits. In some instances, it may be appropriate to institute controls at one half (action level) of the applicable exposure limit. The following are the types of controls used as part of the industrial hygiene program.
 - 6.3.1 Engineering controls, such as substitution with less toxic materials, local and general exhaust ventilation to control process gases and vapors, enclosures and mufflers for control of noise, engineering design for ergonomic stress, wet methods for fiber or dust suppression, process alterations/modification of equipment and/or operation, and isolation and/or relocation, will be the primary methods for reducing employee exposure.
 - 6.3.2 Administrative and work practice controls, such as restructuring tasks to reduce exposure potential, job rotation, and time limitations (time rest regimens).
 - 6.3.3 Personal protective equipment (PPE), such as gloves, goggles, protective suits, hearing protection, and respiratory protection are support methods for engineering controls and work practices. The use of PPE will be evaluated on a case-by-case basis and will be validated by a formal hazard assessment in accordance with LRD Personal Protective Equipment Standard Practice, RSW-0121-GV.
 - 6.3.4 Medical monitoring measures changes in the composition of body fluids, tissues, or exhaled air to determine the extent of toxin absorption, uptake, or adverse health effects. Medical surveillance through the use of specific health monitoring plans (Hearing Conservation and Respiratory Protection) has been established when engineering and work practice controls are not feasible or unable to reduce exposure levels within the established limits. The plans have incorporated exposure monitoring and medical surveillance requirements.
 - 6.3.5 Controls through the use of chemical specific exposure control programs have been established to reduce exposures to within the established limits. These exposure control programs have been developed for Asbestos, Benzene, Hydrogen Sulfide, metals and Radiation.
 - 6.3.6 Other control measures used at LRD to help reduce exposures include housekeeping, training, good personal hygiene and proper waste disposal practices.
 - 6.3.7 Hazard communication is an integral part of the Industrial Hygiene Program. Employees may be able to control their exposure if they are aware of the hazard. The key elements of the LRD HazCom Standard Practice, RSW-0140-GV, are the use of Safety Data Sheets, the notification

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to employees regarding exposure monitoring results and regular input from employees regarding the workplace exposure conditions.

- 6.3.8 MPC and Contractor personal monitoring results are communicated to individuals and/or SEGs monitoring represents.
- 6.4 Plan Effectiveness Evaluation
 - 6.4.1 Periodic effectiveness evaluations are conducted internally by the LRD, by Corporate industrial hygienists and OSHA VPP auditors to ensure that the program is well focused, objectives are clear, all the necessary elements are in place and implemented, and the program is doing what it is designed to do.

7.0 TRAINING

- 7.1 HES professionals, technicians and contractors performing Qualitative Assessments for LRD are required to attend the Corporate OEH course on the Marathon Exposure Assessment Methodology (EXAM).
- 7.2 HES professionals, technicians and contractors performing Quantitative Industrial Hygiene Monitoring for LRD are required to attend the Corporate OEH course on Industrial Hygiene Monitoring.

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 Marathon HES Standard HLT-2001 Industrial Hygiene Program
- 9.2 LRD HES Appendix RSW-A-002-GV Hazard Characterization and Respiratory Protective Equipment Selection Guide
- 9.3 LRD HES Appendix RSW-A-060-GV Atmospheric Monitor Selection Tool
- 9.4 LRD HES Standard RSW-0140-GV HazCom Standard Practice
- 9.5 LRD HES Standard RSW-0121-GV Personal Protective Equipment Standard Practice
- 9.6 LRD Emergency Response Plan
- 9.7 MPC Exposure Assessment Methodology (EXAM) Flowchart, HLT2001AppB
- 9.8 DOC. LIB. No.: 311.18

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10.0 REVISION HISTORY

Revision Number	Description of Change	Written by	Approved by	Revision Date	Effective Date
0	Change procedural format	Safety	Refinery Management Team		
1	Revisions in accordance with Marathon HES Standard 415 Industrial Hygiene Exposure Assessment Program	Safety	Safety Department	2/24/2010	2/24/2010
2	3 Year Review, Changes were made to align standard with current practices.	Bryan Kramer	Chuck Whitman	2/8/2013	2/8/2013
3	Change MSDS to SDS	Safety	Safety	8/20/2013	8/20/2013
4	Updated section 5.2.3.14 to say EASI, LLC. Instead of Environmental Analytical Solutions.	Amanda Hall	Safety	3/18/2014	3/18/2014
5	Included "Definitions" as section 5, updated "Requirements" as section 6 and to align with Corporate Standard.	Jessica Myers	VPP Committee- 5/27/2014 RLT-5/29/2014	5/30/2014	5/30/2014
6	3 Year Review. Added equipment to section 6.2.3.2.2 and included "contractor" in section 6.3.8.6.	Jessica Myers	Safety	1/29/2016	1/29/2016
7	Defined Nested Contractor, clarified "nested" for contractors in 6.1.1, added reference of Form 6603, replaced Medgate with generic database term, replaced Bureau Veritas with Maxxum, added Atmospheric Monitor Selection Tool as necessary, added references to Corporate documents, aligned with corporate procedural updates	Jessica Myers	VPP: 12/12/2018 RLT: 12/13/2018	12/12/2018	12/13/2018
8	Added qualitative reassessment definition,	Jessica Myers	VPP: 1-31-2019 Safety: 1-31-2019	1-31-2019	2-28-2019

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	updated section 6.1 to align with Corporate verbiage, added potential sources of identified exposure changes in section 6.1.2, added requirement of green sheet in 6.1.3, allowed for alternates to blue sheet in 6.2, added equipment and agents in 6.2.3.2.2.		RLT: 2-28-2019		
9	Updated content referring to out-of-date forms and reporting practices, laboratory name change, removed equipment names as they change frequently and duplicate statements.	Alex Mapel	Safety	1/16/20	1/16/20
10	Replaced reference to MSA Galaxy with ISC DSX due to phase-out of MSA monitors.	Brendan Mullins	Safety	11/11/2021	11/11/2021