

Marathon Petroleum Company LP			
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	Document Custodian: Environmental, Health, and Safety		

Overview

1. Purpose

This document describes the process for the Industrial Hygiene (IH) Program. It provides minimum expectations for the development, implementation, and integration of recognized industrial hygiene practices and gives practical strategies relating to the anticipation, recognition, evaluation, and control of occupational and environmental health hazards in Marathon's Michigan Refining Division (MRD).

2. Scope

This document applies to the Industrial Hygienist (IH), HESS Professionals, HESS Contractors, and HESS interns working at MRD.

3. Procedure

- 3.1. To Anticipate / Recognize potential exposures in accordance with the EXAM process ([Appendix A](#)), the IH will:
 - 3.1.1. Determine Similar Exposure Groups (SEG) for positions with potential exposures.
 - 3.1.2. Identify routine and non-routine Similar Exposure Tasks (SET) for each SEG.
 - 3.1.3. Complete the calculation of a Health Risk Rating (HRR) for each SEG and SET.
 - 3.1.4. Develop and complete annual monitoring plans in accordance to the results of the qualitative assessment process and any regulatory required sampling.
- 3.2. To Evaluate potential exposures in accordance with the EXAM process ([Appendix A](#)), the IH will:
 - 3.2.1. Complete Quantitative Exposure Assessments (industrial hygiene monitoring) and statistical analysis of potential exposures to ensure statistical which includes:
 - 3.2.1.1. Calculate descriptive and probability statistics and Bayesian analysis for each SEG and SET. Data used shall be no more than six years old (current year plus 5 years).
 - 3.2.1.2. Perform statistical analysis to validate SEGs and SET's to ensure the following:
 - Chemical and noise exposures are controlled at the 95th percentile level and 95% confidence interval

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- Highly Acute Toxins will be controlled at the 99th percentile level and 95% confidence interval
 - Acceptable statistical exposure judgment will be determined as an Exceedance Fraction of 5% or less
- 3.2.1.3. Perform periodic reassessment of SEG's and SET's following the EXAM reassessment schedule.
- 3.2.1.4. For emergency situations, develop a strategy based on the most likely scenarios. This strategy should be done in collaboration with the MRD Air Monitoring Team. [Community Exposure Guidelines](#) have been developed for emergency response efforts.
- 3.2.2. Use only industrial hygiene laboratories that are accredited by the American Industrial Hygiene Association (ACGIH).
- 3.2.3. To ensure a high level of quality control when conducting exposure assessments, the following is required:
- 3.2.3.1. Follow established field monitoring techniques and use of [Marathon's IH Measurements Procedures Manual](#).
 - 3.2.3.2. Calibrate equipment according to manufacturer's recommendations prior to and after each use.
 - 3.2.3.3. Participate in regular meetings with other IH personnel and Corporate OEH to gain knowledge from others' experiences.
- 3.3. Notification of Assessments
- 3.3.1. Once Quantitative Exposure Assessments are conducted, employees will be notified of the monitoring results and proper documentation of the notification shall be maintained in accordance with [HLT-2024 – Employee Exposure Notification Procedure](#)
- 3.3.2. Employee notification and documentation is required for the following:
- 3.3.2.1. Personal sampling of individual employee exposure, or
 - 3.3.2.2. Other sampling which is conducted for the express purpose of estimating the individual exposure of a predetermined group of employees, including area monitoring or representative sampling of a group of employees, or
 - 3.3.2.3. Personal sampling of non-MPC employee exposures

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- 3.3.2.4. Note: When other area monitoring is done for general assessment of workplace exposures a summary of the results should be posted or made available to the employees who work in the area monitored.
- 3.3.3. The employee notification shall include the exposure measurement determined from the monitoring and it shall be compared to the acceptable exposure limit as determined from Marathon Petroleum Occupations Exposure Limit and OSHA Standard Action Levels and/or Permissible Exposure Limits.
 - 3.3.3.1. When monitoring results are within the acceptable exposure limits the notification will be sent to the employee utilizing [Appendix B](#) – Employee Exposure Notification Within Guidelines
 - 3.3.3.2. When monitoring results exceed the acceptable exposure limit, arrangements shall be made through MRD Safety to contact the employee as soon as practical, but no later than the requirements of Federal, State or Local regulations to explain the results and arrange for additional monitoring and/or corrective action. Utilize [Appendix C](#) – Employee Exposure Notification above Acceptable Guidelines to facilitate this discussion and obtain signatures.
 - 3.3.3.3. When monitoring results are conducted on MRD Contractors the notification will be sent to the Contract Company utilizing [Appendix D](#) – Contractor Exposure Notification.
- 3.3.4. Files shall be maintained to document that employees have been notified of monitoring results and to meet the requirements of the [MIOSHA Part 470 Employee Medical Records and Trade Secrets](#).
- 3.4. Control Measures must be instituted in the following instances:
 - 3.4.1. When the EXAM process ([Appendix A](#)) has shown an exposure category which warrants immediate controls to be put in place
 - 3.4.2. When exposures exceed the established exposure limits
 - 3.4.2.1. Marathon exposure limits are set by the Corporate OEH and Toxicology representatives based on industry data, ACGIH limits, OSHA / MIOSHA limits, etc. If MIOSHA has more stringent limits set, then MRD will follow those limits identified in [MIOSHA Part 301 – Air Contaminants for General Industry](#).
 - 3.4.3. In some cases, institute controls at one-half of the applicable exposure limit (action level) or when regulatory requirements dictate further controls. Refer to the following exposure control plans for regulatory specific controls in place for MRD:
 - 3.4.3.1. [RSW-SAF-014-DT](#) – Lead Abatement

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- 3.4.3.2. [RSW-SAF-032-DT](#) – Working with Hydrocarbons Containing Benzene
- 3.4.3.3. [RSW-SAF-017-DT](#) – Asbestos Handling and Health Plan
- 3.4.3.4. [RSW-SAF-071-DT](#) – Hydrogen Sulfide (H₂S) Exposure Control Plan
- 3.4.3.5. [RSW-SAF-013-DT](#) – Hearing Conservation Program
- 3.4.4. Examples of Engineering Control Measures include:
 - 3.4.4.1. Substitution with less toxic materials
 - 3.4.4.2. Local and general exhaust ventilation to control process gases and vapors
 - 3.4.4.3. Enclosures and mufflers for control of noise
 - 3.4.4.4. Engineering design to minimize ergonomic stress
 - 3.4.4.5. Wet methods for dusty operations, and
 - 3.4.4.6. Isolation devices
- 3.4.5. Examples of Administrative Control Measures include:
 - 3.4.5.1. Job rotation
 - 3.4.5.2. Time limitations in a particular job, and
 - 3.4.5.3. Task modification.
- 3.4.6. Examples of additional control measures include:
 - 3.4.6.1. Proper Personal Protective Equipment (PPE) and Respiratory Protective Equipment (RPE) in accordance with [RSW-SAF-052-DT](#) (Personal Protective Equipment Policy) and [RSW-SAF-070-DT](#) (Respiratory Protection Plan).
 - 3.4.6.2. Housekeeping
 - 3.4.6.3. Hazardous communication training
 - 3.4.6.4. Good personal hygiene
 - 3.4.6.5. Proper waste disposal
 - 3.4.6.6. Personal alarm monitors, and
 - 3.4.6.7. Preventative maintenance

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4. Roles and Responsibilities

4.1. Industrial Hygienist

- 4.1.1. Attend required training. (Refer to Section 6 – Training & Competencies)
- 4.1.2. Oversee IH program in its entirety following the Marathon Exposure Assessment Methodology (EXAM) ([Appendix A](#)).
- 4.1.3. Conduct qualitative IH assessments in accordance with [HLT-2001](#) – Corporate Industrial Hygiene Program and develop annual MRD monitoring plan.
- 4.1.4. Coordinate all quantitative IH monitoring within MRD including reviewing all monitoring documentation that was completed before sending it to Corporate OEH.
- 4.1.5. Interpret results and notify affected parties.
- 4.1.6. Recommend control measures based on results.
- 4.1.7. Re-assess activities based on EXAM ([Appendix A](#)).
- 4.1.8. Develop Health Monitoring Plans based on exposure assessments and coordinate these with Marathon’s Health Services group.
- 4.1.9. Retain all required documentation in accordance with Section 5 – Records Retention.

4.2. HESS Professionals / HESS Technicians / HESS Contractors / HESS Interns

- 4.2.1. Attend required training. (Refer to Section 6 – Training & Competencies)
- 4.2.2. Conduct quantitative IH monitoring in accordance with the [Marathon IH Measurement Procedures Manual](#) under the direction of the MRD Industrial Hygienist.

4.3. Corporate Occupational & Environmental Hygiene

- 4.3.1. Establish and maintain EXAM ([Appendix A](#)) and the Marathon Sampling Strategy.
- 4.3.2. Provide statistics, probability and Bayesian analysis software.
- 4.3.3. Designate key laboratories for routine analyses.

5. Records Retention

Records retention of industrial hygiene documentation is essential per the MIOSHA regulation on Employee Access to Exposure and Medical Records, 29 CFR 1910.1020. This includes

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exposure assessment/monitoring forms, calibration records, Material Safety Data Sheets, laboratory reports, summary reports to management, etc. For any exposure data (including laboratory reports) entered into the industrial hygiene database, the hard copy records are retained in Findlay (Corporate OEH) for the 30 year requirements. Safety Data Sheets are also retained in Findlay. Other exposure records are maintained at MRD to meet the employment plus 30 year requirement. Medical records in connection with the industrial hygiene program must be retained for employment plus 30 years.

6. Training and Competencies

- 6.1. Corporate OEH offers a 2 day Qualitative Exposure Assessment course for anyone who is involved with EXAM implementation and coordination (MRD Industrial Hygienist) to be able to:
 - 6.1.1. Understand different exposure assessment strategies used by industrial hygienists
 - 6.1.2. Understand the EXAM ([Appendix A](#)) process which includes:
 - 6.1.2.1. a demonstration on how to establish a Similar Exposure Group
 - 6.1.2.2. a demonstration on how to do a full Qualitative Exposure Assessment including calculating a Health Risk Rating (HRR)
 - 6.1.3. Understand IH statistical strategies
 - 6.1.4. Understand control reasoning, and
 - 6.1.5. Understand reassessment strategies.
- 6.2. Corporate OEH offers a 1 day Quantitative IH course for anyone who will conduct Industrial Hygiene Monitoring (MRD HESS Professionals, HESS Contractors, HESS Interns) to be able to
 - 6.2.1. Understand the air monitoring strategies
 - 6.2.2. Demonstrate how to use different types of IH equipment
 - 6.2.3. Demonstrate how to properly maintain IH equipment
 - 6.2.4. Understand documentation procedures, and
 - 6.2.5. Understand
 - 6.2.5.1. Exposure limits

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- 6.2.5.2. Data analysis, and
- 6.2.5.3. Interpretation of results.
- 6.3. Refresher training on either of these classes is only needed if a revision is made to the process that involves a change in methods and/or procedures.

7. Definitions

- 7.1. **ACGIH** –American Conference of Governmental Industrial Hygienists. Develops and publishes voluntary occupational exposure guidelines for chemical substances and physical agents
- 7.2. **Action Level** – One half of the exposure limit. For occupational noise exposures, the action level is defined as an 8-hour time-weighted average of 85 decibels measured on the A-scale, slow response, or equivalently, a dose of fifty percent.
- 7.3. **Acute** – Severe, often dangerous effect used to denote an excessive exposure to an agent for short duration.
- 7.4. **Administrative Controls** – Methods of controlling employee exposures to contaminants by training, job rotation, work assignments away from the contaminant, and medical surveillance.
- 7.5. **Bayesian Analysis** – A statistical calculation used to estimate the probability that the true exposure profile falls into a particular exposure control category.
- 7.6. **Ceiling Limit** – An airborne concentration of a contaminant that should not be exceeded.
- 7.7. **Exceedance Fraction** – The estimate of the proportion of the exposure distribution that exceeds a defined limit at a specific confidence interval.
- 7.8. **Excursion Limit** – A limit that is applied to those chemicals that do not have an established Short Term Exposure Limit (STELs). Excursions in worker exposure levels may exceed PEL for no more than a total of 30 minutes during a work day and under no circumstances should they exceed 5 times the PEL at one time, provided the PEL is not exceeded as an 8 hour average.
- 7.9. **Health Risk Rating (HRR)** – An algorithm designed to risk rank a Qualitative Exposure Assessment
- 7.10. **Industrial Hygiene** – the science of anticipating, recognizing, evaluating, and controlling workplace conditions that may cause workers' injury or illness and using analytical methods to detect the extent of worker exposure and employ engineering, work practice controls, and other methods to control potential health hazards.

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- 7.11. **Industrial Hygienist** – The HESS Professional that is assigned to coordinate the Comprehensive Industrial Hygiene programs and sampling at MRD.
- 7.12. **Marathon Exposure Assessment Methodology (EXAM):** A comprehensive strategy for the qualitative and quantitative assessment, statistical analysis, control banding and reassessment of occupational exposure risks.
- 7.13. **Occupational Exposure Limit (OEL)** – Refers to an airborne concentration of chemical substances and represents conditions under which is believed that nearly all workers may be repeatedly exposed without adverse health effects. Marine has established OELs (for example OSHA Permissible Exposure Limits (PELs)). Marine uses the most stringent of the two limits, the Marathon limit or regulatory limit with jurisdiction at a particular location.
- 7.14. **Permissible Exposure Limit (PEL)** – Regulatory limits on the amount or concentration of a substance in the air. They may also contain a skin designation. Occupational Safety Health Administration (OSHA) PELs are based on an 8-hour time weighted average (TWA) exposure.
- 7.15. **Parts per Million (ppm)** – ppm is typically used to specify additive set rate or concentration. (Parts of vapor or gas per million parts of air by volume.)
- 7.16. **Qualitative Exposure Assessments** – 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
- 7.17. **Quantitative Exposure Assessments** – The process of obtaining representative air or noise samples using traditional industrial hygiene and analytical methods.
- 7.18. **Similar Exposure Group (SEG)** – 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.
- 7.19. **Similar Exposure Tasks (SET)** – A routine work element or series of work elements, identified with a specific SEG that has a potential for exposure.
- 7.20. **Threshold Limit Value / Time Weighted Average (TLV-TWA)** – The time weighted average concentration for a conventional 8 hour work day and a 40 hour work week to which it is believed that nearly all workers may be repeatedly exposed, day after day, without adverse effect.

8. References

- 8.1. [HLT-2001](#) – Corporate Industrial Hygiene Program
- 8.2. [HLT02027DN](#) - Community Exposure Guidelines and Occupational Exposure Limits

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- 8.3. [Marathon IH Measurement Procedures Manual.](#)
- 8.4. [HLT-2024](#) – Employee Exposure Notification Procedure
- 8.5. [MIOSHA Part 470 – Employee Medical Records and Trade Secrets](#)
- 8.6. [MIOSHA Part 301 – Air Contaminants for General Industry](#)
- 8.7. [RSW-SAF-052-DT](#) – Personal Protective Equipment Policy
- 8.8. [RSW-SAF-070-DT](#) – Respiratory Protection Plan
- 8.9. [RSW-SAF-014-DT](#) – Lead Abatement
- 8.10. [RSW-SAF-032-DT](#) – Working with Hydrocarbons Containing Benzene
- 8.11. [RSW-SAF-017-DT](#) – Asbestos Handling and Health Plan
- 8.12. [RSW-SAF-071-DT](#) – Hydrogen Sulfide (H2S) Exposure Control Plan
- 8.13. [RSW-SAF-013-DT](#) – Hearing Conservation Program

9. Appendix

- 9.1. [Appendix A: Exposure Assessment Methodology \(EXAM\) flowchart](#)
- 9.2. [Appendix B – Employee Exposure Notification Within Guidelines](#)
- 9.3. [Appendix C – Employee Exposure Notification Above Acceptable Guidelines](#)
- 9.4. [Appendix D – Contractor Exposure Notification](#)

10. Document Revision History

Rev. No	Description of Change	Author	Approved By	Effective Date
0	New Procedure, revised formatting error of Appendix C	A. Styes	J. Rabideau	09-24-14
1	Scheduled review no updates	A. Styes	Al Morales	09-24-19