

Doc Custodian: Safety Professional	<b>Marathon Petroleum Company LP Refining</b>  <b>Hearing Conservation</b>	Doc No: RSW-0115-GV Rev No: 5
Approved By: Safety Supervisor		<b>Garyville Refining Safe Practice</b>
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## 1.0 PURPOSE

- 1.1 The purpose of this program is to inform Marathon Petroleum (MPC) and Contractor employees of the criteria used to develop safe work practices necessary to minimize the impact of exposure to work place noise and outline procedures followed to anticipate the potential for hazardous exposures, how to control exposures and verify the effectiveness of control measures.

## 2.0 APPLICATION

- 2.1 This program shall apply to all MPC employees that have the potential for exposure to occupational noise at the LRD Refinery. Furthermore, identifies elements applicable to contractors.
- 2.2 All personal protective equipment use requirements of this program shall apply to Contract employees. The contractor shall be responsible for the adherence to the requirements outlined in OSHA 29 CFR 1910.95, Occupational Noise Standard.

## 3.0 IMPLEMENTATION

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

## 4.0 RESPONSIBILITIES

- 4.1 The Division's Safety Supervisor is designated as the administrator of this Standard and is responsible for implementation of the LRD Hearing Conservation Standard.
- 4.2 The Safety Department is responsible for maintaining, auditing, and reviewing this plan periodically. As well as reviewing the list of covered employees annually and providing Corporate OEH with the updated list by March 31 each year.

## 5.0 DEFINITIONS

- 5.1 **Action Level (AL):** An 8-hour time-weighted average sound level (TWA) of 85 decibels measured on the A scale (dBA), with a slow response rate, or, equivalently, a dose of fifty percent of the Occupational Safety & Health Administration (OSHA) Permissible Exposure Limit (PEL). Alternatively, a 12-hour TWA of 82 decibels measured on the A scale with a slow response rate.
- 5.2 **Audiometric Testing:** Approved testing conducted to measure an employee's ability to hear.
- 5.3 **Covered Employee:** A MPC employee included under the audiometric testing, training and other requirements of this standard because noise exposure monitoring confirms results above the occupational exposure limit or action level.
- 5.4 **MPC Occupational Exposure Limit (OEL):** Marathon Petroleum Corporation has established an 8-hour TWA occupational exposure limit of 85 dBA for occupational noise. The MPC limit is the minimum to determine areas or jobs that require mitigations.
- 5.5 **Noise Reduction Rating (NRR):** The laboratory-based noise attenuation provided by the hearing protection device. This is listed on the hearing protection device packaging.
- 5.6 **Permissible Exposure Level (PEL):** An 8-hour TWA sound level of 90 dBA or a 12-hour TWA of 87 dBA established by OSHA.

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- 5.7 **PAR:** Personal Attenuation Rating is a measure of the effectiveness of a hearing protector. A PAR of 20 dB or greater is required for individuals identified as a "Covered Employee".
- 5.8 **Standard Threshold Shift (STS):** A change in hearing threshold, relative to the baseline audiogram for that employee, of an average of 10 decibels (dB) or more at 2000, 3000, and 4000 hertz (Hz) in one or both ears.

## 6.0 REQUIREMENTS

### 6.1 Covered Employees

- 6.1.1 MPC employees exposed to noise at or above an 8-hour time-weighted average of 85 dBA or 82 dBA for a 12 hour TWA are considered to be Covered Employees.
- 6.1.2 Covered employees are to receive baseline and annual audiograms, as well as initial and annual training on hearing conservation.
- 6.1.3 Employees are no longer considered covered under the requirements of this Standard when they are transferred to a job assignment where there is no noise exposure at or above the AL or when modifications to equipment or operating procedures result in employees no longer being exposed at or above the AL.
- 6.1.4 Contractor personnel who conduct work in the refinery that results in exposure to noise at or above an 8-hour time-weighted average of 85 dBA or 82 dBA for a 12-hour TWA shall be covered by their company's Hearing Conservation Standard.

### 6.2 Noise Survey

- 6.2.1 Noise surveys shall be performed throughout the refinery to identify work areas where noise levels exceed the allowable exposure limits (i.e., Action Limit, OEL, PEL, or Double Hearing Protection). Areas are resurveyed following equipment or process changes that might significantly increase noise levels.
- 6.2.2 Noise isopleth drawings will be utilized to capture the results of area noise surveys.
- 6.2.3 Areas identified with high noise shall have signage posted to warn employees of hazard.

### 6.3 Exposure Monitoring

- 6.3.1 Monitoring is performed by, or under the direction of, the LRD Industrial Hygienist.
- 6.3.2 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.
- 6.3.3 Personal noise exposure monitoring of MPC and Contractor personnel working at the LRD is conducted using Quest noise dosimeters as follows:
- 6.3.3.1 Routine monitoring is conducted in accordance with the LRD Annual Monitoring Plan.

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**6.3.3.2** Personnel are resurveyed following equipment or process changes that might significantly increase noise exposure.

**6.3.3.3** Noise exposure monitoring is conducted to evaluate non-routine work that is expected to result in higher than usual exposure(s) than might occur in a given area.

**6.3.4** Monitoring data from dosimeters is downloaded to a computer and reviewed on the day of or the day following the end of the monitoring period. In the event that monitoring data indicates an unusually high noise exposure, results will be reviewed with the person monitored as soon as possible.

**6.3.5** Noise monitoring results, operation related information and personal information are submitted to the MPC Occupational and Environmental Hygiene (OEH) Department for entry and review in an Industrial Hygiene Database.

**6.3.5.1** Regulatory required (Action Level & PEL exceedances) exposure notifications to MPC personnel are generated by the LRD Industrial Hygienist and sent by electronic mail to the respective employees for signature.

**6.3.5.2** Exposure monitoring results for Contractors are provided to the Contractor Safety Representative or Supervisor.

#### **6.4 Engineering Controls**

**6.4.1** New equipment construction shall incorporate designs that minimize noise emissions. Specification of equipment that will increase employee TWA noise exposure to above 87 dBA shall be prohibited if acceptable substitutes that minimize the impact on noise exposures are available. The specification of equipment that will decrease employee noise exposures will be encouraged.

**6.4.2** Engineered controls (e.g. silencers & acoustic insulation) are used to minimize noise emissions from equipment/piping when changes in the process results in a significant impact on noise exposures experienced by personnel working in the area. To aid in the development of retrofitted controls, the Safety Department will provide the Engineering Department with:

**6.4.2.1** Comparative noise survey data for the area(s) being impacted.

**6.4.2.2** Frequencies of emissions from equipment/pipe that have the greatest impact on the noise levels in the area.

#### **6.5 Personal Protective Equipment**

**6.5.1** Hearing protection that meets the requirements set forth below is provided to all MPC personnel at no cost. Contractor personnel shall be provided with hearing protection, meeting the same requirements, by their employers at no cost.

**6.5.2** Ear Plugs – Ear plugs are available in both disposable and non-disposable varieties. Typically they are composed of a compressible material, such as foam, and are placed in the entrance to the ear canal to block excessive noise from entering the ear. Ear plugs are effective in protecting hearing and are the most commonly used type of personal protection equipment. However, serious hygiene problems can occur when non-

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disposable ear plugs are not properly cleaned and they can become a source of infection. When these ear plugs are to be worn more than once, they should be cleaned with warm soapy water after each use. Disposable ear plugs should be replaced on a regular basis, such as daily, and must be replaced when soiled or damaged. Cleaning of ear plugs is the responsibility of the employee. Employees should handle earplugs with clean hands.

**6.5.3** Ear Muffs – Ear muffs are designed to fit over the head and completely cover the ears of the wearer. Ear muffs provide good protection and they are easy to don and doff. They are reusable and are easy to keep clean. However, thick hair and other personal protection, such as safety glasses, may prevent obtaining a sufficient seal to block sound waves. The vinyl seal can be wiped clean and the foam cushions can be cleaned in warm soapy water. Cleaning of ear muffs is the responsibility of the employee.

**6.5.4** MPC personnel will be given the opportunity to select hearing protection from a variety of approved effective types of earmuffs and earplugs.

**6.5.4.1** All MPC personnel in the Hearing Conservation Program will be quantitatively fit tested with the same make, model and style of hearing protector commonly worn by the employee within 6 months of inclusion in the Program and every three years after the initial test.

**6.5.4.1.1** Covered MPC employees must successfully attain a PAR of 20 dB or greater in each ear on the selected ear plug, or a different ear plug model must be selected until this result is attained.

**6.5.4.1.2** For covered employees that cannot or have yet to achieve a PAR of 20 dB, then hearing protection or a combination of hearing protectors that attenuates exposures to below 85 dBA must be provided. This can include custom molded ear plugs, ear muffs, or dual hearing protection. The following formula can be used to estimate the attenuation:

**6.5.4.1.2.1** Estimated exposure = TWA (dBA) – [(NRR-7)/2].

**6.5.4.2** The different types of hearing protection available at the LRD can be ordered from the Warehouse.

**6.5.4.3** Hearing protection shall be supplied in Comfort Stations, the Blend Building and Zone Shops.

**6.5.5** Hearing protection will be evaluated and approved for suitability in specific areas of the refinery. Selection criteria will include effectiveness at reducing noise exposure based on the noise reduction rating (NRR) of the hearing protection or the personal attenuation rating (PAR) determined for a specific earplug used by a specific individual.

**6.5.5.1** Double protection (i.e., plugs and muffs) shall be worn when noise levels are at or above 100 dBA.

**Note:** This is a reduction from 102 dBA that was previously in effect. Implementation of this requirement will be completed by February 2022. Due to the significant maintenance events associated with “CAT MAX Project”, Domain 2 and 3 will be completed by December 2022.

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**6.5.5.2** The durations in the below table shall not be exceeded when exposure to the respective noise levels exists after hearing protector attenuation.

**Example:** Noise Level = 110 dBA

Employee PAR = 20 dB (minimum approved PAR)

110 - 20 = 90 dBA the time limit is 432 minutes

Noise Level After Hearing Protector Attenuation (dBA)	Duration
85	>14 Hours
90	432 (min)
95	216 (min)
100	108 (min)
101	94 (min)
102	84 (min)
103	71 (min)
104	62 (min)
105	44 (min)
110	27 (min)

**Alternatively:** The following formula can be used to calculate the acceptable durations for a specific noise level.

$$t = (480 / 2^{((L - 90)/5) * .9})$$

where

$t$  = maximum exposure duration (minutes)

$L$  = noise exposure level (dBA)

5 = exchange rate (dB)

Example:  $L = 95$

$$t = (480/2((95-90)/5))*0.9 = 216 \text{ minutes}$$

**6.5.6** Hearing protection must be worn by all MPC employees and contractors:

**6.5.6.1** Anytime an individual leaves the asphalt paved road to enter a concrete or gravel paved area of a process unit. **Warning signs are to be posted at the**

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***perimeters of process units as a reminder of hearing protection requirements.***

- 6.5.6.2** In high noise areas other than within process unit battery limits (e.g. on roads adjacent to process units or around pumps in the tank farm, etc.). These areas are to be identified by warning signs.
- 6.5.6.3** During the use of air powered equipment (e.g. grinders, impact wrenches, chippers/chisels, etc.).
- 6.5.6.4** During the use of electric grinders, etc.
- 6.5.6.5** While operating or working around machinery that generates noise in excess of 82 dBA.
- 6.5.6.6** While working in confined spaces during the use of equipment with high noise emissions, including but not limited to generators, front end loaders, arc gouges and/or abrasive blasting equipment.

## **6.6 Medical Surveillance**

- 6.6.1** Audiometric testing of MPC personnel conducted pursuant to this standard is in compliance with the requirements of the OSHA Occupational Noise Exposure Standard.
  - 6.6.1.1** Audiometric tests will be pure tone, air conduction, hearing threshold examinations with test frequencies including 500, 1000, 2000, 3000, 4000 and 6000 Hz performed separately for each ear.
  - 6.6.1.2** All audiometric testing is conducted by persons or clinics approved by Corporate Health Services. The LRD medical clinic performs the audiograms.
  - 6.6.1.3** Baseline audiograms are completed on all covered MPC employees and candidates within 6 months of them working in areas where they could experience exposures at or above the AL.
  - 6.6.1.4** Audiograms are completed on all covered employees annually following their baseline audiogram. Audiometric testing is, when feasible, preceded by at least fourteen (14) hours without exposure to workplace noise. Hearing protection may be used as a substitute when workplace noise is unavoidable.
  - 6.6.1.5** Results of audiometric testing are forwarded to Corporate Health Services for assessment.
  - 6.6.1.6** Health Services will advise employees directly on the detailed results of their audiometric testing.
- 6.6.2** Arrangements for follow-up consultations will be made through Health Services with the results of these consultations treated as confidential medical information.
  - 6.6.2.1** Audiological/Otological evaluation will be performed by a consultant approved by Health Services.

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**6.6.2.1.1** The consultant may substitute the annual audiogram for the baseline to make a revised baseline if the STS is persistent or the annual audiogram indicates significant improvement over the baseline.

**6.6.2.2** Health Services will review the consultant's evaluation results and, within 21 days of the audiogram, advise the employee in writing if a STS is observed.

**6.6.2.2.1** The LRD medical clinic will perform a retest audiogram within 30 days of suspected STS results.

**6.6.2.2.2** Health Services may send the employee for further evaluation if any abnormalities are observed.

**6.6.2.2.3** If the retest confirms the STS, and it is a potential OSHA recordable injury, the data will be sent to a qualified health care professional to determine work relatedness.

**6.6.2.2.4** If the STS is work related, it must be documented on the OSHA log.

## **6.7 Recordkeeping**

**6.7.1** This standard can be found in both hard-copy form in the LRD Safe Practices and Procedures Manual and electronically in the Environmental & Safety (E&S) section of the LRD Home Page on MaraWeb.

**6.7.2** Covered Employee List: A current copy of this list is maintained by the MPC Corporate Health Services.

**6.7.3** Exposure Monitoring Results: Retained in the MPC Occupational & Environmental Health (OEH) Department's Industrial Hygiene Database.

**6.7.4** Audiometric Test Result Summaries: Contact Health Services for a current summary.

**6.7.5** Employee Training Records: Maintained on the **Passport** employee training database system.

**6.7.6** Procedures have been established whereby Corporate Health Services and Industrial Hygiene assure compliance with record retention requirements of the OSHA Access to Employee Exposure and Medical Records standard, 29 CFR 1910.1020, and the OSHA Occupational Noise Exposure Standard, 29 CFR 1910.95.

## **7.0 TRAINING**

**7.1** Any MPC employee exposed to noise at or above the Action Level shall be covered by the training requirements defined in this section.

**7.2** MPC personnel included in the Hearing Conservation Program are provided with training when they are initially included in this Program and annually thereafter.

**7.2.1** All initial and annual training is provided via the Hearing Protection CBT. The training program includes the following information:

**7.2.1.1** The effects of noise on hearing;



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7.2.1.2 The purpose of hearing protectors;

7.2.1.3 The advantages, disadvantages and attenuation of various types of hearing protection;

7.2.1.4 Instructions on the selection, fitting use and care of hearing protection;

7.2.1.5 The purpose of audiometric testing;

7.2.1.6 An explanation of the audiometric testing procedures.

7.2.2 Employees with a confirmed work related STS will be retrained in the use and care of hearing protectors, and refit tested by the Safety Department.

7.3 Training and revisions to this standard will be provided to employees and contractors via the monthly HESS meeting.

## 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 1910.95, Occupational Noise Exposure

9.2 OSHA 29 CFR 1910.1020, Access to Employee Exposure and Medical Records.

9.3 MPC Hearing Conservation Program, HLT-2034

9.4 MPC Employee Health Monitoring Examination Protocol Standard, HLT-2025-DN

9.5 LRD Industrial Hygiene Standard Practice, RSW-0118-GV

9.6 DOC. LIB. NO.: 311.15

## 10.0 APPENDIX

10.1 N/A

## 11.0 REVISION HISTORY

Revision Number	Description of Change	Written by	Approved by	Revision Date	Effective Date
0	Original Approval	Roger Gautreau	Refining Management Team (RMT)	09-18-08	09-18-08
1	3 Year Review, Revised 6.3.4,6.5.3,6.7.1.1, and 6.7.1.2	Chuck Whitman	Safety Department	9/30/11	9/30/11
2	3 year review, revised 6.3.2.2	Jessica Myers	VPP Committee-5/27/2014	5/30/2014	5/30/2014

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			RLT-5/29/2014		
3	3 year review, added NRR and PAR as definitions, updated notifications in 3.6.5, included PAR requirements in 6.5.4.1, updated noise exposure levels in 6.5.5	Jessica Myers	VPP Committee – 6/8/2017 RLT – 6/22/2017	6/14/2017	6/23/2017

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4	Routine triennial review, removed references to “Medgate” IH Database and replaced with generalized term “IH Database”. Also replaced “MaraLearn” with MPC Connect Passport.	Alex Mapel	Safety	6/29/2020	6/29/2020
5	Incorporated updates per HLT – 2034 changes. These centered around the requirement when dual hearing protection was required (100 dBA vs. 102 dBA).	Alex Mapel	Safety	6/24/2021	6/24/2021