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Approved By: Von Meeks	PPE-8 Hearing Conservation	
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1.0 Purpose

The purpose of this procedure is to prevent noise induced hearing loss by establishing requirements to control exposure to occupational noise. This procedure is intended to meet the requirements of the OSHA Occupational Noise Exposure Standard, 29 CFR 1910.95 and of the MPC Hearing Conservation Standard (HLT-2034).

2.0 Scope

This procedure applies to all GBR site employees (East Plant, West Plant, Bay Plant). The hearing protection requirements of this procedure, Sections 3.4 and 3.5, apply to all contractors and visitors in addition to MPC employees.

3.0 Procedure

3.1 Noise Monitoring

- 3.1.1 Personal noise monitoring will be conducted by the Safety Department to evaluate the potential noise exposure for each job classification where there is reasonably foreseeable employee exposure to occupational noise.
 - 3.1.1.1 Personal noise monitoring will be performed according to the MPC IH Exposure Assessment Methodology (EXAM).
 - 3.1.1.2 Noise dosimeters will be used to conduct personal noise monitoring following the guidelines of the MPC IH Procedure Manual.
 - 3.1.1.3 Results of noise dosimetry will determine which job classifications are included in the covered jobs list and in the Hearing Conservation Program. Employees in job classifications with results exceeding 100% dose or 85 dBA TWA over an 8-hour period will be included as 'covered employees'.
 - 3.1.1.4 Employees will be notified of their personal noise monitoring results. When results equal or exceed the MPC OEL, notification will be in writing and will require the employee's written confirmation of receipt. When results are less than the MPC OEL, results may be posted on bulletin boards or an individualized notification letter can be provided.
 - 3.1.1.5 Additional personal noise exposure monitoring may be required if a change in process equipment, operation or procedures may significantly change a job classification's noise exposure. Intended changes are identified by the MOC Process. Unintended changes (i.e.- equipment venting for extended periods of time) that may significantly impact employee noise exposure should be reported to the Safety Department by field personnel.
- 3.1.2 Area noise monitoring, or sound surveys, will be performed by the Safety Department to identify areas above the MPC OEL.
 - 3.1.2.1 Monitoring techniques will be in accordance with procedures specified in the corporate MPC IH Procedure Manual.
 - 3.1.2.2 Results of area noise monitoring will be communicated to all employees in that work area.

3.2 Posting Signs - High Noise Areas

Signs will be posted to identify areas where there is potential exposure to occupational noise in excess of the MPC OEL.

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- 3.2.1 Each operating area will post yellow signs with black lettering with wording that has the message to caution individuals that there is a high noise area and hearing protection is required in the area. The signs must be located so that all typical entrances to the unit have the necessary signs. Example:

CAUTION
HIGH NOISE AREA
WEAR HEARING PROTECTION

- 3.2.2 Additionally, all operating areas with measured sound levels that exceed 105 dBA are required to post signs alerting employees that double hearing protection is required. Double hearing protection refers to wearing ear muffs in addition to ear plugs.

3.3 Engineering and Administrative Controls

- 3.3.1 Feasible engineering and administrative noise controls shall be implemented whenever employee noise exposure levels exceed 90 dBA as an eight-hour time weighted average. Examples of engineering controls are insulation and mufflers.
- 3.3.2 MPC SP-40-01 Equipment Noise Level Data Requirements should be followed when new process equipment is purchased or when noise control modifications are made for existing equipment.
- 3.3.3 The Safety Department will document where exposures cannot be maintained below the MPC OEL. In these cases, controls will be implemented to reduce exposures to the lowest feasible level.

3.4 Hearing Protection Devices

- 3.4.1 Appropriate hearing protection devices will be provided and made available at no cost for employees exposed to occupational noise doses above the MPC OEL and regulatory Action Level.
- 3.4.2 All hearing protection devices for MPC personnel will be approved by the Safety Department. The Warehouses will only stock hearing protection devices that have been approved by the Safety Department.
- 3.4.3 Types of hearing protection devices available at the Galveston Bay Refinery site:
- 3.4.3.1 Ear Plugs – Hearing protection devices made of pliable material (e.g., foam, rubber) that is inserted into the ear canal. **Only ear plugs that are compatible with the 3M EarFit Testing device are allowed.** Ear plugs are available in most control rooms and maintenance shops. They are also stocked in the warehouses.
- 3.4.3.2 Ear Muffs – Hearing protection devices that consist of two cups or dome shaped devices that fit over the entire external part of the ear including the lobe to seal against the side of the head with a suitable cushion or pad. Ear muffs are stocked in the warehouses. Ear muffs must have NRR of 21 dBA or greater.

3.5 Requirements for Hearing Protector Use

The following conditions require the use of hearing protection devices.

- 3.5.1 When entering all ISBL (inside battery limit) areas of operating units, including TARs.
- 3.5.2 When performing any job with a noise exposure exceeding the MPC OEL (85 dBA over an eight-hour shift, or over 100% dose).
- 3.5.3 When entering any areas that are posted as 'hearing protection required'.

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- 3.5.4 During abnormal conditions, such as venting of steam or process equipment or when equipment producing high noise levels is being used.
- 3.5.5 Double hearing protection, which is the use of ear muffs over ear plugs, is required in all areas posted as 'double hearing protection required'. Generally the use of double hearing protection offers an additional 5 dBA of attenuation over what is already offered by the use of a single layer of hearing protection.

3.6 Audiometric Testing

Audiometric testing (i.e. – a hearing test to determine if an individual has hearing loss at different frequencies) will be scheduled as follows.

- 3.6.1 All audiometric testing conducted pursuant to this plan will be done in accordance with the requirements of the OSHA occupational noise standard. All audiometric testing will be conducted by persons approved by the Corporate Health Services Group.
- 3.6.2 All new employees will receive audiometric testing as part of their pre-employment medical examination.
- 3.6.3 Baseline audiograms will be completed on all covered employees within six months of their being included in the hearing conservation program. These audiograms will be preceded by 14 hours of quiet. Covered employees are employees in a job classification with noise exposures exceeding the MPC OEL (85 dBA or 100% dose) for occupational noise.
- 3.6.4 Covered employees will receive periodic audiometric testing on an annual basis following their initial baseline.
- 3.6.5 All results of audiometric testing are forwarded by the Medical Department to Corporate Health Services.
- 3.6.6 The periodic audiogram will be compared against the baseline audiogram to determine whether it is valid and whether a standard threshold shift (STS) has occurred. The periodic audiogram may be substituted for the baseline audiogram when the physician determines the STS is persistent, or when the current audiogram indicates significant improvement over the baseline.
- 3.6.7 The Medical Department will notify employees by emailing individual notification letters in cases where the results of their audiometric testing indicate a potential hearing shift.
- 3.6.8 Follow-up audiometric testing and additional medical evaluations will be conducted as determined by the Medical Department.
- 3.6.9 When an employee experiences an STS, the Medical Department will provide instruction on the proper use and care of hearing protection.
- 3.6.10 Results of an individual's audiometric test are available from the Medical Department upon request of the employee.

3.7 Quantitative Fit Testing

- 3.7.1 All covered employees and employees who experience an STS are required to wear hearing protection must be quantitatively fit tested within 6-months of exposure to noise above the MPC OEL. The site uses the 3M Dual Ear EarFit device for quantitative fit testing.
- 3.7.2 Quantitative fit tests will be conducted using the same make, model and style of hearing protector that will be worn by the employee in areas where occupational noise is known or anticipated to be 85 dBA or greater.
- 3.7.3 A passing quantitative fit test must achieve a Personal Attenuation Rating (PAR) of 20

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dBA or more.

- 3.7.4 In cases where covered employees cannot or have yet to achieve a PAR of 20 with the current selection of ear plugs, hearing protection will be provided that is capable of attenuating noise exposures to under 85 dBA. Examples of hearing protection devices that may accomplish this include, but are not limited to, custom molded plugs, ear muffs, dual hearing protection or another 3M model. The following formula will be used to estimate the attenuation.

$$\text{Estimated exposure} = \text{TWA (dBA)} - [(NRR-7)/2]$$

- 3.7.5 Each covered employee will receive re-testing every three years after the initial test.

3.8 Covered Jobs List

- 3.8.1 Results of noise dosimetry will determine which job classifications are included in the covered jobs list and in the Hearing Conservation Program. Employees in job classifications with results exceeding 100% dose or 85 dBA TWA over an 8-hour period will be included.
- 3.8.2 The site's Medical Department and Safety Department will establish and annually review the list of covered job categories and the list of employees included in the site's hearing conservation program.
- 3.8.3 This list will be sent to the corporate Occupational and Environmental Hygiene (OEH) group when job category or personnel changes occur but must be provided to OEH no later than January 1 of each year for input into the Medical database.

3.9 Contractors

Contract employers will ensure that their employees wear hearing protection where it is required and that their employees are trained in the use and care of hearing protection.

3.10 Training and Awareness

- 3.10.1 All new employees, except those who do not enter high noise areas, will receive hearing protection training as part of the new employee orientation
- 3.10.2 All employees will complete the hearing conservation training based on the Master Curriculum Catalog (MCC). Employees in job classifications with noise exposure greater than the MPC OEL will receive training annually while others will receive training periodically as defined by the MCC. See the Training Department for more details.
- 3.10.3 Training will cover the following elements as a minimum.
- 3.10.3.1 Effects of noise on hearing.
 - 3.10.3.2 Purpose of hearing protection, the advantages, disadvantages and attenuation of various types.
 - 3.10.3.3 Instruction on the selection, fitting, use and care of the hearing protection devices.
 - 3.10.3.4 Purpose of audiometric testing and the testing procedures.
- 3.10.4 Copies of the OSHA Hearing Conservation Standard, 29 CFR 1910.95, will be posted on the employee bulletin boards around the site and are available from the Safety Department upon request.

3.11 Recordkeeping

- 3.11.1 Records related to the administration of the Hearing Conservation Program will be maintained as follows:

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- 3.11.1.1 Personal noise exposure monitoring records will be maintained by the Safety Department. These records are available to the employee or their designated representative upon request.
- 3.11.1.2 Audiometric testing records will be maintained for the duration of the affected employee's employment plus thirty-one years. These records are available through the Medical Department and are maintained in the Corporate Cority/Medgate database.
- 3.11.1.3 Training records will be maintained by the Training Department.
- 3.11.1.4 The Covered Jobs / Employees List will be maintained by the site Safety Department with support from the Medical Department.

4.0 Definitions

- 4.1 **Covered Jobs/Employee** – A job/employee that is included in a written hearing conservation plan because noise exposure monitoring confirms results above the Occupational Exposure Limit or regulatory Action Level.
- 4.2 **MPC Occupational Exposure Limit (OEL)** – MPC has established an 8-hour time-weighted average (TWA) occupational exposure limit (OEL) of 85 dBA for occupational noise. The MPC limit will be used as the minimum to determine areas or jobs that require control measures.
- 4.3 **Noise Reduction Rating (NRR)** – The laboratory-based noise attenuation provided by the hearing protection device. This is listed on the hearing protection device packaging.
- 4.4 **Permissible Exposure Limit (PEL-TWA)** – An 8-hour time-weighted average sound level of 90 dBA or a 12-hour TWA of 87 dBA established by OSHA.
- 4.5 **PAR** – Personal Attenuation Rating, a measure of the effectiveness of a hearing protector.
- 4.6 **Regulatory Action Level** – An 8-hour time-weighted average sound level (TWA) of 85 decibels measured on the A-scale (slow response) or, equivalently, a dose of fifty percent of the US Occupational Safety & Health Administration's (OSHA's) Permissible Exposure Limit (PEL).
- 4.7 **Standard Threshold Shift (STS)** – A change in hearing threshold, relative to the exposed employee's baseline audiogram, of an average of 10 decibels (dB) or more at 2000, 3000, and 4000 hertz (Hz) in one or both ears.

5.0 References

- 5.1 OSHA Occupational Noise Exposure Standard, 29 CFR 1910.95
- 5.2 [MPC Hearing Conservation Program \(HLT-2034\)](#)
- 5.3 [MPC IH Procedure Manual](#)
- 5.4 [MPC SP-40-01 Equipment Noise Level Data Requirements](#)

6.0 Attachments

None

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7.0 Revision History

Revision Number	Description of Change	Written by	Approved by	Revision Date	Effective Date
0	Original Issue. Consolidated site procedures that replaces GBR-HESS-PPE-08 and RSW-0027-TC under MOC 58263 and reflects current practices.	C. T. Hart	V. J. Meeks	3/1/2019	3/1/2019