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1.0 INTRODUCTION

1.1 Purpose

The purpose of this policy is to prevent occupational respiratory illness by establishing respiratory protection procedures that protect employees against harmful exposure to airborne contaminants encountered during normal and emergency work activities, and where engineering controls or administrative controls have not reduced potential exposures to acceptable levels.

1.2 Scope

1.2.1 Application

This instruction applies to all employees and contractors that may be required to use respiratory protection during Refinery-related work activities.

1.3 References

The following sections describe references used to generate this Safe Work Instruction.

1.3.1 Marathon Standards, Policies, & Procedures

A. HLT-2005 Respiratory Protection Program

B. HLT-2027 Community Exposure Guidelines and Occupational Exposure Limits

C. HLT-2003 Management of Employee Exposure and Medical Records

1.3.2 Government Regulations

D. 29 CFR 1910.134 Respiratory Protection Standard

2.0 DEFINITIONS

The following terms are used in this document.

Table 1 Terms and Definitions

Term	Definition
Airline respirator	A respirator connected to a stationary source of compressed breathing air by a hose. Breathing air is delivered continuously in sufficient volume to meet the wearer's breathing requirements. The air supply hose length cannot exceed 300 feet. The airline is attached to the wearer by belt and can be detached rapidly in an emergency. A flow control valve or orifice is provided to govern the rate of airflow to the wearer. Exhaled air passes to the ambient atmosphere through a valve(s) in a face piece, hood, or suit.
Air-purifying respirator (APR)	A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants as ambient air passes through the air-purifying element.
Assigned Protection Factor (APF)	The level of respiratory protection that a respirator or class of respirators is designated by OSHA to provide to employees when properly worn. The actual protection factor measured by quantitative fit testing is called a fit factor and is expected to be higher than the assigned protection factor.
Canister or Cartridge	Container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.
Covered Employee	An employee that is a member of a Similar Exposure Group or performs tasks that require the use of respiratory protection.
Covered Job List	A list of job titles that indicates the necessary medical programs an employee must be included in per regulatory conformance (i.e. Respiratory Protection Category, Hearing Conservation, etc.).
Filtering Face piece Respirator	A negative pressure particulate respirator with a filter as an integral part of the face piece or with the entire face piece composed of the filtering medium.
Grade D Breathing Air	Compressed or supplied air that meets specifications detailed in Compressed Gas Association Commodity Specification for Air, G-7.1-2004, which include: Oxygen 19.5-23.5% Carbon Monoxide No more than 10 ppm Carbon Dioxide No more than 1000 ppm Oil (Condensed Hydrocarbons) No more than 5 mg/m3 Odor No noticeable odor Moisture Content Does not exceed -50°F at 1 atm
Demand-Respirator	A supplied air respirator that provides face piece air pressure that is positive during exhalation and negative during inhalation, relative to air pressure outside of the face piece. Should not be confused with a pressure-demand respirator. Demand supplied air respirators should be considered obsolete.
ESLI End of Service Life Indicator	A visible or audible means of warning when a cartridge or other air-purifying element is no longer able to protect the respirator wearer. ESLIs may be active such as a buzzer, or passive such as a label that changes color.
Exposure Assessment	A qualitative or quantitative process for determining the degree and extent of employee exposure to a potentially harmful agent, especially an airborne agent for purposes of this guidance document.
Fit Factor	A quantitative estimate of the fit of a particular respirator to a specific individual. Typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.
Fit Test	The use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.

Table 1 Terms and Definitions

Term	Definition
HEPA High efficiency particulate filter	A filter that is at least 99.97% efficient in removing mono-dispersed particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR Part 84 particulate filters are the N100, R100, and P100 filters
IDLH (Immediately Dangerous to Life and Health)	An atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects or would impair an individual's ability to escape from a dangerous atmosphere (e.g., a concentration of oxygen below 19.5% or Hydrogen Sulfide above 100 ppm).
Local Program Administrator	An HES professional identified at the component level that is responsible for the day to day administration and evaluation of the respiratory protection program.
Marathon Occupational Exposure Limit	A company identified exposure limit for a substance derived from the OSHA Permissible Exposure Limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), or other sources of exposure criteria developed for the purpose of protecting the health and safety of workers. Numerous regulatory agencies have also established OELs and components must use the most stringent of the two limits, the MPC limit or the regulatory limit with jurisdiction at a particular location
Maximum use concentration (MUC)	The maximum use concentration is calculated for a type of respirator by multiplying the contaminant 8-hour PEL times the respirator's assigned protection factor. If the IDLH concentration for the contaminant is lower than the calculated maximum use concentration, only an SCBA or an airline respirator with 5-minute escape bottle can be used to enter or work in that concentration.
Negative Pressure Respirator	A respirator in which the air pressure inside the face piece is negative during inhalation with respect to the ambient air pressure outside the respirator
Oxygen Deficient Atmosphere	An atmosphere with oxygen content below 19.5% by volume.
Permissible Exposure Limit or PEL	An exposure limit that is published and enforced by OSHA as a legal standard. PELs may be either an 8-hour time-weighted-average exposure limit, a 15-minute short term exposure limit (STEL), or a ceiling limit. The PELs are found in Tables Z-1, Z-2, or Z-3 of OSHA 1910.1000.
Powered Air Purifying Respirator	An air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.
Positive Pressure Respirator	A term without a NIOSH-recognized definition. Is generally understood to have the same definition as "pressure-demand" respirator.
Pressure-Demand Respirator	A supplied air respirator which provides air pressure inside the face piece that is greater than air pressure outside the face piece during both inhalation and exhalation. Only pressure-demand supplied air respirators should currently be in use. Demand supplied air respirators should be considered obsolete.
PPM	Parts per million; a unit for measuring the concentration of a gas or vapor in air as parts by volume of the gas or vapor in a million parts of air.
QLFT Qualitative Fit Test	A pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's subjective response to the test agent.
QNFT Quantitative Fit Test	An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.
Self-contained breathing apparatus (SCBA)	Positive pressure, air-supplying respirator with the breathing air source supplied from a compressed gas cylinder carried by the user. Normally equipped with a full-face piece, but some 5-minute escape respirators may have only a mouthpiece for escape purposes.
Service Life	The period of time that a respirator, cartridge filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.

Table 1 Terms and Definitions

Term	Definition
Supplied-air respirator (SAR)	Positive pressure, air-supplying respirator that provides breathing air to the respirator wearer through an airline (hose) from by breathing air cylinders, from a breathing air compressor, or from an attached breathing air cylinder.
User Seal Check	An action conducted by the respirator user to determine if the respirator is properly seated to the face

3.0 ROLES AND RESPONSIBILITIES

3.1 Supervision

3.1.1 Supervision is responsible for:

A. Ensuring that employees and contractors wear appropriate respirators based on the determination made for the work area or process being conducted.

B. Ensuring that any employee who wears a respirator has been properly trained, medically cleared, and fit-tested.

C. Ensuring that employees properly maintain and store respiratory protection.

D. Contacting the Health and Safety Department for assistance when unusual work tasks or circumstances arise, or when there is a question about respiratory protection being used.

E. Ensuring that employees are current with required training

3.2 Employees

3.2.1 Employees are responsible for the following:

A. Wearing appropriate respiratory protection when required.

B. Using respiratory protection properly in accordance with the manufacturer's instructions and training.

C. Performing positive and negative seal checks (as appropriate) each time a respirator is donned.

D. Inspecting the respirator before and cleaning it and after each use.

E. Properly storing the respirator when not in use.

F. Immediately reporting any problems associated with respirator use.

G. Completing required training.

3.3 Safety and Health Department

3.3.1 The refinery industrial hygienist or designee is responsible for implementing the contents of this program. These responsibilities include

A. Assuming the role of Respiratory Protection Program Administrator.

B. Determine if routine job assignments or work tasks require respiratory protection.

C. Determine which process areas or work tasks require the use of respiratory protection.

D. Determine which process areas must be posted as regulated areas with respiratory protection required for entry.

E. Assisting with determining appropriate respiratory protection for unusual work tasks or potential exposures.

F. Determining the appropriate level of respiratory protection. This is accomplished by documenting the potential respiratory hazards,

including the physical state and form, and assessing the level of exposure.

G. Approving an assortment of respirators that provide adequate protection against potential airborne contaminants in each work area.

H. Evaluating this program periodically to determine if it is effectively protecting employees from respiratory hazards.

3.4 Medical Department

3.4.1 The Medical Department is responsible for:

A. Implementing the respiratory protection medical surveillance

B. Conducting respirator fit testing

C. Notifying the employee and supervision of the medical clearance determination

3.5 Contractors

3.5.1 Contractors must:

A. Have an established and compliant respiratory protection plan and provide employees who have completed all required training, fit-testing, and medical evaluation for the respiratory protection being used.

B. Provide appropriate respiratory protection for the hazards and concentrations to which employees may be exposed.

C. Provide required respiratory protection training.

3.6 Emergency Response Team Members

3.6.1 Members of the Emergency Response Team (ERT) are accountable for the following:

A. Participating in the Medical Surveillance Program with the additional requirements for ERT membership.

B. Refer to the site Medical Surveillance Program for the relevant Employee Health Monitoring Examination Protocols and further details.

3.7 Training Department

3.7.1 The Training Department is responsible for the following:

A. Provides training materials that have been prepared in conjunction with the Safety Department.

B. Ensuring employees are current on relevant trainings.

4.0 PRACTICES

4.1 Respiratory Hazards and

4.1.1 The need for respiratory protection is determined via the Marathon IH EXAM process, similar exposure assessment processes (i.e. RAM scoring, etc.), emergency response activities, and individual safe work instructions (i.e. H_2S

Protective Equipment

policy, etc.) to determine where there is reasonably foreseeable employee exposure to airborne contaminants above the applicable Occupational Exposure Limits or potentially IDLH atmospheres.

4.1.2 Recommendations for specific types of respiratory protection are detailed in individual standards (e.g. H_2S standard, PPE standard, etc.), individual procedures (i.e. operational procedures), and via the Safe Work Permitting process (i.e. RAM scoring).

4.1.3 In addition, recommended types of respiratory protection and example cartridge change-out schedules are provided in Appendix C of this SWI.

4.2 Air Purifying Respirators (APRs)

APRs are allowed when working with known concentrations of a known group of contaminants. They are not allowed for work in IDLH or potentially IDLH atmospheres, or when concentrations of contaminant exceed the maximum use concentration determined by multiplying the exposure limit by the respirator's assigned protection factor. No respirator can be worn without appropriate training, fit-testing, and medical evaluation in accordance with this SWI.

4.2.1 Precautions

A. The contaminants present and their concentrations must be known.

B. The APR and cartridges must be approved for use against the contaminants present.

C. Respirator cartridges must be changed-out according to a change-out schedule as outlined in Appendix C in this SWI and the manufacturer's guidance.

D. The date, time, and user's initials must be marked on each cartridge prior to use so that the change-out schedule can be monitored.

E. The maximum use concentration must be determined by multiplying the exposure limit by the respirator's assigned protection factor.

F. APRs are not allowed for IDLH conditions.

G. The oxygen concentration must remain between 19.5 and 23.5%. Concentrations outside of this range constitute IDLH conditions.

H. APRs are not to be used with H_2S concentrations above 10 ppm except as outlined in the H_2S policy.

I. Employees must leave the contaminated area and notify their supervisor, Operations, and Health and Safety immediately in case of the following:

- Detection of leakage or breakthrough into the respirator
- Malfunction of the respirator

- Symptoms such as: dizziness, nausea, weakness, difficulty breathing, coughing, sneezing, itching, fever, or chills.

4.2.2 Half-Mask Cartridge APRs and Filtering Face piece Respirators

Half-mask cartridge APRs are equipped with two inhalation and one exhalation valve. Filter cartridges are installed over each inhalation valve to remove the contaminants of concern as the wearer inhales. They are worn over the bridge of the nose, around the mouth, and down below the chin.

J. Half-mask cartridge APRs and filtering face piece respirators have an assigned protection factor of 10.

K. The respirator must be fit-tested on the employee prior to use to ensure a proper passing seal.

L. The employee must conduct a user seal-check each time the respirator is donned.

M. Respirator cartridges must be changed-out according to a change-out schedule as outlined in Appendix C in this SWI and the manufacturer's guidance.

N. If a contractor allows the voluntary use of filtering face piece respirators, the employer must follow the appropriate provisions in 29 CFR1910.134(c)(2). The employer must determine that such respirator use will not in itself create a hazard (i.e., by ensuring that masks are not used if dirty or contaminated and that their use does not interfere with the employee's ability to work safely). The employer also must provide the information in 29CFR1910.134, Appendix D to each voluntary wearer.

4.2.3 Full-face APRs

Full-face APRs are equipped with two inhalation and one exhalation valve. Filter cartridges are installed over each inhalation valve to remove the contaminants of concern as the wearer inhales. Full-face respirators offer eye protection in addition to respiratory protection. They are worn over the perimeter of the face from the forehead down below the chin.

O. Full-face APRs have an assigned protection factor of 50.

P. In order to achieve an assigned protection factor of 50, quantitative fit-testing must be performed.

Q. If an employee does not achieve an acceptable fit on any of the stocked respirators, other commercially available respirators will be provided, if they provide an acceptable fit.

R. The respirator must be fit-tested on the employee prior to use to ensure a proper passing seal.

S. The employee must conduct a user seal-check each time the respirator is donned.

- Respirator cartridges must be changed-out according to a change-out schedule as outlined in Appendix C in this SWI and the manufacturer's guidance.

4.3 Supplied Air Respirators

Supplied air respirators (SARs) are used when work must be conducted in atmospheres with concentrations of airborne hazards exceeding the maximum use concentration of an APR and in IDLH atmospheres. There are generally two types of SARs used at the refinery, including airline and self-contained breathing apparatus (SCBA). Airline respirators may be used with 5-minute emergency escape bottles or packs. No respirator can be worn without appropriate training, fit-testing, and medical evaluation in accordance with this SWI.

4.3.1 Precautions

A. Air supplied to SARs, regardless of whether in an airline or compressed air tank, must meet Grade D breathing air requirements.

B. Breathing air supplied by vendors shall have a certification of air quality for each cylinder or batch of cylinders; and each cylinder shall have a site-specific test tag/label on it.

C. No contractors shall use breathing air supplied to the site; and no employees shall use breathing air supplied by contractors.

D. Couplings and fittings used for breathing air lines shall be incompatible with all other fittings used at field and plant facilities.

E. SARs must be used in pressure-demand mode, in which a slight positive pressure is always maintained inside the respirator.

F. A 5-minute escape bottle must be equipped with airline respirators when work is conducted in an IDLH atmosphere.

4.3.1 Self-Contained Breathing Apparatus (SCBA)

A self-contained breathing apparatus (SCBA) is an air-supplying respirator with the breathing air source designed to be carried by the wearer.

G. This respirator type includes a full-face mask, breathing air cylinder, and a regulator to control airflow.

H. SCBAs typically provide breathing air cylinders with nominal 30-minute or 60-minute capacities. The actual time duration that an SCBA will provide breathing air will vary with the user.

4.3.2 Airline Respirators

An airline respirator provides breathing air from a remote source such as an air compressor or bank of cascaded breathing air cylinders.

I. With some airline respirators, a nominal 5-minute escape breathing air bottle may be attached to the respirator harness. This 5-minute escape bottle is not to be opened unless needed for escape in the event that the primary breathing air source is interrupted while the respirator is in use.

J. If the hose of an airline respirator could become kinked, cut or disconnected during work in a hazardous atmosphere, the airline respirator should be equipped with a 5-minute escape bottle.

K. The length of the breathing air hose cannot exceed 300 feet.

4.3.3 Five-minute Escape Pack Respirators

Five-minute escape pack respirators are air-supplying respirators designed to give the respirator wearer a nominal 5-minute supply of air to escape from a toxic atmosphere in the event of a chemical release.

L. Five-minute escape packs are located in control rooms or other occupied locations where a toxic atmosphere might unexpectedly develop.

4.3.4 Abrasive Blasting Respirators

Contractors are permitted to use abrasive blasting respirators (Type CE respirators) as appropriate. Abrasive blasting respirators are continuous flow, positive pressure respirators that can be either half- or full-face masks, or loose fit ting hoods/helmets.

M. Air is to be supplied at a constant flow rate of 4 cubic feet per minute (cfm) for a tight fitting face piece and 6 cfm for a loose fitting hood/helmet.

N. Loose fitting Type CE respirators such as blaster's hoods are permitted by OSHA to be worn for exposures up to 25 times the OEL for hazardous materials including lead.

4.3.5 Low-Pressure Carted Bottle Breathing Equipment

O. This work requires that a "Bottle Watch" be present for the entirety of the job. A qualified bottle watch is required to complete bottle watch training.

P. Carted bottle breathing equipment is available only to employees. Contractors must provide their own equipment and bottles that have the proper certifications. Ready to use equipment will be denoted with a label affixed to the cart.

Q. Equipment shall be transported with bottle caps in place. Hoses should not be allowed to drag on the ground during transport and the hose ends should be hooked together to prevent dirt and water entry.

4.4 Assigned Protection Factors and Maximum Use Concentrations

OSHA has published assigned protection factors for the primary classes of respiratory protection. The assigned protection factors are used to evaluate the level of protection a given type of respirator provides. The assigned protection factors are provided in the table below:

Table 1. -- Assigned Protection Factors[5]

Type of respirator	Half mask	Full face piece	Helmet/ hood	Loose-fitting face piece
1. Air-Purifying Respirator	10	50	.....	.....

2. Powered Air-Purifying Respirator (PAPR)	50	1,000	25/1,000	25
3. Supplied-Air Respirator (SAR) or Airline Respirator				
• Demand mode	10	50	.....	.....
• Continuous flow mode	50	1,000	25/1,000	25
• Pressure-demand or other positive-pressure mode	50	1,000	.....	.....
4. Self-Contained Breathing Apparatus (SCBA)				
• Demand mode	10	50	50	.....
• Pressure-demand or other positive-pressure mode (e.g., open/closed circuit)	.....	10,000	10,000	.....

Source: 29 CFR 19010.134

4.4.1 In order to calculate the maximum use concentration (MUC), the assigned protection factor is multiplied by the applicable exposure limit. The resulting number is the maximum concentration the worker is allowed to be exposed to while wearing the corresponding respirator.

4.4.2 For example: the OSHA PEL for benzene is 1 part per million (ppm). A half-face respirator equipped with organic vapor cartridges has an assigned protection factor of 10. The maximum use concentration would therefore be 10 ppm. The equation can be summarized as:

APF*PEL = MUC

4.4.3 In order to determine if a given respirator is appropriate, the expected concentration of the contaminant in question must be known. The concentration can be determined based on past worker exposure assessments or real-time monitoring using gas detection equipment.

A. The Owning Department will determine the expected contaminant concentrations and appropriate respiratory protection for a given task.

B. APRs may not be used if the maximum use concentration exceeds the IDLH concentration, because they are not appropriate for IDLH atmospheres.

C. Other health effects (such as eye irritation) must also be taken into account.

D. The change-out schedule must be determined based on the expected contaminant concentration and other working conditions. The change-out schedule will be calculated using the respirator manufacturer's calculator. The example respirator selection and cartridge change-out schedule

provided in Appendix C can be used as a guide in addition to the manufacturer's calculator.

4.5 Respiratory Protection for Emergencies

Emergency situations may generate unknown concentrations of contaminants and IDLH conditions. If the concentration of any contaminant is unknown, it must be assumed to be IDLH until determined otherwise.

4.5.1 Precautions:

A. Only employees authorized and trained to use and equipped with SCBAs are allowed to enter IDLH conditions with unknown concentrations of contaminants.

B. If concentrations are known and an assigned protection factor of 1000 provides adequate protection, then a full-face airline respirator with a five-minute emergency air supply tank may be used.

C. The Emergency Response Team may downgrade the level of protection required for an emergency response scenario if the concentration of the contaminants of concern is determined.

D. At least one employee must be located outside of the emergency area for each employee who enters the IDLH work area.

E. Each outside employee must be trained and equipped to provide emergency rescue in the IDLH environment, including:

- An SCBA.
- Retrieval equipment appropriate to provide rescue to employees working in the rescue environment.

4.6 Respirator Cartridge Change-Out Schedule

The life of a respirator cartridge is dependent on many factors. Some of these factors include contaminant concentration, temperature and relative humidity, and breathing rate. If a cartridge becomes overloaded, the contaminant breakthrough can occur, exposing the user to contaminants. In order to prevent breakthrough, a cartridge change-out schedule has been developed and is provided in Appendix C.

4.6.1 Precautions:

A. Respirator cartridges are only protective against specific contaminants.

B. Respirator cartridges are color-coded to indicate the types of contaminants for which they are effective.

4.6.2 Cartridge Change-Out Schedule

C. The maximum allowed usage time for any cartridge is 8 hours, unless an alternative change out schedule has been developed in accordance with the manufacturer's requirements.

D. Employees must leave the contaminated area prior to changing out cartridges.

E. The used cartridges must immediately be disposed of in an appropriate waste receptacle.

F. The user must conduct a user seal check to ensure the cartridges have been installed correctly prior to entering the contaminated area.

4.7 Respirator Selection

The Health and Safety Department selects Refinery-wide appropriate respiratory protection based on the expected contaminants, the concentrations of the contaminants, and other working conditions. The following are considered in the evaluation and selection of appropriate respiratory protection.

A. The contaminants of concern,

B. The contaminant concentrations,

C. The physical state of the contaminants,

D. The permissible exposure limits or other applicable exposure limits for the contaminants,

E. Oxygen level,

F. The relative risk of potential emergencies,

G. The appropriate type of respirator relative to assigned protection factors and maximum use concentrations,

H. The duration of exposure,

I. Other stress factors in the work environment,

J. The need for eye and face protection,

K. Employee comfort, and

L. Limitations of the respirator.

4.7.1 Respiratory Protection Available:

- The following respirators are available to Salt Lake City employees:

1. Half face
2. Full face
3. SAR
4. SCBA

- Employees who are required to wear APRs, will be assigned their own respirator for their exclusive use.

4.8 Respirator Cartridge Color Coding

Respirator filter cartridge labels are color-coded based on the chemicals or types of chemicals for which they provide protection. The label colors are designated in ANSI/AIHA Z88.7-2001. The colors include the following:

A. Purple: Oil-proof high efficiency particulate air (HEPA) filters. Pink is an unauthorized substitution used by some manufacturers.

B. Olive: vapor and gas combinations not listed in the color standard.

C. White: Acid gases.

D. Yellow: Acid gas and organic vapors.

E. Orange: Unauthorized use for mercury vapor and chlorine gas. Oil-resistant and oil-proof other than P-100.

F. Black: Organic vapors.

G. Green: Ammonia gas.

Colors may be combined if a cartridge is effective against multiple contaminants. The user should not rely on color codes alone and should always read the label to ensure the cartridge is effective for the contaminants in question.

4.9 Respirator Inspection and Repair

Respiratory protection must be properly maintained to ensure it is effective. The manufacturer's recommendations must be followed when inspecting and repairing any respirator.

4.9.1 Air Purifying Respirators

A. APRs must be inspected by the wearer before each use and during cleaning after use.

B. APRs to be used in emergency situations must be inspected and in accordance with manufacturer recommendations.

C. Monthly inspections must be documented with the following:

- Date of inspection,
- Respirator identification number,
- Respirator name,
- Inspector name,
- Inspection findings, and
- Any required remedial action, as needed.

4.9.2 SCBAs

Routine-use SCBAs are maintained at the Fire Department and issued to trained individuals for routine work. Emergency Respirators are positioned at key locations in the refinery, in protected containers. SCBAs are inspected prior to routine use by the wearer and monthly by a trained individual (operators, Fire Department).

Prior-to-use inspections are conducted by the wearer (Note: Prior-to-use inspection is not required for emergency use of SCBAs).

Prior-to-use and monthly inspections include:

A. Air cylinders shall be maintained in a fully charged state and shall be recharged when the pressure falls to 90% of the manufacturer's recommended pressure level.

B. A check for tightness of connections,

C. Pliability and proper shape of elastomeric parts,

D. Cracked or damaged face shield,

E. For condition of the respiratory inlet covering, head harness, valves, connecting tubes, harness assemblies, hoses, filters, cartridges, canisters, end-of-service-life indicator, and shelf life date(s); and
F. Each rubber or other elastic part shall be inspected for pliability and signs of deterioration.
G. Any respirator found to be defective must be taken out of service immediately.
H. Any repairs must be conducted by a manufacturer trained and qualified technician in accordance with the manufacturer's directions and using only genuine parts specific to the respirator being repaired.

Monthly inspections must be documented with the following information:

I. The date the inspection was performed;
J. The name or (signature) of the person who made the inspection;
K. The findings, required remedial action(s); and
L. A serial number or other means of identifying the inspected respirator;

Annual inspection and testing are performed by a contracted professional and includes all the items of monthly testing and in addition:

M. Flow testing of mask and bottles; and

For the proper function of regulators, alarms, and other warning systems.

4.10 Respirator Maintenance and Storage

4.10.1 Cleaning

A. Respirators must be cleaned on a routine basis to prevent microbial contamination, chemical degradation, or other damage. Each manufacturer publishes recommendations outlining the proper methods and materials to be used for cleaning, which must be followed.

- Using incompatible cleaners or cleaning methods may damage the respirator.

B. All shared respirators must be fully disinfected after each use.

4.10.2 Storage

C. Respirators must be stored properly to prevent microbial contamination, chemical or UV degradation, or other damage. Each manufacturer publishes recommendations outlining the

proper methods for storage, which must be followed. General best-practice storage requirements include:

- Clean and inspect the respirator for damage after each use and before placing into storage.
- Ensure respirator is completely dry before storage.
- To prevent condensation and microbial growth, do not store respirators in an air-tight container.
- Store in a temperature-controlled environment, away from direct sunlight and exposure to airborne contaminants.
- Ensure the face piece is not deformed in any way. Distorting the face piece during storage will cause permanent irreparable damage.

5.0 MEDICAL SURVEILLANCE/FIT TESTING

5.1 Medical Surveillance

5.1.1 Details regarding medical surveillance are discussed in the site Medical Surveillance Standard. All employees who are required to wear a respirator must participate in a medical evaluation to determine if they are medically able to wear the respiratory protection. The medical evaluation must be conducted prior to fit testing or wearing a respirator in the workplace.

5.1.2 A determination of the employee's ability to wear a respirator while working will be made initially upon employment. The frequency of medical surveillance follows the Medical Surveillance Standard recommendations.

5.1.3 To be medically cleared for respirator use, the employee will complete the OSHA mandated medical evaluation questionnaire that is administered confidentially by Health Services. The medical evaluation questionnaire is reviewed by the designated physician or licensed health care professional (PLHCP; this is the Refinery Medical Department or company physician).

5.1.4 Supplemental information such as the type and weight of the respirator, expected physical work levels, and additional PPE used must be provide to the PLHCP and considered in the medical evaluation.

5.2 Fit Testing

5.2.1 Employees using a tight-fitting face piece respirator must pass an appropriate quantitative (QNFT) fit test for each make, model style, and size respirator they may wear, including SARs. Employees must have successfully

completed the medical evaluation requirement prior to fit testing.

5.2.2 Fit testing is not required for voluntary use of dust masks.

5.2.3 Overall minimum fit factor for full face masks is 500 when using QNFT.

5.2.4 Positive pressure respirators shall be fit tested in negative pressure mode.

5.2.5 Qualitative fit testing is only conducted if quantitative fit testing cannot be completed on the individual.

5.2.6 Fit testing will be done initially upon employee assignment to an area where respirators are required and will be repeated at least every 12 months thereafter.

A. Exception: Fit testing is conducted twice per year for asbestos workers.

B. Fit testing will be repeated in the event of a physical change in the employee's features that may affect respirator fit. These may include scarring, dental changes, cosmetic surgery, or gaining or losing weight, or at the request of the employee.

5.2.7 Fit testing will not be performed on employees who have facial hair that comes between the sealing surface and the respirator face piece or that interferes with the respirator valve function.

5.2.8 Fit testing is conducted using appropriate QTFT and QLFT manufacturer protocols, in accordance with methods compliant with 29 CFR 1910.134 Respiratory Protection.

5.2.9 If it is determined that an individual cannot obtain an adequate fit with the respirators in stock at the storehouse, then a different respirator will be provided. If an employee is not medically able to wear a negative pressure APR, a PAPR will be provided if it is medically appropriate.

5.2.10 Fit test records will include:

A. The employees name,

B. The date of the test,

C. The name of the tester,

D. Respirator brand, model, size, and type, and

E. Score for each fit test exercise.

6.0 TRAINING

6.1 Frequency

All employees who may be required to utilize respiratory protection are trained at initial hire, and retrained at least annually, and/or when one of the following situations occur:

6.1.1 Changes in the workplace or the type of respirator render previous training obsolete;

6.1.2 Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or

6.1.3 A workplace situation arises in which retraining appears necessary to ensure safety.

6.2 Content

Training will ensure that each employee can demonstrate knowledge of at least the following:

6.2.1 Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;

6.2.2 What the limitations and capabilities of the respirator are;

6.2.3 How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;

6.2.4 How to inspect, don and doff, use and check the seals of the respirator;

6.2.5 What the procedures are for maintenance and storage of the respirator;

6.2.6 Change-out schedules for filter cartridges;

6.2.7 How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and

6.2.8 The requirements outlined in this SWI.

7.0 PROGRAM REVIEW

7.1 Program Evaluation

The Health and Safety Department will conduct an evaluation of this program as needed to ensure the procedures and practices are effectively protecting employees. The evaluation will include consultation with affected employees to determine the following:

7.1.1 Respirator fit,

7.1.2 Appropriate respirator selection,

7.1.3 Proper respirator use under workplace conditions,

7.1.4 Proper cleaning, storage, and maintenance of respirators,

7.1.5 Proper inspection and cleaning of respirators, and

7.1.6 Proper training of employees who use respirators.

The evaluation will be conducted at least every three years.

8.0 REVIEW AND REVISION HISTORY

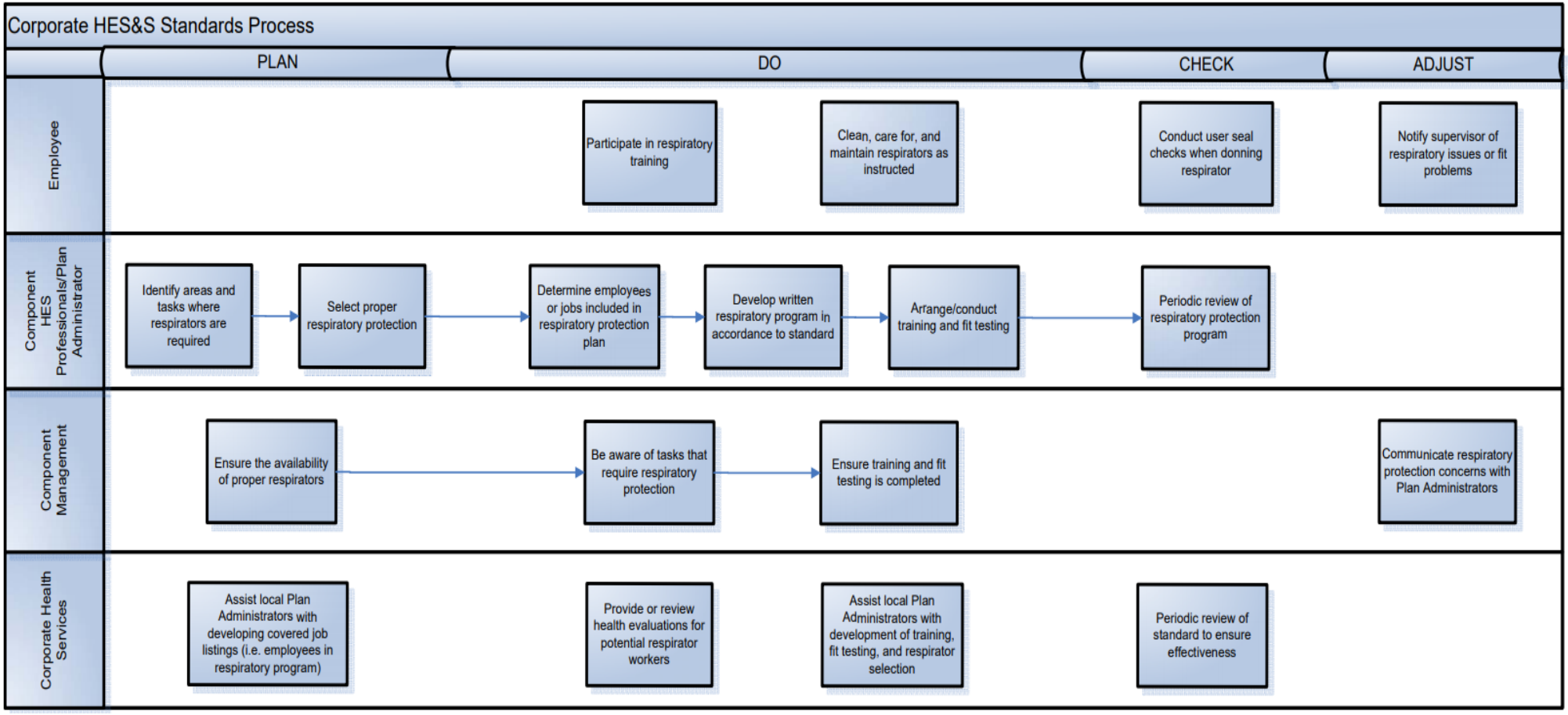
8.1 History of Revisions

Table 22 provides the revision history for this Safe Work Instruction.

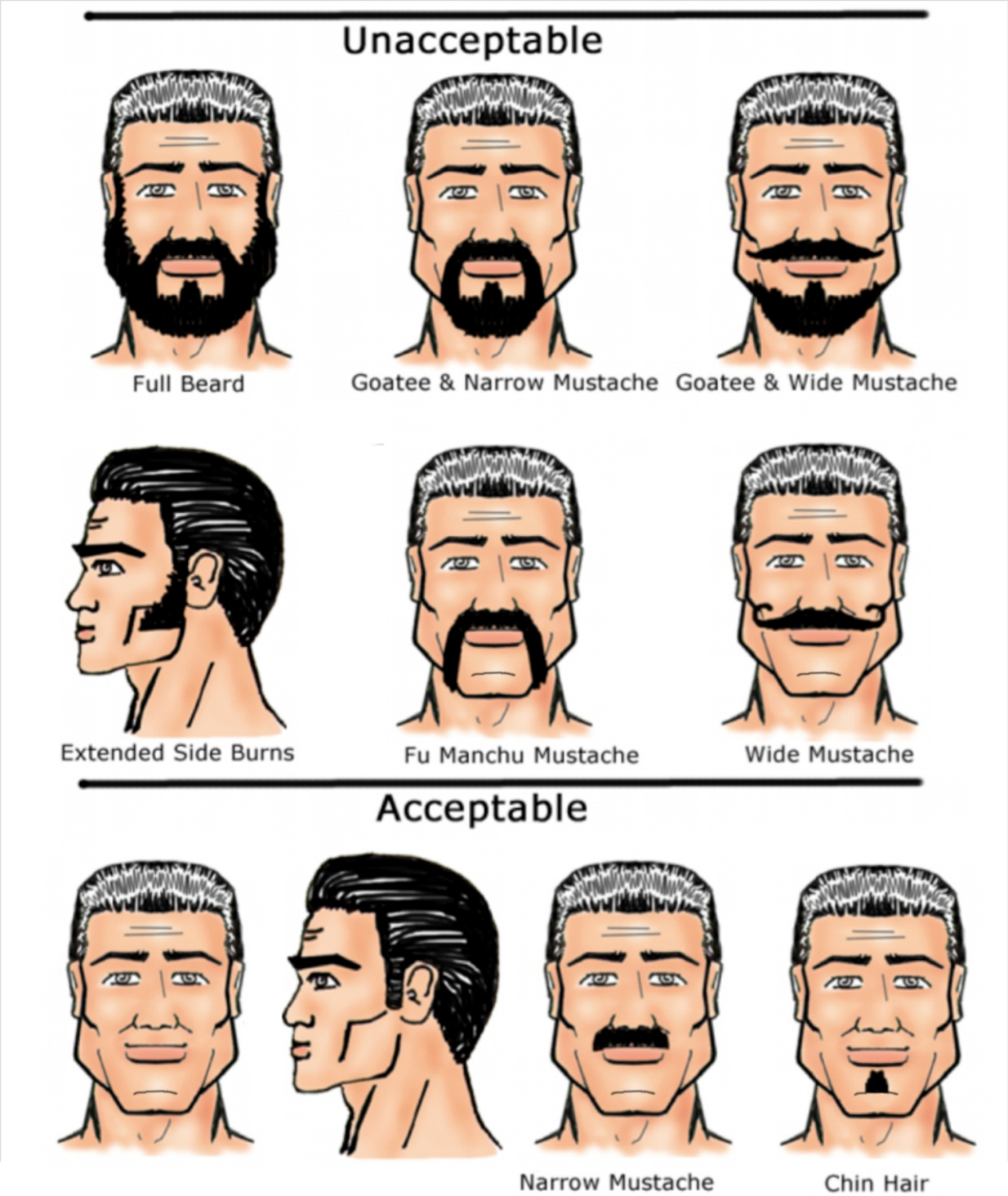
Table 2 Revision History

Revision	Date	Change Author	Reason for Change
1.0	03/25/85	---	Original Issue
2.0	06/30/97	---	Revised
3.0	12/19/97	---	Revised
4.0	10/05/98	---	Revised
4.0	11/99	---	Review Only
4.0	01/15/03	---	Review Only
5.0	07/07/03	---	Revised
5.0	02/12/04	---	Review Only
6.0	06/07/09	---	Revised
7.0	06/18/09	---	Revised
8.0	01/12/16	K. Groth	Revised to Align with TSHG-021, Respiratory Protection
9.0	6/29/16	Alder	Revised to update fresh air requirements for blinding of H_2S and benzene streams.
10.0	7/30/20	Judd Moffitt	Updated to MPC standards; removed H_2S and benzene blinding requirements

9.0 APPENDIX A – ROLES & RESPONSABILITIES



10.0 APPENDIX B – FACIAL HAIR GRAPHIC



11.0 APPENDIX C – RESPIRATOR SELECTION AND CARTRIDGE CHANGE-OUT SCHEDULE

Substance	Operation / Task	Exposure Range	PEL / TLV	Respirator Required	Change-out Schedule
Asbestos	Break Inspection & Gasket Removal	0.097- 0.004 f/cc	0.1 f/cc	NEA exists and respirators are optional	Daily, or sooner if breathing is restricted
Benzene	Opening Lines /API & DAF Work/ TAR/Spills	<0.1 - 83 ppm	0.5 ppm (PEL)	Full Face with OV Cartridge, AirLine or SCBA	Daily
Hydrogen Sulfide	Opening Lines / TAR/Excavations/Task Specific	<1 - >10 ppm	10 ppm	Airline Resp or SCBA Full face with OV/acid gas cartridge	Daily
Welding Fumes	Maintenance (Yorktown Data)	2.4 - 3 mg/m3	5 mg/m3	Full face with P100 filter	Daily
Sulfur Dioxide	CO Boiler Work	<1 to 34 ppm	0.5 ppm	Full Face with OV/acid gas/ particulate Cartridge	Daily

NEA= Negative exposure assessment and respiratory protection is not required
ESLI= End of service life indicator
< = Less than
> = Greater than