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1.0 INTRODUCTION

1.1 Purpose

1.1.1 This document provides the requirements to ensure that confined space entry work and rescue is performed safely at the Martinez site.

1.1.2 A properly authorized Safe Work Permit including completion of the confined space section and authorizing signatures is required for all confined space entry.

1.1.3 All applicable provisions of RSI-08-01, *Safe Work Permit,* (communication of job scope, equipment prep, joint job-site visit, etc.) must be met in addition to this RSI to conduct confined space entry.

1.2 Scope

1.2.1 This document applies to all personnel, employee or contractor, and visitors, visiting or working in the Marathon Petroleum Co. Martinez Refining Division (herein referred to as the Martinez Refinery).

1.2.2 This procedure for Confined Space Entry represents a composite of petroleum industry safe practices for this type of task.

1.2.3 This is to be considered minimum acceptable standards and Martinez Refinery policy under normal conditions.

1.2.4 More stringent requirements may augment this practice for any situation.

1.2.5 If a special need or problem is encountered, consultation with a Safety Professional should be considered before proceeding, keeping in mind that any alternative procedures must be at least as effective as these instructions in providing a safe work environment.

1.3 References

The following sections describe references used to generate this document.

1.3.1 Martinez Policies & Procedures

- RSI-08-05-01, *Entering and Working in Inert Atmospheres*
- RSI-08-05-06, *Tank Requirements*
- RSI-01-04, *Radiation Safety Program*
- RSI-04-04, *Elevated Risk Review*
- RSI-08-01, *Safe Work Permit Procedure*
- RSI-08-02, *Control of Hazardous Energy & LOTO*
- RSI-08-04, *Hot Work*
- RSI 08-12, *Use of Accident Prevention Signs, Tags, and Barricade tape*
- RSI-08-13, *Trenching and Excavation Work Requirements*

- RSI 11-07, *Respiratory Protection Program*
- RSI 12-10, *Silica and Synthetic Mineral Fiber Safe Work Practices*.
- RSI 12-12, *Continuous Atmospheric Testing and Monitoring*
- RSI 12-17, *Heat Illness Prevention Practices*

1.3.2 Marathon Standards, Policies & Procedures

- RSP-1121-010, MPC *Blinding and Energy Isolation*
- RSP-1121-020, MPC *Safe Entry into Inert Atmospheres*
- RSP-1127-000, MPC *Refining Confined Space Entry*
- RSP-1128-000, *Safe Work Permit*
- RSP-1162-000, *Electrical Safe Work Practices*
- RSP-1706, *Lightning Safety*
- SAF-4005, *Confined Space Entry*

1.3.3 Industry References

- American Society of Safety Engineers (ASSE)
  - ASSE Z117.1 Safety Requirements for Confined Spaces
- American Petroleum Institute (API)
  - API RP 2016 Guidelines and Procedures for Entering and Cleaning Petroleum Storage Tanks
  - API PUBL 2026 Safe Access/Egress Involving Floating Roofs of Storage Tanks in Petroleum Service
  - API STD 2015 Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks
  - API STD 2217A Guidelines for Safe Work in Inert Confined Spaces in the Petroleum Industry

1.3.4 Government Regulations

- OSHA 29 CFR 1910.146 Permit Required Confined Spaces
- OSHA 29 CFR 1926 Confined Spaces in Construction
- Cal-OSHA 8 CCR 5157 Permit Required Confined Spaces
- Cal-OSHA 8 CCR Subchapter 4, Article 37 Confined Spaces in Construction

1.4 Tools and Templates

The following tools and templates are provided in support of this procedure.

- RSI 08-05-F01 *Confined Space Hazard Assessment Checklist*
- RSI 08-05-F02 *Non-Confined Space Notice*
- RSI 08-05-F03 *Conf Space Attendant Reference Sheet*

2.0 DEFINITIONS

The following terms and definitions are used in this document.

Table 1 Terms and Definitions

Term	Definition
Active Entry Point	Any approved point of entry/exit of personnel into the confined space.
Attendant or Hole Watch	An individual stationed outside a Permit-Required Confined Space who is trained as required by this standing instruction and who monitors the entrants inside the Confined Space.
Authorized Entrant	An employee/contractor who is trained and authorized to enter a Permit-Required Confined Space.
Authorizing Signatures	Operations, Maintenance, and Construction personnel with current Permit Authorization training.
Blinding	The absolute closure of a pipe, line or duct by fastening or inserting a solid plate (e.g., a spectacle blind, skillet blind, or blind flange) that completely covers the bore and can withstand the maximum pressure of the pipe, line or duct with no leakage beyond the plate. All blinds must be of the "J" handle, "T" handle, Spectacle, Figure 8, or Blind Flange type.
Combustible/Flammable/ Explosive Material	A flammable gas, vapor or mist present at more than 10 percent of its lower explosive limit (LEL) as well as airborne combustible dust at a concentration that obscures vision at a distance of five feet or less.
Confined Space	Any space which meets all three of the following conditions: (Note: Also see Non-Permit Confined Space and Permit-Required Confined Space definitions.) ➢ Large enough and so configured that an employee can **bodily enter** and perform assigned work; *and* ➢ Has limited or restricted means for entry and exit; and ➢ Is not designed for continuous employee occupancy Examples of Confined Spaces within the refinery include: ➢ building attics and crawl spaces, ➢ electrical vaults, ➢ tanks, ➢ towers, ➢ accumulators, ➢ boilers, ➢ exchanger shells, ➢ pipelines, ➢ tower skirts, ➢ furnace fireboxes, ➢ drains and sewers, ➢ floating roofs on tanks, and ➢ excavations over four (4) feet in depth.
Confined Space Entry	The action by which a person passes through an opening into a confined space. Entry is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.
Electrical Hazards	Any condition that could cause injury to an employee through means of electric shock or flash.

Table 1 Terms and Definitions

Term	Definition
Engulfment	The surrounding and effective capture of a person by a liquid or finely divided solid substance.
Entry Package	The documentation that is required prior to entering a Permit-Required Confined Space. This documentation will include; the Confined Space Entry Permit, isolation list, entry roster, and if applicable, a list of authorized entrants.
Entry Permit	Safe Work Permit authorizing confined space entry.
Entry Supervisor	The Martinez Refinery or Directly Supervised Contractor responsible for authorizing entrants, overseeing entry operations and terminating entry. Entry Supervisors are to be personnel with the authority to stop entry operations and have personnel not complying with permit requirements leave the space. This person is also known as the "Competent Person". The duties of the entry supervisor may be passed from one individual to another during the course of an entry operation provided it is documented appropriately on the SWP.
Environmental Hazards	Temperature extremes, radiation, strong odors, poor illumination, poor ventilation, excessive humidity or any other environmental conditions that may adversely affect the health or safety of an entrant.
ERT	Emergency Response Team
Hazardous Atmosphere	An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (escape unaided from a confined space), injury, or acute illness from one or more of the following; each of these conditions requires Elevated Risk Review and/or variance: ➢ Flammable gas, vapor or mist in excess of 10% of its lower explosive limit (LEL), or in excess of 0% of its LEL when performing hot work. ➢ Airborne combustible dust at a concentration that meets or exceeds its LEL (obscures vision at a distance of 5 feet or less). ➢ Atmospheric oxygen concentration below 19.5% or above 23.5%. ➢ Air temperature is greater than 100°F. ➢ Any other atmospheric condition that is immediately dangerous to life or health.
Immediately Dangerous to Life or Health (IDLH)	**"Immediately Dangerous to Life or Health"** - means an atmospheric concentration of any toxic, corrosive or asphyxiant substance that poses an immediate threat to life or would cause irreversible or delayed adverse health effects or would interfere with an individual's ability to escape from a dangerous atmosphere. ***NOTE:*** *Some materials, including hydrogen fluoride gas, nickel carbonyl and cadmium fumes may produce immediate transient effects that, even if severe, may pass without medical attention, but are followed by sudden, possibly fatal collapse 12-72 hours after exposure. The victim "feels normal" from the recovery from transient effects until collapse. Such materials in hazardous quantities are considered to be "immediately" dangerous to life or health.*
Inert Confined Space	A confined space where the existing atmosphere is intentionally displaced with a non-flammable gas such as nitrogen, rendering the space oxygen deficient and immediately dangerous to life and health. For minimum requirements for inert entry, refer to RSI 08-05-02, *Entering and Working in Inert Atmospheres*.

Table 1 Terms and Definitions

Term	Definition
Inert Entry	Entry into a Confined Space which contains less than 19.5% oxygen. This condition is sometimes intentionally created for the purpose of excluding oxygen from the space, (for example, during catalyst change out) and often uses nitrogen as the inerting agent. Refer to RSI 08-05-02.
Isolation	The process by which a Confined Space is removed from service and completely protected against the release of energy and material into the space by such means as blanking, locking, or disconnecting. For minimum requirements for isolation, refer to RSI 08-02, *Control of Hazardous Energy & LOTO*.
Mechanical Hazards	Any condition that would cause an employee to strike or be struck by an object in such a way as to cause injury. Any condition which would prevent exit from the confined space.
Non-Permit Required Confined Space	A confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm. Examples of Non-Permit-Required Confined Spaces could be (so long as the work/etc. being done inside the Non-Permit-Required Confined Space does not create, or have the potential to create a hazard inside the Confined Space i.e., weld fumes, etc.): ➢ specific pipe trenches, ➢ trash dumpsters, ➢ an attic of the Administration Building (no asbestos present).
Owning Department	Refers to the department that owns and operates process, process related and/or utility equipment, machinery, building, and/or systems.
Permit Writer	An individual designated to prepare and authorize the "confined space" portion of the Safe Work Permit as specified in this procedure.
Permit-Required Confined Space	A Confined Space that has one or more of the following characteristics: (Note: the permit required is an entry permit) ➢ Contains or has a potential to contain a hazardous atmosphere; ➢ Contains a material that has the potential for engulfing an entrant; ➢ Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or ➢ Contains any other recognized serious safety or health hazard All confined spaces will be considered permit required confined spaces unless formally evaluated and documented otherwise.
Prohibited Condition	Any condition in a permit space that is not allowed by the permit during the period when entry is authorized.
Responsible Department	The department or group having authority over the Confined Space. The responsible department may change through the course of a job. (i.e., the relocation of equipment to a cleaning site could change the Responsible Department from the Operations Group to the Maintenance Group or Health & Safety Department).
Retrieval System	The equipment (including a retrieval line, full body harness, or wristlets (if appropriate) and a lifting device or anchor) used for non-entry rescue of persons from confined spaces.

Table 1 Terms and Definitions

Term	Definition
Servicing Group Representative	A maintenance employee or contractor authorized as a representative to sign permits and conduct hazard discussions for anyone performing physical work in the refinery to fulfill their (maintenance or construction) responsibilities for the work instruction.
SOP	Standard Operating Procedure
Sources	Any hazard produced or released in areas adjacent to the Confined Space which could enter and accumulate within the space and present a significant risk to hole watches/attendants or entrants.

3.0 ROLES AND RESPONSIBILITIES

3.1 Owning Department / Permit Writers

The Owning Department is responsible for the following:

3.1.1 Ensures that personnel that issue confined space entry permits within their areas of responsibility have received the required Confined Space Permit Writer training.

- This requirement includes personnel that sign onto the Safe Work Permit as the relief operator.

3.1.2 Ensures that confined spaces with permanent openings (vessel skirts, etc.) are labeled "Danger – Permit Required Confined Space, Do Not Enter". Reference RSI 08-12, *Use of Accident Prevention Signs, Tags, and Barricade Tape*.

3.1.3 Knows the confined space hazards and the mode and consequences of exposure.

3.1.4 Ensures that all energy isolation requirements have been satisfied, pursuant to RSI 08-02, *Control of Hazardous Energy & LOTO*.

a. Verify that the lockout/tagout log and blind list associated with the confined space is complete and signed.

b. Field verifies that the preparations for entry including steaming, LOTO, and blinding are completed (where necessary), prior to entry.

3.1.5 Identify potential hazards associated with the confined space and specify the testing and precautionary measures required to ensure the safety of the entry and the work to be done. [See Appendix A *Contaminant Thresholds and Conditions*]. Contact the Safety Department for assistance as necessary.

3.1.6 Attends Elevated Risk Reviews associated with confined space entry (as applicable) and provides the Permit Writer a copy of the signed Elevated Risk Review for review prior to issuing the Confined Space Entry Permit. Reference RSI 04-04, *Elevated Risk Review.*

3.1.7 Provides appropriate instructions for preparation of the space for entry.

3.1.8 Ensures that the permit is posted at the job site during the entry operation.

3.1.9 Validates that permit conditions are acceptable, signs the permit, and enforces confined space entry/work permit conditions.

3.1.10 Ensures adequate attendant personnel are present and that proper emergency/rescue equipment and other personal protective equipment are used as required by the permit.

3.1.11 Notifies supervision of any problem involved with the confined space entry.

3.1.12 Cancels and revokes the permit when the work is completed or if a prohibited work condition occurs.

3.1.13 Transfers responsibility for the confined space when there is a change in Permit Writers or shifts.

3.1.14 Conducts required atmospheric monitoring prior to entry, as required for permit issuance.

3.1.15 Conducts atmospheric re-testing midway through the maintenance shift.

3.1.16 Verifies that air-monitoring equipment (i.e., LEL/O_2/H_2S/CO meters, gas monitors, etc.) is properly maintained, calibrated, and working properly.

3.1.17 Maintains the current "Emergency Rescue Team Personnel" listing and ensures the assigned rescuers are available within the refinery and have been notified of the confined space entry.

3.1.18 Ensures attendants have established procedures and methods to maintain communication with:

a. Entrants, and

b. Other attendants associated with the entry

3.1.19 Ensures attendants have a means to summon the Emergency Rescue Team and that they know how to use it.

3.1.20 Verifies that the Servicing Group Representative understands the scope, requirements and limits of the work defined in the permit.

3.1.21 Coordinates through the Entry Supervisor that the specific conditions on the permit have been satisfied.

3.1.22 Informs the Servicing Group Representative of any area or operational conditions that may impact the confined space entry operation (e.g., nearby hot work, sewer draining operations).

3.1.23 Communicates to the Entry Supervisor the existence, location, and potential hazards of each Confined Space in a timely manner (e.g., Joint Job Site Visit).

3.1.24 Ensures mechanical integrity issues relative to the confined space are addressed prior to entry (e.g., tank roof metal thickness, stability of refractory).

3.1.25 Verifies the "Danger – Permit Required Confined Space, Do Not Enter" signs or barricade tape are posted as soon as the confined space is opened.

3.1.26 Coordinates entry operations with the contractor, nearby operations, and any MPC employees working in or near the confined space.

3.1.27 Conducts a debriefing with each contractor when they have completed their work, and completes appropriate entry on the back of the field copy of the permit.

3.1.28 The Operations Shift Superintendent will make notification of termination/resumption of confined space entry when lightning is detected within six miles of the refinery.

3.2 Entry Supervisors

3.2.1 Ensures the Owning Department has a complete understanding of the job's execution requirements and job scope to verify proper equipment isolation and preparation.

3.2.2 Communicates any potential hazards that may be introduced to the job site as a result of performing work.

3.2.3 Verifies by checking that:

- appropriate entries have been made on the permit,
- that all atmospheric tests specified by the permit have been conducted,
- that ongoing air monitoring as required by the permit is being conducted as specified, and
- that all procedures, precautions, hazards, and equipment specified by the permit are in place before signing the permit and allowing entry to begin.

3.2.4 Field verifies that energy isolation is complete during joint job-site visit prior to signing the permit.

3.2.5 Informs the Permit Writer if and when the scope or nature of the job changes the conditions under which the confined space entry was originally authorized.

3.2.6 Conducts pre-job discussions to coordinate the work and verify that entrants and attendants are aware of the scope, requirements, limitations, potential hazards, and precautions specified on the permit.

3.2.7 Posts a "Danger - Permit Required Confined Space, Do Not Enter" sign or barricade tape as soon as the confined space is opened.

3.2.8 Verifies each confined space is free of asbestos containing material or that any asbestos-containing material contained in the space will not be disturbed or made friable during the entry planning process.

3.2.9 Verifies that ERT services are available and that the means for summoning them are operable.

3.2.10 Ensures that a radio with access to either the Main Operations channel or the specific Unit Operations channel is provided to an attendant and that the attendant can maintain and knows the procedures established to maintain contact with entrants and other attendants.

3.2.11 Attends Elevated Risk Reviews associated with confined space entry and reviews the document with entry work crew.

3.2.12 Coordinates entry operations and activities when more than one group will enter the confined space to ensure other contractors are not endangered by their work activities.

3.2.13 Verifies that instrumentation used for continuous monitoring by the outside attendant has datalogging capabilities, is functional, and calibration is current.

3.2.14 Verifies that the attendant has received documented training on the use and operation of instrumentation provided to conduct continuous atmospheric monitoring.

3.2.15 Verifies that the outside attendant is properly conducting continuous monitoring as required to ensure the sampling is representative of the location of the entrants and to ensure acceptable entry conditions are being maintained.

3.2.16 Knows and communicates the hazards that may arise during entry operations, including the mode, signs and symptoms, and consequences of exposure.

3.2.17 Terminates the entry and cancels the permit:

- If all entry operations covered by the permit are complete; or
- If any deviation from the conditions or requirements established by the permit arises in the area or in or near the confined space.

3.2.18 Immediately notifies the Permit Writer when a condition arises that is not allowed by the permit.

3.2.19 Removes unauthorized individuals who enter or attempt to enter a confined space after being notified by attendants.

3.2.20 Provides appropriate briefings and instructions when responsibility for a confined space entry operation is transferred to a subsequent Entry Supervisor to ensure that the operations remain consistent with the permit and that acceptable entry conditions are maintained.

3.2.21 During the Post Joint Job Site Visit, reports any unanticipated hazards confronted or created during the entry.

3.2.22 Successfully completes required training courses.

3.3 Entrants

3.3.1 Knows entry hazards, including signs, symptoms, and consequences of exposure.

3.3.2 Follows permit requirements as well as other appropriate confined space entry work practices.

3.3.3 Exits from the space immediately when:

- Requested by the attendant
- A prohibited condition exists which is not allowed per the permit requirements
- A change in behavior or sign or symptom of exposure is detected
- A situation takes place outside the space that endangers entry
- There is an uncontrolled hazard inside the space
- The attendant leaves
- The plant alarm is activated

NOTE: *When a hazardous condition is suspected, the permit must be revoked and the Permit Writer notified.*

3.3.4 Properly uses the equipment specified for the entry. Verifies prior to entry that such equipment is free of defects.

3.3.5 To facilitate non-entry rescue, entrants must be attached to retrieval systems unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. Retrieval systems must meet the following requirements:

a. Each authorized entrant must use a full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level, above the entrant's head, or at another point which the employer can establish presents a profile small enough for the successful removal of the entrant. Wristlets can be used in lieu of the body harness if the employer can demonstrate that the use of a full body harness is infeasible or creates a greater hazard and that the use of wristlets is the safest and most effective alternative.

b. The other end of the retrieval line must be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device must be available to retrieve personnel from vertical type permit spaces more than 5 feet deep.

3.3.6 A retrieval system is not required for the following situations:

a. The space has obstructions or turns that prevent pull on the retrieval line from being transmitted to the entrant.

b. An employee being rescued with the retrieval system would be injured because of forceful contact with projections in the space.

c. The retrieval line cannot be controlled so as to prevent entanglement hazards with the equipment or with the airline for an entrant using an air-supplied respirator.

d. Final determination for exempting a retrieval system under any of the previously mentioned situations must be made by the Health and Safety Department Safety Supervisor and documented on the Confined Space Attendant Reference Sheet.

3.3.7 Understands communications requirements and plans and maintain communication (for example, voice, rope signals, radio, visual observation, etc.) with the attendant to enable the attendant to monitor the entrant's status and to enable the attendant to alert entrants of the need to evacuate the space if necessary.

3.3.8 Ensures that an attendant is on duty before entering a confined space. Report to the permit writer any case where an attendant has abandoned his/her post during an entry.

3.3.9 All personnel must apply their lock on the LOTO lockbox prior to entering a confined space for which energy isolation is achieved by means of LOTO or blinding.

- Equipment that is physically disconnected from the process and have no other energy sources associated with it are exempt from this requirement.

3.3.10 Reviews the permit for changes following lunch, breaks, etc. prior to re-entry.

3.3.11 Successfully completes required training courses.

3.3.12 Provides signature on sign-in/out log when entering/exiting a confined space.

3.4 Attendants

Attendants are responsible for the following:

3.4.1 Is trained and capable of understanding and can recognize potential confined space hazards, signs and symptoms, and consequences of exposure and is aware of behavioral effects of exposures.

3.4.2 Is familiar with and capable of understanding the product that was last contained in the confined space and how it enters the body, as defined on the permit and consult the SDS or HMWS as necessary.

3.4.3 Ensures that a Safe Work Permit authorizing confined space entry has been issued for the confined space assigned. Also makes certain that the permit:

- Is signed by all required personnel,
- Identifies the Confined Space Entry Supervisor,
- Precautions noted on the permit have been satisfied,
- Has the current date, time and location on it,
- Is posted at the entrance of the confined space, and
- Has a current gas test recorded and that atmosphere is re-tested midway through the maintenance shift.

3.4.4 Remains outside the confined space at all times during entry and work operations. An attendant must never leave an occupied confined space unattended.

3.4.5 Maintains an accurate count, by name and time in/out, of all persons working in the space. When the space is vacated, ensures that all personnel are accounted for. Any unaccounted personnel must be reported to supervision immediately.

3.4.6 Checks that entrants meet the PPE requirements as required by the permit prior to entry into the confined space.

3.4.7 Reviews the requirements and conditions set on the permit and signs on the back of the permit.

3.4.8 Observes activities inside and outside the confined space to determine if it's safe for entrants to remain in the space.

3.4.9 Keeps lifelines orderly, untangled, and connected securely to a retrieval device or anchor outside the space.

3.4.10 Maintains communication (e.g., voice, rope signals, radio, visual observation, etc.) as established per the permit with the entrants, and other attendants as applicable, during entry to monitor entrant status.

3.4.11 Coordinates attendant communications and other responsibilities with other attendants in cases where multiple attendants are required or used.

3.4.12 Orders entrants to evacuate the permit space immediately and notify Permit Writer and the Entry Supervisor when:

- A condition is observed which is not allowed per the permit requirements
- A behavioral effect of hazard exposure in an entrant is detected
- A situation is detected outside the space which could endanger the entrants
- An uncontrolled hazard is detected within the space
- Attendant must leave the monitoring location or is unable to perform required duties

- The plant alarm system is activated
- The time limitation on the permit or atmospheric testing has expired

3.4.13 Are equipped with a radio to provide immediate communication to summon rescue and other emergency services when entrants need assistance.

- During shutdowns and TARs, alternative notification provisions may be used in lieu of radios based on location and complexity of the confined space and outside attendant.

3.4.14 When the permit stipulates on-site retrieval systems, the attendant must be trained to properly use the equipment before being assigned to the confined space.

3.4.15 At no time will an attendant attempt rescue by entering a confined space. An attendant may perform non-entry rescue utilizing an in-place retrieval system.

3.4.16 At no time will the outside attendant attempt a non-entry rescue in an emergency situation prior to summoning emergency rescue services as stated on the permit and assuring a response is initiated.

3.4.17 Does not allow unauthorized persons to enter the confined space.

3.4.18 Is trained on the use and operation of instrumentation provided to conduct continuous atmospheric monitoring.

3.4.19 Observes the continuous atmospheric monitor frequently to be certain the atmosphere remains within the allowable limits for confined space entry.

3.4.20 Properly conducts continuous monitoring as required per the permit to ensure the sample is representative of the entrant's location and to ensure acceptable entry conditions are being maintained.

3.4.21 Attendants must not be assigned or conduct any activities that interfere with monitoring the confined space atmosphere and activities in that confined space. However, they can serve as fire watches for hot work inside the confined space or hand/lower work materials to entrants at the Permit Writer's discretion.

3.4.22 Notifies appropriate personnel of any problems involved with the confined space entry.

3.4.23 Ensures that the permit is maintained at the job site during the entry operation.

3.4.24 Returns Safe Work Permit and sign-in/sign-out sheets to the Permit Writer.

a. Upon completion of the job, or when work will not be performed on the next shift, the "field copy" of the permit, located at the job site, will be removed and turned over to the Permit Writer.

b. The permit must not remain posted when entries are not in progress for more than two (2) hours.

c. Reinstall all Danger – Confined Space barricades and signage when all entrants have exited the confined space.

3.4.25 Wears a bright and easily identifiable yellow FR-rated vest.

3.4.26 Contacts the Permit Writer for an atmospheric test near the midpoint of the servicing group shift or when the confined space has been vacated for more than two hours. If the Permit Writer is unable to update the atmospheric test, the Attendant revokes the permit and return it to the control room.

3.4.27 When a permit requires the use of respiratory equipment, the attendant may be required to use respiratory equipment to prevent exposure to the confined space contaminants.

3.4.28 In specific cases (i.e., FCCU) where multiple active entry points are established, an attendant will be assigned at each such point, and a means must be established per the permit to jointly account for all authorized entrants (such as radio communication).

3.4.29 In the event that a single person is acting as an attendant for multiple permits issued for a single confined space, the attendant must maintain the entrant sign in/sign out logs for the corresponding permits.

3.4.30 Successfully completes required training courses.

3.5 Fire Chief / Rescue Team Members

The Fire Chief/Rescue Team Members are responsible for the following.

3.5.1 Ensures ERT members are trained to properly use the PPE and necessary rescue equipment to perform assigned rescue functions.

3.5.2 Ensures each rescue team member practices a simulated rescue operation annually.

3.5.3 Ensures that confined space rescue equipment is maintained and ready for immediate deployment.

3.5.4 The Fire Chief or senior ERT member on scene is responsible for coordinating rescue activity in confined spaces.

3.5.5 Ensures that each team member is certified in first aid and CPR.

3.5.6 Evaluates assigned confined space entries and pre-plan procedure and equipment required for a rescue.

3.5.7 The Fire Chief must review the contractor written rescue pre-plan prior to inert entries.

3.6 Contract Employees

Contract Employees are responsible for the following.

3.6.1 Must follow all MPC and contractor company safety procedures and regulatory standards.

3.6.2 Ensures contractor Entrant's representative informs the Permit Writer when they have completed their entry and completes the debriefing section on the SWP.

3.6.3 Is certified by their employers to have had requisite training and experience.

3.6.4 Uses and maintains all safety and air monitoring equipment in compliance with manufacturer's recommendations.

3.6.5 During multi-craft work, the crafts creating any hazards must properly notify Entry Supervisor and take measures to evacuate the space as necessary so that corrective action can be taken to mitigate hazards.

3.7 Contractor Supervision

Contractor Supervision is responsible for the following.

3.7.1 Certifies that all employees have successfully completed required training courses.

3.7.2 Verifies that the specified conditions on the permit are adequate and have been met and are understood and followed.

3.7.3 Informs the Permit Writer if and when the nature of the job changes the conditions under which the confined space entry was originally authorized.

3.7.4 Ensures that attendants are competent with all equipment they are required to use (e.g., atmospheric monitoring, communications etc.).

3.7.5 Informs the Permit Writer when they have completed their entry and reports any hazards confronted or created during the entry for the debriefing.

3.7.6 Coordinates all work with supervision of other employers.

3.8 Contractor Coordinator

The Contractor Coordinator is responsible for the following.

3.8.1 Ensures that the contractor's employees are properly trained and certified for conducting confined space entries and that these activities at the site are performed in compliance with this procedure.

3.8.2 The MPC contractor coordinator will provide the contractor with the following information:

a. The refinery confined space program

b. Any precautions or procedures used to protect employees working in or near the space

c. Operations in the vicinity which need to be coordinated with entry activities

3.8.3 Audit confined space entries where multiple employers are simultaneously performing work to ensure the procedures established to coordinate entry operations are being adhered to.

3.9 Inspection Department

The Inspection Department ensures metal thickness is within API specifications for entries onto floating roofs per RSI 08-05-02, *Tank Requirements.*

3.10 Safety Department

The Safety Department is responsible for the following.

3.10.1 Develops, administers, and updates the confined space procedure.

3.10.2 Conducts specific testing as requested by Permit Writers.

3.10.3 Reviews requirements and authorizes initial permit involving IDLH and inert entries.

3.10.4 Annually audits the confined space entry work procedure and reviews permits to evaluate the overall confined space entry program effectiveness.

3.10.5 Retains terminated permits in accordance with the Corporate Records Retention Policy.

3.10.6 Provides initial and refresher permit writer training.

3.11 Training Department

The Training Department is responsible for the following.

3.11.1 Provides training materials that have been prepared in conjunction with the Safety Department that adequately prepares Permit Writers and users to be compliant with the Safe Work Permit process.

3.11.2 Schedules Permit Writer training.

3.11.3 Maintains training certifications for all personnel affected by this program (e.g., MPC permit writers, entry supervisors, entrants, attendants, Emergency Rescue Team personnel, etc.).

4.0 PRACTICES

4.1 Identification of Confined Spaces

4.1.1 Common confined spaces encountered in the refinery are listed in Appendix B .

4.1.2 Confined spaces that could be entered inadvertently (e.g., vessel skirts, building crawl space, open-top tanks, etc.), must be permanently labeled with **"**Danger – Permit Required Confined Space, Do Not Enter**".**

4.1.3 Confined spaces that are open must have a sign or barricade tape hung on or near all entry points when the confined space is opened and remain there until the space is closed. The sign or barricade tape should read, **"**Danger - Permit Required Confined Space, Do Not Enter.**"**

NOTE: *All non-Active Entry Points (e.g., manways, tanks stairs, etc.) must be demarcated with "Danger - Permit Required Confined Space, Do Not Enter" barricade tape or signage.*

4.2 Pre-Job Planning/Hazard Identification

4.2.1 Foreseeable hazards associated with the confined space and the work to be conducted in the confined space must be identified prior to issuance of the permit. Foreseeable hazards include:

a. Potential for atmospheric changes due to sludge, temperature, internal combustion engines, painting, welding, etc.

b. Mechanical hazards (rashing rings, demister pads, refractory, weirs, trays, etc.)

c. Asbestos containing material

d. Work with refractory

e. Fall protection hazards

f. Rescue hazards

4.2.2 Elevated Risk Reviews or (where they exist) pre-established checklists, must be conducted prior to entry into the following confined spaces:

a. Entry onto the roofs of internal floating roof storage tanks (See RSI 08-05-02, *Tank Requirements*)

b. Entry into inerted confined spaces (See RSI 08-05-01-F01 *Safe Entry into Inert Atmosphere Pre-Entry Checklist*)

c. Entry into confined spaces meeting the definition of a large, complex, or high worker density confined space. Examples include entry onto the roofs of internal floating roof storage tanks and entry into sewers or tunnels. (See RSI 08-05-F01 *Confined Space Hazard Assessment Checklist.*)

d. Entry in confined spaces meeting the definition of a Hazardous Atmosphere:

- > 100°F dry bulb temperature inside of the confined space,
- IDLH conditions or O_2 < 19.5% or > 23.5% (in support of a variance),
- LEL > 10% when performing cold work (in support of a variance),

- LEL > 0% when performing hot work (see RSI 08-04-F01 *Elevated LEL Hot Work Approval Form*)

e. Any other entry, as circumstances require.

4.2.3 When multiple employers will be performing work simultaneously inside the confined space:

a. Each respective employer must provide for an Entry Supervisor. This position may be filled by the MPC Contractor Coordinator.

b. The MPC Contractor Coordinator will lead the Simultaneous Operations (SimOps) discussion and ensure it is attended by each respective employer's Entry Supervisor and a representative of the Owning Department.

c. The SimOps discussion will identify:

- equipment preparation (e.g. equipment lines, valves, vessels, tanks),
- LOTO,
- electrical and general precautions pertaining to the entry,
- PPE,
- hot work precautions,
- communications,
- additional confined space precautions (e.g., administrating or engineering controls),
- atmospheric monitoring requirements, and
- any potential hazards that employees of one employer may create that would endanger employees of another employer.

d. The MPC Contractor Coordinator will ensure that the Owning Department documents all specific procedural requirements identified during the SimOps discussion on the Confined Space Entry Permit.

e. The MPC Contractor Coordinator must audit confined space entries where multiple employers are simultaneously performing work to ensure the procedures established in the Risk Review to coordinate entry operations are being adhered to.

- The MPC Contractor Coordinator will visit the confined space as necessary to verify compliance, at a minimum of once every four hours.
- The Risk Review will be used to record the visit and to document the entry work is in compliance with the Risk Review and Confined Space Entry Permit.

4.3 Blinding and Energy Isolation

4.3.1 Confined spaces must be isolated in accordance with RSI 08-02, *Control of Hazardous Energy & LOTO*.

4.3.2 Sight glasses and float barrels will be drained and flushed prior to entry.

4.3.3 Internal process piping must be isolated prior to entry.

4.3.4 Drain valves must be safely positioned.

4.3.5 Nuclear radiation-type gauges must be de-energized and checked by a qualified individual for proper LOTO and leakage.

4.3.6 All personnel must apply their lock on the LOTO lockbox prior to entering a confined space. See RSI 08-02, *Control of Hazardous Energy & LOTO*.

4.4 Confined Space Entry Authorization

4.4.1 Prior to any entrance into any confined space, the Confined Space section of the Safe Work Permit must be completed.

4.4.2 Permits must be prominently displayed and maintained at the confined space.

4.4.3 Permits are valid for a maximum of 12 hours. If it becomes necessary to continue work beyond the shift for which the permit was issued, reference RSI 08-01, *Safe Work Permitting* for revalidation requirements and restrictions.

4.4.4 The permit must not remain in the field when there is no entry in progress for more than 2 hours. The attendant must return the permit and sign-in/sign-out sheets to the control room collection point.

4.4.5 Upon completion of the job or when work will not be performed on the next shift, the copy of the Safe Work Permit located at the job site and any corresponding sign in/sign out sheets will be removed and turned over to the Owning Department. The original will then be removed and matched with the field copy. The permit can then be forwarded to the Safety Department for record retention.

4.5 Atmospheric Testing General Requirements

4.5.1 All confined spaces are considered hazardous atmospheres until pre-entry testing and verification demonstrates otherwise.

4.5.2 Initial testing and any re-testing must be performed in an area that:

a. Provides a representative sample of the location that the entrants will be working inside the confined space.

b. Reflects the conditions of the work activities.

4.5.3 If the confined space has to be entered to complete a check of the atmosphere, perform testing as the confined space is entered and after all other conditions of the permit are satisfied.

4.5.4 Initial atmospheric testing must be conducted from the outside with the ventilation turned off. The ventilation must be off long enough (at least 15 minutes) to assure steady state conditions. More may be necessary depending on the size and configuration of the space.

4.5.5 All confined space atmospheres must be monitored for O_2, LEL, H_2S, CO, any additional applicable toxic gases, and other potential hazards (benzene, 1,3-butadiene, radiation, explosives, combustible dust, temperature, pH, etc.) as determined necessary by the Permit Writer. The testing must be conducted in the order listed to ensure sufficient oxygen is available to obtain an accurate flammable gas measurement. Results must be noted on permit.

a. Gas testing equipment will be direct-reading, have a pump to actively draw air, and will be bump tested daily and calibrated and maintained per manufacturer recommendations.

b. Atmosphere must be between 19.5% and 23.5% oxygen content as measured with an O_2 meter to permit entry without supplied air respiratory equipment.

c. No entry will be made when O_2 is less than 19.5% or greater than 23.5% except:

- under emergency circumstances to perform entry rescue operations, or
- per RSI 08-05-01, *Safe Entry into Inert Atmospheres*.

d. For cold work, atmosphere must be less than 10% LEL on a combustible gas detector before entry is authorized.

e. For hot work, atmosphere must be 0% LEL on a combustible gas detector before entry is authorized.

f. No entry will be made when LEL is greater than 10% except under emergency circumstances to perform entry rescue operations.

g. For toxic contaminants (e.g., benzene, ammonia, sulfur dioxide, hydrogen sulfide, caustic, acid, etc.), any concentration in excess of the recognized exposure limits (PEL or TLV) renders the atmosphere hazardous. [See Appendix A].

h. Airborne combustible dusts (i.e., sulfur) must be less than its minimum explosible concentration (MEC, analogous to an LEL, and approximated as a condition in which the dust obscures vision at a distance of five feet or less). These should be controlled using ventilation or wet suppression methods.

4.5.6 Vessels possessing a radiation gauge must be surveyed according to RSI 01-04, *Radiation Safety Program,* before a Confined Space Entry Permit is issued.

4.5.7 When a department is unable to perform the tests for toxic contaminants or other type hazards, the Permit Writer or Area Supervisor will contact the Safety Department or Industrial Hygiene for assistance.

4.5.8 Entrants will be given the opportunity to witness monitoring.

4.6 Continuous Monitoring

4.6.1 Continuous monitoring for combustible gases, oxygen, and toxics (as applicable) is required for all confined spaces.

4.6.2 Continuous monitoring is not required when a monitor is not commercially available for a specific toxic substance (e.g., lead, hexavalent chromium, asbestos, etc.). If continuous monitoring equipment is not commercially available, periodic monitoring will be conducted.

4.6.3 Continuous monitoring detection equipment must:

- be direct-read,
- capable of data logging,
- have a pump to actively draw air, and
- have a visual readout and audible alarm that can be set to alarm at contaminant threshold and condition limits.

4.6.4 Where condition limits differ from contaminant thresholds (such as to account for the use of respiratory protection), follow procedures outlined in RSI 12-12, *Continuous Atmospheric Testing and Monitoring*.

4.6.5 Continuous monitoring detection equipment will be bump tested daily and calibrated per manufacturer recommendations.

4.6.6 The Permit Writer must designate the location of the instrument's sample hose to ensure the sample is representative of the breathing zone of the Entrant(s) and to ensure acceptable entry conditions are being maintained. The Permit Writer will ensure that sample requirements are clearly communicated to the Entry Supervisor.

4.7 Re-testing

4.7.1 Re-testing for oxygen, flammable gases, and toxic vapors (that were detected upon the initial testing) must be performed and documented on the SWP:

a. Prior to re-entry after an absence of two hours or more.

b. Midway through the maintenance shift.

c. After an event that may have changed conditions in the space.

d. Work extensions.

e. Re-issuance of the SWP.

	4.7.2	Re-testing for other hazards must be considered on a case-by-case basis and specified on the permit if required.
	4.7.3	When the risk of exposure from hazardous material is eliminated, retesting for toxic materials may be discontinued.
4.8 Ventilation	4.8.1	When ventilation is required for control of acute atmospheric hazards, ambient air must be used to bring the confined space atmosphere to safe levels.
	4.8.2	Mechanical ventilation is required prior to non-inert entry of any vessel that has been previously inerted with nitrogen.
	4.8.3	Mechanical ventilation is required anytime welding occurs inside a confined space. Consult Martinez Industrial Hygienist or H&S designee for guidance or for unique scenarios where this may be exempt, such as the use of supplied air respiratory protection.
	4.8.4	Mechanical ventilation is required anytime any other tasks inside a confined space may generate an atmospheric hazard.
	4.8.5	Mechanical ventilation equipment must be properly bonded to the confined space to prevent static electricity.
	4.8.6	To ensure mechanical ventilation equipment appropriately ventilates the space, jet fans (i.e., Coppus Blowers) must be installed such that a seal is maintained between the fan and the vessel. Air horns must be used with an extendable of flexible hose placed in such a way as to remove vapor, fume, or particulate from the breathing zone of the entrant and exhaust outside of the confined space.
	4.8.7	A compressor or dedicated system must be used to supply the air movers. Plant air cannot be used since it can be contaminated by other process gases. Adequate air pressure must be supplied according to the air mover manufacturer requirements.
	4.8.8	Attendants must require confined space occupants to immediately leave the space when ventilation systems fail.
	4.8.9	When ventilation is required, the Permit Writer and Attendant must ensure that the inducted air does not represent a health concern from sources such as vehicle exhaust or process emissions.
4.9 Respiratory Protection	4.9.1	Respiratory protection selection must be based on atmospheric test results and used in accordance with RSI 11-07, *Respiratory Protection Program*.
	4.9.2	Supplied-air respirator (air meeting specifications of CGA-G7, Type I, Grade D) with five-minute egress cylinder or Self-Contained Breathing Apparatus (SCBA) must be used in atmospheres less than 19.5% oxygen or other potential IDLH atmospheres.

4.9.3 For emergency and rescue entries, SCBAs or supplied-air respirators with five-minute egress cylinders must be worn unless the atmosphere is verified to be non-hazardous.

4.9.4 When a permit requires the use of respiratory equipment, the attendant may be required to use respiratory equipment to prevent exposure to the confined space contaminants.

4.10 Rescue and Emergency Services

4.10.1 Rescue of entrants that require entry into confined spaces will be performed by the Martinez Refinery ERT or by local emergency services or designated rescue-trained contractors.

4.10.2 Only trained personnel may enter a confined space for rescue purposes. Non-entry rescue may be performed provided the rescuer is trained to properly use such equipment.

4.10.3 If a rescue-trained contractor is used, MPC must:

a. Evaluate the prospective rescuer's ability to respond to a rescue summons in a timely manner, considering the hazards identified;

b. Evaluate the prospective rescue service's ability with rescue-related tasks and equipment, rescuing entrants from the permitted confined space or types of spaces identified, and ensure that equipment functions properly;

c. Select the rescue team or service from those evaluated that has the capability to reach the victim(s) within a time frame that is appropriate for the confined space hazards, is equipped for, and proficient in, performing the needed rescue services, and agrees to notify the employer immediately in the event that the rescue service becomes unavailable;

d. Inform each contract rescue team or service of the potential hazards at Martinez; and

e. Allow the rescue team or service select access to all permit spaces to develop rescue plans and practice rescue operations.

4.10.4 Martinez Refinery ERT will not enter inert confined spaces.

4.10.5 Rescue personnel must:

- be trained in basic first aid and CPR, and
- practice making confined space rescues, in representative permit spaces, before attempting an actual rescue in refining / process type confined spaces and at least once every 12 months by means of simulated rescue.

4.10.6 Three rescue team personnel must be available within the refinery during an active confined space unless:

a. Non-entry rescue provisions are in place (i.e., inspector in exchanger shell with anklets/retrieval line)

b. Tanks that meet the following provisions:

- The tank has been thoroughly cleaned of its contents,
- A qualified permit writer has (with the forced air ventilation shut off) tested, evaluated, and determined the tank's internal atmosphere has 0% LEL, oxygen levels are equivalent to ambient, and the tank has no potential to expose entrants to hazardous hydrocarbon or toxic vapors at IDLH levels,
- The tank does not have restricted or limited means of entry or exit (i.e., door sheet cut into tank),
- No entry is conducted above the floating roof,
- The tank has been properly isolated per RSI 08-02, *Control of Hazardous Energy & LOTO*, and
- All physical hazards (entrapment, engulfment) inside the tank have been identified and controlled.

4.10.7 In the event of a refinery emergency with ERT activation, all active confined space entries requiring ERT personnel must be revoked.

4.10.8 Emergency/rescue personnel will operate in accordance with the site emergency response plan and ERT SOP.

4.10.9 Emergency/rescue personnel can only enter the confined space (with unknown or hazardous atmospheres) when equipped with SCBAs or positive-pressure airline respirators equipped with escape bottles and other appropriate protective equipment and only when an Attendant is stationed by the confined space entry.

4.10.10 Emergency response personnel will perform the rescue under guidance of the Fire Chief or senior ERT member.

4.10.11 SDSs or HMWSs will be made available to medical facilities treating exposed employees.

4.10.12 For abnormal commodities previously in the confined space, such as those used for chemical cleaning procedures, the SDS must be included in the permit package.

4.10.13 For entries, at a minimum, the following emergency rescue equipment must be immediately available at the refinery:

- Hoisting device to extricate personnel from the confined space
- Extra and independent supplied-air respirators as required by the scope of the work and the rescue pre-plan
- Harnesses, ropes, tools, etc., needed to extricate personnel
- Medical response equipment for use by trained MPC medical personnel
- Stretcher and means to lower injured personnel to ground

- Provisions for summoning assistance
- PPE required for entry

4.10.14 To facilitate non-entry rescue, retrieval systems or methods must be used whenever an authorized entrant enters a Confined Space unless the harness or retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. Final determination for exempting a retrieval system must be made by the Health and Safety Department Safety Supervisor and documented on the Confined Space Attendant Reference Sheet.

4.10.15 Retrieval systems must meet the following requirements:

a. Each authorized entrant must use a full-body harness, with a retrieval line attached at the center of the entrant's back near shoulder level, or above the entrant's head. Wristlets/anklets may be used in lieu of the full-body harness if it can be demonstrated that the use of a full body-harness is infeasible or creates a greater hazard and that the use of wristlets/anklets is the safest and most effective alternative.

b. The other end of the retrieval line must be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device must be available to retrieve personnel from vertical type permit spaces more than 5 feet deep.

4.10.16 Authorized employees, entrants, and outside attendants must be familiar with procedures for summoning rescue and emergency services.

4.11 Confined Space Equipment

4.11.1 Marathon Martinez will ensure the following equipment is in place and functioning, as required, prior to entry:

a. Testing and monitoring equipment

b. Ventilation equipment

c. Communication equipment necessary for Attendant(s) assessing Authorized Entrant's status in confined spaces

d. PPE, if feasible engineering and work-practice controls do not adequately protect the Authorized Entrant(s)

e. Lighting equipment that:

- is approved for ignitable/combustible properties for the potential hazards of the confined space (i.e., gases, vapors, dust),
- is sufficient to allow Authorized Entrants to see well enough to work safely and exit the space quickly in the event of an emergency, and

- meets the minimum illumination requirement of 5-foot candles.

f. Emergency egress lighting will be available as backup to primary lighting in the event that Confined Space loses primary lighting during an emergency and meets the requirements of general confined space lighting.

- A battery-powered backup lighting system should be used where feasible.
- In the event that this is not feasible, a head lamp approved for the potential hazards of the confined space should be worn on the hard hat.
- A hand-held flashlight is permitted in lieu of a head lamp in cases where welding protection equipment or other PPE prevents the use of a head lamp and in situations where only a portion of the entrant's body will pass through the opening into the Confined Space.

g. Barriers and shields to protect Authorized Entrants from hazards outside the space

h. Ladders needed for safe entry and exit by Authorized Entrants

i. Rescue equipment that is not supplied by the rescue service

j. Any other equipment necessary for safe entry into, safe exit from, and rescue from permit required confined spaces

4.12 Transference of Entry Supervisor Responsibilities

4.12.1 In the event the responsibilities of the Entry Supervisor are transferred, the existing Entry Supervisor must clearly and affirmatively provide an appropriate briefing of the permit and any associated Elevated Risk Reviews to the subsequent Entry Supervisor to ensure that the entry operations remain consistent with the permit and that acceptable entry conditions are maintained.

4.12.2 Transference of Entry Supervisors must be documented in Section V of the SWP.

4.13 Canceling Confined Space Entry Authorization

4.13.1 The permit is canceled when:

a. The expiration time on the permit is reached without being renewed.

b. The confined space entry work is completed as described on the permit.

c. The entrant, attendant, or anyone else observes a condition that is not allowed under the permit.

4.13.2 The Permit Writer and the Entry Supervisor(s) shall be immediately notified.

4.13.3 Entry work shall stop and not resume until the hazardous situation or prohibited condition has been mitigated, gas retesting has been conducted, and a new permit is completed.

4.14 Entry Completion

When entry operations are complete, when the designated time expires, or the permit is canceled for any other reason, the permit is no longer valid. Under no condition will a permit remain posted for more than two hours without an active entry. The attendant must return the permit and sign-in / sign-out sheets to the control room.

5.0 TRAINING

5.1 Training on Confined Space Entry

5.1.1 The confined space entry work party (e.g., attendants, entrants and supervisors) must be trained to perform their assigned duties as required in 8 CCR 5157 and this safety rule.

5.1.2 Permit Writers must complete all required training prior to being authorized to issue Confined Space Entry Permits.

5.1.3 Training will include an understanding of the hazards of the permit space and methods used to isolate, control, or otherwise protect employees from these hazards, as well as the dangers of attempting rescue for employees not authorized to do so.

5.2 Re-Training on Confined Space Entry

Retraining of employees on Permit Required Confined Spaces must be done if there is a change in assigned duties, whenever there is a change in permit space operations that presents a hazard on which an employee was not previously trained, or whenever there may be deviations from entry procedures or inadequacies are identified in an individual's knowledge or use of confined space entry procedures.

6.0 SPECIAL CONSIDERATIONS

6.1 Large, Complex, and High Worker Density Confined Spaces

6.1.1 Elevated Risk Review is required for very large confined spaces that meet any of the following:

a. 50 or more Entrants simultaneously per shift performing work in the space

b. Confined space entry inside the primary confined space (e.g., work inside cyclones inside a regen vessel, large diameter piping between FCC and regen vessel), or

c. Complex scaffold systems which include seal decks that separate the confined space

6.1.2 The *Large, Complex, and High Worker Density Confined Spaces Hazard Assessment Checklist* (RSI 08-05-F01) will be completed by a Martinez Health and Safety Field Safety Professional and a Martinez Maintenance Representative knowledgeable in the work scope, to include:

a. Entrant accountability in the event of an emergency

b. Personnel protection from falling debris, tools, and equipment

c. Alerting systems that can be heard and seen by all Entrants in the event of an emergency (note: consider noise levels when air movers and work is ongoing)

d. Additional Fire Watches and Hole Watches (Attendant) stationed inside the confined space

e. Additional fall protection requirements (tripod systems, adequate tie-off points, etc.)

f. Adequacy and quantity of access/egress locations based on the number of Entrants

g. Complexity of air movement system(s) and any hazards the system itself would introduce to the confined space

h. Consideration of a confined space monitoring system that has Closed-Circuit TV, air monitoring, audio, and visual alarms and voice communication system

i. Enhanced fire prevention/protection systems/equipment including charged fire hoses

6.2 Multi-Craft Work Coordination

6.2.1 MPC Lead Foreman or designee for the Confined Space entry will meet with the Permit Writer and define what contractors he is representing and what work scope will be conducted in the Confined Space during his shift.

6.2.2 Permit Writer will complete the permit based on the most stringent requirements of any of the work activities to be encountered in the Confined Space. Requirements may include:

a. Equipment preparation (e.g., equipment lines, valves, vessels, tanks), LOTO, electrical and general precautions pertaining to the entry,

b. PPE,

c. Hot work precautions,

d. Communications,

e. Additional confined space precautions,

f. Atmospheric monitoring requirements,

g. Identifying hazards of one group that may affect others and ensure protective measures are provided for others that may be affected

6.2.3 Specific notes may be made on the permit to note specific requirements for specific work activities.

6.2.4 A JJSV will be required if it is the initial Confined Space Entry permit written for the Confined Space Entry or if the work scope changes from a previous Confined Space Entry permit.

6.2.5 MPC Lead Foreman or designee will sign in Section V of the SWP as the MPC Contractor Coordinator.

6.2.6 MPC Lead Foreman or designee will review the field copy of the permit with each respective Contractor Entry Supervisor and have them sign in Section V of the SWP as the Contractor Rep/Foreman.

6.2.7 If work scope changes during the covered SWP period:

a. STOP WORK.
b. Pull the Confined Space Entry permit.
c. Notify the Permit Writer.

6.2.8 If Permit Writer approves the change in the scope of the work:

a. Update the SWP to reflect the scope change and any new requirements and verify the adequacy of the safeguards and job site preparation, and obtain initialed approval by all parties who signed the original permit or

b. Write a new permit to cover the new scope of work.

6.2.9 MPC Lead Foreman or designee will sign off Section VII of the SWP when the work is complete or at the end of the permit period.

6.3 Multiple Compartment or Coupled Vessels

When multi-compartment or coupled vessels are to be entered, additional precautions are as follows:

6.3.1 Atmospherically test the entire space.

6.3.2 Position an Attendant at each active entry/exit point.

6.3.3 Prepare a single permit for the entire space unless special provisions warrant otherwise.

6.3.4 Coordinate, maintain, and control sign-in/sign-out sheets for multiple active entry/exit locations by an assigned single Attendant to assure that all entrants are accounted for.

6.3.5 The alerting device to warn Entrants to evacuate a confined space due to an unsafe condition must be sufficient to alert all Entrants.

- The device must consider the size and/or configuration of the space and the work being performed in the confined space.
- If the standard compressed air or hand pumped air horn is not sufficient, other more effective or louder systems must be used (e.g., CS Monitoring System with audible and visual alerts, strobe light, etc.).

- Any alternate alerting system cannot interfere with an alert used for an alternate purpose (e.g., whistles for crane lifts).

6.4 Sewer Entry/ Tunnel / Conduit Vault

6.4.1 Sewer, tunnel, and vault entries differ from other permit entries in that (with the exception of plugging and ballooning with materials of construction that are compatible with the hazards) there rarely exists any way to completely isolate the space to be entered. Atmospheres may suddenly and unpredictably become lethally hazardous (engulfment, toxic, flammable or explosive). Elevated Risk Review and advance planning are necessary.

6.4.2 The following precautions must be taken for sewer, tunnel, or vault entry work where lines have not been isolated or have been isolated by means other than blinds:

a. Continuous monitoring must be performed.

b. Work must be halted during heavy rainstorms to prevent a sudden surge of water engulfing the entrant(s).

c. Sewer entries must not be performed when hot work is taking place near any of the branch sewers connected to the sewer being entered.

d. Attendants must be notified when hazardous materials are released into sewers while entry is being made.

e. Provisions must be made to protect the entrants from all chemical and biological hazardous materials the sewer could contain.

f. Supplied air respirators will be required for all hydrocarbon/oily water sewers.

6.5 Floating Roof Tanks

For specific rules regarding entry into floating roof tanks, see RSI 08-05-02, *Tank Requirements.*

6.6 Inert Entry

For specific rules regarding Inert Entry, see RSI 08-05-01, *Safe Entry into Inert Atmospheres.*

6.7 Excavations

6.7.1 Prior to issuing a permit for an excavation / trench, an Excavation / Trenching / Boring / Pile Driving / Cutting Permit and any subsequent Daily Excavation / Trenching Checklists and Approval Forms must be issued.

6.7.2 For specific rules regarding excavations, see RSI 08-13, *Trenching and Excavation Work Requirements*.

6.8 Hot Work Inside Confined Spaces

6.8.1 Provisions will be made to ensure adequate ventilation for each person conducting Hot Work in the confined space. Cutting or welding operations must be performed such that an additional hazard to personnel is not created.

6.8.2 Mechanical ventilation will be required when welding occurs inside of confined spaces. Certain large and/or open-air confined spaces (e.g., heaters, open tanks, excavations, etc.) may be exempt from this requirement provided there is adequate natural ventilation.

6.8.3 Precautions include an inspection of hoses and torches for leaks prior to use.

6.8.4 When hot work is performed in a confined space using cutting torches or inert gases, and the work is stopped and the space vacated for more than 15 minutes, the torches and hoses (oxygen, acetylene, propane, argon, etc.) must be removed or the hoses disconnected from the regulators.

6.8.5 Any gas cylinders used in welding or cutting process must be staged and stored outside the vessel or confined space.

6.8.6 Use of air powered tools inside confined spaces:
A compressor or dedicated system must be used to supply air-powered tools. Plant air cannot be used since it can be contaminated by other process gases.

6.8.7 A multi-gas continuous monitor is required in all confined spaces. The location must be representative of the Entrant(s)'s breathing zone.

- Fumes can be created by cutting or welding on surfaces which are galvanized, contain chromium, or lead contaminated and may require additional respiratory protection or other control means to limit personnel exposure.

6.8.8 Fire extinguishers must be positioned in close proximity to all hot work operations in confined spaces.

6.8.9 Confined spaces that have a large quantity of combustible materials must have a charged fire hose or other water source available to immediately extinguish a combustible fire.

6.8.10 Hot Work Authorization: For specific rules regarding hot work, see RSI 08-04, *Hot Work.*

6.9 Internal Combustion Engines Inside Confined Spaces

6.9.1 The use of equipment with internal combustion engines within a confined space presents a serious hazard to occupants due to the accumulation of carbon monoxide if preventative measures are not taken. See Appendix C for minimum requirements when using internal combustion engines inside confined spaces.

6.9.2 Equipment with internal combustion engines operating in close proximity to a confined space can also pose serious hazards to occupants and should be considered prior to entry operations.

6.10 Refractory Work Inside Confined Spaces

6.10.1 Additional considerations and advance planning are necessary to determine the refractory materials and potential work exposures (e.g., pH, arsenic, free silica).

6.10.2 For engineering controls and PPE requirements when performing refractory work, see RSI 12-10, *Silica and Synthetic Mineral Fiber Safe Work Practices*.

6.10.3 Minimum requirements include an exclusion zone with appropriate signage, a PPE decontamination area, and a hand and face washing station.

6.10.4 Exhaust from mechanical ventilation must be fitted with a HEPA-rated air filter or HEPA-rated sock to prevent silica exposure to individuals outside the confined space.

6.10.5 Provisions must be made to protect entrants from falling refractory.

6.10.6 When performing work with refractory or work that will disturb in-place refractory, contact the Industrial Hygienist for hazard control strategies.

6.11 Temperature Extremes Inside Confined Spaces

6.11.1 Confined space entry requires an Additional Hazard Assessment if dry bulb temperature exceeds 100°F inside the confined space, and is not authorized if the dry bulb temperature exceeds 110°F inside the confined space.

6.11.2 Workers should be rotated as necessary to prevent heat stress.

6.11.3 Additional consideration must be given to heat stress prevention for personnel in impermeable protective clothing while working in confined spaces.

6.11.4 For specific rules regarding heat illness prevention see RSI 12-17, *Heat Illness Prevention Practices*.

6.12 Inclement Weather Conditions

If lightning threatens or is active in the area, any confined space entry in progress must be terminated. Confined space entry may resume no sooner than 15 minutes after the last lightning strike is observed and after lightning no longer threatens.

6.13 Reclassification of a Permit Required Confined Space to a Non-Confined Space

6.13.1 Tanks and excavations may be reclassified as non-confined spaces by the Martinez Health and Safety Department. Although a reclassified space is no longer considered a permit required confined space, Safe Work Permits are required. However, the SWP does not need to indicate the Confined Space Emergency Rescue Team Members, Confined Space Attendants, and the section of the SWP for Confined Space Entry, and the entry/exit log are no longer required.

6.13.2 In order to reclassify a permit-required confined space, a meeting at the job site is required with a Martinez Safety Supervisor, Martinez Maintenance Representative, Servicing Group Representative, Operations Supervisor, and the Excavation Competent Person (as needed) for evaluation. The reclassification will consider:

a. **For tanks**: a door sheet (approximately 10' x 8') must be cut in the side of the tank, the tank must be cleaned and free of residues and materials which are sealed to the floor and residues (entry pontoons will still require a confined space entry permit)

b. **For excavations**: the excavation must have a sufficient protective system (e.g., sloped, benched, or sheeting) and have at least one sloped vehicle ramp (i.e., large enough to support a full sized truck), if outside of active/current battery limits, must not have "limited or restricted means for entry or exit," must have ladders or ramps every 25 feet around perimeter.

c. Continuous atmospheric monitoring is still required.

d. Additional precautions (e.g., PPE, additional continuous monitors, barriers, shields, lighting requirements, rescue equipment, etc.) will be determined during the reclassification meeting.

e. If the permit space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated, it may be reclassified as long as the hazards remain eliminated (forced air ventilation does not constitute elimination of the hazard).

6.13.3 The Reclassification Non-Confined Space Notice must be completed by the evaluation team.

6.13.4 Working in a Reclassified Non-Confined Space requires the following:

- A Reclassification Notice is to be posted at the job site entrance once the space has been determined a Non-Confined Space. The notice must state the date and time the space was re-classified and the names of individuals involved in the reclassification determination.
- All Entrants will leave reclassified spaces any time an uncontrolled hazard arises.
- Reclassified spaces that have been evacuated because of an uncontrolled hazard must be re-evaluated to determine if they can remain reclassified as a non-confined space by a Martinez Health and Safety Department Field Safety representative before they can be re-entered.

6.14 Other Special Considerations

6.14.1 Isolation procedures are still required for internal process piping, including radiant and convection tubes in heaters. If positive isolation is not possible per RSI 08-02, *Control of Hazardous Energy & LOTO*, an Elevated Risk Review is required.

6.14.2 Any non-isolated engulfment hazards (e.g., catalyst) require an early-warning system that continuously monitors for the non-isolated engulfment hazard that is capable of alerting Authorized Entrants and Attendants in sufficient time for the Authorized Entrants to safely exit the space.

6.14.3 The Permit Writer must consider that some confined spaces may contain pyrophoric material that will ignite flammable material in the presence of air.

6.14.4 The permit reflects conditions at the time of issuance. If conditions change, work must be stopped and the Permit Writer and unit operators contacted.

6.14.5 Each confined space must be evaluated for the potential presence of asbestos (gaskets, packing, etc.) during job planning activities. If positive confirmation cannot be determined, entries must assume the presence of asbestos.

6.14.6 Any temporary enclosures at confined space entry points must be constructed only after approval by the permit issuer.

6.14.7 During confined space entry into cooling towers, reference specific operating procedures to determine what chemical additives will be isolated.

6.14.8 A permit will be required prior to entry of personnel into excavations, trenches, roll-off boxes, sewers, and other containers over 4 feet in depth.

6.14.9 Portable lighting and floodlights will be third party listed and watertight when used outdoors. Portable halogen and quarts work lighting fixtures are prohibited in the refinery due to high operating temperatures, without a Hot Work Permit. See RSP-1162, *Electrical Safe Work Practices* for details.

7.0 PROGRAM REVIEW

7.1 Procedure Review

RSI 08-05, *Confined Space Entry,* will be reviewed every 3 years.

8.0 REVIEW AND REVISION HISTORY

8.1 History of Revisions

The Table 2 provides the revision history for this document.

Table 2 Revision History

Revision	Date	Change Author	Reason for Change
0			Original Issue

APPENDIX A – CONTAMINANT THRESHOLDS AND CONDITIONS

Table 3 Contaminant Thresholds

Contaminant	PEL/TLV (ppm)*	STEL (ppm)	IDLH (ppm)	Odor Threshold (ppm)
Ammonia (NH_3)	25	35	300	0.43-53
Arsenic (As)	0.01 mg/m^3	None	5 mg/m^3	N/A
Benzene (C_6H_6)	1.0	5	500	34-119
Carbon Monoxide (CO)	25	N/A	1200	Odorless
Hydrogen Sulfide (H_2S)	10	15	100 (MPC)	0.001-0.13
Lower Explosive Limit (LEL)	0 % LEL 0-10 % LEL >10 % LEL	Hot Work*** Cold Work** No Work**	N/A	N/A
Mercaptans Butyl Ethyl Methyl	 0.5 0.5 0.5	None	 500 500 150	 0.0073-0.001 0.001-0.003 0.0001-0.041
Nitrogen Dioxide (NO2)	0.2 5 (ceiling)	1	13	N/A
Oxygen (O_2)	19.5 – 23.5%	N/A	N/A	N/A
Perchloroethylene ($Cl_2C=CCl_2$)	25	100	150	2-71
Crystalline Silica (SiO_2)	0.05 mg/m^3 (Respirable Fraction)	None	N/A	N/A
Sulfur Dioxide (SO_2)	2	5	100	0.33-5
Sulfuric Acid (H_2SO_4)	0.2 mg/m^3	None	15 mg/m^3	0.15

Notes: *Contaminant Thresholds and Conditions are based on exposure levels at the breathing zone. Testing must be performed at an area that is representative of personnel's breathing zone and reflects the conditions of the work activity.*

******* *The above limits are based on the Cal-OSHA Table AC1 PEL limits, or, in their absence, on current ACGIH TLV's*

******** *Cold work may be authorized at levels >10% LEL (but not to exceed 20% LEL) under the variance procedure.*

********* *Hot work may be authorized up to 10% under the variance procedure – see RSI-08-01.*

Table 4 Contaminant Conditions

Conditions	Time Frame
Valid Permit Period – Initial	Not to exceed 12 hours
Valid Permit Period – Extension	One additional 12-hour shift, not to exceed 24 hours
Permit Gas Re-Check Frequency	Mid-shift unless Safe Work Permit is written for work that will be less than 4 hours in duration then additional gas check may not be required depending on the work and site conditions.

Key Terms	
PEL	OSHA Permissible Exposure Limit measured as an 8-hour TWA
TLV	ACGIH Threshold Limit Value measured as an 8-hour TWA
STEL	OSHA/ACGIH Short Term Exposure Limit, not to be exceeded, and for no longer than 15 minutes
Ceiling	OSHA/ACGIH designated maximum concentration, not to be exceeded at any time
IDLH	NIOSH Immediately Dangerous to Life and Health concentration (except for H2S where the MPC value is used)
Odor Threshold	Minimum concentration (or range of concentrations) of contaminant in air that most people can recognize by smell

APPENDIX B - CONFINED SPACE EXAMPLES

Examples of confined spaces, where this procedure may apply:

- Bag Houses (with limited egress)
- Boilers
- Cooling Water Towers
- Dumpsters/Roll-off Boxes (> 4' deep)
- Electrical Crawl Spaces
- Electrical Transformer Cases
- Elevator Shaft (CMB)
- Exchanger shells
- Fan Enclosures
- Filters
- Fin Fans
- Floating Roofs on Storage Tanks
- Frac Tanks
- Heaters
- Open ended pipes (> 16" diameter)
- Pits or Sumps
- Product Distillation Columns
- Product Storage Bins
- Process Reactors
- Process / Storm Water Sewers (> 4' deep)
- Rail Cars
- Tank Trucks
- Tanks
- Trenches & Excavation (> 4' deep)
- Process Vessels
- Vessel Skirts (with limited egress)

APPENDIX C - INTERNAL COMBUSTION ENGINES INSIDE CONFINED SPACES

8.2 Minimum Requirements for Use of Internal Combustion Engines

The following steps will constitute minimum requirements when using internal combustion engines inside confined spaces.

a. Only equipment with diesel engines will be allowed inside confined spaces.

b. The equipment must be inspected prior to use to ensure that it is in safe operating condition and running efficiently.

c. When utilizing internal combustion engines inside confined spaces that will be stationary or semi-stationary, a vent hose will be run from the exhaust to a downwind position outside the confined space to eliminate any toxic materials.

d. Equipment utilized within a confined space must be placed on a stable and adequate load-bearing surface. The stability and integrity of the confined space is essential and may require further study prior to equipment entering the space.

e. Mechanical ventilation will be provided in confined spaces where internal combustion engines are being utilized. Preferably, airflow should be forced in through a lower opening and forced out of an upper opening due to carbon monoxide being lighter than air.

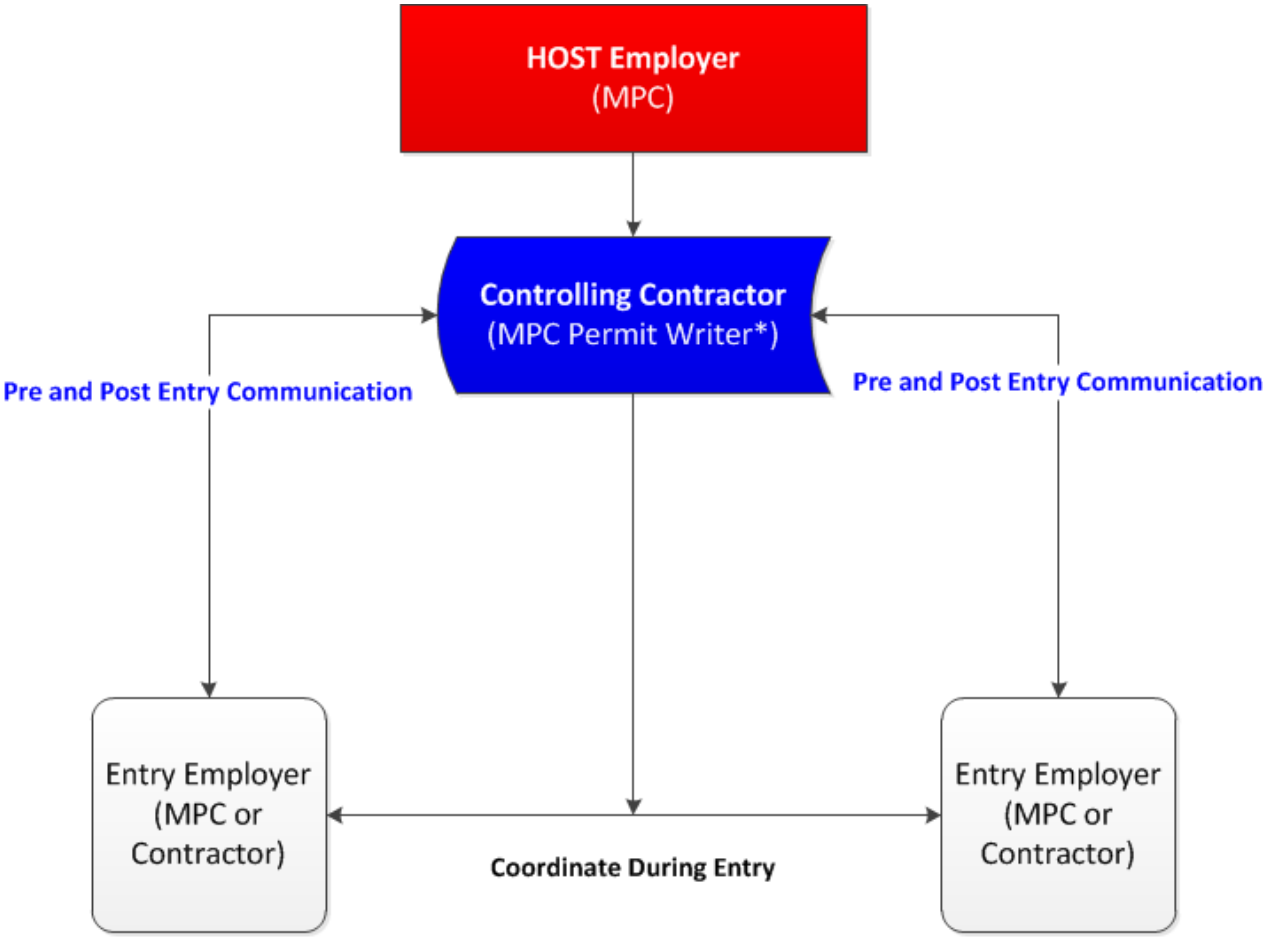
f. Continuous atmospheric monitoring must include carbon monoxide levels while personnel are inside the confined space.

g. The atmospheric monitor must have a current calibration date, be bump tested within 24 hours of use, have a pump to actively draw air, and be capable of data-logging.

h. Personnel assigned to use atmospheric monitoring instruments must be knowledgeable in their operation.

i. Atmospheric samples must be taken in close proximity to the authorized entrant's work area. The qualified Permit Writer will make the determination of where sampling will be taken and where the monitor will be located.

APPENDIX D – HOST EMPLOYER, CONTROLLING CONTRACTOR, AND ENTRY EMPLOYER FLOW CHART



The above diagram shows the information and the coordination between the Host, Controlling and Entry Employers
* Controlling Contractor may be assigned to a third party per site approval for Green Field/New Construction

Figure 1 Host Employer, Controlling Contractor, and Entry Employer Flow Chart

APPENDIX E – FORMS AND TEMPLATES

Figure 2 provides an example of the *Large, Complex and High-Density Work Confined Space Hazard Assessment Checklist* (RSI 08-05-F01).

Marathon Petroleum Company LP	RULES & STANDING INSTRUCTIONS	08-05-F01
MARTINEZ REFINERY	**Large, Complex, and High Density Work Confined Space Hazard Assessment Checklist**	Page 1 of 1

Hazard Assessment Conducted On:	
Completed By:	Date:
This space is determined to be Large, Complex and/or High Worker Density Confined Space due to the following:	
☐ 50 or more Entrants per shift	
☐ Confined Space Entry inside the Confined Space (e.g. Work inside cyclones inside a Regen Vessel)	
☐ Complex scaffold systems which include seal decks that separate the Confined Space.	
☐ Confined Space Entry into a complex space with non-routine hazards (e.g. sewers and tunnels)	
The additional checked hazards have been identified and mitigation measures are in place to eliminate the hazards.	
Hazards	**Hazard Mitigation**
☐ Inability to account for Personnel (Entrant) in the event of an Emergency.	
☐ Falling debris, tools, and equipment into Entrants work area	
☐ Unable to hear and/or see the alerting system used to notify Entrants of an emergency evacuation	
☐ Hot Work or Confined Space Inside Confined Space not visible to exterior Fire Watch/Hole Watch	
☐ Fall Hazards inside the space (e.g. aligned internal manways, work inside cyclones, scaffolding construction/anchor points)	
☐ Limited egress locations based upon number of Entrants	
☐ Hazards introduced into the confined space by ventilation systems (Combustible Material, High Noise, etc.)	
☐ Hole Watch (Attendant) is unable to maintain communication with all Entrants	
☐ Unable to verify the atmosphere at locations representative of all Entrants	
☐ Radiography Impact to the Authorized Entrants	
☐	
Additional Notes:	

RSW-ESS-08-05-RSI-MZ-F01 Confined Space Hazard Assessmt Checklist Rev 0.docx (Rev 0) 6/30/2020

Figure 2 Large, Complex, and High-Density Work Confined Space Hazard Assessment Checklist (RSI 08-05-F01) (Example)

Figure 3 provides an example of the *Reclassified Non-Confined Space Notice Form* (RSI 08-05-F02).

Marathon Petroleum Company LP	RULES & STANDING INSTRUCTIONS	08-05-F02
MARTINEZ REFINERY	**Reclassified Non-Confined Space Notice**	Page 1 of 1

Equipment Name:		
Equipment Number:		
Location:		
Date of Re-Classification of CS:		**Time of Re-Classification of CS:**
Re-Classification Team Members:	**MPC Field Safety Professional:**	
	MPC Maintenance Representative:	
	Servicing Group Representative:	
	Operations Supervisor:	
	Excavation Competent Person (as needed):	

	QUESTIONS	**ANSWERS**
1)	Continuous atmospheric monitoring shall be required inside the tank.	
2)	Continuous atmospheric monitoring may be required in reclassified excavations based upon the work scope.	
	FOR TANKS	
3)	A door sheet (approximately 10' x 8') has been cut in the side of the tank.	
4)	The tank has been cleaned and free of residues and materials	
5)	Additional precautions (e.g. PPE, additional continuous monitors, barriers, shields, lighting requirements, rescue equipment, etc.) have been established, as needed.	
	FOR EXCAVATIONS	
6)	The excavation has a sufficient protective system (e.g., sloped, benched, or sheeting) and has at least one sloped vehicle ramp (i.e., large enough to support a full-size truck).	
7)	The excavation is located outside active/current unit battery limits.	
8)	To achieve unrestricted entry or egress the excavation has ladders or ramps every 25 feet along the perimeter.	

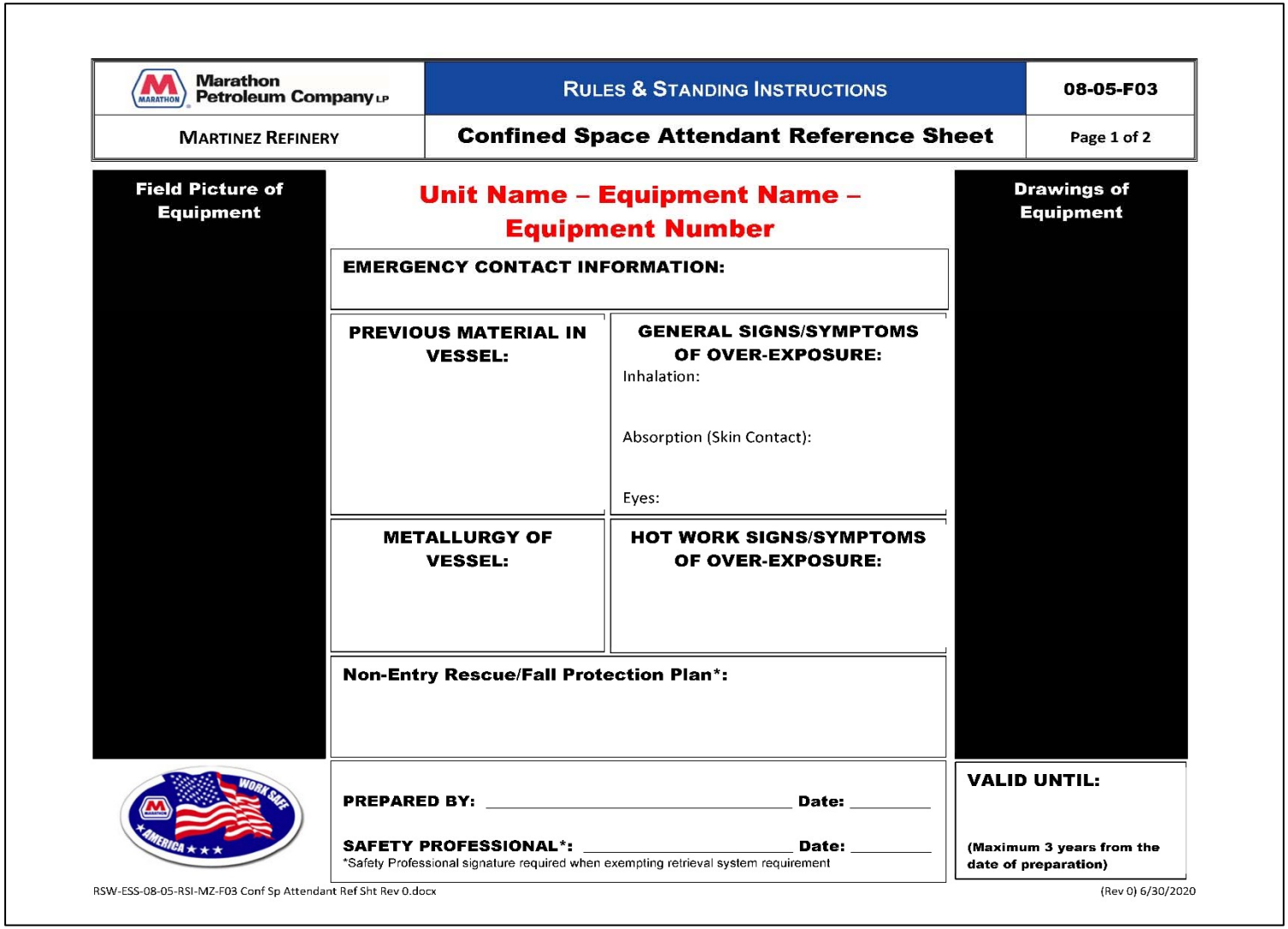
If the permit space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated, it may be reclassified as long as the hazards remain eliminated.

Note: Control of atmospheric hazards through forced air ventilation does not constitute elimination of the hazards.

RSW-ESS-08-05-RSI-MZ-F02 Non-confined Space Notice Rev 0.docx (Rev 0) 6/30/2020

Figure 3 Reclassified Non-Confined Space Notice (RSI 08-05-F02) (Example)

Figure 4 and Figure 5 provides an example of the *Confined Space Entry Reference Sheet Template* (RSI 08-05-F03).



Marathon Petroleum Company LP	RULES & STANDING INSTRUCTIONS	08-05-F03
MARTINEZ REFINERY	**Confined Space Attendant Reference Sheet**	Page 1 of 2

Field Picture of Equipment

Unit Name – Equipment Name – Equipment Number

Drawings of Equipment

EMERGENCY CONTACT INFORMATION:

PREVIOUS MATERIAL IN VESSEL:

GENERAL SIGNS/SYMPTOMS OF OVER-EXPOSURE:
Inhalation:

Absorption (Skin Contact):

Eyes:

METALLURGY OF VESSEL:

HOT WORK SIGNS/SYMPTOMS OF OVER-EXPOSURE:

Non-Entry Rescue/Fall Protection Plan*:

PREPARED BY: _____ **Date:** _____

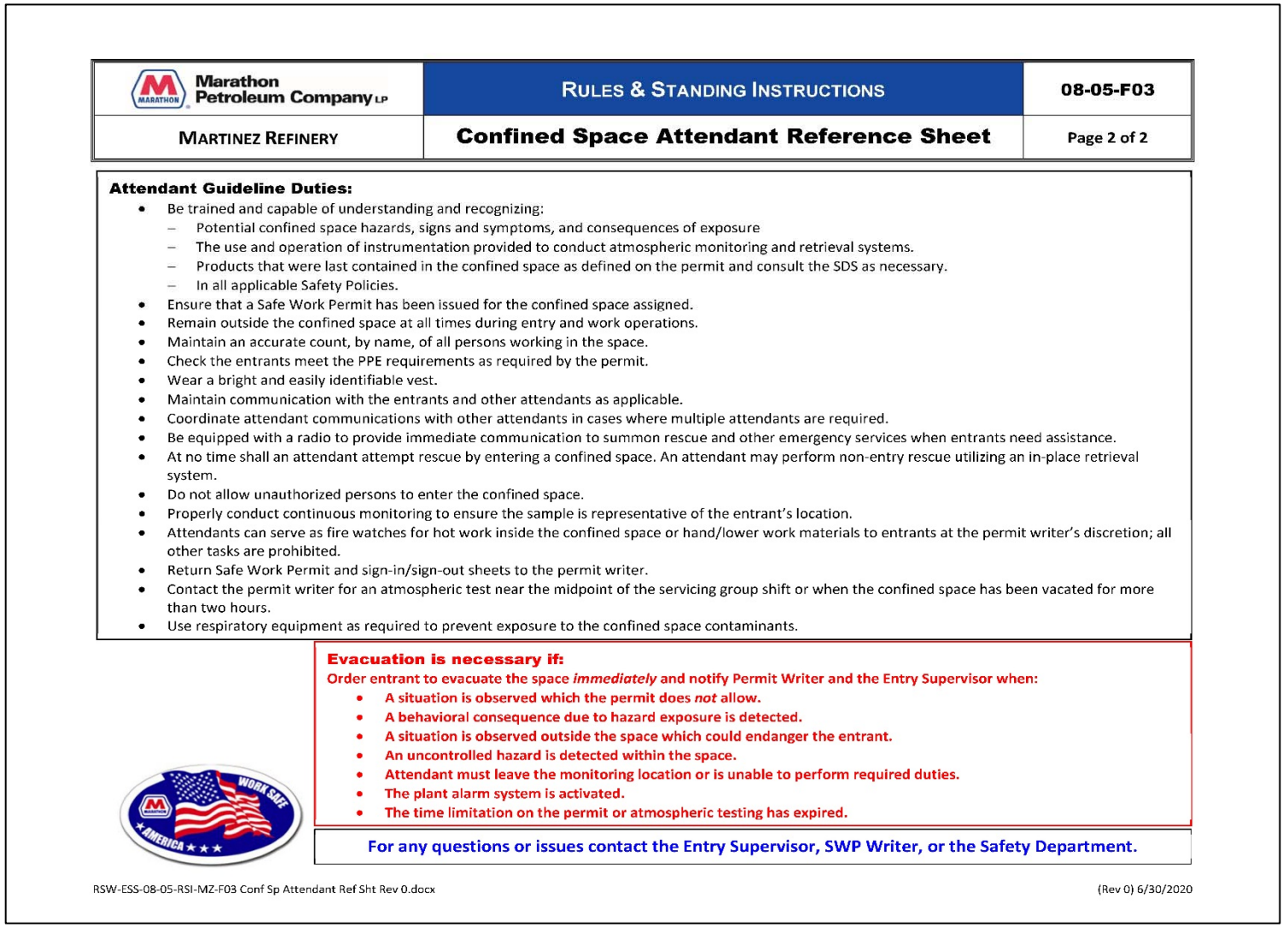
SAFETY PROFESSIONAL*: _____ **Date:** _____
*Safety Professional signature required when exempting retrieval system requirement

VALID UNTIL:

(Maximum 3 years from the date of preparation)

RSW-ESS-08-05-RSI-MZ-F03 Conf Sp Attendant Ref Sht Rev 0.docx (Rev 0) 6/30/2020

Figure 4 Confined Space Entry Reference Sheet Template (RSI 08-05-F03) (Page 1 of 2) (Example)



Marathon Petroleum Company LP	RULES & STANDING INSTRUCTIONS	08-05-F03
MARTINEZ REFINERY	**Confined Space Attendant Reference Sheet**	Page 2 of 2

Attendant Guideline Duties:

- Be trained and capable of understanding and recognizing:
  - Potential confined space hazards, signs and symptoms, and consequences of exposure
  - The use and operation of instrumentation provided to conduct atmospheric monitoring and retrieval systems.
  - Products that were last contained in the confined space as defined on the permit and consult the SDS as necessary.
  - In all applicable Safety Policies.
- Ensure that a Safe Work Permit has been issued for the confined space assigned.
- Remain outside the confined space at all times during entry and work operations.
- Maintain an accurate count, by name, of all persons working in the space.
- Check the entrants meet the PPE requirements as required by the permit.
- Wear a bright and easily identifiable vest.
- Maintain communication with the entrants and other attendants as applicable.
- Coordinate attendant communications with other attendants in cases where multiple attendants are required.
- Be equipped with a radio to provide immediate communication to summon rescue and other emergency services when entrants need assistance.
- At no time shall an attendant attempt rescue by entering a confined space. An attendant may perform non-entry rescue utilizing an in-place retrieval system.
- Do not allow unauthorized persons to enter the confined space.
- Properly conduct continuous monitoring to ensure the sample is representative of the entrant's location.
- Attendants can serve as fire watches for hot work inside the confined space or hand/lower work materials to entrants at the permit writer's discretion; all other tasks are prohibited.
- Return Safe Work Permit and sign-in/sign-out sheets to the permit writer.
- Contact the permit writer for an atmospheric test near the midpoint of the servicing group shift or when the confined space has been vacated for more than two hours.
- Use respiratory equipment as required to prevent exposure to the confined space contaminants.

Evacuation is necessary if:

Order entrant to evacuate the space *immediately* and notify Permit Writer and the Entry Supervisor when:

- **A situation is observed which the permit does *not* allow.**
- **A behavioral consequence due to hazard exposure is detected.**
- **A situation is observed outside the space which could endanger the entrant.**
- **An uncontrolled hazard is detected within the space.**
- **Attendant must leave the monitoring location or is unable to perform required duties.**
- **The plant alarm system is activated.**
- **The time limitation on the permit or atmospheric testing has expired.**

For any questions or issues contact the Entry Supervisor, SWP Writer, or the Safety Department.

RSW-ESS-08-05-RSI-MZ-F03 Conf Sp Attendant Ref Sht Rev 0.docx (Rev 0) 6/30/2020

Figure 5 Confined Space Entry Reference Sheet Template (RSI 08-05-F03) (Page 2 of 2) (Example)