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1.0 INTRODUCTION

1.1 Purpose

1.1.1 This document describes the requirements to ensure that hot work is performed safely at the Martinez Refining site.

1.1.2 A properly authorized Safe Work Permit including completion of the Hot Work section and authorizing signatures is required for all hot work as described in RSI 08-01, *Safe Work Permit*.

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 hot work.

1.2 Scope

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

1.2.2 This document for Hot Work 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. More stringent requirements may augment this standard for any situation.

1.2.4 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 Corporate References

The following sections describe references used to generate this document.

1.3.1 Marathon Standards, Policies & Procedures

- MPC Process Safety Advisory, PSA 13-08, *E/M Refinery Exchanger Fire*
- MPC Process Safety Advisory, PSA 16-02, *Galveston Bay Refinery Fire at Temporary Pump Installation*
- MPC RSP 1127 *Confined Space Entry*
- MPC RSP 1128 *Safe Work Permit*
- MPC RSP 1715 *Hot Work*
- RSI 08-01 *Safe Work Permit*
- RSI 08-01-F01 *Safe Work Permit Form*
- RSI 08-02 *Control of Hazardous Energy & LOTO*
- RSI 08-03 *Facility Siting*
- RSI 08-04-05 *Welding, Drilling, or Cutting on or into In-Service Equipment*
- RSI 08-05 *Confined Space Entry*

- RSI 08-05-02 *Tank Requirements*
- RSI 08-20 *Variances from Rules and Standing Instructions*
- RSI 11-01 *Personal Protective Equipment*
- RSI 11-07 *Respiratory Protection Program*
- RSI 12-08 *Heavy Metals*
- RSI 14-02 *Management of Change*

1.3.2 Government Regulations

- API Publication 2009 *Safe Welding and Cutting Practices in Refineries, Gas Plants, and Petrochemical Plants*
- API Publication 2201 *Safe Hot Tapping Practices in the Petroleum and Petrochemical Industries*
- 29 CFR 1910.119 *Process Safety Management of Highly Hazardous Chemicals*
- Cal OSHA Title 8 CCR 4848 *Fire Prevention and Suppression Procedure*
- Cal OSHA Title 8 CCR 6777 *Hot Work Permits*
- Cal OSHA Title 8 CCR 5189 (k), *Process Safety Management, Hot Work Permit*
- Cal OSHA Title 19 CCR 2760.11 *CA Accidental Release Prevention Program (CalARP), Hot Work Permit*
- Contra Costa County Industrial Safety Ordinance (ISO) 450-8.016 (A) (10), *Hot Work Permit*
- OSHA 29 CFR 1910.252 *Welding, Cutting, and Brazing – General Requirements*
- OSHA 29 CFR 1926.352 *Fire Prevention – Welding and Cutting*
- 40 CFR 68.85, *EPA's Risk Management Regulations Hot Work Permit*
- API Publication 653 *Tank Inspection, Repair, Alteration, and Reconstruction*
- API Publication 2007 *Safe Maintenance Practices in Refineries*
- API Publication 2200 *Repairing Crude Oil, Liquefied Petroleum Gas, and Product Pipelines)*
- API Publication 2202 *Guidelines for Protecting Against Lead Hazard*
- API Publication 2207 *Preparing Tank Bottoms for Hot Work*
- API Publication 2209 *Pipe Plugging Practices*

1.4 Tools and Templates

The following form is available for use with this document.

- RSI 08-04-F01 *Elevated LEL Hot Work Approval Form*

2.0 DEFINITIONS

The following terms and definitions are used in this document.

Table 1 Terms and Definitions

Term	Definition
Attended Hot Work	Attended Hot Work is hot work that requires a fire watch. Examples of Attended Hot Work include: ➢ burning, ➢ welding, ➢ brazing, ➢ electric arc welding electric soldering, ➢ stress relieving, ➢ use of open flames or gas fired heaters, ➢ cutting and grinding, ➢ abrasive blasting on the roof of a cone roof tank, ➢ CAD welding, and ➢ if combustibles are within 35 feet.
Class A Combustible Materials	Ordinary combustibles such as wood, cloth, or paper materials.
Designated Hot Work Area	An area where a documented hazard assessment shows the area is safe for routine attended hot work without expecting the presence of flammable or combustible materials. Example: an approved task in a related shop, welding in the weld/metals shop. *(**Note:** This is not referring to low energy tasks that are typically allowed in all shops; the use of hand tools, battery, or electric powered tools.)*
Fire Watch	An individual who has received required training and comprehends the duties and responsibilities as required by this RSI, to perform the duties specified by RSI 08-04., *Hot Work*
Hot Tapping	Hot Tapping is the practice of installing a valve connection and then drilling or cutting into the pipe or equipment, through the valve connection, while the pipe or equipment is in service or has not been purged (hydrocarbon free).
Hot Work	Is an activity that introduces a known or potential ignition source into an area that could contain a flammable or explosive atmosphere. Specifically, it includes: ➢ cutting, ➢ burning, ➢ welding, ➢ grinding, ➢ brazing, ➢ sandblasting, ➢ abrasive wheels, ➢ concrete chipping, ➢ opening of electrical gear, ➢ use of non-explosion proof power tools and electrical equipment, ➢ use of non-intrinsically safe instruments and tools that contain batteries and/or rechargeable power supplies, or

Table 1 Terms and Definitions

Term	Definition
	➢ vehicle entry in regulated areas within the Marathon Petroleum Martinez Refinery. Non-regulated areas exempt from requiring a Hot Work Authorization are as follows: a. Office buildings, office trailers, pressurized control rooms or switch houses that meet the requirements of RSP-1715 3.4.1 (except Attended Hot Work and work affected process equipment) b. Approved Laboratories, when using normal/standard lab equipment c. Routine work in approved maintenance shops (except attended hot work on equipment previously in hydrocarbon service that could not be properly prepared and verified hydrocarbon-free) d. Vehicle use on roadways normally open to traffic e. Permanent Weld Bays, outside of process areas, with approval from Health & Safety f. Fire Training Grounds during supervised training g. Food trucks or other approved catering companies stationed in pre-approved locations outside process areas. Locations are designated by the Health, Safety and Security Department. ***Note:*** *Large parking lot near Main Tract 1 entrance, formerly the M&C Parking lot. Field-of-Dreams parking lot area during active Projects/Turnarounds.*
In-Service Welding	In-Service Welding is the practice of welding on pipe or equipment which is in-service. This includes grinding burning and welding for any purpose.
Joint Job Site Visit	Joint Job Site Visit (JJSV) is a meeting between the Owning Department representative and at least one servicing representative of all parties working off of the permit at the specific location where the job will be conducted. The servicing representative that attends the JJSV must convey the information covered in the discussion to all members of the work party.
LEL	Lower Explosive Limit
Non-Attended Hot Work	Non-Attended Hot Work is Hot Work that does not require a fire watch. Some examples are: ➢ concrete breaking, ➢ use of unclassified hand tools, ➢ light, extension cords, ➢ non-explosion proof cordless tools, ➢ non-intrinsically safe cameras, ➢ gasoline or diesel-powered equipment (e.g., vehicles, trains, portable compressors, portable generators, light stands, scissor lifts, etc.), ➢ opening of energized explosion proof enclosures, or abrasive blasting (non-cone roof tanks)
Operator	Person who directly controls the process either using a control system or by manipulating field equipment.

Table 1 Terms and Definitions

Term	Definition
Other Ignition Sources	Other ignition sources include, but are not limited to: ➢ Abrasive blasting; ➢ Electric, or battery powered drills; ➢ Electric, gasoline, or battery powered saws; ➢ Jack hammers; ➢ Non-intrinsically safe devices such as cell phones, radios, cameras, or other batter operated devices; ➢ Open electric or battery heating elements. ➢ Other internal combustion engines
Owning Department	Refers to the department that owns and operates process, process related, and/or utility equipment, machinery, building, and/or systems.
Safe Work Permit (SWP)	A written record that authorizes specific work within a process-covered area for a specified time. An agreement between the issuing department and the receiver that clearly documents the conditions, preparations, precautions, and limitations that must be understood before work begins.
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.
Tool Attachments (typically used as grinder, or other powered rotary tool attachment)	➢ **Abrasive wheel/attachments -** These wheels are designed to remove material, and typically have metal (such as alumina and zirconia) embedded in the material. They generate heat and significant sparks and are classified as Attended Hot Work. They come in a variety of designs: cutting wheels, flapper wheels, Tiger wheels, etc. ➢ **Buffing wheel -** wheels made of fabric; not intended to replicate grinding. Typically, this wheel design does not throw a significant amount of sparks but can generate heat on the metal. They are classified as Non-Attended Hot Work. ➢ **Wire wheel -** An attachment typically used to remove rust, dirt, burrs, paint, etc., from metal. Because a wire wheel design often produces sparks, it is classified as Attended Hot Work.
Vehicle Entry	Any passage of a motorized vehicle across the battery limits of an operations complex or into a tank farm diked area, or into any area where classified electrical equipment is required. Vehicle entry requires an SWP and gas testing to determine hazardous conditions but does not require a fire watch.
Welding Blanket	A heat-resistant fabric, designed to be placed in the vicinity of a hot work operation. Intended for use in horizontal applications with light to moderate exposures such as chipping, grinding, heat treating, sand blasting, and welding. Designed to protect machinery and prevent ignition of combustibles such as wood that are located adjacent to blanket.
Welding Curtain/guard	A heat-resistant fabric designed to be placed in the vicinity of a hot work operation. Intended for use in vertical applications with light to moderate exposures from chipping, grinding, etc. It is not typically designed for use in horizontal applications.
Work Party	Includes all personnel whose tasks are covered by the work permit.

3.0 ROLES AND RESPONSIBILITIES

3.1 Owning Department / Permit Writer

The Owning Department/Permit Writer is responsible for the following.

3.1.1 Ensures that personnel who issue hot work permits within their areas of responsibility have completed the required Hot Work Permit Writer training.

3.1.2 Ensures that all energy isolation requirements have been satisfied.

- Verifies that the Lockout/Tagout Log and Blind List associated with the hot work is complete and signed.
- Field verifies that the preparations for hot work including steaming, LOTO, and blinding are completed prior to issuing the SWP.

3.1.3 Identifies potential hazards associated with the hot work and specifies the testing and precautionary measures required to ensure the safety of the work to be done. [See Appendix A]. Contacts the Safety Department for assistance as necessary.

3.1.4 Provides appropriate instructions for preparation of the hot work.

3.1.5 Ensures that the permit is posted at the job site during the hot work.

3.1.6 Ensures adequate fire watch personnel are present and that proper fire watch equipment and other personal protective equipment are used as required by the permit.

3.1.7 Determines the need for the fire watch to maintain a radio for emergency communications. In general, remote jobs (e.g., tank farm or where the fire watch is located more than 100 feet away from summoning help in an emergency) or jobs that require communication to the fire watch from operations (e.g., hot taps/in-service welds) require a radio.

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

3.1.9 Transfers responsibility for the hot work when there is a change in permit writers or shifts.

3.1.10 Conducts the required atmospheric monitoring for permit issuance.

3.1.11 Verifies that air-monitoring equipment (i.e., LEL/O_2 meters, gas monitors, etc.) used by the Owning Department is properly maintained, bumped, calibrated, and working properly.

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

3.1.13 Informs the Servicing Group Representative of any area or operational conditions that may impact the hot work (e.g., vapor release, sewer draining operations, etc.).

3.1.14 Coordinates with contractors, nearby operations, and any MPC employees working near the hot work operations as needed.

3.1.15 Identifies vehicle access roadways that require a SWP. Access areas should have appropriate permit required mobile entry signage posted. Reference Electrical Area Classifications.

3.2 Servicing Representative Supervisor or Designee

The Servicing Representative Supervisor or Designee is the person directly in charge of the Servicing Group carrying out the specific tasks. They are responsible for the following.

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 Conveys any potential hazards that they will introduce to the job site as a result of performing work.

3.2.3 Field-verifies that energy isolation is complete during Joint Job Site Visit prior to signing the permit.

3.2.4 Conducts pre-job discussions and verifies that the work party is aware of the scope, requirements, limitations, potential hazards, and precautions specified on the permit.

3.2.5 Provides a designated, trained fire watch when required.

3.2.6 Provides a radio for the fire watch when required per the permit.

3.2.7 Notifies the Owning Department if the scope of work or conditions change during the job.

3.2.8 Informs Operations when the job is complete, conducts a post Joint Job Site Visit with operations to view the work and job site cleanup status, and signs off the permit.

3.3 Work Party

The work party is responsible for the following:

3.3.1 Understands the limitations and restrictions of the work permit and complies with the permit requirements. **STOPs** work activities if conditions of the SWP can no longer be met.

3.3.2 Discontinues hot work and reports any abnormal condition that may present itself after the issuance of the original permit.

3.3.3 Cleans up the job site at the completion of work.

3.3.4 Ensures tools and equipment to be used are in good working condition and are safe to use.

3.3.5 Ensures all Hot Work equipment and work tasks are shut down in the event of an emergency or evacuation.

3.4 Fire Watch

The Fire Watch personnel are responsible for the following.

3.4.1 Knows what product is or was in the line, tank, etc. that is being worked on.

3.4.2 Knows the type of material in the general area and possible hazards.

3.4.3 Understands and is trained in extinguishing small fires, the hot work permit procedure, and the hazards of hot work.

3.4.4 Knows how to sound an alarm or contact emergency personnel in the event of a fire or changing conditions.

3.4.5 Knows how to use radio communications to obtain emergency services as deemed necessary based on location of job.

3.4.6 Ensures a hot work permit has been issued and understand the provisions of the permit.

3.4.7 Signs on/off duty onto field copy of the Safe Work Permit.

3.4.8 Preplans escape routes for welders and other affected personnel and ensures adequate mobility and fire hose to attain proper position to provide protection until welders/personnel are out of harm's way.

3.4.9 Maintains a visual surveillance of the vicinity of the hot work for spills, leaks, sparks, glowing embers, and fires which the welder or person performing the work may not be able to see.

3.4.10 Remains next to the fire hose and extinguisher and within reach of the nozzle anytime hot work is being performed.

3.4.11 Shuts down the ignition source if safe to do so (i.e., welding machine, torch, electric tool, etc.) anytime anything out of the ordinary occurs (e.g., gassy odors, notice someone draining a line, blown pump seal, etc.).

3.4.12 Ensures sewers and valves within 35 feet of the work area are sealed or covered with appropriate covers. Wets down the area to make sure covers, seals, etc. are arranged correctly as required by the permit writer and as stipulated on the hot work permit.

3.4.13 If a fire does occur, the fire watch's main responsibility is to:

- Sound the alarm horn to notify the welder and others in the area to immediately stop work;
- Warn welders and shut them down and warn other people in the area;
- Notify the responsible permit issuer about the emergency or initiate the emergency response system by dialing 2222, or contacting Security Control through the Plant Radio;
- Extinguish the fire if possible and safe to do so, and
- If the fire can't be extinguished, try to contain it and make emergency notification per the Emergency Contacts section on the permit.

3.4.14 Ensures fire watch equipment is in good working condition. If not, replace or repair before hot work is permitted.

3.4.15 Ensures the site for which the fire watch is responsible is NEVER left unattended. If it is necessary for the fire watch to leave the area for any reason, they must stop hot work until they return or are relieved by a qualified replacement. The hot work area must remain attended for at least 30 minutes after hot work stops.

3.4.16 Knows how and when to use an air horn for emergency communication. Fire watch will be equipped with an air horn that may be used to communicate with the person(s) performing work to notify them of an emergency.

3.4.17 Knows how to shut down welding machines and burning apparatus.

3.4.18 Ensures firefighting equipment inside fire buildings and operating units is NOT used as fire watch equipment. Although firefighting equipment inside fire buildings and operating units may be used in the event of a fire, this equipment is never to be removed or used for fire watch equipment. This includes portable fire extinguishers hanging in units.

3.4.19 Wears a bright and easily identifiable FR rated orange or red vest to identify them as fire watches.

3.4.20 Knows how to properly use any of the fire suppression equipment maintained at the site. All fire watches must be trained in the proper use of fire suppression equipment maintained at the site of hot work activities prior to being assigned to a fire watch job.

3.4.21 Uses a water spray to immediately extinguish sparks produced by welding, grinding, or use of a cutting torch.

3.4.22 Remains at job site a minimum of 30-minutes after completion of welding, cutting, or other hot work operations to detect and extinguish possible smoldering fires from Class A materials.

3.4.23 Stops all activities when the refinery alarm is activated or when they observe a deviation from the permitted activity (revoke active permits).

3.4.24 Supply and continuously monitor gas detection equipment as required by the SWP. Fire watch must be trained in proper equipment operation including set up, response to gas detector alarms, and will verify that air-monitoring equipment (i.e., LEL/O_2 meters, gas monitors, etc.) used for continuous monitoring is properly maintained, bumped, calibrated, and working properly.

3.5 Training Department

The Training Department is responsible for the following.

3.5.1 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.

3.5.2 Schedules Permit Writer training.

3.5.3 Maintains training certifications for all personnel affected by this program (e.g., MPC permit writers, fire watches, etc.).

4.0 PRACTICES

4.1 Pre-Job Planning / Hazard Identification

4.1.1 Hot Work in the process areas should be avoided or reduced when possible. Cold work methods or removing Hot Work from the process areas should be utilized when possible and practical.

4.1.2 Foreseeable hazards associated with the hot work must be identified and in satisfactory condition prior to issuance of the permit.

4.1.3 All sewers and manholes in the immediate area (35 ft) will be tested and sealed as necessary. The seal must be attained using a weighted sewer cover, wetted burlap or other device to prevent emission of flammable vapors from the sewer.

4.1.4 Vent pipes on mechanically-sealed sewer boxes must be sealed to prevent leakage when hot work is being performed in the area (i.e., sewer plug, FR blanket with adhesion, blind, etc.). The seal must be of adequate integrity to withstand the temperature, pressure, and material compatibility of the product within the sewer box.

4.1.5 Any time a sewer or vent pipe is sealed, it must be tested with an appropriate gas detection device to assure that the seal has been achieved.

4.1.6 The hot work area will be defined by identifiable landmarks, or barrier tape or specific language on the permit, to make sure the workers are certain of the area where hot work is permitted.

4.1.7 When cutting with a torch, welding, or grinding, evaluate the impact area of hot slag sparks and protect sewer openings, doorways, windows and other paths (within 35 feet), which would allow sparks to reach combustible materials.

4.1.8 Do NOT perform welding, cutting, or other hot work on vessels, drums, towers, used drums, barrels, tanks or other containers or equipment until they have been cleaned so thoroughly as to make absolutely certain that there is no flammable materials present or any substances such as greases, tars, acids or other materials which when subjected to heat, might produce flammable or toxic vapors. Disconnect or blank any pipelines or connections to the drum or vessel.

4.1.9 Vent all hollow spaces, cavities, or containers to permit the escape of air or gases before preheating, cutting or welding. Purging with inert gas is recommended.

4.1.10 Consideration must be taken to break/disconnect adjacent lines and/or materials (i.e., steel members, pipes, etc.) where heat from the hot work could be transmitted by radiation or conducted to unobserved combustibles.

4.1.11 Use containment (i.e., fire blankets, tarps, etc.) when hot work is to be performed overhead of live process equipment to limit travel of ignition sources.

4.1.12 Signage will be displayed as deemed necessary (i.e., overhead work signs, barricade tape ("Danger," hexavalent chromium, etc.).

4.1.13 Do NOT perform hot work on lines or vessels that are lined or cladded unless specifically authorized following an engineering evaluation and a hole drilled using an air drill for a gas check.

4.1.14 Mechanical ventilation is required when welding occurs inside of confined spaces. Certain open spaces (e.g., heaters, open tanks, excavations, etc.) may be exempt from this requirement provided there is adequate natural ventilation to remove welding fume. Other jobs may be exempt on a case basis (such as when supplied air respiratory protection is worn).

4.1.15 When a fire hose is used to wash out equipment, sewers, vessels, tanks, etc., which contain or could contain flammable gases and liquids with a flash point less than 140ºF, the bonding of the wire to the fire hose nozzle should be done with at least a hose clamp to ensure that good contact is maintained during the washing process.

4.1.16 Demister pads in vessels will be removed and any weirs identified and assessed for hazards prior to hot work if they pose a hazard due to the work activity being performed

4.1.17 Structured packing must be removed prior to hot work if it poses a hazard from hot work activity (or precautions must be put in place to mitigate sparks or slag from contacting the packing).

4.1.18 Consideration needs to be taken for hot work on painted and coated surfaces. While paint may be classified as non-lead based, it may still contain amounts of lead significant enough to cause a personal exposure when heated. All hot work surfaces must be tested to be certified lead-free or abated prior to performing hot work. Where the metal does not require pre/post weld heat treating, the paint must be abated 4 inches on both sides of the heat affected zone. Where the metal requires pre/post weld heat treating, the paint must be abated at least 12 inches on both sides of the heat affected zone.

4.2 Blinding and Energy Isolation

4.2.1 Conduct the isolation of equipment in accordance with RSI 08-02 *Control of Hazardous Energy & LOTO*.

4.2.2 If possible, equipment and piping that will be involved in any Hot Work must be:

a. Isolated and/or

b. Cleaned, gas free and tested

c. Vented to prevent over-pressurization

4.3 Hot Work Authorization

4.3.1 Prior to any hot work, the Hot Work section of the Safe Work Permit must be completed.

4.3.2 Welding, cutting, and grinding on vehicles requires a Safe Work Permit with hot work authorization.

4.3.3 For hot work tasks performed by the Owning Department:

a. The operator performing the hot work task will sign as the "MPC Maintenance Representative"

b. A separate qualified hot-work permit writer will sign as the "MPC Operator".

c. Lighting process heaters will be controlled by Written Operating Procedure and will not require the issuance of the SWP.

4.3.4 A Hot-Tap Traveler Package must be completed in addition to the Safe Work Permit with hot work authorization prior to hot tapping, stoppling, or in-service welding being performed. For minimum requirements, see RSI 08-04-05 *Welding, Drilling, or Cutting on or into In-Service equipment*. This requirement applies to all in service equipment including utility lines (e.g., steam, condensate, etc.)

4.3.5 Permits must be prominently displayed and maintained at the hot work location.

4.3.6 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 Permits* for permit revalidation and expiration time limits.

4.3.7 The permit must not remain in the field when there is no hot work in progress for more than 2 hours. The Servicing Group Representative will return the permit to the control room collection point.

4.3.8 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 will be removed and turned over to the Owning Department. The original will then be removed and matched with the copy. The permit can then be forwarded to the Safety Department for record retention.

4.3.9 Safe Work Permits authorizing solely vehicle entry into tank dikes or permitted roads will be considered applicable for all parties.

- All persons utilizing the vehicle entry permit must verify gas testing requirements have been met prior to signing onto the SWP. This can be verified through the permit issuer or the time of the atmospheric testing listed on the permit.

4.4 Atmospheric Testing

4.4.1 Perform initial testing and any re-testing in an area that:

a. Provides a representative sample of personnel's breathing zone

b. Reflects the conditions of the work activities.

c. Continuous atmospheric monitoring of the work area must be conducted with a continuous gas monitor equipped at minimum with a pump and oxygen, hydrogen sulfide, carbon monoxide, and combustible gas sensors.

4.4.2 The work area will be tested for flammable vapors using a properly bumped/calibrated combustible gas analyzer. The area or equipment must test 0% of the lower explosive limit (LEL) and the results must be recorded on the permit.

Notes:

1) *Hot work may be performed up to 10% LEL with the completion of an Elevated LEL Hot Work Approval Form (RSI 08-04-F01). If the concentration exceeds 0% LEL, the source of the flammable vapors and the control strategy must be described on the Elevated LEL Hot Work Approval Form RSI 08-04-F01). The use of steam, nitrogen, CO_2 or other means of keeping the immediate work area out of the flammable range must be approved by the Owning Department Manager, Maintenance Manager, and Health and Safety Superintendent.*

2) *Ensure there is adequate atmospheric oxygen inside of the monitoring area, to ensure proper combustible gas meter function.*

4.4.3 If equipment and piping cannot be cleaned and gas freed, cold-cutting methods must be used for initial cuts so adequate atmospheric monitoring can be conducted to ensure the equipment / piping is gas free.

4.4.4 Initial atmospheric monitoring must not be completed until after all blinding, disconnecting, purging, steaming and other preparatory work has been completed, and in as short a time possible before hot work is started.

4.4.5 Flammable gas testing must be performed within two (2) hours prior to the start of hot work. When hot work is paused or not started within two (2) hours of the time the gas tests were taken, another test must be made and recorded on the field copy of the permit.

4.4.6 Additional tests must be made by the Permit Writer at least midway through the maintenance shift after the initial permit has been issued and more frequently if there is any doubt that conditions may foreseeably change. Additional tests will be performed using a gas meter independent of continuous monitor.

4.4.7 The work area or equipment must be retested for flammable vapors after a change in conditions or upon request.

4.4.8 Continuous atmospheric monitoring is required for all Attended Hot Work within 35 feet of Process Covered areas or within 35 feet of combustible materials.

4.4.9 Continuously monitor all confined space atmospheres for combustible gases, oxygen, and toxics (as applicable). Hot work tasks in confined spaces must only be permitted with a lower explosive limit (LEL) of 0%.

4.4.10 Continuous monitoring detection equipment must be capable of data logging.

4.4.11 In units where an emergency occurred, additional gas tests are required and the Servicing Group and Owning Department must sign the work extension signature section of the permit.

4.4.12 Flammability testing must be conducted in more than one location. Most hydrocarbons are heavier than air and collect in low points in the process, equipment, and surrounding areas.

4.4.13 If the standardized alarm setting for a task/job, must be changed, those changes must be assessed and approved by the Health and Safety Department, including IH representative and Field Safety.

a. The affected meter must be clearly labeled and accounted for each shift.

b. Permit Writer, Servicing Representative, and Fire Watch must be made aware of the changes to the alarm settings and must be documented on the permit.

4.4.14 Work Party must be made aware of the alarm changes and documented on the JSA.

4.5 Fire Watch Requirements

4.5.1 The Permit Writer will determine if a fire watch is required and if so, instruct and discuss the individual(s) responsibilities. Additional fire watches may be required based on the hazards of the work being performed.

4.5.2 Fire suppression equipment, as required by the Permit Writer, will be made ready for immediate use on the job site.

- Minimum: 20 lb. dry-chemical fire extinguisher, or 1.5” charged water hose.
- Additional firefighting equipment may be required by the Permit Issuer based on surrounding conditions and other fire risks.

4.5.3 When fire suppression equipment is required for hot work, but a fire watch is not required, at least one member of the hot work crew will be trained to operate the fire suppression equipment and present during the hot work operations.

4.5.4 Hot work requiring a designated fire watch (attended) includes:

- burning,
- welding,
- brazing,
- electric arc welding,

- electric or gas annealing (pre/post weld heat treating),
- use of open flames,
- use of non-process propane or gas fire heaters,
- cutting and grinding,
- CAD welding,
- abrasive blasting on roof of cone roof tanks,
- spark producing tools such as a wire wheel, and if combustible materials are within 35 feet of the worksite.

4.5.5 Hot work that does not require a fire watch (non-attended) includes:

- concrete breaking,
- vehicle entry,
- use of non-explosion-proof, non-sparking hand tools, lights, and extension cords,
- non-explosion-proof cordless tools,
- gasoline or diesel-powered equipment (e.g. compressors, generators, pressure washers, etc.),
- opening of energized explosion proof enclosures,
- abrasive blasting, and
- grass cutting in dike area.

4.5.6 Maintain the fire watch for at least 30 minutes after completion of welding, cutting, or other hot work operations when the possibility of smoldering fires exists from Class A materials.

4.6 Vehicle Access Restrictions

During critical modes of operation (i.e., startup, shutdown), vehicle access around the immediate perimeter of such units will be limited to mitigate the potential risk of vehicular ignition sources in the event of an unanticipated hydrocarbon release.

a. The perimeter will be defined in written operating procedures and must define location of the perimeter and timing that the perimeter is established and removed.

b. The unit operator is responsible for employing/deploying the physical barricades of such perimeters.

c. If a vehicle must travel within the confines of the perimeter, a Safe Work Permit with hot work authorization must be written specifically for that equipment. The permit writer will consider the use of continuous monitoring to provide warning of a potential hydrocarbon release.

4.7 Welding or Cutting Safety

4.7.1 **Personal Protective Equipment** - See RSI 11-01 *Personal Protective Equipment General Requirements* and RSI 11-07 *Respiratory Protection Program*. Workers within 10 feet of the welder should be in the same PPE when working in non-confined spaces. PPE requirement boundaries in confined spaces should be evaluated based on the configuration of the space and air flow. The highest level of PPE will be worn by all entrants. Contact the site Industrial Hygienist or H&S designee for evaluation and PPE guidance.

4.7.2 **Accidental Contact** – When arc welding is to be suspended for any period of time, such as during lunch or overnight, all electrodes will be removed from the holders, holders located so that accidental contact cannot occur and the machine disconnected from the power source.

4.7.3 **Torch Valve** – All equipment will have flame arresters at both the torch and source/bottles.

4.7.4 **Securing gas cylinders** –

a. Oxidizers/flammable cylinders must be separated by a distance of 20 feet or a noncombustible barrier at least 5 feet high having a fire-resistance rating of at least one-half hour.

b. Acetylene stored in the upright position

c. Caps installed on bottles no longer in use

d. Bottles secured in engineered and designated bottle cart, chain, staging bar or wire.

4.7.5 **Painted and Coated Surfaces** – While paint may be classified as non-lead based, it may still contain amounts of lead significant enough to cause a personal exposure when heated. All hot work surfaces must be tested to be lead-free or abated prior to performing hot work. Where the metal does not require pre/post weld heat treating, the paint must be abated 4 inches on both sides of the heat affected zone. Where the metal requires pre/post weld heat treating, the paint must be abated at least 12 inches on both sides of the heat affected zone.

4.7.6 **Local Exhaust Ventilation** (LEV) – When used to remove fumes and gases during hot work, LEV must maintain an air velocity of at least 100 fpm at the source of the fumes or ga**s**es. LEV is required when performing welding or torch work in enclosed spaces. Contact the site Industrial Hygienist to determine adequacy of the ventilation configuration.

4.7.7 All welding and burning equipment (e.g., leads, grounds, hoses, cables, gauges, regulators, etc.) must be visually inspected daily, and prior to hot work occurring, to ensure the equipment is in good working condition.

4.7.8 Every effort will be made to locate weld machines outside of process and dike areas. Weld machines must also be positioned such that exhaust will not negatively impact the atmosphere of employee working areas and confined space entries.

4.7.9 Effort must be made to route leads and hoses overhead and/or out of the walkways to prevent creating tripping hazards.

4.7.10 Welding grounds will be grounded as close to the work as possible. When welding on pumps, turbines, or compressors, to eliminate welding machine grounding bearings or seals, the ground lead will be adjacent to the work.

4.7.11 Do NOT store welding rods in original containers once the container has been opened. Welding rods must be immediately transferred to a rod oven or approved container, such as a plastic "rod guard" container

4.7.12 Use only pipe stands that are designed to prevent pinch/crush points at the center tube locking washer and a stop at the base of the center tube.

4.8 Portable Grinder Safety

4.8.1 Unplug power cords or depressurize and disconnect air hose (for pneumatic grinder) before changing abrasive wheels or whenever adjusting the grinder.

4.8.2 All grinders, as well as other power tools, must have ground fault circuit interrupters (GFCIs).

4.8.3 Position the power cord or airline in a manner that prevents damage from the grinding operation and prevents a tripping hazard.

4.8.4 Grinding and cutting wheels must only be used per the manufacturer's instructions. Never wear an abrasive wheel down to its backing flange/plate.

4.8.5 Wheels that are cracked, dropped, not labeled with speed rating, wet or contaminated with material must not be used. They must be disposed of as soon as possible.

4.8.6 Ensure the work surface is secure and will not move due to the rotation of the grinding wheel. Never use your foot, hand, or any part of your body to secure the object while in the process of grinding or cutting.

4.8.7 The guard must be adjusted to protect the user from flying metal debris.

- Guards must never be removed or modified to accommodate larger disks or any other reason.
- Retrofitting or field repairing of any guard is not permitted.
- Never remove a guard unless a variance has been approved prior to work beginning, per RSI 08-20 *Variances from Rules and Standing Instructions*.

4.8.8 Always follow the manufacturer's instructions on proper use, maintenance, and operating guidelines.

- Install or replace worn abrasive wheels in accordance with the manufacturer's instructions.
- The wheel must be rated for the grinder size, speed, and service.
- Only manufacturer's approved parts must be used.

4.9 Shields, Guards and Curtains for Containing Heat and Sparks

4.9.1 Stray sparks form hot work activities create a major fire risk in a refinery. Every effort must be made to control sparks as best as practicable to prevent fires from hot work.

4.9.2 The following are minimum requirements:

a. Remove or cover any combustible material within 35 feet of the hot work.

b. Seal all sewers and manholes within 35 feet of the hot work site to prevent emission of flammable vapors form the sewer and conduct appropriate atmospheric monitoring to verify.

c. Construct spark containments of fire blankets and/or fire-resistant tarps to prevent sparks and slag from impacting live process equipment or other areas where flammable vapors or liquids could accumulate.

d. Prevent or mitigate emission of flammable vapors from tank vents, pit vents, oily water sumps, and seal/packing vents on pump/ compressors within 35 feet of hot work and conduct appropriate atmospheric monitoring to verify.

e. Prevent or mitigate arc flash exposures to surrounding workers.

Note: *Welding and cutting must not be performed if the fire hazards cannot be moved and guards cannot be used to protect immovable fire hazards.*

4.10 Compressed Gas Cylinders

4.10.1 Compressed gas cylinders must be stored in approved storage racks, pens or dollies. Cylinders must be stored in the upright position and secured by chain, bar, or #9 wire.

4.10.2 Oxygen and Acetylene cylinders must be stored at least 25 feet apart or be separated by a 5 foot or higher wall with a fire rating of 30 minutes or more. Cylinders must be kept at least 20 feet from combustibles or separated by a fire wall.

4.10.3 Two sets of flash-back arrestors must be in installed on oxy-acetylene systems. One set must be installed at the regulators and one set must be installed at the torch handles (unless torch is equipped with arrestors).

4.10.4 Before connecting a regulator, stand to the side and momentarily open the valve, then close it immediately. This procedure, called "cracking the valve" is done to clear the valve of dust or dirt that could enter the regulator. Open valves slowly to avoid gauge damage. If a specific tool is needed to open the valve, leave it in position so that the flow of gas can be shut off quickly in an emergency.

4.10.5 Cylinders are to be shut off at the bottles when not in use or unattended for short periods of time. At the end of the shift, the bottles must be shut off, gauges and hoses detached, and protective caps installed. Cylinders must always have gauges removed and cylinder caps installed prior to being moved.

4.10.6 Position cylinders away from hot work to prevent contact from sparks, slag, or flame impingement.

5.0 SPECIAL CONSIDERATIONS

5.1 General

When non-explosion-proof / non-intrinsically-safe portable equipment (e.g., a camera or thickness meter) will be used at multiple locations within an operator's area of responsibility, a single hot work permit will be written and the user must continuously monitor flammable gas with a combustible gas meter.

Note: *Non-MPC employees are required to have a Photography Authorization Permit authorized by an MPC Department Manager of Superintendent. Hyperlink form from Forms Center (Security) here.*

5.2 Temporary Portable Pumps

5.2.1 The use of portable pumps to pump hydrocarbons must be managed to control potential ignition sources, releases, and fires.

5.2.2 The *Management-of-Change* procedure must be completed prior to the start-up of any non-intrinsically safe portable pump used to pump hydrocarbons inside tank dikes or unit battery limits, per RSI 14-02.

5.2.3 Temporary non-intrinsically safe pumps used to pump hydrocarbons that are located inside tank dikes or unit battery limits must be manned at all times while in operation and equipped with a remote shutdown device (e.g., lanyard, electronic shutoff, disconnect switch, fuel shutoff valve, etc.).

5.3 Bolted Processes and Hot Work

5.3.1 Spark producing hot work (e.g., torch cutting, grinder with cut-off wheel, reciprocating saw) is sometimes required to remove bolts/studs on bolted connections of process equipment. When performing this task on hydrocarbon systems, in order to prevent the ignition of flammable or combustible vapors and liquids inside of process equipment, the seal on the gasket of the process equipment must be maintained.

	5.3.2	Minimum bolts required to perform hot work bolt removal must be spaced adequately to maintain the gasket seal. Engineering must provide a documented assessment prior to performing work.
5.4 Tanks	5.4.1	Reference RSI 08-05-02 *Tank Requirements* for additional requirements for hot work on tanks.
5.5 Confined Space	5.5.1	Proper entry procedures in accordance with RSI 08-01 *Safe Work Permitting*, RSI 08-05 *Confined Space Entry*, and RSI 08-02 *Control of Hazardous Energy & LOTO* must be followed in addition to the following considerations/requirements for hot work.
	5.5.2	Confined spaces with less than 10,000 ft^3 are required to have a minimum of 2,000 cfm of dilution ventilation for each welder inside of the space.
	5.5.3	Fumes can be created by cutting or welding on surfaces which are galvanized, contain chromium, or lead containing and may require additional respiratory protection or other control measures to limit personnel exposure. See RSI 11-01 *Personal Protective Equipment General Requirements*, 11-07 *Respiratory Protection Program* and RSI 12-08 *Heavy Metals.*
	5.5.4	Pure oxygen must never be used for ventilation.
	5.5.5	An increase in oxygen and/or flammable gasses could occur from leaking cutting torch or hoses.
	5.5.6	All confined spaces atmospheres must be continuously monitored for combustible gasses, oxygen, and toxics (as applicable).
	5.5.7	When welding is suspended and the space is vacated for more than 15 minutes (e.g., lunch, breaks, shift change, etc.) all electrodes are to be removed from their holders and the machine turned off and/or disconnected from the power source.
	5.5.8	For gas welding/burning, torches and hoses must be removed from the confined space and/or disconnected at the fuel gas and oxygen cylinders, when work is stopped and the space is vacated for more than 15 minutes.
	5.5.9	Compressed gas cylinders must never be staged, stored, or located inside a confined space.
	5.5.10	Mechanical ventilation is required when welding occurs inside of a confined space. Certain large and/or open-air confined spaces (e.g., heater, tanks, excavation, etc.) may be exempt from this requirement provided there is adequate natural ventilation. Other jobs may be exempt on a case by case basis (such as when supplied air respiratory protection is worn).
	5.5.11	**Exemption:** Inert entries where oxygen concentration must be maintained below 4%.
	5.5.12	In areas immediately dangerous to life, a full-face, pressure-demand, self-contained breathing apparatus, or a combined full-face, pressure-demand supplied-air respirator with an auxiliary, self-contained air supply must be used.

5.5.13 When hot work is performed in a confined space using cutting torches or inert gasses, 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.

5.5.14 When a water hose is used to wash out equipment, sewers, vessels, tanks, etc., which contain or could contain flammable gases and liquids with a flash point less than 140°F, the bonding of the wire to the water nozzle should be done with at least a hose clamp to ensure that good contact is maintained during the washing process.

5.5.15 Demister pads in vessels must be removed and any weirs identified and assessed for hazards prior to hot work if they pose a hazard due to the work being performed.

5.5.16 Structured packing must be removed prior to hot work if it poses a hazard from hot work activity (or precautions must be put in place to mitigate sparks or slag from contacting the packing).

5.5.17 Inspect equipment internals (e.g., trays, weirs, etc.) that may trap residual products prior to preforming hot work if it poses a hazard from hot work activities.

5.5.18 Contact IH for possible lead contaminated external paint.

5.5.19 Equipment with liners must be inspected and gas tested under the liner prior to preforming hot work.

5.6 Designated Hot Work Shops and Fabrication Areas

5.6.1 Designated hot work locations / buildings must:

a. Be naturally and/or mechanically ventilated to prevent an accumulation of toxics,

b. Not allow the presence of combustible materials within 35 feet of the welding/cutting area,

c. Store any flammable liquids present in an approved flammable liquids storage cabinet, and

d. Be equipped with appropriate fire extinguishing equipment, and have appropriately marked exits.

5.6.2 The site IH must be notified of the construction of new Hot Work locations/ buildings in order to determine if the ventilation is appropriate for the intended use.

5.6.3 Any fabrication area within 35 feet of process equipment will require a Fire Watch and continuous atmospheric monitoring when performing work covered by the definition of Attended Hot Work.

5.6.4 Permanent Weld-Bays/ Designated Hot Work Areas

- "Shultz" weld bay across from the Central Services Building
- "Capital Projects" weld bay across from the T-6 Trailers (Change in primary contractor requires update and review from Health and Safety)

- "Capital Projects" weld bay in Area 51 (Change in primary contractor requires update and review from Health and Safety)
- "Herc" rental yard West of 6 Boiler
- "Tank Projects Group" weld bay behind Turnaround Planning Building
- Turnaround weld shop located directly behind Turnaround Planning Building

5.6.5 Temporary Weld Bays

- Temporary weld bays will be permitted following the normal permitting process. Locations for weld bay and lay down areas where hot work will be performed must be approved by the department responsible for the location and the Health and Safety Field Safety Supervisor or designee.
- Be naturally and/or mechanically ventilated to prevent an accumulation of toxics,
- Not allow the presence of combustible materials,
- Not allow the storage of flammable liquids,
- Have two means of egress available from the fabrication area,
- Complies with RSI 08-23 *Facility Siting,* and
- All normal Health and Safety policies, procedures, and rules still apply (e.g., respiratory protection and other PPE, ventilation requirements, housekeeping, etc.), including all other requirements of this RSI.

5.7 Engineered Isolation Plugs

5.7.1 Equipment isolation by blinds, threaded caps/plugs, and/or physically disconnected equipment is recommended over the use of an engineered isolation plug. The *Hot Work Isolation by Engineered Plug Approval Form* (RSI 08-02-F07) must be completed prior to utilizing an engineered isolation plug.

5.7.2 If a flanged connection is unavailable for blinding, an engineered isolation plug may be used in place of a blind for hot work.

5.7.3 In order to use engineered isolation plugs as the only isolation for Hot Work:

a. Hot Work Isolation by Engineered Plug Approval Form will be completed by Maintenance, and

b. Engineered isolation plug must have two seals, and be designed and pressure rated for the potential pressure of the line. (**Important:** The Plug must also be applicable to the equipment service (e.g. liquid, vapor, corrosive, etc.)

Note: *Do NOT use Single-sealing, sewer/plumber's plugs for hot work.*

5.7.4 If the line cannot be made hydrocarbon free, the end of the line on which the hot work is to be performed must be sealed with an engineered plug.

5.7.5 The following precautions must be in place before hot work begins:

a. The open end must be made hydrocarbon free and scale removed.

b. The engineered isolation plug must be installed past the heat-affected zone to ensure that the hot work will not burn or melt the sealing surface of the plug.

c. Provisions must be made for the continuous venting of any accumulation of gases or vapors to a safe location at least 35 feet away from the hot work.

Note: *When it is deemed necessary to establish a purge through the engineered isolation plug, the vent line must be safely vented to assure a flow is maintained. The method of venting the purge must be indicated on the Hot Work Isolation by Engineered Plug Approval Form (RSI 08-02-F07).*

d. A flammable gas test must be made around the plug.

e. The location of the engineered isolation plug must be tagged with a blind tag and entered into the corresponding energy isolation and blind list for the job.

f. Due to hazards of the plug being blown out by pressure, always work to one side of an inserted plug; never work in front of the plug.

g. Engineered isolation plugs used on lines containing flammable vapors must not be left unattended. Work will continue until completed and system is sealed or blinded.

h. Plugs must be equipped with a means to monitor and verify the sealing pressure. The system must also have a means to monitor the buildup of pressure behind the plug. (Never allow pressure to exceed engineered plug specification).

i. The welding ground cable must be attached to the line between the end to be welded on and the front of the plug. The ground must not be attached behind the plug.

6.0 TRAINING

6.1 Fire Watch Training

Fire watches must be trained to perform their assigned duties as required in this RSI.

6.2 Permit Writers

Permit writers must complete all required training, including field qualification using the *Hot Work Training Field Qualification Checklist*, prior to being authorized to issue Hot Work Permits.

7.0 PROGRAM REVIEW

7.1 Procedure Review

This practice 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 (NO_2)	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 a PEL limits, or, in their absence, on current TLVs

****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.***

Table 4 Contaminant Conditions

Conditions	Time Frame
Valid Permit Period – Initial	Not to exceed 12 hours
Valid Permit Period – Extension	Reference RSI 08-01 *Safe Work Permitting*
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 – FORMS

Figure 1 provides an example of the *Elevated LEL Hot Work Approval Form* (RSI 08-04-F01).

Marathon Petroleum Company LP	RULES & STANDING INSTRUCTIONS	08-04-F01
MARTINEZ REFINERY	Elevated LEL Hot Work Approval Form	Page 1 of 1

Company Performing Work:			
Date:	Time:	Area/Unit:	Permit No.:
Hot Work to be Completed:			
Describe the Source of the Flammable Vapors:			
Justification to Complete the Hot Work at Increased LEL:			
Additional Control Procedures Required to Complete the Hot Work Safely:			
Conditions When the Hot Work Must be Stopped:			

Maintenance Manager: _____ Date: _____

Operation Manager: _____ Date: _____

Field Safety Superintendent: _____ Date: _____

RSW-ESS-08-04-RSI-MZ-F01 Elevated LEL Hot Work Form Rev 0.docx (Rev 0) 6/30/2020

Figure 1 RSI 08-04-F01 Elevated LEL Hot Work Approval Form (Example)