Contents

List of Tables

1.0 INTRODUCTION

1.1 Purpose

The purpose of this standing instruction is to develop and implement a Safe Work Permit (SWP) program for the Marathon Petroleum Company LP (MPC) at the Anacortes Refinery.

1.2 Scope

The scope of this standard practice applies to all Anacortes employees and contractors to ensure:

A. that all work conditions and equipment are safe, and will remain so while work is being performed, and

B. compliance with all applicable standards and regulations.

1.3 Records Retention

Printed copies of this document should not be retained more than 12 months. Any revision to this document will be retained indefinitely.

2.0 REFERENCES

Below lists the references used within or related to this document.

2.1 Marathon Standards, Policies & Procedures

- R-30-008, Blinding and Isolation
- R-11-017, Confined Space Entry
- R-11-030, Hot Work Operations
- R-11-032, Control of Hazardous Energy (Lockout/Tagout)
- RSP-1128-000, Safe Work Permit

2.2 Government Regulations

- WAC 296-800-14025, Accident Prevention Program Effectiveness
- 29 CFR 1910.119, Process Safety Management
- 29 CFR 1910.146, Permit Required Confined Spaces
- 29 CFR 1910.147, Control of Hazardous Energy (LOTO)
- 29 CFR 1910.1200, Appendix E, Hazard Communication Standard

2.3 Industry Standards

- American Society of Safety Engineers (ASSE)
  - ASSE Z117.1, Safety Requirements for Confined Spaces

- American Petroleum Institute (API)
  - API RP 2009, Safe Welding, Cutting, and Other Hot Work Practices in the Petroleum and Petrochemical Industries
  - API RP 2016, Guidelines and Procedures for Entering and Cleaning Petroleum Storage Tanks
  - API RP 2201, Safe Hot Tapping Practices in the Petroleum & Petrochemical Industries Petroleum & Petrochemical Industries
  - 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
- National Fire Protection Association (NFPA)
  - NFPA 1500, Standard on Fire Department Occupational Safety and Health Program

3.0 TERMS AND DEFINITIONS

The following terms and definitions are applicable to this procedure.

Table 1 Definitions

Term	Description
Affected Area	Affected Area is an operating area or system that may be implicated by tasks in adjacent operating area.
Applicable Initial Entry	Applicable Initial Entry is a confined space entry which requires a Safety Department co-signature on the Safe Work Permit prior to the first entry. Note: A Safety Department co-signature is required for all Inert and IDLH entries.
Blanket Work Permit	Blanket Work Permit is a work permit that allows a Servicing Group to perform work in multiple locations within a unit.
Blinding	Blinding is the absolute closure of a pipe, line, or duct, by fastening across it's bore a solid plate, plug, or cap which: a. completely covers the bore, b. extends at least to the outer edge of a flange's mating surfaces, and c. can withstand the maximum upstream system pressure. Examples of Blinds: A blank, slip plate, slip blind, blind flange, cap, and/or physical disconnect.
Buffer Zone	Buffer Zone is the last 50 feet of any operating area.
Cold Work	Cold Work is maintenance, repair, cleaning, or construction activity, not requiring the use of fire, hot surfaces, spark producing equipment, or electrical equipment that is not classified for use in the area.
Confined Space	See the Confined Space Entry Procedure R-11-017.

Table 1 Definitions

Term	Description
Contractor Coordinator	Contractor Coordinator is normally the MPC employee in charge of coordinating contract companies on jobs. On construction projects or TARs, the construction management coordinator hired by MPC may be designated as the MPC Contractor Coordinator.
Energy Isolation	See the Control of Hazardous Energy (Lockout/Tagout) Procedure R-11-032.
Hazardous Atmosphere	Hazardous Atmosphere is an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (i.e., escape unaided from a permit space), injury, or acute illness. Reference: For a compilation of normally encountered vapor and gas hazards at a refinery, see Appendix B.
Hot Tapping (Pressure Tapping)	Hot Tapping (Pressure 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 gas free). Reference: For detailed permit requirements, see the Hot Tapping or In-Service Welding on Fixed Equipment Procedure R-53-457.
Attended Hot Work	Attended Hot Work is repair, maintenance, or construction activity, which requires the use of spark-producing equipment or may create an ignition source. Attended Hot Work is hot work that requires a fire watch. Some examples of attended hot work are: burning, welding, brazing, electric arc welding, annealing (electric or gas), electric soldering, stress relieving, use of open flames, use of non-process propane or gas fired heaters, cutting and grinding, CAD welding, and if combustible materials are within 35 feet of worksite. This type of hot work requires the placement of covers on sewers within 35 feet. These listings are not all-inclusive. **Note**: According to RSP-1715-000: Fabrication areas established outside of the battery limits and away from other process hazards including live process piping (e.g., laydown yard, remote fabrications area, etc.) may not require a Safe Work Permit based on a hazard assessment conducted by Refinery Personnel. Refer to Section 3.4.1 of RSP-1715-000 for the minimum elements required for the fabrication area risk assessment. **Note**: Temporary non-intrinsically safe portable pumps used to pump hydrocarbons must be managed with a Proceduralized Management of Change (PMOC), or a similar PMOC/MOC. The PMOC 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. Refer to RSP-1715-000 for PMOC details and the PMOC Form.
Non-Attended Hot Work	Non-Attended Hot Work is work that may have an ignition source. Some examples of Non-Attended Hot Work: concrete breaking; lights, and extension cords, non-explosion proof cordless tools, non-intrinsically safe equipment, gasoline or diesel powered equipment (e.g., compressors, generators, pressure washers, etc.), opening of energized explosion proof enclosures, abrasive blasting.
Immediately Dangerous to Life or Health (IDLH)	Immediately Dangerous to Life or Health (IDLH) is any condition that poses an immediate or delayed threat to life or would cause irreversible adverse health effects or interfere with an individual's ability to escape from a confined space.

Table 1 Definitions

Term	Description
IDLH Atmosphere	IDLH Atmosphere is any area that may have an atmosphere that is immediately dangerous to life and health.
Inert Confined Space	For specific inert confined space entry definitions and requirements, see RSP-1121-020 Safe Entry into Inert Atmosphere.
In-Service Welding	In-Service Welding is the practice of welding on pipe or equipment (for example, tank, vessels, exchangers, etc.) which is in-service. This includes grinding, burning, and welding for any purpose, such as adding brackets, shoes, boxing in leaks, adding weld-o-lets and back welding fittings. Reference: For detailed permit requirements, see the Hot Tapping or In-Service Welding on Fixed Equipment Procedure R-53-457.
Invasive Work	Invasive Work is work that expects to require exposure to the internals of a vessel, pump, exchanger, or any other piece of refinery equipment (i.e., piping, sewers, tanks, hoses, etc.).
Joint Job Site Visit	Joint Job Site Visit is a meeting between an Owning Department Representative and at least one Servicing Group Representative of all parties working off the permit at the specific location where the job will be conducted. The meeting discussion will address the work scope and all safety aspects of the permit. The Servicing Group Representative(s) that attend the Joint Job Site Visit must convey the information covered in the discussion to all members of their work party. A Servicing Group Representative who attended the Joint Job Site Visit must remain at the work site for the duration of the job.
Non-Invasive Work	Non-Invasive Work is any cold work or hot work being done where there is no potential for contact with product exposure hazards, process hazards, vessels, pumps, piping, or any other piece of refinery equipment.
Owning Department	Owning Department refers to the department that owns and operates process, process-related, and/or utility equipment, machinery, building, and/or systems. Owning Department personnel that issue permits are also referred to as Permit Writer.
Oxygen Deficient Atmosphere	Oxygen Deficient Atmosphere is any atmosphere containing less than 19.5% oxygen by volume.
Process Break	Process Break is the opening of a process system to the atmosphere for the purposes of maintenance or new construction. Examples: Separating flanges and opening exchangers. Non-Examples of Line Break: Operational venting, draining, purging, etc., of equipment.

Table 1 Definitions

Term	Description
Safe Work Permit	The Safe Work Permit is a work-authorizing process and record that is managed, prepared and issued by the Refining department that "owns" the equipment or is responsible for the area before certain work is conducted. **Notes**: (1) A Permit authorizes a specific scope of work for a specific time frame and is a prerequisite for performing work. (2) A Permit is used to assess hazards and to document requirements and conditions such as atmospheric monitoring results, personal protective equipment, confined space details, work requirements (e.g., hot tap, excavation, critical lift), emergency communications, and other potential hazard mitigation means and methods. (3) The authorization coordinates and controls the work and is a form of agreement between the Safe Work Permit Writer and all personnel involved with the work.
Safe Work Permit Extensions	Safe Work Permit Extensions are the extensions of the Safe Work Permit by the Permit Writer/Owning Department Representative at the end of the maintenance shift or at the end of 12 hours. As conditions warrant, a Safe Work Permit may be extended one time, for a period of 12 hours but not exceeding 24 hours in total.
Servicing Group	Servicing Group includes all personnel whose tasks are covered by the Safe Work Permit. A Servicing Group may also be referred to as Work Party or Craft Group.
Servicing Group Representative(s)	Servicing Group Representative(s) are the people who are receiving the permit to work on the equipment/process. This may include operations, blending, shipping, maintenance, contractors, and other MPC employees.
Stoppling	Stoppling is the practice of using a device (stopple) through a hot tap connection to isolate a section of pipe for repair and/or revision without depressurizing or purging. Reference: For detailed permit requirements for stoppling, see the Hot Tapping or In-Service Welding on Fixed Equipment Procedure R-53-457.
Vehicle Entry	Vehicle Entry is any passage of a motorized vehicle: a. across the battery limits of an operations complex, b. in a tank farm diked area, or c. into any area where classified electrical equipment is required. Vehicle entry is a form of Non-Attended Hot Work.
Work Scope	Work Scope is the type and detailed description of the work to be performed including the: a. equipment to be worked on, and b. personnel performing the work.

4.0 ROLES AND RESPONSIBILITIES

The table below lists the roles and responsibilities in this document.

Table 2 Roles and Responsibilities

Roles	Responsibilities
Owning Department Supervision	a. Ensures that management processes are in place to carry out the appropriate functions of the Safe Work Permit system. b. Ensures that all persons within their areas of responsibility have received the appropriate Safe Work Permit training. c. Ensures that Safe Work Permits are being filled out completely and correctly. d. Ensures that quality Joint Job Site Visits are being performed by routinely being present in the field to provide assistance and coaching. e. Ensures that equipment is properly prepared to turn over to Maintenance. f. Approves precautions to implement when completing cold work >10% LEL and work on equipment that cannot be adequately de-pressured or it cannot be verified as de-pressured. g. Participate in Joint Job Site Visits /review for ALL Medium & High Risk activities. h. Review tasks and associated documentation that require an Owning Department Supervisor's co-signature and sign the work permit prior to permit release by Permit Writer/Owning Department Representative. i. Reviews and approves the Craft Job Safety Analysis (JSA) prior to authorizing/signing on Medium & High-Risk Permits. j. Co-signs/Authorize ALL Medium & High-Risk activities per the RAM score or identified in the Work Classification Table (Appendix G).

Table 2 Roles and Responsibilities

Roles	Responsibilities
Owning Department Personnel/Owning Department Representative/Permit Writer	a. Participates and leads the Joint Job Site Visit. b. Ensures that the equipment for release to the Servicing Group Representative(s) and the environment surrounding the job are in safe condition. c. Conducts atmospheric testing at the job site area, as required. d. Identifies and communicates any remaining hazards associated with the work and the actions required to safely work with or mitigate the hazards. e. Ensures that the permit recipients fully understand the requirements of the Safe Work Permit and takes appropriate action. f. Reviews and approves the Craft Job Safety Analysis (JSA) prior to signing on the Permit. g. Notifies their Supervisor with any questions or concerns regarding the job or the Safe Work Permit. h. Ensures that work proceeds safely within the terms of the Safe Work Permit relevant to their assigned responsibilities. i. Following initial issuance of the SWP, periodically (at least once per shift) visits permitted job site(s) and verifies work being performed is in compliance with Safe Work Permit requirements. j. Ensures the correct issuance and cancellation of Safe Work Permits in the area and/or equipment under their control. k. Extends Safe Work Permits, as appropriate. l. Transfers responsibility for the Safe Work Permit when there is a change in Permit Writers or shifts. m. Cancels the Safe Work Permit if the conditions of the permit are not being met by the Servicing Group or area/equipment conditions require a work stoppage. n. Ensures availability for consultation during maintenance work. o. Informs the Servicing Group Representative(s) of any changes in conditions which would affect the job, or any operating emergency. p. Ensure Affected Area representative is notified when Hot Work task or any other task that may impact adjacent operating areas falls in buffer zone.

Table 2 Roles and Responsibilities

Roles	Responsibilities
MPC Maintenance Foreman or Designee	a. Ensures the Servicing Group carries out their specific tasks. b. Ensures that quality Joint Job Site Visits are being performed by routinely being present in the field to provide assistance and coaching. c. Ensures that all work carried out by personnel under their control is covered by a valid Safe Work Permit, when required. d. Ensures that work proceeds safely within the terms of the Safe Work Permit. e. Ensures the Servicing Group fully understand the requirements of the Safe Work Permit. f. Understands the limitations and restrictions of the Safe Work Permit in order that the work may proceed safely. g. Prior to performing work, ensures that all members of the Servicing Group adhere to all safe working practices and are fully familiar with the limitations/restrictions described on the Safe Work Permit. h. Approves precautions to implement when completing cold work >10% LEL and work on equipment that cannot be adequately de-pressured or it cannot be verified as de-pressured. i. Ensures that all precautions specified on the Safe Work Permit are implemented at the work site and all members of the Servicing Group comply with the requirements of the Safe Work Permit. j. Ensures that the Owning Department approves any changes to work conditions, work content, or work scope. k. Ensures that the work described in the Safe Work Permit is completed or left in a safe condition if not completed. l. Ensures that the job site is cleaned up at the conclusion of each workday and at the completion of the job. m. Completes the Section VI: Return of Equipment/Work Area - Job Completeness portion of the Safe Work Permit (See Section 8.7). n. Trained to serve as Entry Supervisor for all Confined Space Entries in their area. Only MPC employees can serve as Entry Supervisor. o. Trained to APIC level therefore can be a maintenance Co-signer to authorize ALL Medium & High-Risk activities per the RAM score or identified in the Work Classification Table (Appendix G).
MPC Contractor Coordinator	a. Ensures participation by the Owning Department and Servicing Group Representatives in the Joint Job Site Visit. b. Ensures that contractors comply with all MPC's refinery safety rules. c. Provides an ongoing communication between contractors and Refining personnel. d. Ensures that all members of the Servicing Group adhere to all safe working practices and are fully familiar with the limitations/restrictions described on the Safe Work Permit. e. Should be trained to APIC level therefore can be a maintenance Co-signer to authorize ALL Medium & High-Risk activities per the RAM score or identified in the Work Classification Table (Appendix G).

Table 2 Roles and Responsibilities

Roles	Responsibilities
Operations Maintenance Coordinator (OMC)	a. Participate in job walk/review when requested or required (Entry Supervisor). b. Review the job scope in SAP and validate the tasks and required forms. c. If a form requires approvers, ensure approvals are acquired. d. When required, request an Isolation List/Plan from Operations. e. Approve the job scope in SAP when the pre-approvals for a task on the associated form and Isolation List/Plan are complete.
Planner	a. Complete a job walk/review to determine job scope. As needed, invite OMC and/or Servicing Group Representative to assist. b. Identify and document tasks and associated documents in SAP based on the Permitted Task List. Assemble the Work Order Package once the OMC has approved the Job Plan in SAP. c. Provide assembled Work Order Package to Servicing Group Representative for review. d. Ensure that applicable forms are in the Work Order Package prior to task execution. e. Ensure the Servicing Group Representative receives the finalized Work Order Package.
Servicing Group Representative	a. Participates in the Joint Job Site Visit. b. Ensures that work proceeds safely within the terms of the Safe Work Permit. c. Notifies their Supervisor(s) and Owning Department of any changes on the job site or required changes to the work scope. d. Reads and understands the Safe Work Permit, and signs on and off of the permitted job, as appropriate. e. Ensures the Job Safety Analysis (JSA) is completed prior to task execution. f. Reviews the completed work permit, Job Safety Analysis, and any relevant form(s) with the Servicing Group. g. Leads the Toolbox Talk (Pre-Task Briefing) for all tasks by reviewing the Permit, Job Safety Analysis, and associated form(s), and asking for feedback from the Servicing Group. h. Ensures all Servicing Group members sign the Servicing Group Signatures of Acknowledgement section of the Job Safety Analysis prior to starting work. i. Knows the situations in which permits are revoked (See Section 6.12 of this Standing Instruction). j. If the JSA requires an update, ensures that all affected personnel are informed of the update. k. Is on-site and available at all times for consultation during maintenance work. l. Once the permit is closed out, ensures that the associated Safe Work Permit copies, JSA copies, and associated Form(s) are transferred to the Owning Department for retention.

Table 2 Roles and Responsibilities

Roles	Responsibilities
Servicing Group	a. Ensures that work proceeds safely within the terms of the Safe Work Permit. b. Notifies their Supervisor(s) and Owning Department of any changes on the job site or required changes to the work scope. c. Reads and understands the Safe Work Permit, and signs on and off out the permitted job, as appropriate. d. Review the completed work permit, Job Safety Analysis, and any relevant form(s). e. Participate in the Toolbox Talk (Pre-Task Briefing) for all tasks by reviewing the Permit, Job Safety Analysis, and associated form(s). f. Sign the Servicing Group Signatures of Acknowledgement section of the Job Safety Analysis prior to starting work. g. Know the situations in which permits are revoked (See Section 6.12 of this Standing Instruction). h. MPC Servicing Group Supervisor must serve as Entry Supervisor for ALL Confined Space Entries (including Contractor entries).
Safety Department	a. Maintains and updates the Safe Work Permit Standing Instruction. b. Periodically audits job sites to determine compliance with the Safe Work Permit. c. Corrects unacceptable conditions immediately and provides feedback, both positive and negative, to the Owning Department and/or Servicing Group Representative. d. Is a resource to help authorize Permits, Trained to the “Competent Person / APIC” levels to authorize Medium and High Risk Hot Work & CSE Permits.
Training Department	a. Provides training materials that have been prepared in conjunction with the Safety Department that adequately prepares Permit Writers and MPC Servicing Group Representatives to be compliant with the Safe Work Permit process. b. Schedules Permit Writer training. c. Maintains records of the training provided.

5.0 SAFE WORK PERMIT PROGRAM

5.1 Safeguards and Precautions

The purpose of the Safe Work Permit program is to:

A. verify, in writing, that proper safeguards and precautions have been taken to minimize the possibility of personnel injury and property damage during maintenance, repair, or construction activities (e.g., cold work, hot tap/stopple, vehicle entry, hot work, and confined space entry operations), and

B. inform Servicing Group of the proper safeguards necessary for their activity.

Note: The authorization signatures ensure coordination and control of the work and are a form of agreement between the Safe Work Permit Writer and all personnel involved with the work.

5.2 Owning Department Personnel

5.2.1 The Safe Work Permit program informs Owning Department personnel of every maintenance, repair, or construction activity:

A. being performed in their area(s) and/or on their equipment; and

B. in their area(s) and/or on their equipment have been properly completed.

5.2.2 The Owning Department, through issuance of the Safe Work Permit, helps to ensure that proper safeguards can be taken to protect people and facilities from possible hazardous situations.

5.3 Requirements and Procedures

Each use of the Safe Work Permit defines specific requirements and procedures.

6.0 WORK PLANNING ELEMENTS

6.1 Permitted Task List/Work Classification Table

The Permitted Task List (PTL)/Work Classification Table contains tasks, required supplemental documents, required form(s), and task approvers (if applicable). The PTL is used during the planning phase. If a work task is not listed on the PTL, consult with the Safety Department to add the task on the PTL.

The Work Classification Table can be found in Appendix G.

6.2 Tasks and Permitting Requirements

Permitted tasks are categorized into different tasks with specific permitting requirements. The Work Classification Table (Appendix G) documents the task, and the Risk level associated for each Task, and associated form(s).

A. Permitted tasks require, at minimum, a Safe Work Permit and Job Safety Analysis.

B. and relevant procedures must be in place prior to authorizing the work permit.

6.3 Tasks with Associated Forms(s)

Certain tasks have a form developed specifically for that task. Some forms require pre-approvals from higher level approvers prior to the task being performed. All forms have a section that must be completed on the shift of the task prior to performing the task. The Permitted Task List lists the name of the form associated with each applicable task. The Permitted Task List, for tasks that have forms requiring higher level pre-approvers, lists the approvers for the task.

6.4 Field Instrument Work

Instrumentation troubleshooting and minor maintenance is addressed in the Permitted Task List as "Field instrument work [not affecting Instrumented Protective System (e.g., SIS, IPF, ESD, SRA/SDL)]". These activities include:

1. General instrumentation troubleshooting,
2. Response to instrument emergencies,

3. Calibrate control valve instrumentation (e.g., positioner and transducers),
4. Check calibration of pressure, flow, and level devices,
5. Zero pressure, flow, and level devices,
6. Check various types of regulators for proper operation and adjust,
7. Clear plugged sensing lines or seal sensing lines on instruments,
8. Data collection (upload device configuration to handheld communicator or laptop),
9. Tighten control valve packing,
10. Tighten tubing fittings and stainless pipe fittings (excludes threaded fittings under pressure),
11. Troubleshoot instrument loops,
12. TVCAT Flare Sample System IN-0056,
13. Isolation of equipment
14. Checking fixed vibration systems

6.5 Cross Operating Area Ownership

General guidelines:

A. Commodity belongs to unit from where it came from until it reaches final destination.

B. Planners to determine who will take ownership of the system for the purposes of planning and executing jobs when there are multiple senders to common system.

6.6 Affected Areas and Systems

Buffer zones are the last fifty (50) feet of a unit's area of responsibility.

Note: For all permitted work activity near rail operations, Buffer Zones extend 25 feet from any railway and requires an MPC Logistics/Zone C representative to be notified of the task. Unpermitted tasks performed directly on railways requires checking in with Logistics/Zone C Operations.

In the case where tasks in the buffer zone may impact the adjacent unit (e.g. hot work, invasive work, or lifting activity):

A. The Affected Area Owning Department representative must also sign the permit.

B. Conflicting tasks occurring in the buffer zone must be prioritized between the representative from the Owning Department Affected Areas.

C. Where tasks may impact refinery systems (e.g., fuel gas, hydrogen, steam), include communications plan (Operations Coordination meetings) as part of the planning process.

6.7 Bundle Pad Cleaning/Repair

MPC Coordinators (Maintenance, Projects, TAR) or MPC Operations will permit and oversee any cleaning/repair activities related to equipment sent from their area of responsibility.

7.0 USE OF A SAFE WORK PERMIT

7.1 Safe Work Permit Requirements

A Safe Work Permit is required for all maintenance, repair, or construction activities on equipment or within areas owned or operated by:

A. Operations,

B. Maintenance (e.g., electrical substations),

C. third parties, and

D. Safety Departments.

Examples of Activities: Cold work, vehicle entry, hot tap/stopple, hot work, or confined space entry.

7.2 Exceptions to Safe Work Permit Requirements

Exceptions to Safe Work Permit requirements are limited to Operator performed cold work, leak detection and repair (LDAR) monitoring, vibration analysis, etc. and the following:

A. Routine maintenance activities in office buildings outside refinery fence line;

B. Maintenance activities taking place with documented hazard assessments conducted and at the site and/or documented in a maintenance procedure;

C. Adjacent to an active shop building, outside of operating areas;

D. Hot work performed in maintenance shops;

E. Unit walkthroughs (e.g., audits, safety walks, administrative tasks, and job site visits).

F. Maintenance activities that do not impact Owning Department controls within Operations Shelters/Controls Rooms.

Note: The Work Classification Table (Appendix G) documents whether a task requires a permit.

7.3 Job Safety Analysis (JSA)

JSAs are used to describe the task steps, hazards associated with each task step, and controls to mitigate the hazards. JSAs can be used to educate employees and contractors on safe practices prior to performing work.

A JSA shall be completed for all work conducted at Anacortes by or on behalf of MPC when any of the following conditions exist:

- All Permitted tasks.
- The task(s) involves rotating equipment hazards, such as using a drill press, bench grinder, lathe, or other shop-related equipment without a documented hazard assessment conducted and at the site).
- Manual coupling or de-coupling of hose connections which may be expected to contain a hazardous chemical or energy source.

- Manual lifting of greater than 50 pounds (no one person should ever lift over 50 pounds by themselves). Below are a few examples (but not limited to) of equipment at or near 50 pounds:
  - 6 Gallons of water = 50 pounds
  - 1 foot of 8 inch schedule 80 pipe = 44 pounds
  - 2 inch 1500# gate or globe valve = 55 pounds
  - 3 inch 300# gate or globe vale = 50 pounds
  - 4 inch 150# gate or globe valve = 50 pounds

Exceptions: For unpermitted tasks, a JSA is not required when a current and documented, operational, maintenance, or equivalent procedure or written instruction exists for the job, and that procedure/written instruction has considered and addressed the risks that would otherwise be managed by the JSA. In that case, the procedure shall be followed, in lieu of a JSA.

Job Scope Changes: If the scope of work for which the original JSA was written changes, the work shall stop, the new or changed hazards identified and documented on the JSA, and effective mitigation controls put in place. The revisions to the JSA shall be communicated to all affected individuals.

Note: Minor mistakes may occur when completing the Job Safety Analysis. For any minor corrections to the JSA, Servicing Group Representative shall initial the change.

Duration: The duration of a valid JSA shall not exceed the duration of the work task for which it was developed (maximum of 1 shift).

Job Safety Analysis Form Requirements: The Job Safety Analysis drives the discussions that ensure a task is completed according to a safe plan. The information that must be included in a JSA is the following:

A. Name of company or craft performing the work, radio channel for Servicing Group Representative, unit or area where work is being performed, metal/type for welding if applicable, tools and equipment used to perform the work, primary and secondary evacuation areas, and location of nearby safety shower and eyewash station.

B. The task steps, hazards associated with each task step, and controls to prevent exposure to hazards. The Job Hazards Reference should be used to help identify hazards and associated controls. The Hierarchy of Controls methodology should be used to identify the most effective mitigations for hazards identified by the JSA.

C. The critical step of the task and the worst credible consequence.

D. Whether robust controls have been identified to prevent the worst credible consequence that could result from performing the critical step.

Reference: See Job Safety Analysis (JSA) Form within Appendix D, and Hierarchy of Controls within Appendix F.

Note: Per RSP-1162 electrical work requires the use of the pocket JSA book for risk analysis and that we also utilize the energized electrical work permit found in Appendix G of RSP-1162.

Toolbox Talk Requirements: The Toolbox Talk engages personnel in a discussion about task scope and required controls prior to task execution.

A. Toolbox Talk occurs at the job site or after a job site walk has occurred.

B. The Job Safety Analysis and all supplemental form(s) (if applicable) must be reviewed by the Servicing Group performing the task.

All personnel performing work under a Safe Work Permit are required to sign the Servicing Group Signatures of Acknowledgment on the JSA.

8.0 SAFE WORK PERMIT REQUIREMENTS

8.1 Issuance of Safe Work Permits

All Safe Work Permits must be issued per instructions contained in this and all applicable procedures before the performance of any type of activity in the applicable areas.

8.2 Adherence to Procedures

Procedures must be strictly adhered to. Deviations from this procedure must be:

A. in written format, and

B. approved by the Division Manager, or designee(s).

8.3 Safe Work Permit Period

A. All permits are valid for 12 hours or the end of the operating shift (whichever comes first), and

B. can only be extended for a period of 12 hours immediately after the initial valid period.

8.4 Safe Work Permit Retention

Each Safe Work Permit and its corresponding JSA must be retained for 7 years. Each Safe Work Permit for a confined space and its corresponding JSA must be retained for 30 years.

8.5 Permit Writer/Owning Department Representative

The Permit Writer/Owning Department Representative:

A. shall be available for consultation during work, and

B. shall inform the Servicing Group Representative(s) of any changes in conditions, or activities which would affect the job, or any operating emergency.

8.6 Scope Changes

If the scope of work changes during the covered Safe Work Permit period, the Servicing Group Representative(s) or any member of the Servicing Group must:

A. STOP WORK, and

B. notify the Permit Writer/Owning Department Representative.

If the Permit Writer/Owning Department Representative approves the change in the scope of work:

A. update the Safe Work Permit to reflect the scope change and any new requirements, as well as verify the adequacy of safeguards and job site preparations, or

B. write a new permit to cover the new scope of work.

8.7 Crew Changes for Servicing Group

If there are personnel changes to the Servicing Group at any time during the permit period, the Safe Work Permit must be reviewed with the new personnel by a Servicing Group Representative who participated in the Joint Job Site Visit (JJSV). If, as a result of the personnel change, there are no Servicing Group Representatives who participated in the Joint Job Site Visit in the work party, the Servicing Group Representative must request a new Joint Job Site Visit from the Permit Writer/Owning Department Representative.

Note: The JJSV discussion shall occur at the job site.

8.8 Job Status Notification

The Servicing Group Representative(s) will inform the Permit Writer/Owning Department Representative of the job status.

8.9 Owning Department Shift Change During Safe Work Permit

8.9.1 If there is a shift change of Owning Department personnel involved with the work:

A. the original Permit Writer/Owning Department Representative must inform their relief personnel of any active work ongoing in their unit or area, and

B. the oncoming Permit Writer/Owning Department Representative will revalidate and extend the Safe Work Permit, if necessary.

8.9.2 Communication with the Servicing Group Representative(s) must be as thorough as when the original Safe Work Permit was issued.

8.9.3 The oncoming Permit Writer/Owning Department Representative must perform additional gas testing, as required.

8.10 Change of Servicing Group Representative(s)

8.10.1 In the event there is a change in the Servicing Group Representative of the work party, the Safe Work Permit must be reviewed, via a JJSV by the:

A. Permit Writer/Owning Department Representative, and

B. new Servicing Group Representative(s).

8.10.2 The oncoming Servicing Group Representative must:

A. accept the conditions on the Safe Work Permit, and

B. sign the field copy as an acknowledgement and acceptance of the permit conditions.

8.11 Work Completion Notification

8.11.1 The Servicing Group Representative(s) must inform the Permit Writer/Owning Department Representative when the work is complete.

8.11.2 The Permit Writer/Owning Department Representative and Servicing Group Representative(s) must visit the work site to:

A. review the completed work and work site cleanup, and

B. discuss the following:

- status of the equipment,
- status of area surrounding the work site,
- status of lock out/tag out,
- special concerns for returning equipment to service, and
- any other details pertinent to the permitted job.

8.11.3 When complete, the Permit Writer/Owning Department Representative and Servicing Group Representative(s) execute signoffs.

8.11.4 If discrepancies exist or the equipment does not appear ready for service, the Permit Writer/Owning Department Representative shall not sign off on the permit and consult the appropriate group before proceeding.

8.12 Revoking and Reinstating Permits

The table below describes three potential interruptions that may revoke or require reinstatement of Safe Work Permits.

Table 3 Reinstatement of Safe Work Permits

Interruption	Conditions and Actions	Safe Work Permit Requirements
Unexpected Hazards	When a hazardous situation develops during the course of work, the Servicing Group Representative(s) or any Servicing Group member must: a. STOP WORK immediately, b. summon assistance or correct the hazard, as appropriate, c. shut down any machinery or other source of ignition, as appropriate, and d. if necessary, leave the area.	Revoke all Safe Work Permits in the affected area. Only after hazards are mitigated may another Safe Work Permit be issued. If appropriate, the original Safe Work Permit may be used to continue the work.

Table 3 Reinstatement of Safe Work Permits

Interruption	Conditions and Actions	Safe Work Permit Requirements
Interruption by Operations	When operating personnel find it necessary to open, de-head, or disconnect vessels or lines which are known or suspected of containing flammable or toxic liquids or vapors after a Safe Work Permit has been issued: a. recall Safe Work Permits in the affected area, and b. conduct additional gas tests, as required. **Note**: The recall is to assure that no work is being performed in the affected areas until it is determined that it is safe to return to work.	It is mandatory that all Safe Work Permits in the affected area be temporarily recalled.
Interruption by MPC Maintenance or Contractors	When work is interrupted or delayed for more than two (2) hours, it is the responsibility of the Servicing Group Representative in charge of the work to: a. notify the Permit Writer/Owning Department Representative of the interruption or work delay. Confirm with the Permit Writer/Owning Department Representative if any atmospheric or other permit conditions have changed. If the task required a gas test, a new gas test is required. b. If the work will not continue for the rest of the day, the Servicing Group Representative will retain the permit and package.	Return the permit to the Permit Writer/Owning Department Representative if the work has been discontinued or terminated.

8.13 Automotive(s)

Permitting Automotive equipment can be conducted by either using our normal Permit process, or the Vehicle Entry Authorization Permit. An Automotive Permit may be issued for a designated area or process unit and requires a full area evaluation for flammable or combustible atmospheres. The air monitoring results must be documented on the permit, and is required to have a Mid-Shift reading.

Multiple companies or vehicles may be added to the Vehicle Entry Authorization Permit. The permit shall be kept with Operations or in a location designated by Operations. Anyone wanting to be added to the Automotive Permit must contact Operations in person.

If an Automotive Permit needs to be issued for multiple units, the issuing Operator will be from the unit where the automotive completes its travel. The issuing Operator must

work with the other Unit Operators to ensure the entire area is evaluated for flammable or combustible atmospheres.

Note: Spotters must be used when moving automotive equipment in a process unit.

8.14 Vacuum Truck Permit

Vacuum Truck Permits address specific hazards associated with vacuum truck operations, specifically loading and unloading of flammable or combustible liquids. The Vacuum Truck Permit has a Job Hazard Analysis on the back side, providing an opportunity to evaluate specific tasks associated with the operation of a vacuum truck. PPE must also be evaluated in accordance with R-11-023. Vacuum truck operations are considered Non-Attended Hot Work. The basic requirements for Vacuum Truck operations are listed below.

8.14.1 Safe Truck Positioning

- Whenever practical, the vacuum truck should remain on the roadway with a hose used to reach the pick-up point, rather than operating the truck in a process unit.
- Vacuum trucks entering a hydrocarbon leak area must be located such that they do not create a potential source of ignition. Gas testing must be performed prior to issuing a permit, to ensure the area is free of flammable vapors.
- Vacuum trucks venting flammable, combustible or toxic vapors must be 50 feet from any personnel or ignition sources. Continuous monitoring for flammable or toxic gases, including wind direction, must be completed.
- Barricade tape must be used for all vacuum truck operations. At a minimum, barricade tape must notify persons walking nearby, and be extended 10 feet from the point of vapor/gas exhaust.

8.14.2 Grounding & Bonding

- The entire vacuum transfer system must be bonded to prevent the potential build-up of static electricity.
- To ensure proper bonding, electrical continuity must be verified with an ohm meter, following connection and prior to the start of operations. Conductive hoses should provide a suitable electrical conductance of less than or equal to 1 mega-ohm per 100 feet.
- Vacuum trucks must be electrically bonded using a bonding cable mounted on the truck, to the intermediate collection container or pipe being vacuumed.
- Vacuum trucks must also be grounded, using a cable mounted on the truck, to equipment that is grounded or a suitable grounding rod.
- All intermediate containers used for vacuum operations shall be constructed of a conductive material. Plastic containers shall not be used for this purpose.
- Vacuum hoses constructed of conductive material, or thick-walled hoses with imbedded electrically conductive wiring, shall be used. Non-conductive hoses shall not be used at any time.

8.14.3 Toxic Materials, Flammable Liquids & Flash Point

- A mobile scrubbing system shall be used when there is a potential for flammable vapors to be discharged in and around process units, or other areas with high exposure potential to people or ignition sources. The 55-gallon carbon canisters shall not be used. Scrubbing systems must be bonded to the vacuum units to prevent static charge buildup. Scrubbing systems must be inspected and replaced prior to becoming saturated by lubricating oil or contaminated by exhaust vapors.
- Materials lighter than diesel (i.e. flash point <1300 F) must be pumped into the truck using a pneumatically operated diaphragm pump when the potential exists for personnel exposure to hazardous materials and/or when flammable vapors are in the presence of an ignition source.
- Diesel powered vacuum trucks will be equipped with automatic emergency shutdown system (i.e. air shut-off) on the engine.
- Hearing protection must be worn around or near vacuum trucks.

Note: The use of Vacuum Trucks in LPG service is prohibited.

8.14.4 Transfers into Tanks

Anacortes prohibits direct transfers from vacuum trucks into tanks with floating roofs by pressuring off the vac truck utilizing a gas/vapor motive force (it is acceptable to pump off the vac truck directly into a tank with a floating roof utilizing the truck's side pump or a portable centrifugal pump

8.14.5 Hazard Assessment

The following AFPM table can be used during the Job Hazard Analysis section of authorizing vacuum truck operations.

Table 4 Hazard Assessment

Potential Concerns	Potential Hazards
Overpressure or Vacuum	Use of air or nitrogen pressure to discharge flammable materials from a vacuum truck could result in overpressure to the truck tank; Over-pressuring tank can result in activation of truck tank pressure relief device which can release hazardous materials in an area with potential ignition sources; Fouling or blockage in the tank truck relieving devices combined with vessel filling could cause an overpressure; Excessive vacuum (i.e. negative pressure) may result in air entrainment, which can create an explosive atmosphere inside the truck tank.

Table 4 Hazard Assessment

Potential Concerns	Potential Hazards
Hydrocarbon and/or Toxic Material Release	Use of a high vacuum during loading could result in flashing in the vacuum tank and unnecessary amounts of hydrocarbon or toxic vapor being discharged to the atmosphere; Mixing of incompatible materials in the vacuum truck tank or at discharge locations could result in an adverse reaction or situation; Loading hydrocarbons at temperatures above their flash point into vacuum trucks could result in flashing of material and unnecessary amounts of vapor being discharged to the atmosphere; Vapors from the vacuum tank exhaust system can create an explosive atmosphere if not properly routed and controlled; The use of pneumatic conveyor (i.e. air mover) type vacuum trucks for handling flammable or combustible liquids can create hazards due to high internal temperatures and air induction
Ignition Sources	Equipment could produce static charge if not bonded and grounded correctly; Pyrophoric materials and oxidizers can cause ignition of flammable vapors within the truck tank; Vacuum truck engines, electrical systems and heat generated by vacuum equipment could serve as a source of ignition.
Vacuum Exhaust Venting Control	Vapors should not be discharged onto roadways or other areas where sources of ignition may inadvertently occur or where people could be exposed to toxic gases; Prevent diesel engine acceleration, or "runaway"; Properly vent to atmosphere via vertical exhaust extending to dissipate vapors before they reach ignition sources or other potential hazards and personnel; Vent discharging using activated carbon may lead to fire if the amount of fuel sent to the carbon exceeds design.
Other Potential Concerns	Without a level measurement of some type, the truck could easily be overfilled, leading to a liquid release and spray from the top of the truck or, if the material enters the blower, a fire or explosion in the blower.

8.14.6 Vacuum Truck Permitting Form

Anacortes uses the Vacuum Truck Permit Form to authorize any/all Vacuum Truck activities.

8.15 Safe Work Permit Required Authorization Signatures

8.15.1 MPC Owning Department/Unit Supervisor (In the Process Areas this is typically a Unit Operator) is responsible for setting up the job to safely prepare the equipment for work. This position will write the permit, conduct JJSV, and sign as the first signatures in Section V approving the JSA and the work to be conducted.

8.15.2 Servicing Group Representative/Authorized employee is the craft person conducting the job. This person must have a valid MPC Anacortes Entry Badge and trained in the Permit process by their employer.

8.15.3 Owning Dept. Supervisor/Competent Person will Co-sign/authorize all Medium and High-Risk activities (1-46 RAM Score or identified on the Work Classification Table).

8.15.4 Maintenance Supervisor/APIC: A maintenance supervisor either MPC or Contractor trained to the APIC level must Co-sign/authorize all Medium and High-Risk activities (1-46 RAM Score or identified on the Work Classification Table).

8.15.5 MPC Entry Supervisor: An MPC employee is required to be the CS Entry Supervisor for any/all CSE's. The Servicing Department (typically Maintenance) is required to fill this role. This person must be trained in the Permit process to the APIC level.

Note: Additional Signatures may be required for High Risk activities including 1-12 RAM Scores, depending on the Task. See the Work Classification Table (Appendix G) for additional information on signature/authorization requirements for each Task.

8.16 Owning Department Signature Requirements for Hot Work

The following requirements shall be followed if Owning Department personnel will be conducting hot work:

1. The Owning Department personnel responsible for completing the hot work task cannot write or issue his/her own permit and shall sign the Safe Work Permit as the "Servicing Group Representative".
2. The Owning Department Representative authorizing the Safe Work Permit shall sign as the "MPC Owning Department Representative".
3. The Shift Leader (person directly responsible for hourly employees) should be notified of the permit.

All other hot work requirements (e.g., atmospheric checks, continuous monitoring, fire watch at the site, etc.) apply to Owning Department hot work.

8.17 Safe Work Permit Audits

The Safety Department will audit the Safe Work Permit Program annually to ensure that the program:

A. is working as intended, or

B. should be modified to correct identified deficiencies.

8.18 Work Performed by Owner of Equipment

8.18.1 Hot work, confined space entry, flare work or electrical hot work performed by the Owning Department (e.g., Operator Performed Maintenance) must be permitted, no matter who performs the work. The Safe Work Permit shall be fully completed as if the task were being performed by a Servicing Group.

8.18.2 Any other work performed by the owner of the equipment, on jobs where energy isolation is required, must be done under lock out/tag out, unless the job is included in the "Approved Minor Servicing Activities" – Appendix I of RSP-1121-010 or is considered "exclusive control" which only involves plug and cord equipment.

8.19 Lighting a Process Heater

8.19.1 Hot work associated with lighting a process heater (all fired process equipment including direct fired tank heaters) can be controlled by either a Safe Work Permit or an Operating Procedure.

8.19.2 Minimum requirements prior to introducing the ignition source to the process heater:

A. Gas testing must be completed to ensure:

- The firebox has been properly purged prior to lighting a burner, and
- The area surrounding the heater is safe to light a torch/flare to be used for lighting the heater.

B. For heaters with electronic ignition inside the firebox, the heater firebox requires gas testing prior to lighting the heater.

8.20 Requirements for Cuts Made to Piping and Equipment

For this document, a cut will include line cutting, hot taps, demolition work, drilling, tie-ins or similar activity where mechanical integrity will be compromised. In addition to the requirements in R-11-036 (Cutting of Piping) the following are the requirements for cuts made to piping and equipment:

A. Both Operations and Maintenance personnel will be involved in installing cut tape on both sides of the cut point.

B. On the day of the cut(s), during the JJSV: Operations Supervisor (Competent Person), Maintenance Supervisor (Authorized Person In Charge = APIC), Operator (Authorized Employee), and the Craft employee who will be conducting the cut shall walk the line to verify the exact cut point(s) are correct, and to initial the line and the cut tape with date and time. The Servicing Group Representative must verify that all required initials / signatures are in place at the cut site, on the pipe to be cut before the cut is made. The individual within the Servicing Group who will make the cut must personally sign and date each side of the tape just prior to work commencing.

Note: The Servicing Group Representative cannot sign in lieu of the individual in the work party making the cut.

8.21 Invasive Work Risk Assessment Matrix (RAM)

All permitted invasive work requires a risk assessment.

8.21.1 The Owning Department must:

A. Safely control invasive work activities in their area,

B. Identify hazards and assess risks for invasive work using the Risk Assessment Matrix (RAM),

C. Communicate all hazards and mitigations to the work party via the Joint Job Site Visit (JJSV), and

D. Document the mitigations and RAM score on the Safe Work Permit.

8.21.2 The Servicing Group Representative(s) must:

A. Verify that the permitted invasive work has been risk ranked using RAM,

B. Document the RAM Score on the JSA,

C. Use/implement the proper level of mitigation indicated by the RAM score unless more stringent mitigations are required by a procedure, guideline, or form, and

D. Stop the work if any invasive work conditions change and report them to the Owning Department.

Notes:

1. The use of RAM does not supersede operation procedures, guidelines, or safety procedures. If existing procedures are more restrictive, those requirements must be followed.
2. Risk assessments are not required during turnarounds once the unit is perimeter blinded, de-pressured, and decontaminated.

Note: See Appendix E for Invasive Work Risk Assessment Matrix (RAM)

8.22 Barricading

The following requirements shall be followed for barricading invasive work where the equipment cannot be verified as de-energized:

8.22.1 The Owning Department shall establish a perimeter barricade around the work site to protect personnel from exposure to hydrocarbons or hazardous materials greater than 140°F during the initial line break.

Notes:

Owning Department supervision (Day Foreman, Shift Foreman or designee) and MPC Maintenance supervision (foreman or designee) must review the barricaded area, as well as the other precautions being implemented (i.e., unit evacuation of non- essential personnel during invasive work) prior to co-signing the Safe Work Permit.

a. For services that have H2S levels above the PEL or that are elevated in temperature (>140°F), the perimeter barricade shall be established based on the impacted area (considering wind direction, gas test results, etc.) plus an additional 25 feet at a minimum.

b. For all other services if gas test results show contaminant levels above the PEL/TLV limits in Appendix B, the perimeter barricade shall be based on the gas test results and wind direction.

8.22.2 Only personnel in the proper level of PPE, as designated on the Safe Work Permit, shall be allowed within the established perimeter barricade during invasive work.

8.22.3 The perimeter barricade shall be demarcated with a physical barricade and signs/tags on all sides.

8.22.4 The Owning Department shall monitor the initial line break and adjust the perimeter barricade as necessary. The same level of PPE as required within the barricaded area shall be worn by the operator(s) while conducting gas testing inside the barricades.

Note: The requirements in this section are not required during turnarounds once the unit is verified to be perimeter blinded, de-pressured, and decontaminated.

R-11-024 (Safety Signs, Ground Level Warnings & Barricades) covers in detail our site Barricade requirements.

8.23 Blanket Work Permit

8.23.1 A blanket work permit may be issued to Servicing Group Representatives to perform work in multiple locations when the following conditions are met:

A. The work remains under the responsibility of the Owning Department Representative that issued the original permit or a relieving Owning Department Representative.

B. The work scope is the same at all locations and does not change once the work permit is approved and issued.

C. The level of required personal protective equipment (PPE) and safeguards are the same for each work location.

D. A Joint Job Site Visit (JJSV) is conducted at each work location.

E. The Servicing Group Representative (individual receiving the permit) is performing or directing tasks at all job sites.

For work in multiple locations to be included on a blanket work permit, each location and piece of equipment must be documented on the permit. For example, to include the pulling of three separate control valves on the same isolated line/equipment, the criteria above must be met, and all the valve numbers must be documented on the permit.

8.23.2 A single permit may be used for multiple tasks under limited circumstances. Inspection (excluding radiography, penetrant testing, or magnetic particle testing), crane support, and attendant support tasks are all allowed to be included on the permit of the primary task.

8.23.3 A blanket work permit may be used to permit maintenance work that will be executed using an approved Maintenance Procedure (e.g., SIS system testing).

8.24 Hydroblasting

For all Hydroblasting activities refer to RSP-1708-000 and the Work Classification Table (Appendix G).

9.0 PREPARATION & JOINT JOB SITE VISIT (JJSV)

9.1 JJSV Participants

9.1.1 The following individuals are required to participate in the Joint Job Site Visit (JJSV):

A. An Owning Department Representative, and

B. A Servicing Group Representative from each MPC craft or contract company performing work under the permit. At least 1 member of the crew conducting the work must be part of the JJSV.

Note: Additional representatives from the Owning Department, Servicing Organization, Safety Department, etc. who are not members of the Servicing Group may also participate in the JJSV.

9.1.2 For situations where the entire Servicing Group is not present during the JJSV, it is the responsibility of the Servicing Group Representative(s), who were present, to review the details discussed during the JJSV with each member of the Servicing Group.

9.1.3 To ensure accurate, reliable communication, a Joint Job Site Visit attendee must be present at the job site while the work is going on.

9.1.4 Any individual has the right to ask the Owning Department for another Joint Job Site Visit if they do not feel comfortable that the safety aspects of the job have been adequately communicated to them.

9.1.5 Ensure the JJSV covers Line Marking for any First Breaks or Cutting of any Lines, Pipes, or Equipment per R-11-036 requirements. An Operator MUST be present for ALL First Line Breaks and initial cutting on any Lines, or Pipes.

Toolbox Talk: All individuals performing the work must review the information shared during the JJSV including, but not limited to, the permit, Job Safety Analysis (JSA), applicable refinery-wide procedures and other documents. Work authorization cannot take place until all individuals performing work have reviewed all applicable information found within the permit, JSA, and have signed the back of the JSA on the Service Group Acknowledgement Log.

Note: All permitted activities require a JJSV therefore all participants who either sign to authorize, or sign to accept are signing the Permit stating they have conducted the JJSV, and all parties understand the process hazards, and the task hazards, and agree to follow the requirements set forth by the permit and the JSA. Operations must approve the craft JSA, and the signature on the Permit is this approval.

Reference: See Job Safety Analysis (JSA) Form within Appendix D, Section 5.3 Job Safety Analysis (JSA), and the Hierarchy of Controls within Appendix F.

9.2 Before Beginning the Work

Prior to beginning permitted work, the Servicing Group Representative(s) will contact the Owning Department to discuss the job scope and Safe Work Permit requirements to ensure mutual understanding.

9.2.1 The designated Servicing Group Representative(s) and Owning Department will visit the job site together to:

A. discuss site specific Safe Work Permit requirements,

B. ensure mutual understanding of the job scope, responsibilities, requirements, and

C. verify proper equipment preparation for the planned work.

9.2.2 The Servicing Group Representative(s) will be required to review a list of identified items that reflect the:

A. job scope,

B. job surroundings, and

C. work conditions.

9.3 JJSV

The following are required for all permitted work activities:

9.3.1 JJSV participants will discuss the following:

- Accurately Define Work Scope (Blinding, Disassembling, Hot Work, Confined Space, Vehicle Entry, etc.)
- Guaranteed the Correct Equipment Location (Owning and Servicing Group Representatives Agree on the Location at the Site)
- Review All Hazards (RAM, PPE, Chemical Hazards, Physical Hazards, Activity in the Area, Barricades, etc.)
- Energy Isolation/Verification Completed (Breakers, Valves, Blinds, Open Bleeders, Atmospheric Testing, Zero Energy, Start Switches, etc.)
- Emergency Scenarios Covered (Emergency evacuation point, Wind Direction, Safety Showers, Notifications, etc.)
- Discussed First Break Location on Equipment (Identify and Agree on the 1st Break Location; identify and agree on the Cut Pipe and the requirements found within R-11-036 for all Pipe Cutting).

Note: The items for Energy Isolation and 1st Breaks do not need to be discussed if they do not apply to the work being done.

9.4 Scope of Work

Discussion about the scope of work must communicate:

A. information about the specific equipment involved, and

B. a description of the tasks to be performed.

Note: The sequence of any of the tasks should be discussed also if they are relevant to the safety of the job.

9.5 Preparation and Isolation of Equipment

9.5.1 The degree of equipment preparation must match the scope of work planned. When the Servicing Group Representative(s) and Owning Department meet at the job site prior to beginning work, the Owning Department will describe the:

A. equipment to be worked on, preparation of the equipment to be released to the Servicing Group Representative(s),

B. atmospheric testing done to establish PPE requirements.

9.5.2 For any work that requires energy isolation, a demonstration that the energy has been controlled must be conducted. The verification points used to demonstrate energy control are listed on the Energy Isolation List for the job and these points must be verified during the Joint Job Site Visit.

Reference: See the requirements in R-11-032 for Control of Hazardous Energy (Lockout/Tagout) activities.

9.6 PPE Requirements

9.6.1 The personal protective equipment requirements must be discussed during the JJSV.

Note: Since the Servicing Group Representatives are SMEs on the work hazards and the Owning Department are SMEs on the process hazards, it is imperative that the determination of the PPE requirements follow from a dialogue from both parties during the JJSV.

9.6.2 For permitted invasive work, the participants shall discuss the calculation of the RAM score and the associated PPE requirements. If a Standing Instruction and/or form exists for the invasive work, the PPE requirements on the Standing Instruction and/or form must be reviewed. The highest level of PPE determined from the RAM score or on the standing instruction and/or form must be used.

9.7 Surrounding Hazards and Emergency Response

9.7.1 Hazards to the Servicing Group may exist from external sources such as nearby work, operational activities, weather or other work conditions. The potential for such hazards, and their mitigation, shall be discussed during the JJSV.

9.7.2 It is important that the Servicing Group Representatives know what to do in the event of an emergency. The Owning Department shall ensure that the Joint Job Site Visit participants are aware of:

A. the location of the nearest safety shower/eyewash,
B. evacuation route(s) out of the unit,
C. emergency evacuation point,
D. location of windsocks,
E. evacuation alarms, and
F. how to contact the unit operators and report an emergency.

10.0 COMPLETING THE SAFE WORK PERMIT

10.1 Section I: Work Authorization

Follow the steps in the table below to complete Section I: Work Authorization.

Reference: See Appendix C for the Safe Work Permit Form.

Table 5 Section I: Work Authorization

Step	Action
1	Enter the date the work is to be done.
2	Enter the time the work is authorized to begin.
3	Enter the time at which the permit expires.

Table 5 Section I: Work Authorization

Step	Action
4	Enter permit extensions. a. If the original Permit Writer/Owning Department Representative on shift is relieved, then the relieving Permit Writer/Owning Department Representative must sign both copies of the permit. b. A determination as to the need for additional gas testing or a re-validation is required.
5	Enter work order number, if applicable.
6	Identify the permit type Examples: Cold Work, Non-Attended Hot Work, Attended Hot Work, Confined Space Entry, Vehicle Entry
7	Identify relief change, as appropriate.
8	Identify additional forms, if necessary.
9	Enter emergency contact information.
10	Enter the exact location where the work is to be performed.
11	Enter the authorized Servicing Group that will perform the work.
12	Enter the specific work description on how the work is being performed and what tools/equipment will be used.
13	Identify all potential hazards and/or chemical exposures that may be encountered.
14	Calculate RAM Score for permitted Invasive Work, if applicable.
15	Calculate RAM Score for permitted Invasive Work, if applicable.
16	Indicate the personal protective equipment that must be worn for the job to be performed safely.

10.2 Section II: Attended Hot Work

Indicate type of attended hot work (and specific metallurgy) to be performed along with the fire prevention requirements.

Reference: See the requirements in R-11-030 for all Hot Work activities.

Important: Hot tapping and welding on lines or equipment under pressure or not hydrocarbon gas free requires special approval per the requirements of the Hot Tapping or In-Service Welding on Fixed Equipment Procedure (R-53-457).

10.3 Section III: Confined Space Precautions

Indicate precautions that must be taken to ensure that confined space entry may be performed safely. Verify the rescue team is on-site and available. Indicate how the Safety Attendant and Entrant(s) will maintain contact during a confined space entry.

Reference: Follow the requirements in the Confined Space Entry Procedure (R-11-017).

10.4 Section IV: Atmospheric Monitoring

Follow the steps in the table below to complete Section IV: Atmospheric Monitoring.

Table 6 Section IV: Atmospheric Monitoring

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>1</td><td>Record the initial atmospheric test results and the time taken in the appropriate sections on the field copy and the Permit Writer/Owning Department Representative's copy.
Note: For any additional atmospheric monitoring, only record results on the field copy.</td></tr>
<tr><td>2</td><td>Identify instrumentation serial number and date of last bump test.</td></tr>
<tr><td>3</td><td>All confined spaces require continuous multi-gas monitoring per R-11-017 (Confined Space Entry Procedure), and the permit will indicate that atmospheric testing must be continuous. All hot work tasks require continuous LEL monitoring per R-11-030 (Hot Work Operations Procedure), and the permit will indicate that atmospheric testing must be continuous. For confined space entry tasks, the Permit Writer/Owning Department Representative must clearly indicate the sampling point in the space.
The Table below summarizes gas testing requirements.
<table>
<tr><th></th><th>Task/Equipment</th><th>Gas Testing Requirements</th></tr>
<tr><td rowspan="6">INSIDE Process Unit/Tank Basin</td><td>Vehicle Entry, Light Plants, Portable Compressors, Portable Engines</td><td>Initial Gas Test, and Mid-Shift Gas Test</td></tr>
<tr><td>Non-Attended Hot Work: Not Cutting or Drilling into Process Piping</td><td>Initial Gas Test, and Mid-Shift Gas Test</td></tr>
<tr><td>Non-Attended: Cutting or Drilling into Process Piping</td><td>Initial Gas Test and Continuous</td></tr>
<tr><td>Opening an Energized Explosion-Proof Enclosure or Purged Enclosure in an Electrically Classified Area</td><td>Initial Gas Test, and Mid-Shift Gas Test</td></tr>
<tr><td>Attended Hot Work</td><td>Initial Gas Test, Mid-Shift Gas Test, and Continuous</td></tr>
<tr><td rowspan="2">OUTSIDE Process Unit/Tank Basin or inside pressurized building</td><td>Non-Attended Hot Work</td><td>Initial Gas Test and Mid-Shift Gas Test</td></tr>
<tr><td>Attended Hot Work</td><td>Initial Gas Test, Mid-Shift Gas Test, and Continuous</td></tr>
<tr><td>Confined Space Entry</td><td>Confined Space Entry</td><td>Initial Gas Test, Mid-Shift Gas Test, and Continuous Multi-Gas Meter</td></tr>
</table>
</td></tr>
</table>

Table 6 Section IV: Atmospheric Monitoring

Step	Action
4	Step 4.1 Conduct appropriate tests to determine if any harmful levels exist in all cases where there is a possibility of: a. oxygen deficiency, b. any vapors, c. gases, d. mists, e. fumes, f. pH, or g. other hazardous substances being present. Step 4.2 The testing: a. must be completed prior to issuing the applicable Safe Work Permit and the results communicated to all personnel involved via the Safe Work Permit, and b. the testing shall be made in an area that: • provides a representative sample of employee exposure, and/or • reflects the condition of the equipment being worked on. **Note**: Workers have the right to be present for initial testing per 29 CFR 1910.146(c) if entry is being performed.
5	Is the LEL greater than 0% for hot work? a. If yes, • Do not issue a permit unless a variance form has been completed, • the Permit Writer/Owning Department Representative must describe the source of the flammable vapors and the control strategy on the variance form, and • the Owning Department must approve the use of steam, nitrogen, CO2 or other means of keeping the immediate work area out of the flammable range. b. If no, go to Step 6.
6	Use the SDS and Threshold Limit Values (TLV) or Permissible Exposure Limit (PEL) of hazardous substances for entry or safe work. Reference: See Appendix B. **Note**: If in doubt, contact the Owning Department or Safety Department.
7	The Owning Department needs to: a. evaluate the potential for fire/ignition from tools and equipment when hydrocarbon vapors may present to determine the type of permit required, and b. consider the following guidelines: • Cold work rules apply if the work involved would not ordinarily create an ignition source. • Non-Attended, or Attended Hot Work rules apply if it can be expected (even remotely) that the work could produce an ignition source. • Additional safety precautions to the extent deemed necessary by the Owning Department, maintenance, or contractor, must be taken, depending on the individual task, hazards present, etc. • If there is any doubt as to the safety of the job, consult with the Owning Department, Maintenance Foreman, and MPC Contractor Coordinator or Safety Personnel.

Table 6 Section IV: Atmospheric Monitoring

Step	Action
8	If required for the work scope, conduct initial atmospheric monitoring as soon as practical prior to the start of work. Important: The initial atmospheric monitoring must be conducted within two hours prior to start of work.
9	When work is not started within two (2) hours of the time the initial atmospheric monitoring, the Permit Writer/Owning Department Representative must re-validate the permit by conducting another test with the results shown on the permit.

10.5 Section V: Required Signatures

10.5.1 Obtain signatures from all applicable personnel as indicated to validate the conditions specified on the permit, as per the Work Classification Table (Appendix G).

10.5.2 Signatures shall only be recorded after the Joint Job Site Visit is completed.

10.5.3 The Servicing Group Representative, by signing the permit, is indicating that all workers covered by the permit have properly badged/signed-in to the process area.

10.6 Section VI: Return of Equipment/Work Area Job Completeness

Completion of the following must occur:

A. Indicate the status of the job at the conclusion of the Safe Work Permit.

B. Indicate if any issues occurred during the work.

C. For Confined Space Entry Debriefing, each company involved in the entry must complete the "Servicing Group Representative Debriefing Notes" on the back of the SWP.

D. Obtain signatures from Servicing Group Representative(s) and Owning Department to certify that the permit has been terminated.

E. Record the time of signatures.

10.7 Additional Signatures

Obtain applicable signatures from each Servicing Group Representative/member who joined a job in progress to certify that the requirements specified on the permit have been effectively communicated to members of the Servicing Group who joined a job in progress.

10.8 Safe Work Permit Instructions

The Safe Work Permit includes instructions for permit completion.

10.9 Confined Space Accountability

Adhere to the following confined space accountability requirements:

10.9.1 Authorized Entrants must log in and out each time the confined space is entered or exited.

10.9.2 Each permit must identify the following:

A. Rescue Plan: Verification of on-site rescue team (i.e., MPC, 3rd party, or Inert Entry Contractor).

10.9.3 Each permit must identify the following by name:

A. confined space entry supervisor,

B. fire watch personnel,

C. bottle watch personnel, and

D. confined space attendants.

10.9.4 Each Servicing Group Representative shall comment during debriefing on conditions confronted or created during the permitted work.

11.0 SAFETY MEETING REQUIREMENTS

Each Refinery Department Manager must ensure a safety meeting is held each month with all available employees for which they are responsible.

For employee safety meetings, each Refinery Department Manager & Supervisor must ensure the following is conducted:

1. Promote employee safety awareness through discussion of pertinent local incidents, divisional and/or corporate injury & illness trends, and employee safety in general.
2. Maintain local records of safety meetings including dates of the meetings, employees in attendance, and covered subject matter.
3. Implement methods to ensure that safety concerns, deficiency reports, and safety recommendations from safety meetings are documented, evaluated, and tracked to closure if appropriate.
4. Employ a process that requires feedback to employees who have expressed safety concerns or reported deficiencies.

Note: These safety meeting requirements are from REF-1054 Section 5.

12.0 REVIEW AND REVISION HISTORY

Revision #	Preparer	Date	Description
0	Darick Brewer	3/31/2021	Original Release, supersedes SR-05.
1	Darick Brewer	6/25/2021	Updated section 8.20.
2	Darick Brewer	9/22/2021	8.14.3 Added Vacuum Truck usage in LPG service is prohibited.
3	Darick Brewer	12/13/2021	8.24 Added Hydroblasting with reference to RSP-1708-000 & reference to the Work Classification Table.
4	Kirk Rowan	8/8/2022	Added Work Classification Table as an appendix. Updated Content Custodian to Andrew Johnson.
5	Andrew Johnson	10/13/2022	Added Section 6.7. Updated Approver to Shannon Logan.
6	Trent Kies	10/5/2023	Changed routine crane lifts minimum approvers to unit operator and authorized person.

13.0 APPENDIX A – CONTAINMENT THRESHOLDS AND CONDITIONS

13.1 Thresholds and Conditions

The table below describes contaminant thresholds and conditions.

Table 7 Containment Thresholds and Conditions

Contaminant	PEL/TLV (ppm)(1)	STEL (ppm)	IDLH (ppm)	Odor Threshold (ppm)
Ammonia (NH_3)	25	35	300	0.43-53
Arsenic (As)	0.01 mg/m³	None	5 mg/m³	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(3) Cold Work(2) No Work(2)	N/A	N/A
Mercaptans				
• Butyl	0.5	None	500	0.0073-0.001
• Ethyl	0.5	None	500	0.001-0.003
• Methyl	0.5	None	150	0.0001-0.041
Oxygen (O_2)	19.5 – 23.5 %	N/A	N/A	N/A
Perchloroethylene ($Cl_2C=CCl^2$)	25	100	150	2-71
Silica (SiO_2)	0.025 mg/m³ (Respirable Fraction)	None	N/A	N/A
Sulfur Dioxide (SO_2)	0.5	1	100	0.33-5
Sulfuric Acid (H_2SO_4)	0.2 mg/m³	None	15 mg/m³	0.15

Notes:

The above limits are based on the OSHA 6 (b) PEL limits, or in their absence on current TLVs

Conditions	Time Frame
Valid Permit Period – Initial	Not to exceed 12 hours
Valid Permit Period – Extension	One additional 12-hour shift
Permit Atmospheric Monitoring 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

13.1 Key Terms

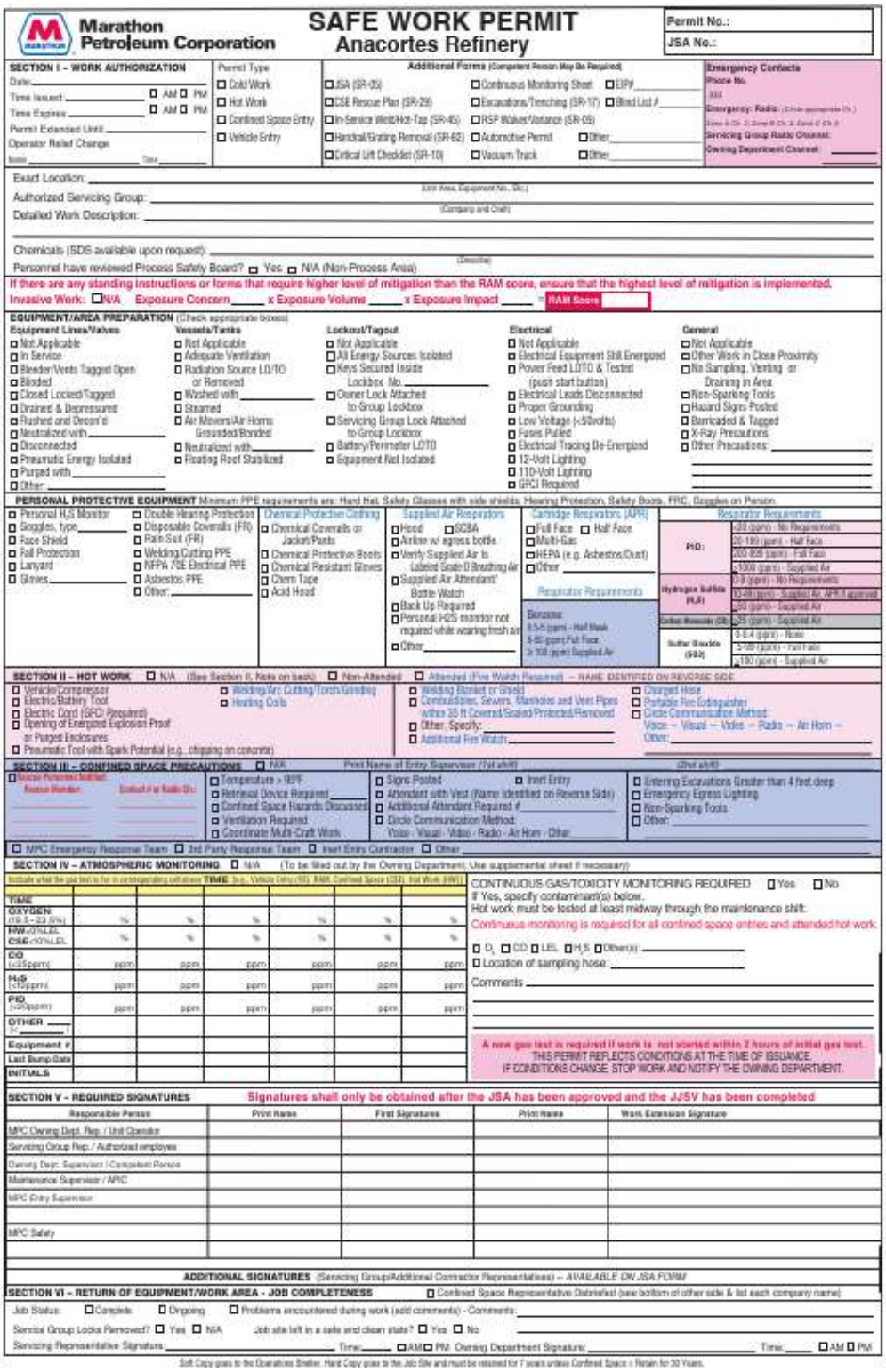
The table below describes terms used for the table above.

Table 8 Key Terms

Term	Definition
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.
Odor Threshold	Minimum concentration (or range of concentrations) of contaminant in air that most people can recognize by smell.

14.0 APPENDIX B – SAFE WORK PERMIT SAMPLE



Marathon Petroleum Corporation

SAFE WORK PERMIT
Anacortes Refinery

Permit No.:
JSA No.:

SECTION I – WORK AUTHORIZATION

Date:
Time Issued: ☐ AM ☐ PM
Time Expires: ☐ AM ☐ PM
Permit Extended Until:
Operator Relief Change
Initials: Time:

Permit Type
☐ Cold Work
☐ Hot Work
☐ Confined Space Entry
☐ Vehicle Entry

Additional Forms (Competent Person May Be Required)
☐ JSA (SR-05)
☐ Continuous Monitoring Sheet ☐ EIPF
☐ CSE Rescue Plan (SR-29)
☐ Excavations/Trenching (SR-17) ☐ Blind List #
☐ In-Service Weld/Hot-Tap (SR-45)
☐ RSP Waiver/Variance (SR-09)
☐ Handrail/Grating Removal (SR-62) ☐ Automotive Permit ☐ Other
☐ Critical Lift Checklist (SR-10) ☐ Vacuum Truck ☐ Other

Emergency Contacts
Phone No.
Emergency: Radio:
Servicing Group Radio Channel:
Owning Department Channel:

Exact Location: (Unit Area, Equipment No., Etc.)
Authorized Servicing Group: (Company and Craft)
Detailed Work Description:
Chemicals (SDS available upon request): (Describe)
Personnel have reviewed Process Safety Board? ☐ Yes ☐ N/A (Non-Process Area)

If there are any standing instructions or forms that require higher level of mitigation than the RAM score, ensure that the highest level of mitigation is implemented.
Invasive Work: ☐N/A Exposure Concern ____ x Exposure Volume ____ x Exposure Impact ____ = RAM Score

EQUIPMENT/AREA PREPARATION (Check appropriate boxes)

Equipment Lines/Valves
☐ Not Applicable
☐ In Service
☐ Bleeder/Vents Tagged Open
☐ Blinded
☐ Closed Locked/Tagged
☐ Drained & Depressured
☐ Flushed and Decon'd
☐ Neutralized with
☐ Disconnected
☐ Pneumatic Energy Isolated
☐ Purged with
☐ Other:

Vessels/Tanks
☐ Not Applicable
☐ Adequate Ventilation
☐ Radiation Source LO/TO or Removed
☐ Washed with
☐ Steamed
☐ Air Movers/Air Horns Grounded/Bonded
☐ Neutralized with
☐ Floating Roof Stabilized

Lockout/Tagout
☐ Not Applicable
☐ All Energy Sources Isolated
☐ Keys Secured Inside Lockbox No.
☐ Owner Lock Attached to Group Lockbox
☐ Servicing Group Lock Attached to Group Lockbox
☐ Battery/Perimeter LOTO
☐ Equipment Not Isolated

Electrical
☐ Not Applicable
☐ Electrical Equipment Still Energized
☐ Power Feed LOTO & Tested (push start button)
☐ Electrical Leads Disconnected
☐ Proper Grounding
☐ Low Voltage (<50volts)
☐ Fuses Pulled
☐ Electrical Tracing De-Energized
☐ 12-Volt Lighting
☐ 110-Volt Lighting
☐ GFCI Required

General
☐ Not Applicable
☐ Other Work in Close Proximity
☐ No Sampling, Venting or Draining in Area
☐ Non-Sparking Tools
☐ Hazard Signs Posted
☐ Barricaded & Tagged
☐ X-Ray Precautions
☐ Other Precautions:

PERSONAL PROTECTIVE EQUIPMENT Minimum PPE requirements are: Hard Hat, Safety Glasses with side shields, Hearing Protection, Safety Boots, FRC, Goggles on Person.

☐ Personal H2S Monitor
☐ Goggles, type
☐ Face Shield
☐ Fall Protection
☐ Lanyard
☐ Gloves
☐ Double Hearing Protection
☐ Disposable Coveralls (FR)
☐ Rain Suit (FR)
☐ Welding/Cutting PPE
☐ NFPA 70E Electrical PPE
☐ Asbestos PPE
☐ Other:

Chemical Protective Clothing
☐ Chemical Coveralls or Jacket/Pants
☐ Chemical Protective Boots
☐ Chemical Resistant Gloves
☐ Chem Tape
☐ Acid Hood

Supplied Air Respirators
☐ Hood ☐ SCBA
☐ Airline w/ egress bottle
☐ Verify Supplied Air to Labeled Grade D Breathing Air
☐ Supplied Air Attendant/ Bottle Watch
☐ Back Up Required
☐ Personal H2S monitor not required while wearing fresh air
☐ Other

Cartridge Respirators (APR)
☐ Full Face ☐ Half Face
☐ Multi-Gas
☐ HEPA (e.g. Asbestos/Dust)
☐ Other

Respirator Requirements
Benzene:
0.5-5 (ppm) - Half Mask
5-50 (ppm) Full Face
> 100 (ppm) Supplied Air

Respirator Requirements

PID:	<20 (ppm) - No Requirements
	20-190 (ppm) - Half Face
	200-900 (ppm) - Full Face
	>1000 (ppm) - Supplied Air
Hydrogen Sulfide (H2S)	0-9 (ppm) - No Requirements
	10-49 (ppm) - Supplied Air, APR if approved
	>50 (ppm) - Supplied Air
Carbon Monoxide (CO)	<25 (ppm) - Supplied Air
Sulfur Dioxide (SO2)	0-0.4 (ppm) - None
	0.5-99 (ppm) - Half Face
	>100 (ppm) - Supplied Air

SECTION II – HOT WORK ☐ N/A (See Section II, Note on back) ☐ Non-Attended ☐ Attended (Fire Watch Required) – NAME IDENTIFIED ON REVERSE SIDE

☐ Vehicle/Compressor
☐ Electric/Battery Tool
☐ Electric Cord (GFCI Required)
☐ Opening of Energized Explosion Proof or Purged Enclosures
☐ Pneumatic Tool with Spark Potential (e.g., chipping on concrete)
☐ Welding/Arc Cutting/Torch/Grinding
☐ Heating Coils
☐ Welding Blanket or Shield
☐ Combustibles, Sewers, Manholes and Vent Pipes within 35 ft Covered/Sealed/Protected/Removed
☐ Other. Specify:
☐ Additional Fire Watch
☐ Charged Hose
☐ Portable Fire Extinguisher
☐ Circle Communication Method: Voice – Visual – Video – Radio – Air Horn – Other:

SECTION III – CONFINED SPACE PRECAUTIONS ☐ N/A Print Name of Entry Supervisor (1st shift) (2nd shift)

☐ Rescue Personnel Notified:
Rescue Member: Contact # or Radio Ch.:

☐ Temperature > 95°F
☐ Retrieval Device Required
☐ Confined Space Hazards Discussed
☐ Ventilation Required
☐ Coordinate Multi-Craft Work
☐ Signs Posted ☐ Inert Entry
☐ Attendant with Vest (Name identified on Reverse Side)
☐ Additional Attendant Required #
☐ Circle Communication Method: Voice - Visual - Video - Radio - Air Horn - Other:
☐ Entering Excavations Greater than 4 feet deep
☐ Emergency Egress Lighting
☐ Non-Sparking Tools
☐ Other:

☐ MPC Emergency Response Team ☐ 3rd Party Response Team ☐ Inert Entry Contractor ☐ Other

SECTION IV – ATMOSPHERIC MONITORING ☐ N/A (To be filled out by the Owning Department. Use supplemental sheet if necessary)

Indicate what the gas test is for in corresponding cell above: TIME (e.g., Vehicle Entry (VE), Area Confined Space (CSE), Hot Work (HW))

TIME						
OXYGEN (19.5 – 23.5%)	%	%	%	%	%	%
HW≤10%LEL CSE≤10%LEL	%	%	%	%	%	%
CO (<35ppm)	ppm	ppm	ppm	ppm	ppm	ppm
H2S (<10ppm)	ppm	ppm	ppm	ppm	ppm	ppm
PID (<2ppm)	ppm	ppm	ppm	ppm	ppm	ppm
OTHER ____ (<____)						
Equipment #						
Last Bump Date						
INITIALS						

CONTINUOUS GAS/TOXICITY MONITORING REQUIRED ☐ Yes ☐ No
If Yes, specify contaminant(s) below.
Hot work must be tested at least midway through the maintenance shift.
Continuous monitoring is required for all confined space entries and attended hot work.
☐ O2 ☐ CO ☐ LEL ☐ H2S ☐ Other(s):
☐ Location of sampling hose:
Comments:

A new gas test is required if work is not started within 2 hours of initial gas test.
THIS PERMIT REFLECTS CONDITIONS AT THE TIME OF ISSUANCE.
IF CONDITIONS CHANGE, STOP WORK AND NOTIFY THE OWNING DEPARTMENT.

SECTION V – REQUIRED SIGNATURES Signatures shall only be obtained after the JSA has been approved and the JJSV has been completed

Responsible Person	Print Name	First Signature	Print Name	Work Extension Signature
MPC Owning Dept. Rep. / Unit Operator				
Servicing Group Rep. / Authorized employee				
Owning Dept. Supervisor / Competent Person				
Maintenance Supervisor / APC				
MPC Entry Supervisor				
MPC Safety				

ADDITIONAL SIGNATURES (Servicing Group/Additional Contractor Representatives) – AVAILABLE ON JSA FORM

SECTION VI – RETURN OF EQUIPMENT/WORK AREA – JOB COMPLETENESS ☐ Confined Space Representative Debriefed (see bottom of other side & list each company name)

Job Status: ☐ Complete ☐ Ongoing ☐ Problems encountered during work (add comments) - Comments:
Service Group Locks Removed? ☐ Yes ☐ N/A Job site left in a safe and clean state? ☐ Yes ☐ No
Servicing Representative Signature: Time: ☐ AM ☐ PM Owning Department Signature: Time: ☐ AM ☐ PM

Soft Copy goes to the Operations Shelter. Hard Copy goes to the Job Site and must be retained for 7 years unless Confined Space – Retain for 30 Years.

INSTRUCTIONS TO COMPLETE THE WORK PERMIT

"SG (Servicing Group)" or "OD (Owning Department)" are listed next to each section. This indicates responsibility for these sections of the permit.

SECTION I

OD A. DATE: Enter the date the work is to begin.
OD B. TIME ISSUED: Enter the time that the work is authorized to begin.
OD C. TIME EXPIRES: Enter the time at which the permit expires.
OD D. PERMIT EXTENSION: Enter permit extensions. If the original permit writer on shift is relieved, then the relieving permit writer shall sign both copies of the permit. The relieving permit writer must perform additional gas testing as required.
OD E. RELIEF CHANGE: Identify operator relief change as appropriate.
SG/OD F. PERMIT TYPE: Check the appropriate box to identify applicable required permits.
SG/OD G. ADDITIONAL FORMS: Identify and indicate all additional required forms have been completed and attached to the permit.
OD H. EMERGENCY CONTACTS: Enter emergency contact information.
SG/OD I. EXACT LOCATION: Identify precisely where the permitted work is to be performed (unit area, equipment number, etc.).
SG J. AUTHORIZED SERVICING GROUP: Enter the name of the company/contractor being given authorization to perform the work.
SG/OD K. WORK DESCRIPTION: List the specific work description of the work being authorized by the permit.
SG/OD L. POTENTIAL HAZARDS/CHEMICALS: Identify all potential hazards and/or chemical exposures that maybe encountered.
SG/OD M. PROCESS HAZARDS OVERVIEW: Identify if the process hazard overview boxes have been reviewed.
OD N. EQUIPMENT PREPARATION – Check the appropriate boxes to indicate which preparatory actions have been taken to ensure that the equipment is ready for the work to be performed. Electricians should sign permit if performing a rack out or rack in.
SG/OD O. PERSONAL PROTECTIVE EQUIPMENT (PPE) – Check the appropriate boxes to indicate which types of personal protective equipment must be worn in order for the job to be performed safely.

OD **SECTION II**
A. HOT WORK – Check the appropriate box to indicate the type of hot work to be performed and the fire prevention requirements.

OD **SECTION III**
CONFINED SPACE PRECAUTIONS – Check the appropriate boxes to indicate precautions that must be taken to ensure the confined space entry may be performed safely as per Refining Confined Space Entry Standard Practice RSP-1127-000. Identify Available Rescue Team Type.

OD **SECTION IV**
ATMOSPHERIC MONITORING – Test results and the time taken shall be recorded in the appropriate sections and initialed by the person making the test. Record instrumentation serial number and date of last calibration. Check the box indicating whether or not atmospheric testing must be continuous. Conditions that require continuous monitoring include those identified in the Refining Confined Space Entry Standard Practice RSP-1127-000.

SG/OD **SECTION V**
REQUIRED SIGNATURES – Obtain signatures from all applicable personnel as indicated to validate the conditions specified on the permit. Signatures should only be recorded after the joint job site visit has been completed.

DEFINITIONS:

MPC Owning Department Representative: Member of the MPC Owning Department who writes the permit. For non-process related construction, the Construction Manager or Construction Supervisors will act as the Permit Writer.

MPC Owning Department Supervisor/Designee: MPC Owning Department's supervisor, typically a Shift or Unit Supervisor. For non-process related construction, the Construction Manager will act as the Owning Department Supervisor. If equipment cannot be verified as depressured, the signature requirement for an MPC Owning Department Supervisor/Designee only applies to the following services: Hydrogen, flare gas, corrosives, and high temperature hydrocarbons (>450°F).

MPC Maintenance Foreman/Designee: The person to whom the servicing groups' work party directly reports. If equipment cannot be verified as depressured, the signature requirement for an MPC Maintenance Foreman/Designee only applies to the following services: Hydrogen, flare gas, corrosives, and high temperature hydrocarbons (>450°F).

Servicing Group Representative (MPC or Contractor): Member of the servicing groups' work party who will be working from the permit or supervising the personnel working on the permit.

Competent Person (MPC or Contractor): Person who can identify existing and predictable hazards in and around the excavation, and who has the authority to take prompt and corrective measures to eliminate them. This person has also received specialized training to identify hazards associated with excavations, shoring, and trenching.

MPC Safety Representative: an MPC (or MPC directly supervised) Safety Professional.

SG/OD **SECTION VI**
RETURN OF EQUIPMENT/WORK AREA JOB COMPLETIONS – Check the appropriate boxes to indicate the status of the job at the conclusion of the work permit. Indicate if the cleanup is completed, indicate LOTO removal. Obtain signatures from the servicing representative(s) and owning department to certify that the permit has been terminated. Record the time of signatures. Archive the Work Permit in accordance with the company's records retention policy.

TERMS – PPE - Personal Protective Equipment; CS - Confined Space; APR - Air Purifying Respirator; HW - Hot Work

FIRE WATCH**, SUPPLIED AIR ATTENDANT/BOTTLE WATCH**, AND/OR CONFINED SPACE ATTENDANT**

NAME	COMPANY	Fire Watch	Bottle Watch	Conf. Space Att.	Date	ON	OFF	ON	OFF	ON	OFF

Confined Space Attendant to place signage over manways when no attendant is on duty. **Must be aware of all permit requirements.

CONFINED SPACE SIGN-IN/SIGN-OUT FOR AUTHORIZED ENTRANTS (Supplemental sign-in/sign-out log must be turned in with Permit)

NAME	COMPANY	Date	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT

SERVICING GROUP REPRESENTATIVE DEBRIEFING NOTES (Required for Confined Space Entry)

COMPANY	COMMENTS ☐No problems encountered during entry

15.0 APPENDIX C – JOB SAFETY ANALYSIS (JSA) SAMPLE

Anacortes Refinery Job Safety Analysis

JSA No:
Permit No:
RAM Score:

COMPLETE PRIOR TO PERMIT ISSUANCE

UPDATE AS CONDITIONS CHANGE. A NEW JSA IS REQUIRED WHEN THE JOB SCOPE CHANGES

Company/Craft:	JSA Writer:
Unit/Area (Including Equipment Name/Number):	
Metal/Type for Welding:	Tools/Equipment to Perform Task:
Primary Evacuation Area:	
Secondary Evacuation Area:	Safety Shower/Eyewash Location:

What are your task steps?	What could go wrong? What hazardous energy are you dealing with?	What are you doing to protect yourself, others, the environment, and equipment?

A CRITICAL STEP is a step or action that is unrecoverable, and if performed incorrectly could cause significant harm to: personnel, equipment, quality, or the environment.
Which of your task steps above is a CRITICAL STEP?

What is the worst thing that can happen from executing this task?

Have we identified robust controls to prevent this situation? ☐ YES (IF NO, DO NOT PROCEED)

Soft Copy goes to Servicing Department. Hard Copy goes to the Job Site and must be retained for 7 years unless Confined Space – Retain for 30 Years.

Servicing Group Signatures of Acknowledgment

Permit No.

By signing this section, I have participated in the Toolbox Talk and understand the job tasks, potential hazards, and recommended actions or procedures to eliminate or mitigate the hazards. I accept responsibility for work performed by me under these documents. I also acknowledge that I have properly logged into the process area (if applicable) to help mitigate the hazard of locating me in an emergency.

Suspend Work Obligation

As an employee or contractor of Anacortes, ***YOU*** have the authority and responsibility, without fear of reprimand or repercussion, to immediately SUSPEND any work that is unsafe or presents a danger to you, your co-workers, or the public. You are empowered to get others involved to determine a safe resolution before proceeding with the work.

Servicing Group Acknowledgment must be signed every shift (attach additional signature page if needed)

NAME	SIGNATURE	DATE

Soft Copy goes to Servicing Department. Hard Copy goes to the Job Site and must be retained for 7 years unless Confined Space = Retain for 30 Years.

Anacortes Refinery Job Hazards Reference

Review this reference while completing JSA Section of Permit. Completion of reference is not mandatory.

A new JSA is required when the job scope changes.

Hazards	Safe Plan
Biological	
☐ Bloodborne Pathogens, insects, contam. water	☐ Limit Exposure ☐ Respiratory Protection ☐ Hand Protection
Body Mechanics	
☐ Manual Lifting	☐ Review Lift Method ☐ Assisted lifting / lowering ☐ Use mechanical lifting device ☐ Hand Protection Required
☐ Hand Hazards	☐ Identify sharp tools, material, equip. ☐ PPE (gloves, etc.) ☐ Protected sharp edges as necessary ☐ Identify Line-Of-Fire hazards of task
☐ Pinch Points	☐ List potential pinch points ☐ Barrier from rotating equipment ☐ Hand/body positioning
Chemical	
☐ Chemical (Corrosive, Flammable, Toxic)	☐ List specific chemicals and hazards ☐ Review SDS ☐ Exposure Monitoring ☐ Continuous Air Monitoring (LEL / 4-gas) ☐ Have proper containers and labels ☐ Identify PPE appropriate for exposure ☐ Ensure adequate ventilation
☐ Lead Paint	☐ Lead Paint Controls in place ☐ Conduct exposure monitoring
☐ Asbestos	☐ Asbestos Controls in place ☐ Conduct exposure monitoring
Electricity	
☐ De-Energized Electrical Equipment	☐ Verify LOTO ☐ Confirm equipment is de-energized ☐ Inspect components before energizing
☐ Energized Electrical	☐ Review electrical safety procedures
☐ Static Electricity	☐ Verify grounding / Bonding ☐ Use non-sparking tools
Environmental	
☐ Environmental	☐ ICE >50 hp has permit ☐ Arrange hazardous waste disposal ☐ Sensitive Equipment Nearby / Buffer Zone
☐ Wet Conditions	☐ Rain Gear ☐ GFCI / Assured Grounding ☐ See Slips, Trips, Falls under Gravity
Gravity	
☐ Excavation	☐ Shoring / Sloping / Benching ☐ Inspection by Competent Person ☐ Barricades
☐ Dropped Objects	☐ Barricades ☐ Tool Lanyards ☐ Hand rail netting ☐ Cover floor openings
☐ Ladders	☐ Inspect general condition before use ☐ Ladder tied off / held during use ☐ Proper angle and placement ☐ Review ladder safety
☐ Scaffolds	☐ Inspect before use ☐ Tags in place ☐ Harness used, where required ☐ Materials properly stored
☐ Slips, Trips, Falls	☐ Inspect for trip hazards ☐ Hazards marked ☐ Tools & materials properly stored ☐ Extension cords secured ☐ Work zone free of debris ☐ Fall Protection Required

Hazards	Safe Plan
Mechanical	
☐ Rotating Equipment, Conveyor Belts	☐ LOTO ☐ Machine guarding in place ☐ Trip Test Procedure
☐ Vehicle traffic; heavy equipment	☐ Traffic Barricades ☐ Cones ☐ Signs ☐ Flagmen / Spotters ☐ Tag Lines ☐ Lane Closure ☐ Communication with equipment operator ☐ Travel plan to avoid process equipment
Noise	
☐ Noise >85 dB	☐ Ear Plugs ☐ Ear Muffs ☐ Double Hearing Protection
Pressure	
☐ Hydraulic, Pneumatic, Process	☐ LOTO; Verify Zero Energy ☐ Elevated PPE ☐ Barricades ☐ Secure gas cylinders; cap when not in use ☐ Use whip checks on hose connections
Radiation	
☐ X-Rays	☐ Barricades ☐ Warning Lights ☐ Radiography Procedure ☐ Impacted measurement devices identified
☐ Level Gauges	☐ LOTO: Verify Isolation
Thermal	
☐ Cold Stress / Cold Surfaces	☐ Proper Clothing / PPE ☐ Review cold stress symptoms (hypothermia
☐ Heat Stress / Hot Surfaces	☐ Proper Clothing / PPE ☐ Heat stress monitoring (>85F) ☐ Liquids available ☐ Work/rest schedule developed ☐ Review heat stress symptoms
☐ Fire Hazard	☐ Hot Work Permit ☐ Fire Extinguisher ☐ Fire Watch ☐ Adjacent area protected ☐ Unnecessary flammables removed
Other	
☐ Adjacent work / processes	☐ Notification of presence ☐ Work above / below ☐ Coordination with affected crew ☐ Barriers required
☐ Hand & power tools	☐ Inspect general condition ☐ Use GFCI ☐ Identify PPE for tool ☐ Guarding in place
☐ Barriers & Covers	☐ Yellow Barricade Tape ☐ Red Barricade Tap ☐ Other Barricade Tape ☐ Rigid Barricade ☐ Cover sewers ☐ Warning signs ☐ Warning Lights
☐ Employee inexperience	☐ Gold hard hat ☐ Increased foreman oversight
☐ Poor Lighting	☐ Light Plant ☐ Flashlight

PPE (Minimum PPE is Nomex, Hard Hat, Safety Glasses, Hearing Protection, Safety Shoes)

Head / Hearing Protection	Respiratory Protection	Hand Protection	Special Clothing
☐ Dbl. hearing protection ☐ Hard Hat Straps ☐ Other	☐ Air purifying respirator ☐ Cartridge type: ☐ Supplied Air ☐ SCBA ☐ Escape Bottle ☐ Other	☐ Cut Resistant Gloves ☐ Welders Gloves ☐ Nitrile/PVC Gloves ☐ Leather Gloves ☐ Rubber Gloves ☐ Elect. Insulated Gloves ☐ Other	☐ Tyvek ☐ Acid Gear ☐ Chemical Gear ☐ Safety Vest ☐ Other
Eye Protection	**Foot Protection**		**Fall Protection**
☐ Face Shield ☐ Chemical Goggles ☐ Fectogoggles ☐ Welding Hood ☐ Other	☐ Chemical Boots ☐ Metatarsal Guards ☐ Other		☐ Harness and Lanyard ☐ Retractable Device ☐ Double Lanyard ☐ Horizontal Lifeline ☐ Other

16.0 APPENDIX D – INVASIVE WORK RISK ASSESSMENT MATRIX (RAM)

Risk Assessment Scoring Methodology

Utilize the Risk Assessment Matrix (RAM) to establish the proper level of protection and mitigation for invasive work. Use the RAM to generate a numerical value for the categories of exposure concern, volume and impact. These values can then be multiplied to generate the Risk Assessment Score. Example: An invasive job that has a exposure concern value of 1, a volume value of 3 and an impact value of 4 would generate a RAM score of 12 (1x3x4) which would require Level 1 Mitigation.

Risk Assessment Scoring Equation: Exposure Concern x Exposure Volume x Exposure Impact = RAM Score

Exposure Concern

Concern:	Score:
IDLH Atmosphere	1
Material above Auto Ignition	1
Corrosives – Acid/Caustic	2
Over PEL, STEL or 1-10% of LEL	2
Hot Service – Above 140°F	3
Other Material	10

- **IDLH Atmosphere** – Equipment or piping systems that contain material immediately dangerous to life and health. Examples: toxic chemicals above their IDLH or inert atmospheres.
- **Material Above Auto-Ignition Temperature** – Equipment or piping systems that contain material that will auto-ignite upon contact with the atmosphere.
- **Corrosives – Acid/Caustic/KOH** - Equipment or piping systems that contain material with any caustic, acid or KOH mixture.
- **Over PEL, STEL or 1-10% of LEL** - Equipment or piping systems that contain material that is above the Permissible Exposure limit, Short Term Exposure Limit or between 1% and 10% of the LEL.
- **Hot Service – Above 140° F** - Equipment or piping systems that contain material that is above 140° F. This includes hydrocarbons, catalyst, steam, condensate and Boiler Feed water.
- **Other Material** – Utilities such as air and water that are low temperature and low pressure or any stream that does not meet any of the exposure concerns listed above.

Exposure Volume

Volume:	Score:
"Live" Equipment	1
Large Volume	1
Medium Volume	2
Small Volume	3
Low Potential	4
No Volume	6

- **"Live" Equipment** – Any equipment or piping circuit that is still in service or not completely isolated.
  Examples – Tightening leaking flanges or process connections, or any equipment or system that has been isolated but the isolation valves are known to be leaking.
- **Large Volume** – Towers, vessels, receivers, and large bore piping circuits.
- **Medium Volume** – Knock-Out drums, pumps, compressors and piping systems.
- **Small Volume** – Transmitter impulse lines, sight glass assemblies, sample stations and small bore piping.
- **Low Potential** – All volumes that have been quantifiably decontaminated or the volume contained between a standard isolated bleeder of less than 1" in size and its plug or cap.
- **No Volume** – Verified by Operations to be free of any volume.

Exposure Impact

Exposure:	Score:
Large Impact	1
Medium Impact	2
Small Impact	3
Low Impact	4
No Impact	5

Exposure Impact

- **Large Impact** – Could have off-site impact.
- **Medium Impact** – Could have a refinery wide impact.
- **Small Impact** – Could have an impact contained to the local unit.
- **Low Impact** – Could have a localized impact at the invasive work site.
- **No Impact** – No negative impact to the invasive work site expected due to successful energy isolation, material below 140°F and verified free of volume and H2S.

RAM Score: 1-12

Level 1 Mitigations

Inhalation Hazard
- Breathing air

Corrosive Material
- Chemical resistant suit
- Face shield & goggles
- Chemical gloves and boots

Material above Auto-Ignition Temperature
- Verify isolations and cool down below auto-ignition temperature before doing invasive work.

Fire or Hot Oil Hazard
- Bunker gear
- Heat resistant protective clothing

Miscellaneous Mitigations (Can be used with any of the above mitigations)
- Bleeder cleaner tool
- Face shield, goggles and protective clothing

RAM Score: 14-46

Level 2 Mitigations

Inhalation Hazard
- Eductor to dilute and/or move toxic emissions from the work area.
- Air purifying respirator
- Route potential source to safe location using tubing or pipe.

Corrosive Material
- Chemical resistant suit, gloves, boots
- Face shield & goggles

Hot Service (Above 140°F)
- Heat resistant clothing
- Route potential source to safe location using tubing or pipe.

Fire Hazard/LEL Mitigation (non-confined space)
- Continuous LEL Monitoring
- Non-Sparking tools

Miscellaneous Mitigations (Can be used with any of the above mitigations)
- Bleeder cleaner tool
- Face shield, goggles and protective clothing

Score: >46

Level 3 Mitigations

- Normal Refinery PPE
- Standard work practices

17.0 APPENDIX E – HIERARCHY OF CONTROLS

1. Elimination or Substitution

- Eliminate the hazard (e.g. shut down unit)
- Substitute safe materials for hazardous ones
- Perform task at ground level instead of at height
- Change process to eliminate noise
- Eliminate manual material handling
- Reduce energy, speed, voltage, sound level, force, hazardous inventory

2. Engineering Controls

- Ventilation systems
- Mechanical barriers
- Enclosures
- Mechanical lift device, conveyors
- Platforms and guard railing
- Temporary access equipment
- Removal of pipe spool
- Insert blind or blind flange
- Circuit breakers
- Escape routes
- Emergency shutdown and blow down systems

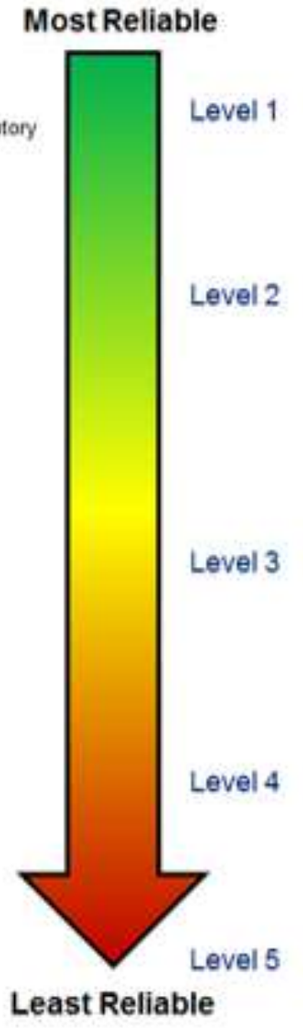
3. Administrative – Procedural Controls

- Safe job procedures
- Watchman/Spotter (e.g crane, roadway)
- Test for flammable gas leaks
- Equipment lockout/tagout
- Equipment Inspections
- Emergency response team and site procedures
- Test for pressure build-up or leaks
- Control of simultaneous or adjacent work
- Prohibition of hot work or smoking
- Scaffolding tag procedure
- Warning flags, personal monitors
- Checklist, with each step initialed when complete

4. Administrative – Training/Human Factors/Time Controls

- Use specialized personnel
- Assure training and competency of personnel
- Limit duration of task
- Use time-saving measures (hot bolting, site prep, pre-position tools and materials)
- Crew review
- Clear definition of task roles and responsibilities
- Rotation of workers

5. Personal Protective Equipment



The JSA guides personnel in the identification and implementation of controls to mitigate the hazards associated with the task steps. The "Hierarchy of Controls" methodology should be used to identify the most effective mitigations for each hazard identified by the JSA. The order of precedence and effectiveness of hazard control is described in the image. Examples of each control are also displayed.

Elimination and Substitution

Elimination and substitution, while most effective at reducing hazards, also tend to be the most difficult to implement. If the process is still at the design or development stage, elimination and substitution of hazards may be easier to implement. For an existing process, major changes in equipment or process may be required to eliminate or substitute for a hazard.

Engineering Controls

a Engineering controls are favored over administrative and personal protective equipment (PPE) for controlling existing worker exposures in the workplace because they are designed to remove the hazard at the source, before it comes in contact with the worker.

b Engineering controls protect workers by removing hazardous conditions or by placing a barrier between the worker and the hazard. Examples include local exhaust ventilation to capture and remove airborne emissions or machine guards to shield the worker. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions. They typically do not interfere with worker productivity or personal comfort and make the work easier to perform rather than more difficult.

Administrative Controls and PPE

a Administrative controls and PPE are frequently used with existing processes where hazards are not particularly well controlled. These methods for protecting workers have also proven to be less effective than other measures, requiring significant effort by the affected workers.

b Administrative controls may include the following:

- Written operating procedures, work permits, and safe work practices;
- Exposure time limitations (used most commonly to control temperature extremes and ergonomic hazards);
- Monitoring the use of highly hazardous materials;
- Alarms, signs, and warnings;
- Buddy system; and
- Training.

c Personal Protective Equipment in addition to minimum required PPE such as respirators and double hearing protection is acceptable as a control method in the following circumstances:

- When engineering controls are not feasible or do not eliminate the hazard;
- While engineering controls are being developed;
- When safe work practices do not provide sufficient additional protection; and
- During emergencies when engineering controls may not be feasible.

d Frequently, the hazard cannot be completely eliminated. In these cases, the JSA should seek to use more effective controls as defined by the hierarchy.

18.0 APPENDIX F – REQUEST FOR SAFETY VARIANCE/DEVIATION FORM SAMPLE (R-11-005-F01)

Marathon Petroleum Company	REFINERY-WIDE	R-11-005-F01
ANACORTES REFINERY	Request for Safety Variance/Deviation	Page 1 of 1
		REVISION: 6

Applicable Procedure: _____ **Date:** _____

Synopsis of Variance/Deviation: _____

_____

_____

_____

Hazard: _____

_____

Mitigation of Hazard: _____

_____

_____

_____

Operations Superintendent	Maintenance/Project Superintendent	Safety Superintendent
_____	_____	_____

_____ /

Contractor/Title

19.0 APPENDIX G – WORK CLASSIFICATION TABLE

TASK	TASK RISK	OTHER Applicable Standards	Minimum Approvers/Notifications
Abrasive blasting: not on live equipment	Low	R-11-023 PPE	Unit Operator, Authorized Person
Abrasive Blasting: on live equipment	Med	R-11-023 PPE	Unit Operator, Competent Person, Craft APIC, Notification /Approval: Inspections
Acid: Any work requiring Acid or Caustic Gear	Med	R-11-023 PPE	Unit Operator, Competent Person, Craft APIC
Analyzer rounds (not including energy or process exposure activities).	NPA - (Non Permitted Activity)		Check in/out with Unit Operators
Analyzer work requiring energy isolation, or exposure to hazardous processes.	Low		Unit Operator, Authorized Person
Animal control: Inside the Refinery Gates	Low		Unit Operator, Authorized Person
Automotive: Inside an "Active" Tank Yard.	Med.		Unit Operator, Competent Person, Authorized Person
Automotive: Mobile equipment operation in restricted roadway, process unit or tank basin (i.e., anywhere a vehicle entry permit is required) Includes portable air compressor, light plant, generator, portable pump or other gas, diesel or electric powered motor (source of ignition).	Low / Automotive Permit	R-11-015	Unit Operator, Authorized Person
Automotive: Vacuum Truck Operations requires a Vac Truck Permit	Med / Vac. Truck Permit Required	R-11-005	Unit Operator, Vac Truck Operator, Competent Person
Bolting: **Four Bolting**. 4-Gas Required – Equipment Must be out of service with ZERO pressure.	Med	R-50-015 Flange Bolting, R-30-008 Blinding and Isolation.	Unit Operator, Competent Person, Craft APIC Per R-50-0015
Bolting: **Single Stud Replacement:** (taking out one stud at a time and replacing it) – If practical the equipment should be reduced in pressure (Engineering & Inspection to determine safe pressure). Continuous 4 gas monitoring required.	Med	R-50-015 Flange Bolting, R-30-008 Blinding and Isolation, R-50-015, TRS- 510G	Unit Operator, Competent Person, Craft APIC, Notification / Approval: Reliability Engineer or Pressure Equipment Engineer
Bolting: **Half Bolting** – If the equipment is to be half bolted while in service, the Pressure Equipment/Mechanical Engineer shall state how many bolts must remain in place to maintain integrity. Continuous 4 gas monitoring required	Med	R-50-015 Flange Bolting, R-30-008 Blinding and Isolation, R-50-015, TRS- 510G	Unit Operator, Competent Person Craft APIC, Notification / Approval: Reliability Engineer or Pressure Equipment Engineer

TASK	TASK RISK	OTHER Applicable Standards	Minimum Approvers/Notifications
Caustic: Work on any equipment that is in caustic or acid service	Med	R-11-023 PPE	Unit Operator, Competent Person, Craft APIC
Chemical: Any work requiring additional PPE (Chemical Suit, Respiratory Protection, etc.) from the SDS	Med	R-11-023 PPE	Unit Operator, Competent Person, Craft APIC
Chemical: Chemical deliveries inside & outside of classified areas	Low when connecting to process / Automotive Permit	Hazard Evaluation Form can be used in place of JSA	Unit Operator, Authorized Person
Chemical: Chemical deliveries outside of classified areas	Low when connecting to process – NPA for delivery only.	Hazard Evaluation Form can be used in place of JSA	Unit Operator, Authorized Person
Cold Cutting: equipment / piping / lines	Med	R-11-036 Cutting Pipe	Unit Operator, Competent Person, Craft APIC; R-11-036 Cutting Checklist
Cold Work: Drain Cleaning and Inspection (including use of remote camera)	Low		Unit Operator, Authorized Person
Cold Work: Industrial Hygiene (Health) exposure monitoring	NPA	R-14-004 Industrial Hygiene	Check in/out with Unit Operators
Cold Work: Information or Reading Gathering without any tools or performing any maintenance.	NPA		Check in/out with Unit Operators
Cold Work: Inspection - penetrant testing on piping, vessels and fixed equipment	Low		Unit Operator, Authorized Person
Cold Work: Intrinsically safe portable equipment/devices where there is no negative impact with process equipment (e.g., temperature gun, sonic detector)	NPA		Check in/out with Unit Operators
Cold Work: Lubricate rotating equipment and valves using oil can and grease gun at fixed lubrication points - NOT Lubricating the actual rotating parts while in motion.	Low		Unit Operator, Authorized Person
Cold Work: Setting up or removing temporary power, lighting and utilities in a classified area	Low	R-53-850 & R-53-851	Unit Operator Authorized Person
Confined Space Entry: Equipment (Vessels, Tanks, Exchangers, etc.)	Med	R-11-017 Confined Space, R-14-004 Industrial Hygiene, R-30-008 Blinding, R-11-032 LOTO, R-11-005 Safe Work Permit	Unit Operator, Competent Person, Craft APIC, MPC Entry Supervisor Notification / Approval: Safety (on all Initial Entries)

TASK	TASK RISK	OTHER Applicable Standards	Minimum Approvers/Notifications
Confined Space Entry: Excavation greater than 4 ft	Med	R-11-013 Excavation Attachment E & D R-11-017 Confined Space Entry	Unit Operator, Competent Person; Craft APIC / Excavation Competent Certification; MPC Entry Supervisor Notification / Approval: Safety
Confined Space Entry: Inert Atmosphere	High	R-11-017 Confined Space; RSP-1121-020. Must Retain Checklist with the Permit.	Unit Operator, Competent Person, Craft, APIC on Permit. RSP-1121-020: Entry Coordinator, Safety / OPS & Maintenance Supervisor
Confined Space Entry: Fan Shroud (from above or below)	Med	R-11-017 Confined Space R-14-005 Heat Stress	Unit Operator, Competent Person, Craft APIC; MPC Entry Supervisor. May need Heat Stress Analysis
Crane Work: **Critical Lift =** Crane operations including, but not necessarily limited to, the following: • Lifts exceeding seventy-five percent of the cranes rated load chart capacity • Lifts requiring the use of more than one crane • Any lift where any portion of the load or crane would enter the prohibited zone of energized power lines, except as defined in WAC 296- 155- 53408 • Lifts exceeding 25 tons, except in a lay down area • Multiple load line lifts • Lifts over process equipment or piping that, in the judgment of the Planner or RS, involve a level of risk higher than a routine or special lift. • Man basket (i.e. personnel platform) lifts • Lifts where the Riggers or a significant portion of the crew are inexperienced in the type of lift or the rigging to be used	High	R-11-008 Crane Operations and Rigging	Unit Operator, Competent Person, Craft APIC; R-11-008 (Attachment 2: Critical Lift Plan) Approvals
Crane Work: **Special Lifts =** Special lifts do not meet the criteria of a critical lift and present a higher level of risk than a typical routine lift.	Med	R-11-008 Crane Operations and Rigging	Unit Operator, Competent Person, Craft APIC; R-11-008 (Attachment 1: Special Lift Plan) Approvals
Crane Work: **Routine Lifts =** Routine lifts are lifts that do not meet the criteria as critical or special lifts and present a comparatively low level of risk.	Low	R-11-008 Crane Operations and Rigging	Unit Operator & Authorized Person
Diving	Med	Procedure Validation Retrieval Plan Competency Verification	Unit Operator, Competent Person, Craft APIC

TASK	TASK RISK	OTHER Applicable Standards	Minimum Approvers/Notifications
Electrical - Working on or exposed to energized electrical equipment equal to or less than 240VAC or 1.2 CAL/cm2	Low	R-53-850 & R-53-851	Unit Operator, Authorized Person
Electrical / Instrumentation: Opening a non-purged, 24VDC termination junction box	NPA		Check in/out with Unit Operators
Electrical / Instrumentation: Opening a purged analyzer enclosure in a classified area.	Low		Unit Operator, Authorized Person
Electrical: Area lighting repairs, including light bulbs, inside classified areas.	Low		Unit Operator, Authorized Person
Electrical: Opening or Working in a purged AC/DC electrical junction box	Low	Working in a live junction box procedure	Unit Operator, Authorized Person
Electrical: Tasks in office premises where no energy sources are involved or where they are fully isolated by a competent person, including: phone system installation and repair, lighting repair and painting.	NPA	R-53-850 & R-53-851	Check in/out with Unit Operators
Electrical: Working in a non-purged 24VDC termination junction box	Low	Working in a live junction box procedure	Unit Operator, Authorized Person
Electrical: Working on or exposed to energized electrical equipment greater than 240VAC or 1.2 CAL/cm2	Med	Energized Electrical Work Permit	Refer to RSP-1164; R-53-850 & R-53-851
Engineered: clamp, plug or wire wrap from specialty contractor	Med	R-50-008 Non-Weld Repairs of Pressure Equipment & Piping in Service	Unit Operator, Competent Person, Craft APIC; Notification / Approval: Safety
Engineered: Drill, tap and seal flanges with specialty contractor	Med	R-50-008 Non-Weld Repairs of Pressure Equipment & Piping in Service	Unit Operator, Competent Person, Craft APIC, Notification / Approval: Reliability Engineer or Inspection, Safety
Engineered: Stock clamp installation or fiberglass wrap on all process piping (excluding air & water) – see R-50-008)	High	R-50-008 Non-Weld Repairs of Pressure Equipment & Piping in Service	Unit Operator, Permit Competent, Maintenance Coordinator, Craft APIC, SR
Engineered: Stopple and or Hot Tap - welding and tapping on live process lines.	Med	R-53-457 Hot Taps - Welding on In-Service Equipment	Unit Operator, Competent Person, Craft APIC, R-53-457 Approvals required: Operations Supervisor, Safety, Reliability Engineer, Inspection
Excavation: Less than 4 feet deep	Med	R-11-013 Excavation, Trenching, & Shoring (Attachment D & E)	Unit Operator, Competent Person, Craft Excavation Competent Person

TASK	TASK RISK	OTHER Applicable Standards	Minimum Approvers/Notifications
Excavation: Greater than 4 feet deep	Med	R-11-013 Excavation, Trenching, & Shoring (Attachment D & E) R-11-017 Confined Space Entry	Unit Operator, Competent Person, Craft Excavation Competent Person on permit; MPC Entry Supervisor Safety (notification on all initial excavations / Trenches greater than 4 feet deep)
Excavation: requiring shoring / cribbing or over 10'	High	R-11-013 Excavation, Trenching, & Shoring (Attachment D & E) R-11-017 Confined Space Entry	Unit Operator, Competent Person, Craft Excavation Competent Person; MPC Entry Supervisor Safety (notification on all initial excavations)
Fall Protection / Rope Access: Heights using rope access methods (IRATA-certified only)	MED	R-11-033	Unit Operator, Competent Person, Craft APIC; Notification / Approval: Safety
Fire and Safety: PM inspections and minor repairs of fire and safety equipment, with hand tools. Not to include any energy isolation.	NPA		Check in/out with Unit Operators
Fire Water: Perform PM and regulatory flow tests of deluge systems	NPA		Check in/out with Unit Operators
Flare Work: Live Flare work to remove or install PSV's and HIC valves for preventative maintenance. This includes the installation of a slip blind on the live flare side of the PSV to facilitate the removal of the PSV. **NOTE**: See R-11-012 for the maximum allowable H2S for working in Flare.	High	R-11-012 Flare and Systems Containing H2S	Unit Operator, Competent Person, Craft APIC; Notification / Approval: Notify Safety Specialist and Maintenance Superintendent and get approval from Operations Superintendent or designee
Flare Work: All Live Flare work of any kind other than to remove or install PSV's and HIC's for preventative maintenance. This includes installing slip blinds and piping work of any kind on any size line. **NOTE**: See R-11-012 for the maximum allowable HS for working in Flare.	High	R-11-012 Flare and Systems Containing H2S	Unit Operator, Competent Person, Craft APIC; Notification / Approval: Notify Safety Specialist and get approval from either Operations, Maintenance, or HS&E Manager or designee.
Fresh Air: Any work requiring Fresh Air (Bottle Cart or SCBA) not in a confined or inert space – Including Blinding activities.	Med	R-11-023	Unit Operator, Competent Person, Craft APIC
Heat Stress: Ambient Temperature over 95 degrees	Med	R-14-005 Heat Related Illness Prevention Plan	Unit Operator, Competent Person, Craft APIC, Safety must conduct an analysis

TASK	TASK RISK	OTHER Applicable Standards	Minimum Approvers/Notifications
HILTE Gun (Powder Actuated Tool)	Med		Unit Operator, Competent Person, Craft APIC; Notification / Approval: Safety
Hot Work: Burn, weld and grind on doubler plates; cladding; internal liners; re-pads; and nozzle pads – (including Wire Wheel, Flapper Wheel).	High	R-11-030 Hot Work	Unit Operator, Competent Person, Craft APIC, Approval: Safety
Hot Work: Burn, Weld and Grind on piping, and or piping components in process units – (including Wire Wheel, Flapper Wheel). When cutting any lines, the line must be marked on the pipe with a Paint Pen and initialed by the Operator and the Authorized Craft employee during the JJSV.	Med	R-11-030 Hot Work R-11-036 Line Cutting	Unit Operator, Competent Person, Craft APIC
Hot Work: Burn, Weld, Grind on any structural steel in process units – (including Wire Wheel, Flapper Wheel).	Med	R-11-030 Hot Work; R-14-004 Industrial Hygiene & Air Monitoring Equipment	Unit Operator, Competent Person, Craft APIC
Hot Work: open flame of any kind within a process unit	High	R-11-030 Hot Work	Unit Operator, Competent Person, Craft APIC; Notification / Approval: Safety
Hot Work: or Hot Work Spark Potential NOT in a classified hazardous area (Zone E). This does not apply to Hot Work or Hot Work Spark Potential in the Maintenance Shops; and does NOT apply to Hot Taps or Welding on In-Service equipment.	Med	R-11-030 Hot Work.	Multiple MPC (minimum of 2) with Competent Person, and or APIC Qualifications.
Hot Work: Stress relieving of equipment (coils) within a	Med	R-11-030 Hot work	Unit Operator, Competent Person, Craft APIC
Hot Work: Use of heat gun in any application.	Med	R-11-030 Hot work	Unit Operator, Competent Person, Craft APIC
Housekeeping	NPA		Check in/out with Unit Operators
Hydro blasting High Pressure - Greater than 2000 psi	Med	RSP-1708-000	Unit Operator, Competent Person, Craft APIC
Hydro blasting - in a confined space (either High Pressure or Low Pressure)	Med	RSP-1708-000	Unit Operator, Competent Person, Craft APIC; Notification / Approval: Safety OPS & Maintenance
Hydro blasting: in confined space with Short Barrel Lance	High	Qualified Short Barrel Operator Required. RSP-1708-000	Unit Operator, Competent Person, Craft APIC, Safety, OPS, & Maintenance Supervisor (Verbal Approval)
Hydro Blasting - Low Pressure (Pressure Washing / Power Washing) – Less than 2000 psi.	Low		Unit Operator, Authorized Employee

TASK	TASK RISK	OTHER Applicable Standards	Minimum Approvers/Notifications
HVAC: in Zone E	NPA	Must have JSA	Unit Operator, Authorized Person
HVAC: Work requiring energy isolation and or Work in process units	Low		Unit Operator, Authorized Person
Hydro Cutting: (water) cutting process lines/equipment.	Med	R-11-036 Pipe Cutting	Unit Operator, Competent Person, Craft APIC; Notification/Approval: Safety R-11-036 Checklist
Hydrotesting	Med		Unit Operator, Competent Person, Craft APIC
Inspection: of roof on fixed or cone roof tanks.	Low	R-11-018 Tank Roof Access	Unit Operator, Authorized Person
Inspection: Radiography (X-Ray)	Low		Unit Operator, Authorized Person
Inspection: Ultrasonic, magnetic particle testing on, NDE & NDT piping, vessels and fixed equipment	Low		Unit Operator, Authorized Person
Inspections: UT Inspections with Intrinsically Safe Equipment	Low		Unit Operator, Authorized Person
Inspections: AUT Automatic UT Inspection Tools (Crawlers, Spiders, etc.)	Low		Unit Operator, Authorized Person
Instrumentation: Blowing down transmitters not requiring fresh air	Low		Unit Operator, Authorized Person
Instrumentation: Blowing down transmitters requiring fresh air (can be done in an SCBA work pack).	Med		Unit Operator, Competent Person, Craft APIC
Instrumentation: Field instrument work, including PIS tests, where connecting/disconnecting from a process or working on the electrical components or wiring (excluding thermocouple wiring)	Low		Unit Operator, Authorized Person
Insulation: Asbestos disturbance or removal of asbestos containing material (ACM)	Med	R-14-009 Asbestos	Unit Operator, Competent Person, Craft APIC
Insulation: Installation or removal (no asbestos)	Low		Unit Operator, Authorized Person
Insulation: Removal of insulation on a known hydrocarbon/chemical leak	High	ERM (section 11.9);	Unit Operator, Competent Person, Craft APIC, Approval: ERM Assessment
LDAR: (VOC monitoring)	NPA		Check in/out with Unit Operators
LDAR: (VOC monitoring) when fall protection is required	Low		Unit Operator, Authorized Person

Lead, removal of suspected lead containing material	Med	R-14-003 Lead Management Program	Unit Operator, Competent Person, Craft APIC
Line Break: Opening Flanges - Breaking Containment on any verified non-toxic or not flammable material line.	Low	R-11-005 (If no additional hazards or PPE required = Low); R-30-008	Unit Operator, Authorized Person
Line Break: Opening Flanges - Breaking Containment with potential or known toxic or flammable chemical present.	Med		Unit Operator, Competent Person, Craft APIC,
Line Breaks: Opening Flanges - Breaking Containment against an Alternate Isolation Device (Stopple, Line Freeze, etc.)	Med	R-30-008 Blinding and Isolation.	Unit Operator, Competent Person, Craft APIC
Line Breaks: Opening Flanges - Breaking Containment on system when valve is not holding or has unverified valve isolation.	Med		Unit Operator, Competent Person, Craft APIC
Low Energy Work: Non-intrinsically safe portable equipment or devices in classified hazardous area (measuring, diagnostic, drills, etc.)	Low	R-11-005 Permitting	Unit Operator, Authorized Person
Mercury: Cleaning Mercury in Process equipment	Med	R-11-023 PPE	Unit Operator, Competent Person, Craft APIC, Safety to evaluate Mercury Vapors in Confined Space and large amounts of Mercury
Mercury: Cleaning up Mercury spills.	Low	R-11-023 PPE	Authorized Person, Safety required to evaluate Mercury Vapors for any amount more than a thermometer
Nitrogen: Opening equipment with a known N2 purge	Med	R-30-009 Refinery Nitrogen System. R-14-008 Respiratory Protection Program	Unit Operator, Competent Person, Craft APIC
Painting; Non-lead material	Low		Unit Operator, Authorized Person
Scaffolding: Erecting, dismantling or modifying any of the following types: • Scaffolds that are greater than 60 feet tall (measured from base plate) • Engineered scaffold • Scaffolds that may exceed 80% of the design load rating while in use • Scaffold or platforms supported by non-rigid supports (ropes, cables, etc.)	Med	R-11-026 Construction, Inspection and Use of Supported and Suspended Scaffolding	Unit Operator, Competent; Person, Craft APIC, Scaffold Engineer
Scaffolding: Erecting, dismantling or modifying installations that are built from grade or a dedicated, fixed platform and are less than or equal to 60 feet tall.	Low	R-11-026 Construction, Inspection and Use of Supported and Suspended Scaffolding	Unit Operator, Authorized Person

TASK	TASK RISK	OTHER Applicable Standards	Minimum Approvers/Notifications
Temporary Piping: Connecting any temp pipe to the Flare.	Med	R-50-002 Temporary Piping, R-11-012	Unit Operator, Competent Person, Craft APIC
Temporary Piping: Connecting temp pipe to process equipment with a double block and bleed or Blind.	Low	R-50-002 Temporary Piping, R-30-008 Blinding	Unit Operator, Authorized Person
Temporary Piping: Connecting temp pipe to process equipment not blinded or double block & bleeder	Med	R-50-002 Temporary Piping, R-30-008 Blinding	Unit Operator, Competent Person, Craft APIC
Utilities: Steam trap surveys - use of intrinsically safe temperature guns - no breaking containment	NPA		Check in/out with Unit Operators
Vibration testing: on rotating equipment (intrinsically safe equipment)	NPA		Check in/out with Unit Operators
Vibration testing: on rotating equipment (non- intrinsically safe meter)	Low		Unit Operator, Authorized Person
Visual inspections and walkthroughs requiring no tools or equipment (e.g., audits, safety walks, administrative tasks and job site visits)	NPA		Check in/out with Unit Operators
Zone E: Remodeling or other major work such as drywall, removal and/or installation of flooring, de- energized electrical work (installing conduit, wiring, etc.), moving into/out of, etc. for buildings inside refinery fence line	Low	R-11-005 Permitting	Unit Operator, Authorized Person

Revision #	Preparer	Date	Changes
1	D. Brewer	6/27/14	New Work Classification Table; New Permit to Work Program.
2	D. Brewer	11/7/14	Added new Jobs: Acid; Automotive Permitting; Automotive; Bolting; Caustic; Cold Cutting; Electrical; Fresh Air; Heat Stress; Hot Work; Instrumentation; Insulation; Line Breaks;
3	D. Brewer	1/7/15	Added Crane Work per changes to R-11-008.
4	D. Brewer	8/31/15	Added Chemical Work; Changed Cold Cutting to include Paint Pen and JJSV requirements.
5	D. Brewer	10/28/15	Added HILTE Gun; and Fresh Air
6	D. Brewer	11/17/16	Added Insulation Removal with known hydrocarbon leak (TSHS-014); added Scaffold above 60 feet.
7	D. Brewer	11/27/18	Added to Cold Cutting to include R-11-036 for Pipe Cutting.

8	D. Brewer	3/25/19	Changed Bolting tasks to reflect changes in R-50-015.
9	D. Brewer	4/16/19	Changed Crane Tasks to reflect R-11-008 requirements; Changed Line Breaks on Non-Toxic lines to Low Risk; Eliminated Hot Drop Out Tasks; Added Hydro Ballasting Low Pressure as a Low Risk Activity; Small grammatical edits.
10	D. Brewer	4/24/19	Changed Routine Lifts back to Low Risk. Added Document revision Table to identify when and what is changed; Added Double Under Line to identify NEW changes.
11	D. Brewer	3/24/20	Changed Flare Work to add requirement to install slip blinds on the live flare side (when available) to pull a PSV.
12	D. Brewer	4/26/21	Updated to refer to and meet RSP requirements.
13	D. Brewer	12/13/21	Updated Hydro Blasting sections to refer to RSP-1708-000 requirements.
14	K. Rowan	8/8/2022	Updated TSO references to new Document Control numbers. Adding Work Classification Table as an appendix in R-11-005 (Safe Work Permit)
15	T. Kies	10/5/2023	Changed routine crane lifts minimum approvers to unit operator and authorized person.