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AMIRAL PROJECT

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PERMIT TO WORK SYSTEM

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1 PURPOSE

This procedure and guidance information has been developed to establish a safe and uniformed system for the issue of permits to work during construction and pre-commissioning/commissioning in AMIRAL PKG-4 PROJECT.

2 SCOPE

During the entire phase of the project, including construction, pre-commissioning / commissioning phases, CONTRACTOR shall implement an approved PTW system in line with GI 2.100 and AMIES-0-119 (Work permit procedures) for all hazardous work.

This procedure shall only be applied and use to all construction, pre-commissioning and commissioning activities of AMIRAL PROJECT. The requirements of this procedure are mandatory for all personnel under the control of CONTRACTOR.

3 REFERENCE DOCUMENTS

- COMPANY CSM (GI 2.100 Work Permit System)
- COMPANY CSM (GI 6.012, Isolation, Lockout and Use of Hold Tags)
- Contractor Isolation Lockout and Tagout (SA-AMI-000-HDAI-710016)
- Contractor Site Safety Program (CCSP)

4 TERMS AND DEFINITIONS

4.1. COLD WORK

Activities that will not produce sufficient energy to ignite flammable atmospheres or combustible materials. Examples may include work with hand tools, scaffold erection, modification and dismantling, asbestos removal, sand removal, Painting, manual structural erection, and manual excavation etc.

4.2. HOT WORK

Any activity that may develop sparks, flames or heat sufficient to cause ignition. Examples include use of internal combustion engines, welding, torch use, grinding,

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abrasive blasting, work on live electrical apparatus, or the use of a device not rated for the electrical classification of the area

4.3. CONFINED SPACE

1. Any space that:
   - Has limited or restricted means of entry or exit.
   - Is not designed for human occupancy.
   - Contains or has the potential to contain a hazardous atmosphere.
   - Contains any other recognized serious safety or health hazard(s).

   Examples of confined spaces include tanks, vessels, vessel skirts, vaults, manholes, sewers, valve boxes, lift stations, and structures or excavations 1.2 m (4 ft.) deep or deeper. Areas above floating roof tanks where the top of the roof is more than 1.2 m (4 ft.) below the rim of the tank are also considered confined spaces.

   Confined Space Entry:

   The entrance of any part of the body into a space that meets the criteria for a confined space. Entry includes all periods of time when the confined space is occupied.

2. Confined Space Entry Standby Man:

   Individual(s) assigned by the confined space entry supervisor at each designated entry point to continuously monitor the confined space entry while personnel (entrants) are inside the confined space. Confined space entry standby men shall be trained and qualified to carry out their responsibilities per the Saudi Aramco Construction Safety Manual (CSM) and this instruction

4.4. WORK PERMIT ISSUER (WPI)

The Contractor employee designated by the Project Manager to issue work permits (also referred to as issuers) will come directly from the Construction, Pre-commissioning, or Commissioning Team. The issuer(s) will have knowledge of all

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systems and work within their designated area. This individual must be certified by Contractor Safety Department to have the experience, knowledge and training to adequately assess job related hazards and is capable and authorized to prescribe appropriate precautionary measures. He shall be under the authority and supervision of the Project Construction Manager.

4.5. WORK PERMIT RECEIVER (WPR)

The Contractor/Subcontractor employee who has been certified by the Safety Department to have experience, knowledge and training to identify job related hazard sign and authorized to receive work permits (also referred to as receivers). Work permit receiver is authorized to implement precautionary measure mentioned in the permit during the execution of the job.

4.6. DESIGNATED REPRESENTATIVE

An employee designated by Project Manager to perform the duties associated with issuing work permits. They are individuals who are experienced, competent and familiar with the requirements of this instruction. Designated representatives cannot issue work permits.

4.7. CONFINED SPACE ENTRY SUPERVISOR

The person responsible for directing all aspects of work in a confined space. Confined space entry supervisors shall be trained and certified/qualified to carry out their responsibilities in a Confined Space as per the Saudi Aramco CSM and this instruction

4.8. STANDBY MAN

1. Trained and certified to monitor activities inside the confined space.
2. A person who has been trained on the Confined Space Entry Procedure, Emergency Response Procedures and equipment necessary for confined space entries
3. Can demonstrate the ability to Signal an Emergency, effectively communicate to

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first responders and summons help to his specific location in an emergency

4.9. Equipment Opening/Line Break

Activities associated with the initial opening of equipment, vessels or piping that is part of a closed system that contains (or has the potential to contain) flammable, combustible, toxic or injurious materials (e.g., high-pressure steam).

4.10. AUTHORIZED GAS TESTER (AGT)

A person who has been trained and authorized to use portable gas testing equipment and is able to interpret the results received.

4.11. EXCAVATION COMPETENT PERSON

A person who by virtue of qualification and experience, has been authorized by the Project Manager to supervise excavation work and to check installed underground facilities prior to excavation work

4.12. FIRE WATCH

An individual designated by the Contractor who:

1. Is aware of the inherent hazards of hot work and the types of fires that may result.
2. Monitors activities related to hot work activities and is knowledgeable in the controls required to prevent fires from occurring.
3. Has fire protection equipment readily available and is trained in its use.
4. Is familiar with the procedures for notifying appropriate personnel in the event of a fire.

4.13. FLAGMAN SUPERVISOR

Flagman Supervisor is an individual authorized by the contractor who:

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1. Oversees the flagman team and ensures proper deployment of traffic control measures (flags, whistles, batons, lights) to maintain site safety.
2. Ensures flagmen are trained and knowledgeable in site-specific safety protocols and procedures.
3. Provides clear work instructions to flagmen and monitors their performance to ensure compliance with safety protocols.
4. Ensures the safe and efficient movement of vehicles and equipment across the site, coordinating with operators as needed.
5. Responds to incidents or unsafe conditions by quickly alerting the appropriate personnel and taking necessary actions to prevent further risks.

4.14. FLAGMAN

An individual authorized by contractor who:

6. Control site traffic and vehicle/equipment movement utilizing flags, whistle, baton lights.
7. Completed in-house flagman and Human Machine Interface trainings.
8. Communicates clearly and consistently with vehicle and equipment operators to ensure safe and efficient movement across the site.
9. Is familiar with emergency response protocols and can promptly alert the appropriate personnel in the event of an incident or unsafe condition.

4.15. JOINT SITE INSPECTION

An inspection conducted by the work permit issuer (or his designated representative) and the receiver, to conduct a job site hazard analysis, perform necessary gas tests and review the work permit conditions

The joint site inspection allows for the sharing of information before commencing work. The following shall be completed by the involved parties during the joint site inspection:

3.13.1 Conduct applicable atmospheric gas tests per GI 2.100 and GI 2.709 and record the results on the permit form and/or supplemental gas test records attachment.

3.13.2 Conduct an assessment of the work activity to be conducted (i.e., hazard3.12.2 Conduct an assessment of the work activity to be conducted (i.e., hazard

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analysis), including the individual analysis), including the individual job steps the equipment to be used and the working environment at the job site.

3.13.3 Review the protective measures specified by the applicable work permit(s) to verify they are in place and address the hazards of the work activity.

4.16. RESTRICTED AREA

An area that has been designated by CONTRACTOR HSE Managers as requiring the PTW system. These include all areas where hydrocarbons, flammable liquids or gases, or toxic agents are handled, stored, piped, or processed in bulk quantities, as well as any other restricted area where activities such as steam blows, hydro tests, leak tests, cleaning, loading, or dry out are performed.

4.17. STOP WORK

Stop work signage shall be placed in all visible locations at work sites.

Text shall be in English and Arabic. English text: If it's unsafe, stop work and report it to your supervisor.

Stop work Authority shall consist of 5 steps.
1. Stop unsafe work.
2. Notify affected personnel and supervision.
3. Investigate the cause for stopping work and correct the hazard.
4. Communicate findings and resume work.
5. Follow up.

All personnel, whether Saudi Aramco employee or contractor shall have the authority and obligation to stop any observed work at all locations.

4.18. LOWER EXPLOSIVE LIMIT

The lower vapor concentration boundary for a specific compound or material of interest at which the vapor-air mixture will propagate a flame (i.e., explode) if ignited. When testing for combustible gas using gas monitoring instruments, the amount of combustible gas present is specified in terms of % LEL: 0% LEL being a combustible gas-free atmosphere and 100% LEL being an atmosphere in which the gas is at its LEL

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4.19. ABBREVIATIONS

PTW	Permit To Work
WPI	PTW Issuer
WPR	PTW Receiver
HSE	Health Safety and Environment
MS	Method Statement
JSA	Job Safety Analysis
GI	General Instruction
CSM	Constructions Safety Manual
LEL	Lower Explosive Limit
LOTO	Lock-out/Tag-out
SCBA	Self-Contained Breathing Apparatus
AGT	Authorized Gas Tester
Ppm	Part Per Millions
CO	Carbon Monoxide
H_2S	Hydrogen Sulfide
O_2	Oxygen
SIMOPs	Simultaneous Operations

5 RESPONSIBILITIES

5.1. PROJECT MANAGER

1. The Project Manager has overall responsibilities for ensuring that provisions are made for the implementation of safe systems of work and also ensure that all the procedures, rules and regulations are followed

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2. The implementation of the "Permit to Work" scheme shall be the joint responsibility of the Project Manager and the Construction Manager with full assistance from the Safety Manager and Subcontractors nominated personnel.
3. Giving the Authority as a permit issuer to the certified person who has well known about work activities of his part and risk control of site work as well as work permit system.
4. Ensure that section heads and line managers implement the HSE policies within their respective areas of control.

5.2. CONSTRUCTION MANAGER

1. Shall ensure appropriate work procedures are established and maintained for all activities under the permit to work system.
2. Ensure that the activity heads managers are responsible and accountable for implementing health safety and environmental procedures within their areas of control.
3. Shall assure there is adequate coverage of PTW personnel to assure the Permit to Work System is being reviewed, permits issued in a timely manner (within 24 hour of request) and that personnel are available for coordination, questions, modifications, or Stopping of Work for any and all shifts, including night, weekend, or holiday work.
4. Shall ensure appropriate procedures are in place for any emergency situations that may arise following of non-conformity with the PTW.
5. Shall ensure that the permit-to-work system is audited and reviewed.
6. Shall allocate sufficient resources to enable the permit-to-work system to be properly implemented.

5.3. PRE-COMMISSIONING / COMMISSIONING MANAGER

1. Ensure comprehensive pre-commissioning and commissioning procedures are developed, documented, and integrated into the Permit to Work (PTW) system.
2. Establish clear guidelines for commissioning activities, including safety protocols, testing

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procedures, and system integration requirements.

3. Coordinate with construction, operations, and maintenance teams to ensure a smooth transition from construction to commissioning phases.
4. Facilitate regular meetings with to discuss and resolve any PTW issues related to commissioning activities.
5. Review and approve all PTW applications related to commissioning activities to ensure compliance with established safety and procedural standards.
6. Ensure all commissioning permits are issued promptly and accurately, within 24 hours of request, and are adequately documented.
7. Ensure that qualified and trained commissioning personnel are available to oversee commissioning activities and manage PTW requirements.
8. Ensure that all commissioning activities comply with site safety regulations and procedures.
9. Ensure that all commissioning personnel are trained and familiar with emergency procedures and their roles during an emergency.

5.4. SAFETY MANAGER

1. Shall be responsible for the continuous monitoring and effective implementation of this PTW procedure.
2. Ensure that all HSSE related impacts and aspects are recognized and mitigated.
3. Shall establish criteria of required training for the selection of Permit issuer and Receiver certification.

   Minimum required training

   - Hazard Recognition and Control
   - Working at Height
   - Lock out Tag out
   - Lifting Work
   - Confined Space Entry

5.5. SAFETY OFFICER

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1. Permit Issuance: Review and approve or reject permits for work activities to ensure they meet safety standards and requirements. Verify that all necessary safety measures are in place before issuing a permit.

2. Risk Assessment: Conduct risk assessments for each work activity to identify potential hazards and develop controls to mitigate them. This includes identifying potential risks, evaluating the likelihood and severity of accidents, and implementing measures to prevent or minimize harm.

3. Job Hazard Analysis (JHA): Conduct JHAs for each work activity to identify hazards, assess risks, and develop controls to mitigate them. Share the JHA with the work crew and ensure they understand their roles and responsibilities in maintaining a safe working environment.

4. Safety Procedures: Develop, review, and update safety procedures for various work activities to ensure they are compliant with regulations and industry standards.

5. Supervision: Monitor work sites and supervise personnel to ensure they are following safety procedures, using personal protective equipment (PPE), and taking necessary precautions to prevent accidents.

6. Incident Investigation: Investigate incidents or near-misses to identify root causes, analyze data, and develop corrective actions to prevent similar incidents from occurring in the future.

7. Training and Awareness: Provide training and awareness programs for personnel on safety procedures, PPE use, and emergency response protocols.

8. Compliance: Ensure that all work activities comply with regulatory requirements, industry standards, and company policies.

9. Communication: Communicate with workers, supervisors, and management on safety issues, concerns, and recommendations for improvement.

10. Record Keeping: Maintain accurate records of permits issued, risk assessments conducted, JSAs completed, incident investigations, and training programs.

5.6. PERMIT ISSUER

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1. An Internal PTW cards for issuers as proof of their training and competencies. They shall attend and pass the work permit certification course and all required pre-requisite courses.
2. Authorize and issue the PTW after ensuring that all supporting document are attached, have been reviewed, and proposed precautionary measures are adequate.
3. The issuer shall approve and issue a permit only after he (or his designated representative) has performed the following:

a. Verified that “Section 1 - Work Description” of the work permit form has been completed.

b. Completed “Section 2 - Hazard Identification and Control” of the work permit form.

c. Reviewed precautions and restrictions to control the hazards associated with the job site and/or work activity.

d. Attached applicable checklists/forms to the work permit that provide supplemental information and/or approvals for the particular work activity, including but not limited to excavation checklist, confined space entry log and gas test form, blind list/isolation plan, critical lift plan, or hydrotest form. All checklists/forms shall be completed.

e. Conducted a joint site inspection with the receiver using the Hazard Analysis Checklist on the back of the work permit form. The individuals who participate in the joint site inspection shall sign the Hazard Analysis Checklist on the work permit to verify the checklist was completed.

4. Ensure that all hazards associated with the proposed work have been identified.
5. Ensure that joint site inspection shall be conducted with the permit receiver, Including completion of Hazard analysis checklist.
6. Isolation when necessary, must be implemented through LOTO permit.
7. Close the permit after completion of the job or when permit duration has expired.
8. The Issuer monitor the job site frequently to make sure all work permit condition and precautions applicable AMIRAL HSE regulations are being met.

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9. The issuer shall obtain the approval and counter signature of any other organizations whose operations or facilities (underground utilities, etc.) will be affected, before issuing a work permit. Countersigning organizations have the option of conducting a joint site inspection with the issuer and receiver.
10. Counter signature shall be from the Discipline Manager of the affected organization.
11. Supporting documents / approvals are attached to the permit request.

5.7. PERMIT RECIEVER

1. An internal PTW cards for receivers as proof of their training and competencies.
2. Receiver shall receive and sign properly issued work permit prior to executing any job. (No permit, No work)
3. Conduct tool box meeting with his crew prior to the start work. Must understand the response to an alarm, knowing the location of nearest assembly points including the evacuation route.
4. Permit Receiver to make sure that all the hazards identified in the PTW is communicated to everyone involved in the work performed.
5. Participate in the joint site inspection, including the hazard analysis with the issuer.
6. All precautions specified in work permit are adhere to at all times.
7. Work permit shall be kept in the permit box at the work location at all time during permit duration.
8. Remain at the job site and monitor the work to make sure all work permit conditions and safety requirement are being met.
9. Immediately stop work if the work activities or site conditions changes and it’s no longer safe for the work to proceed.
10. Return it to designated site office to close the work permit after completion of the job or at the end of the shift (working day).

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5.8. PERMIT COORDINATOR

An employee designated by HSE Manager to perform the duties associated with monitoring existing ongoing PTWs. They are individuals who are experienced, competent and familiar with the requirements of this instruction.

5.9. DESIGNATED REPRESENTATIVE

Shall perform the duties associated with issuing the permits. He shall perform the following:

1. Verifying that “Work Description” of the work permit form has been completed. Work permits shall clearly specify date and duration of the work, work location, work to be performed and equipment to be used at the job site.
2. Complete “Special Protection” of the work permit form. Work permits shall clearly identify the required protective equipment, isolation method(s), potential exposures, fire protection methods, additional safety precautions and/or actions to be taken in the event of an emergency.
3. Review precautions and restrictions to control the hazards associated with the job site and/or work activity (see applicable work permit sections in this instruction) with the receiver and listed them on the work permit.
4. Attached applicable checklists/forms to the work permit that provide supplemental information and/or approvals for the particular work activity, including but not limited to excavation checklist, confined space entry log and gas test form, critical lift plan or pre-job craft safety meeting. All checklists/forms shall be completed.
5. Conduct a joint site inspection with the receiver.
6. Shall ensure that atmospheric gas tests have been performed by a certified gas tester as required by GI 2.709 and that “Gas Test” of the work permit form has been completed. If continual or periodic gas monitoring is required, the frequency shall be specified on the permit.

5.10. CONFINED SPACE ENTRY SUPERVISOR

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Monitor the job to make sure the Confined Space Entry plan is adhered to including all work permit conditions and applicable SA safety and health requirements are being met.
Standby man shall be assigned by the CSES at each designated entry point and shall continuously monitor the confined space entry while personnel are inside the confined space. Ensure that a confined space rescue procedure is in place before work begins.

5.11. STANDBY MAN

1. A designated person that can communicate in English or native language by the personnel entering the confined space
2. Review the confined space entry plan and applicable work permits to understand the confined space hazards, precautions, responsibilities and emergency procedures.
3. Understand the effects of exposure to potential hazardous substance(s) in the confined space.
4. Maintain a confined space entry log and maintain a continuous count of entrants.
5. Prevent unauthorized personnel from entering the confined space.
6. Monitor activities inside and outside the confined space to determine if it is safe for entrants to enter and/or remain inside the space.
7. Maintain two-way communication with entrants to monitor entrant status (e.g., behavioral effects of hazard exposure) and alert entrants of a need to evacuate the confined space.
8. Have communications equipment readily available on-site and immediately notify proper personnel (e.g., CSES, rescue team) in event of an emergency.
9. Remain at the confined space entry point until relieved by another designated standby man or until all entrants have exited the confined space.
10. Never attempt to enter the confined space, even in an emergency, until relieved.
11. Perform no other duties that could interfere with his primary responsibilities as a confined space standby man.

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12. Order entrants to evacuate the confined space under any of the following conditions:
    - An unsafe condition develops inside or outside the confined space.
    - An entrant displays abnormal behavioral effects of hazard exposure.
    - If he must leave the area and no relief confined space standby man is provided.

5.12. AUTHORIZED GAS TESTER

1. Responsible for carrying out gas tests (oxygen, toxic and flammability) at the frequency specified on the permit and write the gas test reading in the permit allocated space.
2. Responsible for doing the self-calibration every month or as specified by manufacturer.
3. Gas testing personnel shall be trained, tested and re-certified every two years in the correct use of gas testing equipment.
4. For additional Information and reference please see G.I 2.709 GAS TESTING USING PORTABLE GAS MONITORS ISSUE DATE 02/07/2019 and, CSM I-6 Confined Spaces December 2016 and CSMII-1 Excavation and Shoring

5.13. EXCAVATION COMPETENT PERSON

It is general responsibility for the competent person to ensure that all aspects of the excavation standard and the general duty clauses as mentioned in CSM Part II-01 to determine and identify;

1. Size of the excavation
2. Soil classification
3. Stability and proximity of adjacent structures
4. Location of underground obstruction/facilities

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5. Weather and soil moisture conditions
6. Sources of soil vibrations
7. Location and type of barricades, signs and lighting
8. Method of excavating and removal of soil
9. Protective system to be used
10. Emergency rescue equipment
11. Impact the excavation will have on access for vehicles/personnel in an event of an emergency
12. Suitable means of access/egress
13. Preparation of excavation plan as well as documented inspection

5.14. FIRE WATCH

1. Fire watcher should wear red vest for identification.
2. Shall be aware of the inherent hazards of hot work and the types of fires that may result.
3. Responsible to monitor activities related to hot work activities and is knowledgeable in the controls required to prevent fires from occurring.
4. Has fire protection equipment readily available and is trained in its use.
5. Is familiar with the procedures for notifying appropriate personnel in the event of a fire.
6. Watches for fires in all exposed areas and tries to extinguish them only when the fire is obviously within the capacity of the equipment available. If the fire is not within the capacity of the extinguishing equipment, then the fire watch shall immediately notify proper personnel to activate emergency response.
7. A fire watch shall remain in the work place 30 minutes after completion of the job to watch for possible re-ignition.

6 QUALIFICATION (TRAINING)

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Responsible persons shall be trained as per below table.

Classification	Work Permit System	Hazard Recognition	Working At Height	Confined Space Entry	Gas Testing	Crane Lifting	Fire Prevention	LOTO	Emergency Preparedness & Response
Issuer (WPI)	✔	✔	✔	✔	✔	✔	✔	✔	✔
Receiver (WPR)	✔	✔	✔	✔	✔	✔	✔	✔	✔
PTW Coordinator	✔	✔	✔	✔	✔	✔	✔	✔	✔
HSE Personnel	✔	✔	✔	✔	✔	✔	✔	✔	✔
Discipline Mngr./Sup	✔	✔	✔	✔		✔	✔	✔	✔
Firewatch	✔	✔		✔	✔		✔		✔
Standby man				✔					✔
Gas Tester	✔				✔		✔		✔
Flagman		✔		✔	✔		✔		✔

All training certificates are valid for 1 year from the date of issue and shall require revalidation through completion of refresher training of all required trainings.

Certification work flow (Issuer and Receiver)

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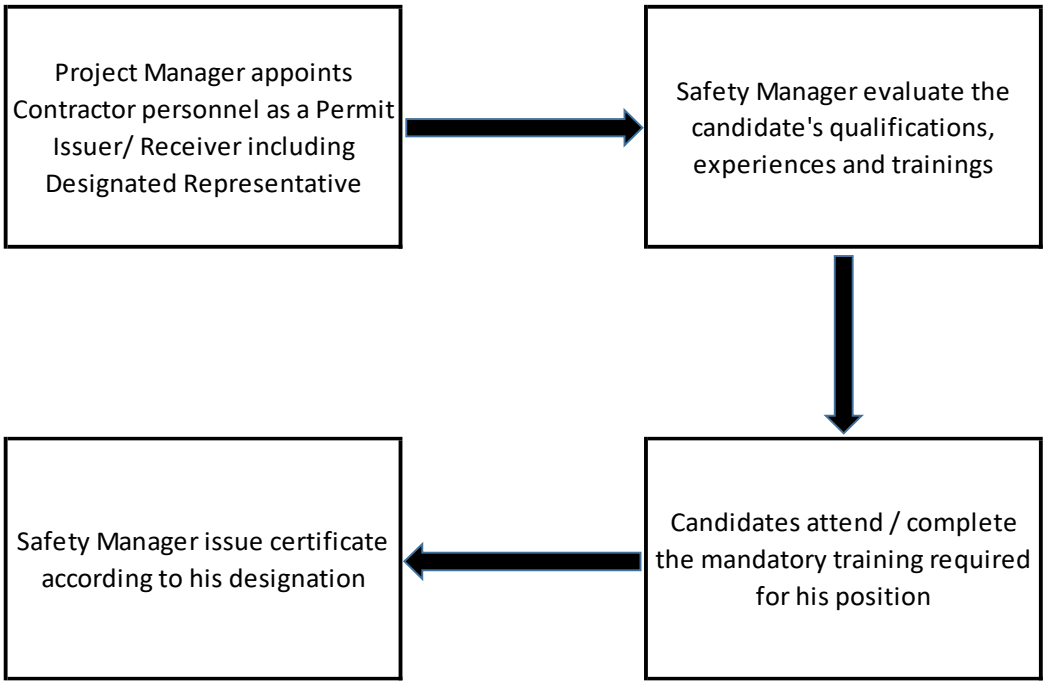

CONTRACTOR shall issue an internal PTW Identification card (ID Card) for PTW Issuers and Receivers (WPI & WPR), Authorized Gas Tester, Fire Watcher, Confined Space Entry Supervisor, etc.as proof of their training and competencies.
Include general awareness training to all personnel so they can understand what is the PTW system and its importance. No PTW no work.

7 INSTRUCTIONS

7.1. GENERAL

1. Work permit shall be issued for all of work activities carried out in the AMIRAL PKG-4 areas and the project support facilities as demarcated in the attached plot plan (Attachment 11). Saudi Aramco PTW system will be followed in the existing plant area.
2. The issuer and receiver are jointly responsible for the safety of personnel and

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equipment at the job site. A joint site inspection shall be conducted for all work permits. Work shall not begin before the permit has been properly signed.

3. Visual inspection and measurements at site required Cold work permit due to still involve hazards that must be evaluated during the joint site inspection. Basic precautions of conducting atmospheric gas tests, wearing personal protective equipment (PPE), use of barricades and warning signs, and any special work procedures may still be required for cold work activities.
4. Visual inspection and measurements at site are not required work permits.
5. All permit issued shall require minimum support documents. (i.e. J.S.A & Method statement and as specified in J.S.A)
6. Certified Permit Receivers shall request the proper work permit from the Permit Issuer prior to starting any job.
7. Permits shall be issued for specific tasks at specific locations. Work permits shall clearly specify date and duration of the work, work to be performed and equipment to be used at the job site.
8. Special requirements and precautions, such as fire watches, self-contained breathing apparatus (SCBA), lifelines, and barricades shall be indicated on the permit.
9. The issuer or receiver shall stop work and cancel the permit if there are changes in the work activities or site conditions that could potentially create an additional hazard to personnel, damage equipment or facilities, disrupt operations, or harm the environment. If a permit is cancelled, a new permit shall be issued after the work site has been made safe.
10. Validity Period
    - All permits shall have a maximum duration of 1 day. Prior to issue, the issuer and receiver should conduct an inspection to ensure potential hazards are identified and additional control measures are implemented as needed
    - The validity of the permit is 12 hours (the validity may be changed during winter time) and must be closed and returned to the issuer office upon completion of the job or at the end its validity. Permit may be extended as necessary.

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11. Extension
    - The work permit may be extended if the work required to continue beyond 12 hours validity and shall not to exceed 16 hours.
12. On the completion of the work the work permit receiver shall check the worksite and ensure that all tools and equipment have been removed as well as housekeeping completed.
13. Permit issuer shall ensure that the area is acceptable prior to signing to accept the hand-over of the area.
14. Permit issuer will be assigned to issue permit on a specific area (to be defined). Number of areas will be increased as the work progresses.
15. Non-compliance/violations of the permit condition will result to warnings, re-training and/or cancellation of the certificates depending on the severity and number of violations.
16. Heavy Equipment Control is only under Work Permit Receiver.
17. Signed, Approved and validated Hot Work Permit shall be shown to heavy equipment operator.
18. Heavy Equipment Route and Positioning shall be discussed and monitored by Job Site Safety Supervisor.
19. Work Permit Receiver will be allowed to take multiple PTW under the following conditions
    - If work is in the line of sight of PTW Receiver.
    - Should these activities are not be of high risk.
20. For work to be carried out in a SA-specified — restricted area, or as may be required by the APO, contractor and subcontractor personnel shall comply with the requirements of GI 2.100, GI 2.102, GI 2.709, GI 6.012, as well as Chapter I-4, Work Permit System, of the CSM.
21. The issuer must verify that the receiver’s certificate is valid and approved by the proponent organization for the type of work to be performed."

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7.2. TYPE OF PERMIT

1. COLD WORK PERMIT (Blue)

- When work permits are required, cold work permits control work activities that will not produce sufficient energy to ignite flammable atmospheres or combustible materials.
- Cold work can still involve hazards that must be evaluated during the joint site inspection. Basic precautions of conducting atmospheric gas tests, wearing personal protective equipment (PPE), use of barricades and warning signs, and any special work procedures may still be required for cold work activities
- Cold work can still involve hazards that must be evaluated during the joint site inspection. These work activities may require the issuer (or designated representative) to conduct atmospheric gas tests. Workers on the jobsite may be required to use specific personal protective equipment (PPE), erect barricades and warning signs, and follow any special work procedures.

For critical lifts, exceptional transport: accepted and signed lifting plan, accepted transport plan needs to be attached.

2. HOT WORK PERMIT (Red)

- When work permits are required, hot work permits control work activities that may produce enough energy to ignite flammable atmospheres or combustible materials.
- Activities in restricted areas requiring a hot work permit include, but are not limited to:
    - Open flames, welding or torch cutting.
    - Use of spark-producing tools or equipment.
    - Abrasive blasting.
    - Use of internal combustion engines.
    - Work on or in close proximity to live electrical apparatus.

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- Use of a device not rated for the electrical classification of the area.

- In hydrocarbon facilities, all sewers within 23 m (75 ft.) of all ignition sources must be covered or water sealed to prevent escape of flammable/combustible vapors or gases.
- Hot work is not permitted if the atmosphere is above 0% LEL.
- Fire protection equipment (e.g., fire extinguishers) shall be readily available.
- During activities that involve cutting, welding or open flame, a fire watch shall remain in the area for no less than 30 minutes after the hot work is finished.
- Combustible material around the work area shall be protected against sparks, welding slag or heat using fireproof material or by wetting.
- Open fires and/or open burning of materials require an authorization obtained from the Amiral Fire Protection Department.
- Prior authorization shall be obtained from the relevant Amiral department for pre-commissioning and commissioning activities such as steam blows, hydro tests, leak tests, cleaning, loading, dry out, etc.
- Prior authorization is not required in all pre-commissioning/commissioning activities except if there are potential safety concerns or SIMOPS activities.

3. CONFINED SPACE ENTRY PERMIT (Green)

- The purpose of the Confined Space Entry Permit is to ensure:
  - Proper preparation of confined spaces prior to entry.
  - Safe entry by personnel, including provisions for rescue.
  - Restoration of confined spaces.
- Work activities inside a confined space may require a Hot or Cold Work Permit to be issued in combination with the Confined Space Entry Permit.
- A Confined Space Entry Plan and a Confined Space Rescue Plan shall be attached to the application for the Confined Space Entry Permit and will be kept at the work area during the Confined Space activity.

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- Confined space warning signs shall be provided and shall comply with SAES-B-067.
- Confined space entry plan shall include the following as a minimum

1. Results of hazard evaluation
2. Location and method of each isolation point of the confined space.
3. Procedure for flushing, purging and ventilation of confined space. 4. Access-egress requirements including necessary barriers to prevent un authorized entry.
5. Types and frequency of atmospheric testing.
6. Types of equipment required for entry.
7. Potential hazards that could develop as a result of simultaneous operations adjacent to confined space.
8. Emergency response procedures
9. Emergency rescue plan.

4. **Radiography Permit** (**violet)**

- Work with ionizing radiation shall not be undertaken without a Saudi Arabian Government issued Radiation Practice License.
- All work with ionizing radiation shall be performed under the control of an appointed Radiation Protection Officer (RPO).
- No employee shall be permitted to use/operate ionizing radiation equipment without being adequately trained and competent in the safe use and handling of ionizing radiation sources related to their job responsibilities.
- Radiation monitoring and survey equipment shall be periodically calibrated as required by GI 150.003.
- Radioactive sources shall be stored inside adequately shielded storage rooms/facilities with sufficient security measures to prevent loss or theft of radiation sources.

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- X-ray equipment shall not be left unattended, unless the room/facility is locked or the equipment is secured to prevent unauthorized use.

7.3. APPLICATION

1. All identified work must be authorized and planned prior to work permit application.
2. All work permit application shall be made the day before any intended activity. (But not later than 4 p.m.)
3. Application shall be made by the Permit Receiver, who shall supply information relevant to the scope of works such as:
    - The worksite;
    - The equipment to be worked on;
    - The exact nature of scope of work (supported with sketches or drawings if available);
    - Special tools or equipment that may impact on safety at the worksite.
    - Identified hazards and control measures
4. The permit receiver shall complete the relevant sections on the work permit, attaching supporting document (ex. completed JSA, drawings, etc.) to the best of his knowledge and present it to the Permit Issuer for review and authorization.
5. If work activity will require additional permit, this must be attached together with required documentation during the application period.
6. Gas Test shall be mandatory for all Hot Work activity as well as all work on excavations.
7. A Work Permit log shall be maintained and shall be kept in Permit Office (HDEC) for reference in any Emergency cases, as needed according to Communication Protocol and other monitoring purposes. (Attachment 14)
8. Confined space warning sign shall read in English and Arabic. English text shall be: “Danger Confined Space. No Unauthorized Entry.

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7.3.1. CONFINED SPACES

1. A confined space entry permit ensures that workers properly plan and take appropriate precautions during work activities that require entering a confined space.
2. A confined space entry permit shall be issued in accordance with GI 2.100 prior to entry into confined space.
3. A confined space entry permit shall be issued in accordance with this instruction prior to entry into all confined spaces.
4. All confined space openings that can be entered without the use of tools, special equipment or key(s) shall have a warning sign identifying them as a confined space that requires a permit for entry. Confined spaces such as vessels, tanks, columns, reactors, etc., may also be identified with a sign to assist personnel in their awareness of confined spaces.
5. In the majority of cases, a cold or hot work permit is also required depending on the type of work to be performed within the confined space.

   Note: Entry into a confined space to perform activities such as visual inspection or gas testing does not require an additional work permit.
6. Each confined space entry standby man shall maintain a confined space entry log and a continuous count of entrants.
7. All equipment, sources of energy (electrical, mechanical, hydraulic, chemical, and pneumatic, etc.) and hazardous materials shall be isolated.
8. A confined space entry plan shall be developed prior to entry into a confined space and made available for review by personnel involved in the entry. The plan shall include, but not be limited to, the following:
   - Results of hazard evaluation (hazards within the space and the adjacent area).
   - Location and method of each isolation point of the confined space.
   - Procedures for flushing, purging and/or ventilating the confined space.
   - Access/egress requirements, including necessary barriers to prevent unauthorized entry.

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- Types and frequency of atmospheric testing.
- Types of equipment required for the entry (e.g., scaffolding, air movers, communication and rescue equipment), PPE and fall protection plan/equipment as required.
- Potential hazards that could develop as a result of simultaneous operations adjacent to the confined space.
- Emergency response/rescue procedures.

9. Atmospheric gas testing shall be conducted in accordance with GI 2.709 requirements prior to initiating work activities.
   - Hot work is not permitted if the atmosphere is above 0% LEL.
   - Work is not permitted if the atmosphere has an oxygen (O_2) concentration above 23.5%.
   - Work is not permitted in areas where the atmosphere is at or above 10% LEL or hydrogen sulfide (H_2S) concentration is at or above 100 parts per million (ppm).
   - Confined space entry is not permitted if the atmosphere is at or above 10% LEL, H2S concentration is at or above 100 ppm or carbon monoxide (CO) concentration is at or above 1,000 ppm. A breathing apparatus (e.g., self-contained breathing apparatus [SCBA]) shall be used if any of the following atmospheric conditions exist:
     a) O2 concentration is below 20.0%.
     b) Flammable/combustible mixtures are at or above 5% LEL.
     c) H2S concentration is at or above 10 ppm.
     d) CO concentration is at or above 35 ppm.
10. Detectors shall be calibrated either through the vendor's service center or via the on-site Docking Station.

    Users of Portable Gas Detectors (Gas Testers) shall conduct daily inspection & function test and pre-use checks as per the manufacturer's instructions and result will be logged in the function test log. (Attachment 13)

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Note: The purpose of the daily function test is to check for sensor and alarm functionality. The function test is not the same as a calibration test and does not measure for sensor accuracy.

Portable Gas Detectors that do not successfully pass the pre-use instrument checks, shall not be used and be sent for repair/calibration accordingly

11. The designated confined space entry standby man shall never attempt to enter the confined space and shall remain at the designated confined space entry point until relieved by another qualified standby man or until all entrants have exited the confined space.

7.3.2. EXCAVATION

1. All supporting documents for excavation work as below shall be prepared for approval by permit issuer.
   - For Excavation More Than 2.4 meter deep:
     - ✓ Excavation Plan
     - ✓ Pre excavation Checklist
     - ✓ Job Safety Analysis
     - ✓ Method Statement
     - ✓ Drawings
   - For Excavation less than 2.4 meter deep:
     - ✓ Pre excavation Checklist
     - ✓ Job Safety Analysis
     - ✓ Method Statement
     - ✓ Drawings

Pre-excavation and Daily excavation checklist shall be completed by appointed excavation competent persons.

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7.3.3. SIMOPS

SIMOPS shall be identified by responsible personnel at all stages of PTW cycle.

In particular, this shall be conducted as follows:

Identification method	Responsible
PTW Review and Site Condition Verification	Discipline Manager
Daily and/or Weekly Coordination Meeting (as required)	Construction Manager/PC&C Manager
Review of PTW Register	PTW Coordinator
Work Site Monitoring	PTW Receiver

Whenever a SIMOPS is identified it should be either:

· Eliminated (one activity is stopped)

· Controlled (additional control measures to be developed and implemented)

Simultaneous and/or incompatible works shall be strictly managed with regard to correct sequential start/stop, safe separation, and additional control measures including close supervision to prevent conflicting/incompatible work that could lead to a potential incident.

Elimination is preferred method and shall be considered as a first option by decision makers (Construction Manager). Control measures for SIMOPS activities shall be developed via structured Job Safety Analysis & Risk Assessment when it's necessary to perform activities simultaneously.

7.4. CANCELING WORK PERMITS

PTW shall be immediately canceled, the work stopped, and new permits issued if a change occurs in the work activities or site conditions that could potentially create an additional hazard to personnel, damage to equipment or facilities, disruption in operations or harm to the environment. In addition,

- When work is stopped the PTW Issuer must obtain the PTW, write on the permit the reason for the work cancelation, the time and other relevant information.

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- PTW Issuer and Receiver shall take action to correct deficiencies to allow the job to resume.
- When all deficiencies have been corrected, PTW Issuer shall issue a new work permits.

PTW Issuer and/or Receiver has the responsibility to stop work any time the job site does not meet the PTW conditions or any applicable CONTRACTOR & COMPANY safety and health requirements. The PTW Issuer and/or Receiver shall take action to correct the deficiencies before work can resume.

In the event of an emergency, all work permits are canceled within the area affected by the emergency condition and as specified by the Incident Commander. All personnel in the affected area shall follow the emergency protocol detail in the Emergency Response Plan.

Emergency work can be authorized without applicable work permits under the direction of the Incident Commander. However, the work activity shall follow all CONTRACTOR safety rules and standards normally applicable for the specific emergency. Once the “All Clear” has been declared, the PTW system shall be used for all subsequent work activities.

7.5. CLOSING WORK PERMITS

Work permits shall be closed by both the issuer and the receiver signing the work permit form. If the remoteness of the job site makes signing the work permit impractical, an alternative method to close the work permit may be established. This alternative method must be written on the original work permit form when it is issued.

7.6. TERMINATION OF WORK PERMIT

1. The PTW will be terminated when any of the following occurs:
   - PTW expiration date and time have been reached.
   - Requirements set forth in the PTW were not effective.
   - Working conditions has changed.
   - Scope of work was changed.

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- Emergency alarm was sounded.
- Follow stop work procedure

CTR shall specify During Inclement weather conditions, if work is restarted, then previous permits shall be considered closed and new permits shall be taken in new conditions.

7.7. RECORDS

1. The copy of the completed permits and supporting documentation must be retained by the Permit Issuer up to the end of the project.

   Note: Completed Permits will be kept in a master file to maintain history of work carried out. These documents in some cases can be used in Litigation and should be treated as Legal documents.

2. Records of Certified Work Permit Issuers/ Receivers/ Fire watch/Standby Man/ CSE Supervisor shall be kept at the Safety Office for reference and tracking.
3. Contractor to implement an electronic permit tracking system.
4. Permit copies shall be kept in a manner to allow for sequential review to identify whether any permits are missing.
5. The Issuer shall keep a copy of all work permits including closed permits, cancelled permits and permits that have been written on but not otherwise issued.

7.8. AUDIT

10. Permit implementation will be audited by random audits by the Safety team (Monthly)
11. Internal audit from HO (Once a year).
12. The third-party audit as per schedule D of the Contract.

8 ATTACHMENT

1. [Attachment 1] COLD PERMIT FORM
2. [Attachment 2] HOT WORK PERMIT FORM

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3. [Attachment 3] CONFINED SPACE ENTRY PERMIT FORM
4. [Attachment 4] GAST TEST CERTIFICATE
5. [Attachment 5] CONFINED SPACE ENTRY / EXIT LOG
6. [Attachment 6] WORK PERMIT APPLICATION FLOW CHART
7. [Attachment 7] WORK PERMIT CYCLE RESPONSIBLE PERSONS
8. [Attachment 8] PERMIT TO WORK INSPECTION CHECKLIST
9. [Attachment 9] PERMIT TO WORK REGISTER FORM
10. [Attachment 10] JOB SAFETY ANALYSIS FORM
11. [Attachment 11] NUMBERING SYSTEM
12. [Attachment 12] GAST TEST DEVICE DAILY INSPECTION AND FUNCTION LOG
13. [Attachment 13] PERMIT LOG SHEET
14. [Attachment 14] PRE-EXCAVATION CHECKLIST
15. [Attachment 15] DAILY EXCAVATION CHECKLST
16. [Attachment 16] CONFINED CHECKLIST

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[ATTACHMENT 1] COLD PERMIT FORM

HYUNDAI ENGINEERING & CONSTRUCTION

COLD WORK PERMIT PERMIT NO. 000001

Joint Job Site Inspection When Issuing and or Closing Out Work Permit is Required

WORK DESCRIPTION

CONTRACTOR		PTW Receiver	
Telephone number		Badge number	
Location of work		Plot plan attached Yes No	
Work description			
Job Safety Analysis Approved/Attached Yes ☐ No ☐		Method Statement Approved/Attached Yes ☐ No ☐	

SPECIAL PROTECTION

☐ Hard Hat ☐ Gloves ☐ Safety Shoes ☐ Goggles ☐ Face Shield ☐ FRC	☐ Full Body Harness/Double Lanyard ☐ Respirator ☐ SCBA (used for job) ☐ SCBA (stand-by) ☐ Hearing Protection ☐ Barricades	☐ Breathing air line ☐ GFCI/ELCB ☐ Grounding ☐ Air movers (exhaust/blowers) ☐ Flagman (trained) ☐ Rigger (certified)	☐ Warning Signs ☐ High-Vis Vest ☐ Access Ladder ☐ No Reversing ☐ Other

SUPPLEMENTARY PERMITS REQUIRED

Confined Space ☐	Isolation ☐	Permit Reference No.:

ADDITIONAL APPROVALS

Department	Architecture/ Civil	Piping/ HVAC	Mechanical	Electrical	Instrument
Name					
Signature					
Date					

APPROVALS

PTW RECEIVER		Signature:		Date:	
HDEC Construction Section Manager / Supervisor		Signature:		Date:	
PTW ISSUER		Signature:		Date:	
Permit Start Date:			Permit Finish Date:		

PTW REVALIDATION									EXTENSION					
Day	Date	WPR	Section Supervisor	Issuer	Safety	Closing WPR	Closing Issuer	Closing Safety	WPR	Issuer	Closing WPR	Closing Issuer	Closing Safety	
1														
2														
3														
4														
5														
6														
7														

See Back for Supplementary Information – Must be Completed Before Issuance of Permit

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COLD WORK PERMIT ACTIVITY EXAMPLES (INCLUDE BUT NOT LIMITED TO)			
Painting - Brush	Cable pulling	Surveying	Barricading
Scaffolding	Manual excavation	Concrete curing (without electric pumps)	Grouting
Work with Hand tools (intrinsically safe)	Rigging – Fit up	Inspection/Monitoring	Warehouse Receiving/Issuance (without combustion equipment)
De-energized electrical work	Insulation works	Housekeeping	Temp. electrical/lighting installation

PRE-START SAFETY MEETING

Topics and Specific Job Safety Instructions	Attendees	Attendees
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

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[ATTACHMENT 2] HOT WORK PERMIT FORM

HYUNDAI ENGINEERING & CONSTRUCTION

HOT WORK PERMIT | PERMIT NO. 000001

Joint Job Site Inspection When Issuing and or Closing Out Work Permit is Required

Work Description

CONTRACTOR		PTW Receiver	
Telephone number		Badge number	
Location of work		Plot plan attached Yes No	
Work description			

Welding ☐ Burning ☐ Grinding ☐ Other:

Job Safety Analysis Approved/Attached Yes ☐ No ☐ | Method Statement Approved/Attached Yes ☐ No ☐

Special Protection

☐ Hard Hat ☐ Gloves ☐ Safety Shoes ☐ Goggles ☐ Face Shield ☐ FRC	☐ Full Body Harness/Double Lanyard ☐ Respirator ☐ SCBA (used for job) ☐ SCBA (stand-by) ☐ Hearing Protection ☐ Barricades	☐ Breathing air line ☐ GFCI/ELCB ☐ Grounding ☐ Air movers (exhaust/blowers) ☐ Flagman (trained) ☐ Rigger (certified)	☐ Warning Signs ☐ High-Vis Vest ☐ Access Ladder ☐ No Reversing ☐ Other

Supplementary Permits

Confined Space ☐	Isolation ☐	Permit Reference No.	

Fire Protection

☐ Fire Blanket	☐ Fire Extinguisher	☐ Water Hose/Nozzle	☐ Water Truck

Fire Watch

Name	Badge Number	Signature

Additional Approvals

Department	Architecture/ Civil	Piping/ HVAC	Mechanical	Electrical	Instrument
Name					
Signature					
Date					

Approvals

PTW RECEIVER		Signature:		Date:	
HDEC Construction Section Manager / Supervisor		Signature:		Date:	
PTW ISSUER		Signature:		Date:	
Permit Start Date:			Permit Finish Date:		

	PTW Revalidation								Extension				
						Closing					Closing		
Day	Date	WPR	Section Supervisor	Issuer	Safety	WPR	Issuer	Safety	WPR	Issuer	WPR	Issuer	Safety
1													
2													
3													
4													
5													
6													
7													

See Back for Supplementary Information – Must be Completed Before Issuance of Permit

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Gas Test (In case of Confined space work, Use the confined space permit form)						
☐ Continuous Monitoring	☐ At Interval		Frequency of Interval			
Type of Test	1st	2nd	3rd	4th	5th	6th
Oxygen 20.8% -21%						
Combustible LEL < 2%						
H2S < 10PPM						
CO < 25PPM						
Date						
Time						
Name						
Signature						
Badge No.						

Hot Work Permit Activity Examples (Include But Not Limited to)			
Welding, cutting, grinding	Use of jack hammer	Use of powder actuated tools	Pneumatic/Hydro Testing
Sand Blasting	Radiography	Mechanical Excavation	Grating Removal/Installation
Use of internal combustion engines	Use of energized electrical equipment	Concreting	Purging/Flushing
Using drills	Crane Lifts	Refueling	Use of non-intrinsically safe tools

Flagmen		
Name	Badge Number	Signature

Certified Equipment Operators			
Name	Badge No.	Equipment Type	Equipment No.

Pre-Start Safety Meeting		
Topics and Specific Job Safety Instructions	Attendees	Attendees
1.		
2.		
3.		
4.		
5.		

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[ATTACHMENT 3] CONFINED SPACE ENTRY PERMIT FORM

HYUNDAI ENGINEERING & CONSTRUCTION

CONFINED SPACE ENTRY PERMIT — PERMIT NO. 000001

Joint Job Site Inspection When Issuing and or Closing Out Work Permit is Required

Work Description

CONTRACTOR		PTW Receiver	
Telephone number		Badge number	
Location of work		Plot plan attached Yes ☐ No ☐	Rescue Plan Approved/Attached Yes ☐ No ☐
Work description		Permit Reference No.	

Special Protection

☐ Hard Hat ☐ Gloves ☐ Safety Shoes ☐ Goggles ☐ Face Shield ☐ FRC	☐ Full Body Harness/Double Lanyard ☐ Respirator ☐ SCBA (used for job) ☐ SCBA (stand-by) ☐ Hearing Protection ☐ Barricades	☐ Breathing air line ☐ GFCI/ELCB ☐ Grounding ☐ Air movers (exhaust/blowers) ☐ Flagman (trained) ☐ Rigger (certified)	☐ Warning Signs ☐ High-Vis Vest ☐ Access Ladder ☐ No Reversing ☐ Other

Isolation and Preparation

PEFS attached ☐	Lines Blinded / Broke ☐	Lock Out / Tag Out ☐	Purged / Cleaned ☐
Inert Complete ☐	Ventilation / Blower ☐	Safe Access ☐	Lights (low voltage with GFCI / handheld) ☐
Scaffold Approved ☐	Barricades/Warning Signs ☐	Other:	

Emergency

Trained Stand-By Man ☐	Emergency Contact Numbers Posted Nearby ☐	Rescue Plan Attached ☐	Mechanical Hoist Rescue Equipment ☐
Two-Way Radio ☐	SCBA ☐	Rescue at Height Equipment ☐	Battery Torch Lights ☐

Standby Man

Name	Badge No.	Signature

Approvals

PTW RECEIVER		Signature:		Date:	
HDEC Construction Section Manager / Supervisor		Signature:		Date:	
PTW ISSUER		Signature:		Date:	
Permit Start Date:			Permit Finish Date:		

Confined Space Permit Activity Examples (Include But Not Limited to)

Tanks	Excavations > 1.2M	Tunnels	Silos
Piping	Manholes	Crawl Spaces	Machinery Cabinets

A Breathing Apparatus shall be used if any of the following atmospheric condition exist:

O2 concentration is below 20.0%	Flammable/Combustible mixtures are at or above 5% LEL	H2S Concentration is at or above 10 ppm	CO concentration is as or above 35 ppm

※ Use and Attach Entry / Exit Log Sheet

See Back for Supplementary Information – Must be Completed Before Issuance of Permit

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GAS TEST #1					
Classification	Name	Badge No.	Telephone No.	Date and time	
Standby man					
Authorized Gas Tester					
Atmospheric Hazard Tested	Acceptable Range of Hazard	Actual Reading (Record)		Acceptable (Yes / No)	SCBA required (Yes / No)
Oxygen (%)	20.0 % – 23.5 %	%			
Combustible Gas (% LEL)	Hot work 0% / Others 10%	%			
H2S Gas (ppm)	0 – 100 ppm	ppm			
CO Gas (ppm)	0 – 1,000 ppm	ppm			
GAS TEST #2					
Classification	Name	Badge No.	Telephone No.	Date and time	
Standby man					
Authorized Gas Tester					
Atmospheric Hazard Tested	Acceptable Range of Hazard	Actual Reading (Record)		Acceptable (Yes / No)	SCBA required (Yes / No)
Oxygen (%)	20.0 % – 23.5 %	%			
Combustible Gas (% LEL)	Hot work 0% / Others 10%	%			
H2S Gas (ppm)	0 – 100 ppm	ppm			
CO Gas (ppm)	0 – 1,000 ppm	ppm			
GAS TEST #3					
Classification	Name	Badge No.	Telephone No.	Date and time	
Standby man					
Authorized Gas Tester					
Atmospheric Hazard Tested	Acceptable Range of Hazard	Actual Reading (Record)		Acceptable (Yes / No)	SCBA required (Yes / No)
Oxygen (%)	20.0 % – 23.5 %	%			
Combustible Gas (% LEL)	Hot work 0% / Others 10%	%			
H2S Gas (ppm)	0 – 100 ppm	ppm			
CO Gas (ppm)	0 – 1,000 ppm	ppm			
GAS TEST #4					
Classification	Name	Badge No.	Telephone No.	Date and time	
Standby man					
Authorized Gas Tester					
Atmospheric Hazard Tested	Acceptable Range of Hazard	Actual Reading (Record)		Acceptable (Yes / No)	SCBA required (Yes / No)
Oxygen (%)	20.0 % – 23.5 %	%			
Combustible Gas (% LEL)	Hot work 0% / Others 10%	%			
H2S Gas (ppm)	0 – 100 ppm	ppm			
CO Gas (ppm)	0 – 1,000 ppm	ppm			
GAS TEST #5					
Classification	Name	Badge No.	Telephone No.	Date and time	
Standby man					
Authorized Gas Tester					
Atmospheric Hazard Tested	Acceptable Range of Hazard	Actual Reading (Record)		Acceptable (Yes / No)	SCBA required (Yes / No)
Oxygen (%)	20.0 % – 23.5 %	%			
Combustible Gas (% LEL)	Hot work 0% / Others 10%	%			
H2S Gas (ppm)	0 – 100 ppm	ppm			
CO Gas (ppm)	0 – 1,000 ppm	ppm			
GAS TEST #1					
Classification	Name	Badge No.	Telephone No.	Date and time	
Standby man					
Authorized Gas Tester					
Atmospheric Hazard Tested	Acceptable Range of Hazard	Actual Reading (Record)		Acceptable (Yes / No)	SCBA required (Yes / No)
Oxygen (%)	20.0 % – 23.5 %	%			
Combustible Gas (% LEL)	Hot work 0% / Others 10%	%			
H2S Gas (ppm)	0 – 100 ppm	ppm			
CO Gas (ppm)	0 – 1,000 ppm	ppm			

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[ATTACHMENT 4] GAS TEST CERTIFICATE FORM

HYUNDAI ENGINEERING & CONSTRUCTION	**GAS TEST SHEET** **The gas test records shall be attached Confined Space**	Date:

Gas Test #1	Name	Badge No.	Telephone No.	Date and time
Standby man				
Authorized Gas Tester				
Atmospheric Hazard Tested	Acceptable Range of Hazard		Actual Reading (Record)	Acceptable (Yes / No)
Oxygen Content	20% - 23.5%		%	
Combustible Gas (% LEL)	0%		%	
H2S (ppm)	0 ~ 10 ppm		ppm	
CO (ppm)	0 ~ 35 ppm		ppm	

Gas Test #2	Name	Badge No.	Telephone No.	Date and time
Standby man				
Authorized Gas Tester				
Atmospheric Hazard Tested	Acceptable Range of Hazard		Actual Reading (Record)	Acceptable (Yes / No)
Oxygen Content	20% - 23.5%		%	
Combustible Gas (% LEL)	0%		%	
H2S (ppm)	0 ~ 10 ppm		ppm	
CO (ppm)	0 ~ 35 ppm		ppm	

Gas Test #3	Name	Badge No.	Telephone No.	Date and time
Standby man				
Authorized Gas Tester				
Atmospheric Hazard Tested	Acceptable Range of Hazard		Actual Reading (Record)	Acceptable (Yes / No)
Oxygen Content	20% - 23.5%		%	
Combustible Gas (% LEL)	0%		%	
H2S (ppm)	0 ~ 10 ppm		ppm	
CO (ppm)	0 ~ 35 ppm		ppm	

Gas Test #4	Name	Badge No.	Telephone No.	Date and time
Standby man				
Authorized Gas Tester				
Atmospheric Hazard Tested	Acceptable Range of Hazard		Actual Reading (Record)	Acceptable (Yes / No)
Oxygen Content	20% - 23.5%		%	
Combustible Gas (% LEL)	0%		%	
H2S (ppm)	0 ~ 10 ppm		ppm	
CO (ppm)	0 ~ 35 ppm		ppm	

Gas Test #5	Name	Badge No.	Telephone No.	Date and time
Standby man				
Authorized Gas Tester				
Atmospheric Hazard Tested	Acceptable Range of Hazard		Actual Reading (Record)	Acceptable (Yes / No)
Oxygen Content	20% - 23.5%		%	
Combustible Gas (% LEL)	0%		%	
H2S (ppm)	0 ~ 10 ppm		ppm	
CO (ppm)	0 ~ 35 ppm		ppm	

Gas Test #6	Name	Badge No.	Telephone No.	Date and time
Standby man				
Authorized Gas Tester				
Atmospheric Hazard Tested	Acceptable Range of Hazard		Actual Reading (Record)	Acceptable (Yes / No)
Oxygen Content	20% - 23.5%		%	
Combustible Gas (% LEL)	0%		%	
H2S (ppm)	0 ~ 10 ppm		ppm	
CO (ppm)	0 ~ 35 ppm		ppm	

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[ATTACHMENT 5] CONFINED SPACE ENTRY / EXIT LOG FORM

HYUNDAI ENGINEERING & CONSTRUCTION	CONFINED SPACE ENTRY / EXIT LOG	Permit No.:	
		Date:	
CONFINED SPACE ENTRY PERMIT NO.		LOCATION	

STANDBY MAN WATCH INSTRUCTIONS

You should be thoroughly familiar with the following duties when you assume the responsibilities of standby for a person(s) working inside a vessel or confined space.

YOUR PRIMARY RESPONSIBILITIES ARE:
The safety of personnel working in the vessel or confined space.
Maintaining the conditions and requirements listed on the work permit.
Evacuating the vessel if you observe any condition which you considered hazardous.
Getting help if an emergency develops.

NEVER ATTEMPT TO ENTER THE VESSEL OR CONFINED SPACE, EVEN IN AN EMERGENCY.

THE CIRCUMSTANCES AND CONDITIONS OF THE JOB WILL DETERMINE THE SAFETY REQUIREMENTS AND WHAT YOUR STANDBY DUTIES ARE. HOWEVER, THE FOLLOWING DUTIES ARE BASIC TO ALL JOBS:

Do not leave your assignment while personnel are inside the vessel or confined space.
(The only exception is to get help in an emergency). If other duties require you to leave your standby post, have all personnel evacuate the enclosure.
If you have any questions regarding your job, check with your foreman.
BE ALERT, and try to anticipate and / or prevent any conditions that could be hazardous.
Prevent interference of air lines and / or lifelines.
If you are required to have respiratory equipment and lifelines, be sure you know how to use this equipment.
Upon completion of the job, clean and return all special equipment to its original location.

	Name	Badge No.	Telephone No.	Date
STANDBY MAN				
WORK PERMIT RECEIVER				

AUTHORIZED ENTRANTS		Location	

Name	Company	ID No.	Date	Time In	Time Out	Time In	Time Out	Time In	Time Out

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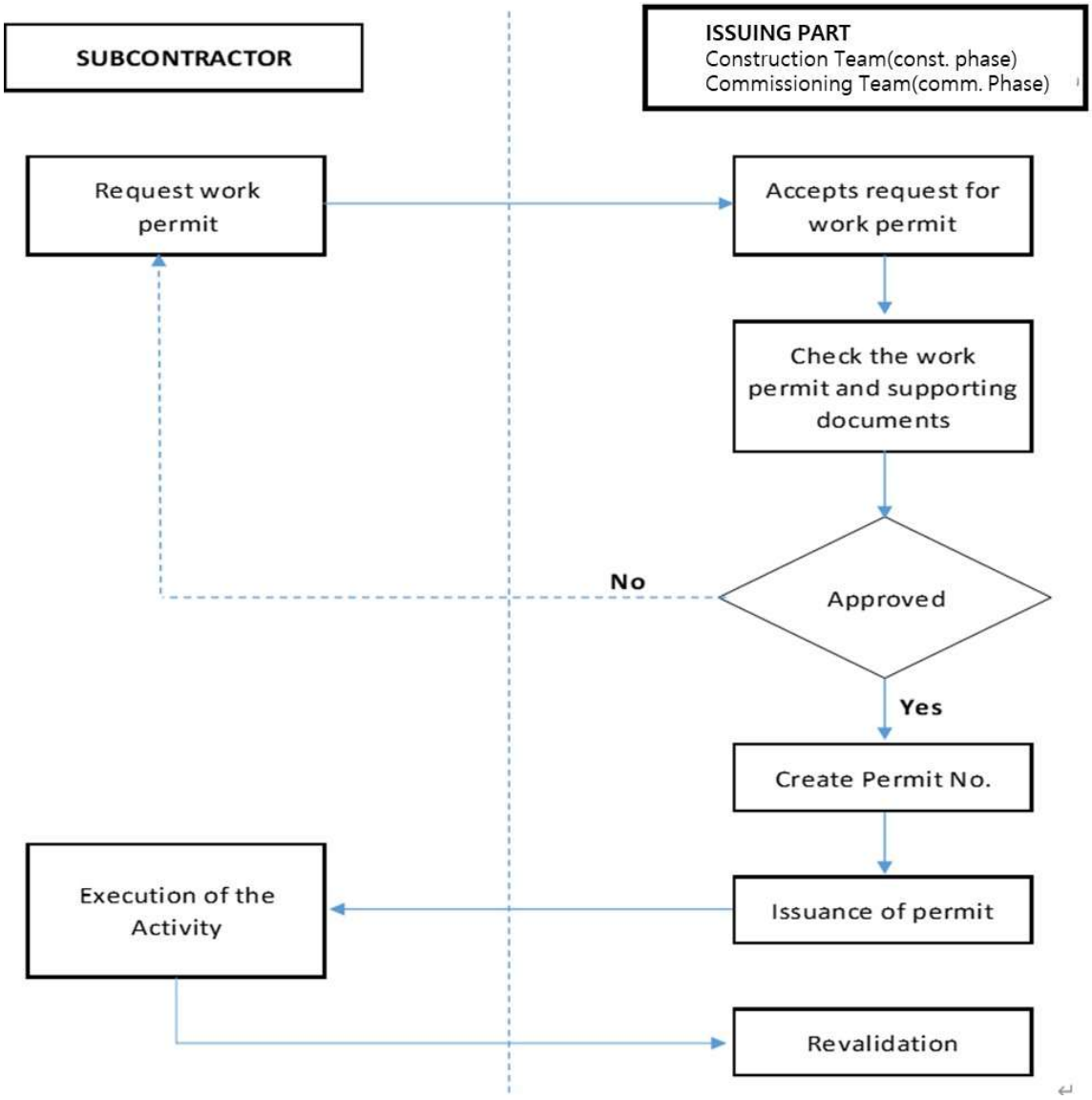
[ATTACHMENT 6] WORK PERMIT APPLICATION FLOW CHART



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[ATTACHMENT 7] WORK PERMIT CYCLE RESPONSIBLE PERSON

Steps	Responsible Person(s)
Identifying Work	Section Manager
Preparing permit to work	Permit Receiver
Identifying hazards	Permit Receiver
Identifying precautions	Permit Receiver
Identifying interfaces	Permit Receiver
Identifying additional safety controls	Permit Issuer
Prepare supporting safety documents	Permit Receiver
Completing safety preparations and supporting permits	Permit Receiver
Issuing permit	Permit Issuer
Receiving permit	Permit Receiver
Conduct Pre Job-Craft Safety Meeting	Permit Receiver
Revalidating permit and supporting documents prior to the start of each shift	Permit Receiver
Checking work condition	Permit Receiver
Closing work permit	Permit Receiver

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[ATTACHMENT 8] PERMIT TO WORK INSPECTION CHECKLIST

HYUNDAI ENGINEERING & CONSTRUCTION	PERMIT TO WORK INSPECTION CHECKLIST	Date:
Contract No.	Contract Title:	Subcontractor Name:
Area :	Inspector:	Date:
Area:	Permit Issuer:	PTW Holder:
Permit No.		
Date of Issue		
Type of Permit		
Description of Work (including work Location):		

Issue Date:		Finish Date:	

Distribution and display: Have permit copies been properly distributed, and where necessary is a permit prominently displayed?	Yes☐ No☐
Is the work description on the permit adequate, i.e. does it adequately describe the work location, the equipment to be worked on, and the exact nature and scope of the work?	Yes☐ No☐
If not, explain deficiency:	
Validity	
The permit should clearly state the time and dates between which it is valid.	Yes☐ No☐
Is permit revalidation being signed and dated by Area Authority?	Yes☐ No☐
Are revalidations up to date?	Yes☐ No☐
Hazards	
Are hazards clearly identified?	Yes☐ No☐
Are they directly applicable to job being undertaken?	Yes☐ No☐
Precautions	
Are appropriate precautions identified and specific enough?	Yes☐ No☐
Have other affected personnel outside the permit area been notified of the permit work?	Yes☐ No☐
If yes, have they appended their signature?	
Have all precautions been implemented at the worksite?	Yes☐ No☐

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If no, explain deficiency	
Gas Tests	
Have gas tests been undertaken?	Yes☐ No☐
Are tests valid for this period?	Yes☐ No☐
Are portable gas monitors fully operable at worksite and calibrated?	Yes☐ No☐
Are on-site personnel knowledgeable on how to operate equipment?	Yes☐ No☐
Have they been properly trained in its use?	Yes☐ No☐
Has periodic testing been carried out as appropriate?	Yes☐ No☐
Precautions Taken by Permit Holder	
Has Permit Holder briefed everyone in the Work Party?	Yes☐ No☐
Have all the persons in the Work Party read the permit?	Yes☐ No☐
Do all persons fully understand the safety requirements and the precautions stated on the PTW?	Yes☐ No☐
Are they in compliance, e.g. using safety clothing as specified, isolating equipment at breaks, etc.?	Yes☐ No☐
If not, specify	
Isolation	
Are isolation certificates attached to the permit?	Yes☐ No☐
Are they cross-referenced?	Yes☐ No☐
Do certificates or attachments detail specific isolation points?	Yes☐ No☐
Are all isolations secure?	Yes☐ No☐
Are all isolations tagged?	Yes☐ No☐
If more than one task on same isolation, has multiple lock/key system or other suitable control been used?	Yes☐ No☐
If so, give details	
Precaution by Permit Issuing Authority	
Has task been fully discussed with person carrying out the isolation?	Yes☐ No☐
Has task been discussed with Permit Holder?	Yes☐ No☐
If more than one Permit on equipment/system, have all appropriate cross-references been made and all necessary personnel been made aware?	Yes☐ No☐
Where tasks may impinge on other responsible persons/areas, have affected persons signed to acknowledge their awareness of the work?	Yes☐ No☐
Handover	

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Has handover of permit been done between Permit Issuing Authorities at shift change?	Yes☐ No☐
How is this being documented?	
Has a handover of jobs between Permit Holder been done?	Yes☐ No☐
How is this being documented?	
Work Suspended / On Hold / Completed	
Has site been left in a safe and tidy condition?	Yes☐ No☐
If work not complete, are isolations secure? Yes / No	Yes☐ No☐
Is Permit Issuing Authority aware of status?	Yes☐ No☐
Is Control Room aware of status?	Yes☐ No☐
Training	
Have personnel who are currently associated with this permit received training in the PTW system?	Yes☐ No☐
Is the type and frequency of training in accordance with company policy?	Yes☐ No☐
Is evidence of their training and appointment readily available	Yes☐ No☐

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[ATTACHMENT 9] PERMIT TO WORK REGISTER FORM

HYUNDAI ENGINEERING & CONSTRUCTION	PERMIT TO WORK REGISTER (SIGNATORIES)			
	NAME	COMPANY & DEPT.	BADGE NO.	AREA RESPONSIBILITY
PERMIT ISSUER				
PTW RECEIVER				
STNDBY MAN				
GAS TESTER				

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[ATTACHMENT 10] JOB SAFETY ANALYSIS FORM

HYUNDAI ENGINEERING & CONSTRUCTION	MIP06 - JOB SAFETY ANALYSIS (JSA)	JSA # :	

COMPANY		LOCATION		ISSUED DATE	
DESCRIPTION OF JOB / ACTIVITY					

JSA DEVELOPED BY								
	Subcon Safety		SIGN		Subcon construction supervisor		SIGN	
	BADGE #				BADGE #			
	HDEC Section supervisor		SIGN					
	BADGE #							

REVIEWED BY : HDEC Safety				Concurred BY : PMT Safety			
Name		Sign		Name		Sign	
ID#		Date		ID#		Date	

References

1	GI 2.100 Work Permit System, GI 2.709 Gas Testing Procedure,
2	GI 1783.001 (Fire Fighting Training Company Personnel), GI 8.002 (Safety Spectacles), GI 8.005 (Protective Footwear) ,
3	Construction Safety Manual Part III. Mecanical and Eletrical
4	GI 2.72 1 SA Safety Hand Book
5	SAES-B-053, Machine Safety Guarding, Elevators, Escalators, and Conveyors
6	GI 7.024, Marine and Offshore Crane, Hoist and Rigging Operations
7	GI 7.025, Heavy Equipment Operator Testing and Certification
8	GI 7.030, Inspection and Testing Requirements for Elevating/Lifting Equipment
9	

Prerequisite

1	Approved Method Statement Available	Y / N	4	Available Safety Officer monitoring the activity	
2	Required Work Permit(s) Available		5	Resucue plan available / with updated emergency contact numbe	
3	Qualified Site Supervisor Available to supervise the job		6	Required PPE available	

Others (Specify)

	JOB STEPS	POTENTIAL HAZARDS	ACTION/PROCEDURE TO CONTROL OR ELIMINATE	Responsible person(s)
1				
2				

JSA STOP WORK TRIGGERS

1	Stop work and evacuate the area if the stop work alarm or Plant wide siren is initiated.
2	Stop work if there is any LEL or H2S Reading.
3	Stop work if there is any Leakage.
4	Stop work if the fire watch or stand by left the area.
5	Stop work if the work permit receiver left the area.
6	Stop work if you noticed unsafe condition
7	Stop work if there is Oxygen Deficiency.
8	Stop work if the weather temperature increased more than 50C
9	Stop work if the vehicle / truck engine shutdown by itself. Do not re start engine without operations permission.
10	Stop work if any underground utilities are observed.

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[ATTACHMENT 11] NUMBERING SYSTEM

1. Work Permit: 000001, 000002
2. JSA : AMI.P4- JSA-( )-000

Unique sequence no.

Part/Division or Sub-Contractor

Part/Division	Abb.
Construction Management	CM
Mechanical	MECH
Steel Structure	STL/STR
Piping	PIPE
Insulation/Painting	IN/PA
Civil	CIVIL
Building/Architecture	ARCH
Electrical	ELEC
Instrument	INST
Pre-commissioning	PRECOM
QA/QC	QA/QC
Work shop	W/S
General Maintenance (Office Area)	AM

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[ATTACHMENT 12] GAS TEST DEVICE DAILY INSPECTION AND FUNCTION LOG

DAILY INSPECTION AND FUNCTION TEST LOG

Month of _____ Instrument Model _____ Instrument Serial No. _____

Date	Visual Inspection		Leak Test		Gas Function Test		Zeroing		Clearing the peaks		Checked by	Remarks
	P	F	P	F	P	F	P	F	P	F		

_____

Supervising Operator

Note : Conduct an inspection and function test at the beginning of each day prior to use in accordance with GI 2.709, section6.23. The result of the daily inspection & function test shall be recorded on the above Daily Inspection And Function Test Log.

P = Pass F = Fail (Check P or F)

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[ATTACHMENT 13] PERMIT LOG SHEET

No.	WP Number	Date Issued	Permit Type	Activity	Area	WPR

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[ATTACHMENT 14] PRE-EXCAVATION CHECKLIST

PRE-EXCAVATION CHECKLIST

Site Location:

Procedure: This safety checklist will be completed by the designated competent person for excavation and shoring. All inspections will be performed before issuing work permit. Following the inspection, the checklist will be presented to the issuer to verify. All Saudi Aramco excavation safety specifications will be complied with all times.

What is the depth of the excavation?	FEET/METERS	

	YES	NO	N/A
Did the contractor workers have a valid UGP safety orientation course?			
Is an excavation Confined Space and Permit required?			
Are undergrounding utilities cables and pipelines located and marked prior to digging			
Is gas testing required preformed e.g. , excavation deeper than 1.2m (4 F)			
Is the excavation near the roadway and flagman with a vest available?			
Are shoring, / sloping conditions acceptable?			
Is shoring material in sound condition & free of damage / defects?			
Is shoring installed / maintained by qualified carpenters or personnel?			
Are adequate ladders provided in excavation where workers are present?			
Are ladders secured and do they extend 3 feet above the surface?			
Is excavation free of tension cracks or other evidence of side-wall failure?			
Is trench free of water, hydrocarbons or other substances?			
Is there a 2 – foot clearance provided from edge of excavated material?			
Are underground utilities and piping adequately protected from damage? (P&IDs)			
Are barricades/ lights being maintained and 3 feet back from the excavation edge?			
Is the excavation free of water, hydrocarbons or other toxic substance?			
Are materials and spoils set back at least .6m (2ft.) from excavation's edge?			
Are pedestrian barricades/ lights placed at least 1m (3ft.) from excavation's edge?			
Are hard barricades not closer than the depth of excavation to the edge of the excavation?			
Are scaffolding erected not closer than 1.5 times the excavation depth of excavation from its edge?			
Are overall conditions acceptable and safe for employees to work?			
Other			

Competent Person _____ **Date** _____ **Verified by Proponent/PMT** _____

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[ATTACHMENT 15] DAILY EXCAVATION CHECKLIST

DAILY EXCAVATION INSPECTION CHECKLIST

Project or WO # _____ Excavation Location _____

This checklist must be completed daily and posted on site by the designated "Competent Person(s)" for the excavation. Inspections are to be performed before workers are allowed to enter the excavation each morning or after a change in site conditions (e.g., rain storm, groundwater, sidewall deterioration, or adjacent ground fissuring). At the end of each workday, this checklist is to be given to the contractor's safety supervisor for review and filing. The contractor's safety supervisor is to maintain a consolidated list of all excavations and conduct safety audits of excavations during the course of the workday. All Saudi Aramco safety requirements are to be complied with at all times. The excavation's designated "Competent Person(s)" for the excavation must be knowledgeable of Saudi Aramco's safety requirements and have the necessary training and experience to ensure the work is performed safely.

Depth of excavation: _____ meters / feet | **Width of excavation: _____ meters / feet**

	YES	NO	N/A
Has a Pre-Excavation Checklist been completed and is it available on site?			
Have all relevant departments been notified?			
Are underground utilities, cables, and pipelines located and marked?			
Is a Work Permit required, issued, and available on site?			
Is a Confined Space Entry Permit required, issued, and available on site?			
Is gas testing required and performed; e.g., excavations deeper than 1.2 m (4 ft)?			
Is a Stand-by Man and/or Fire Watch required and available on site?			
Are pedestrian crossovers required and provided (with guardrails and toeboards)?			
Is access to plant equipment maintained?			
If excavation is near a roadway, are flagmen with bright orange vests present?			
Are shoring/sloping/benching acceptable to prevent sidewall cave-in?			
Is shoring material in sound condition and free of damage/defects?			
Is shoring installed/maintained by qualified personnel?			
Are adequate ladders provided within a travel distance of 7.5 m (25 ft)?			
Are ladders properly secured and do they extend 1 m (3 ft) above the surface?			
Is excavation free of tension cracks or other evidence of sidewall failure?			
Is excavation free of water, hydrocarbons, or other toxic substances?			
Are materials and spoils set back at least 0.6 m (2 ft) from excavation edge?			
Are underground utilities and piping located, marked and protected from damage?			
Are pedestrian barricades/lights placed at least 1 m (3 ft) from excavation edge?			
Are hard barricades for vehicles placed at least 2 m (6.5 ft) from excavation edge?			
Are cranes not closer than the depth of excavation to the edge of the excavation?			
Are scaffolds erected no closer than 1.5 times the depth of excavation from edge?			
Are overall conditions acceptable and safe for work?			

All deficiencies will be corrected immediately.

_____ _____ _____

Competent Person's Signature *Date* *Verified by Proponent/PMT*

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[ATTACHMENT 16] CONFINED CHECKLIST

Confined Space Entry Checklist

Vessel/Equipment/Confined Space ID:	Entry Date:

#	Requirement	Yes	N/A
1.	Confined space entry procedures/instructions provided and available		
2.	Area barricaded and has warning signs posted		
3.	Electrical sources isolated		
4.	Process piping/equipment isolated		
5.	Hydraulic/pneumatic and other energy sources isolated		
6.	Lockout and hold tag procedures followed		
7.	Hot/cold work permit completed		
8.	Confined space entry permit completed		
9.	Atmosphere tested for % oxygen (O_2)		
10.	Atmosphere tested for % LEL		
11.	Atmosphere tested for hydrogen sulfide (H_2S)		
12.	Atmosphere tested for carbon monoxide (CO)		
13.	Atmosphere tested for other gases (e.g., CO), identify:		
14.	Gases/chemicals purged, flushed, vented		
15.	Continuous gas testing performed		
16.	Mechanical ventilation provided		
17.	Appropriate personal protective equipment (PPE) provided and used		
18.	Appropriate respirator(s) (e.g., SCBAs) provided and used		
19.	Full-body harness provided and used by each entrant		
20.	Appropriate lighting equipment provided		
21.	Rescue service notified of confined space entry operations		
22.	Rescue equipment (e.g., hoist) available		
23.	Fire extinguisher(s) available at designated entry points		
24.	Standby man continuously present during confined space entry		
25.	Standby man has necessary PPE		
26.	Communications equipment for standby man and entrants provided		
27.	Entry log sheet available at designated entry points and used		

Issuer Name, Signature, Badge #	Receiver Name, Signature, Badge #	Time/Date:

Note: This checklist does not replace the mandatory *Hazard Analysis Checklist* that is part of the confined space entry permit issuance process, as required by GI 2.100, *Work Permit System*. This checklist may be used to verify that all required aspects of the confined space entry plan have been implemented prior to beginning the work. If used, the completed checklist shall remain with the Confined Space Standby Man on site after the joint site inspection is complete.

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