For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
This Handbook Belongs To:

Contractor Name: ________________________
Company: ________________________________
Telephone: _______________________________

I have read the contents of this manual and will comply with them. I understand this is a guideline and does not replace plant procedures and policies. Each employee is expected to correct or stop any unsafe act to prevent incident or injury.

The Site Leadership personally welcomes you to the LyondellBasell Houston Refinery. We are committed to an injury-free facility and know that you are the backbone to our success.

When you enter this facility, you are a part of an elite TEAM with excellent Safety and Environmental standards. It is a condition of employment to uphold these standards and follow all Refinery policies and procedures. Our goal is to always work toward the following.

Goal ZERO
starts with me…

WELCOME TO OUR FACILITY!

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
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Rules of Performance:

We are committed to preventing all injuries, incidents and work-related illnesses.

Rule No 1. Working safely is a first and forever expectation.

Rule No 2. Intervene – act to stop anything you think is unsafe.

Rule No 3. Take the necessary time to complete the task properly.

Rule No 4. Wear proper PPE and follow approved procedures.

Rule No 5. Use equipment correctly – never misuses a dedicated system or bypass safety devices.

Rule No 6. Produce products and services that meet or exceed customer expectations.

Rule No 7. Make sure you have the proper skills and knowledge to do your job.


Rule No 9. When a situation is not understood, move to a safe condition and get help.

Rule No 10. Take care when making changes; document your actions and verify safety is not compromised.

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PURPOSE AND SCOPE

This manual is designed to provide contractors a reference source for basic health, safety, environmental and security rules, procedures and precautions to be used while performing work at the Houston Refinery.

A publication of this size cannot encompass all of the safety procedures for every situation or condition, but does provide general guidance to reduce potential incidents and control losses. This handbook is not intended to replace a contractor safety program nor summarize all the safety, health and environmental regulations governing the contractor’s operations.

The primary focus of the Refinery safety program is to prevent incidents and control losses. It is our intention that EVERY individual goes home in the same condition as they came to work. Arrive home safely to your family. Familiarization with this handbook will help accomplish our goal of an injury-free facility.

Should situations arise which are not covered in these guidelines, or if you have a question about a guideline, contact your supervisor and he/she will answer it or contact a Refinery representative for clarification.

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REFINERY HSSE CONTACTS

**Emergency Number –**

In Plant Phone \(\text{x4444}\)

**Emergency Number –**

Outside Plant Phone \(713-321-4444\)

**SAFETY CONTACT:**

HSE Department Contact: \(713-321-4677\)

**Environmental Contacts**

Solid Waste Coord. \(713-321-4969\)

FE Coord. \(713-321-5449\)

Environmental On-Call: \(713-304-7875\)

ALL HEALTH, SAFETY AND ENVIRONMENTAL PERSONNEL MONITOR HOUSTON REFINERY RADIO CHANNEL **HSE 1**

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
CONTRACTOR RESPONSIBILITIES

1. Contractors and their employees shall comply with all Houston Refinery Health, Safety, Security & Environmental policies and procedures, the policies and procedures of their company, as well as all applicable federal, state and local regulations and ordinances. Failure to do so will result in removal from plant property.

2. The Contractor shall supply all safety and personal protective equipment (PPE) required to complete the scope of the contracted work (or as stated in the Contract). Equipment supplied by the contractor must meet or exceed all Refinery requirements and the requirements of the appropriate governmental regulatory agency.

3. The Contractor shall ensure that ANY chemical brought on site is approved by the Houston Refinery Industrial Hygiene and has a current SDS in the system. Contact your Refinery Job Contact if there is any question.

4. The Contractor must obtain necessary disposal manifests and approvals before arranging waste shipments. All waste disposals will be coordinated through the Environmental group.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
5. Contractors shall provide a competent, well-trained supervisor at the site at all times during which their employees are present.

6. The Contractor shall designate an HSE Representative who is knowledgeable about the facility and regulatory Health, Safety, Security and Environmental policies and procedures. This individual shall be the Contractor’s primary contact for any HSE issues while at the Houston Refinery. Contractors during a Turnaround will provide Safety Supervisors on days and nights that will attend meetings and perform safety audits.

7. The contractor shall report **ALL** injuries, illnesses and incidents (including near misses) to their supervisor who will contact their Refinery Contractor Coordinator (x5241).

8. Contractors shall actively participate in all Refinery HSSE practices as directed by Refinery management including but not limited to the following:
   - Job Observations
   - Toolbox Meetings
   - Morning Stretch
   - JSA System
   - Gate Pass & Visits
   - HSSE Audits
   - Total Incident Reporting
   - Daily Walkabout
Failure to actively participate in HSSE practices will represent a significant deviation to Refinery HSSE policies.

The contractor’s employees must be familiar with the contents of this handbook and will be held accountable for complying with the provisions stated herein.

GENERAL REFINERY REQUIREMENTS
Re refinery Training and Orientation

- Attend and pass Safety Awareness 5 (19SA5), available only at Houston Area Safety Council (HASC)
- Or, attend and pass Basic Orientation Plus/Basic Orientation Plus Refresher from a safety council that is a member of the Association of Reciprocal Safety Councils, Inc. (ARSC) such as HASC
- Attend and pass the HRO Site Specific Orientation LyondellBasell Houston Refinery Site Specific delivered at the Houston Area Safety Council (HASC) or other ARSC members. Check with the appropriate council for availability
- Contractor’s employees must attend orientation/ training prior to initial work at LyondellBasell sites and orientation/ training must be repeated annually. Any Contractor employee entering LyondellBasell sites must have a government issued ID badge (TWIC) for identification in addition to proof of completing the approved safety orientation program before an access (TWIC) will be issued.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• Visitors who do not perform any “hands on work” can receive the Visitor’s Safety Orientation at the main gate. A Refinery authorized person must approve their entry to the Refinery.

General Safety

Personal Protective Equipment (PPE)
Your employer is responsible for ensuring you are equipped with approved personal protective equipment. Minimum requirements include:
• Hard Hat (Z-89.1) hard hats are to be worn with bill protection facing forward for general work practice. Allowances are acceptable for specific tasks such as welding and grinding, provided the manufacturer approves the use with the suspension reversed. There must be a valid need for a hard hat to be worn in any other way other than as designed.
• No hat must be worn under the hard hats (unless welders with welder caps or cold weather liners designed for this purpose).
• Nothing must be stored between the hard hat suspension system and the hat shell that would affect the performance of the hard hat.
• Chemical goggles on hard hat at all times and worn in locations designated as chemical goggle required areas, where required by specific tasks and during periods of high wind to prevent airborne particles/dust from entering the eyes. Goggles should be donned

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carefully so as to protect against any debris or dust that may have collected on the top of the goggles).

- Safety glasses with hard side shields. Wearing sunglasses is prohibited between sundown and sunup, during a confined space entry, and while working inside buildings. Ultraviolet eye protection worn during open flame operations is exempt.
- Safety-Toe footwear (impact resistant) (Z-41) is recommended.
- Hearing Protection
  - \( \text{H}_2\text{S} \) Person Monitor must be worn within one square foot of breathing zone.
  - Fire Retardant Clothing (FRC). If wearing FRC shirt and pants, the shirt must be tucked in.
- Additional PPE will be required for certain tasks and shall be noted on the permits issued to the contractor performing the work. Always wear the PPE listed on the permit for the work you are performing.

**Hand Protection**
- In an effort to minimize the number and severity of hand injuries, protective gloves are required to be on your person and must be worn by anyone conducting any manual work on site. Activities requiring protective gloves include climbing ladders, entering and climbing inside vessels, and
handling hoses. Also see HRO’s ten cardinal rules on page 82.

**Hearing Protection**
- Hearing protection is required while at the Refinery in process areas and adjacent roads.
- Dual-hearing protection (ear plugs and earmuffs) may be required if certain activities exceed 101dBA. Contact site IH Personnel for a noise survey as needed.

**Physical Readiness**
- Contract personnel should know their physical limitations regarding lifting, climbing, kneeling, crawling, pushing & pulling prior to beginning a task.
- Begin your day with some easy stretching techniques to help warm up your body prior to any physical activities.

**Back Injury Prevention**
- The Refinery encourages contractors to have a back injury program in place, which includes medical history and screening new hires.
- Always be aware of body position.
- We encourage warming up and stretching before starting a task.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
Heat Stress

- Implement Heat Stress Prevention Plan
- Work/rest regime (i.e. 75% work and 25% Rest)
- Rest in shade or air conditioning
- Confined spaces can not be entered until the temperature (dry bulb per thermometer) is less than 100 degrees Fahrenheit.
- Notification will be given to employees and contractors that the atmospheric temperature and relative humidity may be conducive for heat related conditions. >100º F.
- Once a job is identified as having a high heat stress potential, steps should be taken to control or eliminate the condition. Examples include using an air mover, shading from sunlight, working hot jobs during nights or mornings, use of air conditioning and personal cooling devices, etc.
- During high heat, it is recommended that one cup of water be consumed every 20 minutes. Do not drink coffee, sodas, energy drinks or tea for fluid replenishment. These products have caffeine and are diuretics, which will extract additional water from the body.
- Observe others for potential signs of heat stress. Use the “Buddy System.” Watch out for each other.
- Factors other than weather could generate a potential heat stress condition. Cooling towers, fin fans, fire heaters (furnaces), PPE (Chemical
Protective Clothing (CPC)), etc, could create additional potential heat stress issues. Employees need to be continuously aware of the signs and symptoms and take precautionary measures.

Chemical Contact

- Always be aware of the nearest safety shower and eyewash station. Operations will point them out when issuing permits.
- Try the safety shower and eyewash station prior to beginning task.
- If you are splashed with a chemical, proceed to the nearest safety shower and wash the affected area for a minimum of 15 minutes. Report this incident to your Refinery representative.

Job Safety Analysis (JSA)

- A JSA will be filled out before each task is started. Contractors may use their JSA or the Refinery JSA.
- Each employee must analyze the assigned task for hazards and fill out a JSA before commencing work. The complexity of the job determines the extent of the JSA. Complex tasks may require detailed explanations for the necessary safety measures, with additional emphasis placed on the most potentially hazardous tasks. Other tasks may only require brief and easily described

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
explanations. The employee should ensure that any hazards present are explained and understood by each co-worker involved in the task. Furthermore, employees should ensure that the preventative measures are fully understood as well. Each co-worker should demonstrate a thorough understanding of every safety instruction given on each job they are to perform. They should encourage co-workers participation and solicit their input in the JSA process. Each employee should assure that the needed safety equipment is provided. Each different craft employee must initiate their own JSA since each task will have different hazards associated with the task.

- Each task or change in job scope requires a JSA.
- Any new team members are required to review the task with the others and the JSA before starting.

**Working Hours**

- Contractor work hours may vary based on assignment, check with your Refinery job representatives for specifics.
- For example work hours could include:
  - 7AM to 3:30PM, M-F and 7AM to 5:30PM M-Th with 30 minutes for lunch.
  - Special Projects or Turnaround schedules may consist of two ten hour shifts per day, six or seven days per week. As an example the work may be 7AM to 5:30PM and 7PM to 5:30AM with 30 minutes for lunch.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
Fatigue Policy:
The purpose of this policy is to minimize the occurrence of incidents in which the potential underlying cause (or significant contributing factor) is fatigue of employees. This policy communicates the Houston Refining extended work schedule requirements related to fatigue and the policy for implementing them; and applies to Houston Refining and contract personnel.

Fatigue Day Schedule
At times business needs require employees to work extended hours in the work day and/or additional days in the Work week(s). During such periods the following policy will be adhered to. Work schedules will be assigned to meet business needs. This may include extended hours in the day and 7-days per week.

- Each employee and Responsible Supervisor will dialog to create a schedule that mitigates fatigue issues for the employee.
- Employees will not be scheduled to work more than 16 consecutive hours.
- No more than 2 consecutive 16 hour days will be scheduled or worked.
- After 2 consecutive 16 hour workdays, employees will take at least 16 hours off prior to working another 16 hour shift.
- If the turnaround/project/extended work schedule is anticipated to last for more than 13 days the scheduling of fatigue days shall
be planned from the beginning of the work schedule or as soon as feasible.

- Days off will be scheduled in advance to minimize disruption to the business and maximize potential to reduce fatigue.
- No more than 13 consecutive days can be worked without a day off.
- For additional information reference: HOUSTON REFINING FATIGUE DAY POLICY through your Refinery job representative

Parking and Traffic

- All contractors will park in designated parking areas. Check with your Refinery job representative for specifics. Signs and roads are clearly marked identifying the parking areas. Use caution and be courteous when entering and exiting the parking area. Follow Security officer’s direction entering and leaving the facility.
- Vehicles parked in unauthorized areas in the unit and parking areas will be towed.
- All vehicles entering the Refinery are subject to search up to and including all toolboxes and compartments.
- Contractor Vehicle entering the refinery must have a valid gate pass and a contractor inventory list.
- Parking inside the Refinery will be in designated areas only.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• Do not park in roadways or block access to any fire monitor or emergency equipment.
• Keys must be left in the ignition of ALL parked vehicles within the gates of the Refinery, except when parking in designated parking lots outside of the unit areas.
• Security cameras survey the parking areas and security officers will make routine rounds in parking areas.
• Explosives, firearms/ammunition, matches and lighters, drugs, narcotics or alcoholic beverages of any kind are prohibited in the parking areas. All posted speed limit and warning signs will be followed.
• These listed rules will be strictly enforced.
• Temporary Facilities, Offices and Storage
• Contractor temporary facilities (i.e. offices, lay-down yards, fabrication shops, equipment yards, etc.) areas will be predetermined. Your Refinery job representative must approve any and all facilities.

Smoking, Matches, and Lighters
• Smoking will ONLY be allowed in the designated areas and ONLY before work, at lunch, natural breaks and after work.
• Smoking in non-approved areas in the Refinery, including all temporary and permanent buildings is strictly prohibited. Smoking is only permitted in

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
approved smoking areas (bull pens) that are clearly marked with signs reading “SMOKING PERMITTED HERE.” Smoke pens must be equipped with a smokeless butt can, a trash can and at a minimum a 10# ABC fire extinguisher. Safety matches and lighters with caps covering the striking mechanism are recommended. The use of strike-anywhere matches (wooden or kitchen matches) and butane lighters are prohibited.

- Temporary smoking areas may be approved for some construction projects. All smoking areas are approved jointly by the department responsible for the area and the Area HSSE Representative.

Toilets

- The Refinery will supply and service sanitary facilities for all contract personnel. Special Projects or Turnaround contractors shall use the Portable Chemical Toilets furnished. Do not use the sanitary facilities located in the Refinery Control Buildings and shops without permission from the refinery personnel.
- Some portable facilities may be designated for female use only.
- Keep the area clean and be respectful of the next person who will use these facilities.
- Contact your Refinery job representative if facilities are in need of service.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• Any vandalism of portable toilets including carving, graffiti, or defacing in any way will lead to disciplinary action.

Lunch
• Each contractor working at the Refinery will be assigned a lunch area through your Refinery job representative. You must eat at your assigned area. These areas must be kept clean.
• Food and drinks are not allowed outside of designated lunch areas.
• Do not place hard hats, gloves or any PPE on table tops.
• Water coolers will be located at designated locations throughout the plant. They must stay taped closed. Do not add anything to the drinking water or break the seal for any reason.

Facial Hair
• All personnel that enter PPE required areas of the refinery shall maintain their face free of facial hair that interferes with or has the potential to interfere with the sealing surface of the respirator and/or the respirator exhalation valve.
• Facial hair growth includes: any beard (including goatee), mustache and/or sideburns extending to the respirator seal area. Mustaches may extend past the corners of the mouth so long as they do
not go past the crease in the chin. Any facial hair below the lower lip must be properly trimmed so it will not interfere with the sealing surface of the respirator and/or exhalation valve.

Contractor Conduct

- Plant Policy prohibits weapons, theft, falsification of records, fighting, intoxication and the possession or use of alcohol and controlled substances.
- Prescription medication is acceptable only when its use will not affect job performance in the opinion of the prescribing physician and must be approved through your company.
- No gambling or soliciting of any material is allowed.
- These rules are strictly enforced

Refinery Access

- The LyondellBasell Houston Refinery is regulated by the Maritime Transportation Security Act and 33 CFR Part 105. Any violation of refinery access control measures specified in this handbook is possibly a violation of federal law. Unauthorized access to the refinery is considered a security breach and must be reported to federal authorities.
- Refinery access is by electronic card readers at the entrance to the gates using your TWIC.

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• “Piggy backing” to allow multiple entries with one badge or using someone else’s badge to gain entry is prohibited and violators will be removed from the property.

• All personnel traveling in vehicles with Refinery access passes must swipe their TWIC at the gates when entering and leaving the refinery. The vehicle driver must ensure all personnel riding in the vehicle swipe their TWIC at the gate before driving into or leaving the Refinery.

• All contract vehicles entering the Refinery are subject to inspection. Lunch kits, bags, etc. may be checked entering and leaving the facility.

• Theft of any company property and/or having any contraband will be reported to law enforcement officials.

• In order to reduce traffic congestion, only Contractor work vehicles with a legitimate business need and meeting insurance requirements are allowed access in the Refinery.

Vehicle Operation

• Vehicles must have the appropriate logo or name displayed on the door before entering the refinery. Posted speed limits, other traffic signs and state and local laws must be adhered to the vehicle at all time (i.e. seatbelts and inspection). Vehicle parking and traffic should be minimized around unit and turnaround areas at all times.
• Passengers may be transported in the back of pickup trucks as long as they stay seated in the bed and are not seated on the sides or the fender wells of the truck. Proper PPE is required while riding in the back of the pickup truck. This includes fire retardant clothing (FRC), safety glasses with side shields, approved footwear, hard hat with attached chemical goggles on hard hat, hearing protection and gloves on person and H₂S personal monitor.

• Contractor personnel must go through their Refinery Contact Person before requesting a decal. Decals can be obtained at the Security Office above the Main Gate. Check with the Main Gate for specific times in which decals are issued. Proof of vehicle insurance, drivers license and vehicle license plate number must be provide to security personnel be fore the decal will be issued.

• Contractors are required to have an Inventory List for equipment and tools are their vehicle. The job representative or designee must complete the inventory list prior to entering the facility and must remain with the vehicle at all times. The same Inventory List will be required when exiting the facility. Ask your Refinery job representative for a copy of the refinery Gate Pass Procedure.

• Use of mobile phones (i.e. calls, text messages, etc) while driving is prohibited, including hands free devices.
NOTE: “Carts and bicycles will not be allowed inside the battery limits during turnaround activities”.

- All road closures must be approved at least 24 hours prior to the road closure. Road Closure Permits may be obtained at the Refinery’s Main Gate and must be approved by the Refinery Emergency Management and Security Supervisor or designee (i.e. main gate).

Bicycle Safety
- Bicycles shall be equipped with front and back reflectors or red striped reflection tape.
- Bicycles equipped with baskets shall have basket liners.
- Bicycles may not be ridden over railroad tracks. Bicycles shall be walked over the tracks.
- Minimum appropriate PPE must be worn to match the local area requirements if riding in a PPE designated area
- Bicycles riders shall stop at stop signs
- Bicyclists shall not ride against normal traffic flow

Railroad Safety
Railroad traffic at HRO is a 24/7 operation that includes from 4 to 7 active rail lines that travel from east to west across the refinery parallel to Louisiana Ave. Additionally, a rail spur runs
parallel to El Paso Street and travels north and south.

- **It is imperative that all vehicle and pedestrian traffic obey the Stop Signs and the train horn.**
- **Do not cross the rail line when the train is near the crossing and sounding its horn.**
- **Pedestrians must not cross the tracks near moving trains and they must not move in between rail cars.**
- **Do not cross the tracks anytime the cross arms are down at the roadways.**
- **Personnel must cross the tracks at authorized crossings only.** For personnel working near the Coker complex a pedestrian bridge is located on the east side of the 736 Coker that crosses Louisiana and the rail tracks. There are other hazards with crossing the tracks besides the train; uneven tracks, rocks, and possible damaged rail ties.
- **Rail tracks that are Blue Flagged may indicate no rail car movement allowed. It is imperative to still Stop, Look both ways, Listen and Look again before moving across the tracks.**
- **Remember** one rail line may not be active but another may have moving rail cars. Please, **Stop, Look both ways, Listen and Look again before moving across the tracks.** Never stop your vehicle on the tracks, if your vehicle stalls on the tracks get out and away from the tracks and get help to move your vehicle. Call your supervisor or Security at 713-321-4211 for assistance.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
Cameras
• Cameras are not allowed in the Refinery or Dock facilities without a pass.
• A Camera Permit Badge must be obtained by the photographer from the Main Gate Dispatcher.
• Camera permit must be worn on the outermost clothing at all times while photographing in the facility.
• A unit sign in and gas check (LEL) are required when using a camera inside process areas of the Refinery.
• A Refinery employee/contact person must accompany the photographer (if the photographer is not LyondellBasell employee) while in the facility.
• Pictures or film removed from the Refinery must be approved.

Refinery Buildings
Contractors are prohibited from entering any refinery building, shop, laboratory, etc. unless there is a specific permitted work requirement or you are instructed so by your Refinery representative.

Cellular Phone Usage
• Cellular phones are not allowed in the operating areas of the complex and are permitted in only limited areas of the refinery unless it’s intrinsically safe.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• Camera phones are not allowed to take pictures in the refinery.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
EMERGENCY PROCEDURES

Reporting Emergencies
Report all emergencies by dialing 4444 from any in-plant phone. From an outside plant phone dial 713-321-4444. Give your name, location, type of emergency you have. Wait for the information to be repeated back to you and confirmed before hanging up unless it is unsafe to do so. You may also report an emergency to any LyondellBasell personnel.

Emergency Alarm System
When the refinery alarm sounds it will be followed by an announcement over the radio PA system. Additional electronic announcements will be made via the site computer network.

Contractor Response and Rally Points

Non-Essential Personnel Evacuation of a Unit / Area

- Contract personnel that are working in the impacted unit should leave the unit (sign out of the unit if possible)
- Go to your assigned Rally Point and report to your Accountability Coordinator
- If you cannot travel safely to your Rally Point, report to an alternate safe Rally Point or Evacuation Point and contact your Accountability Coordinator

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
➤ Only those working in the impacted area need to stop work and leave the unit. All other personnel can continue with their normal activities.

Non-Essential Personnel Evacuation **Plant-Wide**
- All contract personnel in the refinery should stop all work and go to your assigned Rally Point (sign out of the unit you are working in if possible)
- If you cannot travel safely to your Rally Point, report to an alternate safe Rally Point or Evacuation Point and contact your Accountability Coordinator
- Badge in on a Rally Point Reader
- Alternately, go to the gate from which you entered the facility and badge out of the refinery

**All Personnel** Evacuate a Unit
- All contract personnel in the refinery should stop all work and go to your assigned Rally Point (sign out of the unit you are working in if possible)
- If you cannot travel safely to your Rally Point, report to an alternate safe Rally Point or Evacuation Point and contact your Accountability Coordinator
- Badge in on a Rally Point Reader

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
All Personnel Evacuate Plant-Wide
- All contract personnel in the refinery should stop work and go to an Evacuation Point
- Badge in on a Rally Point Reader at the Evacuation Point
- Alternately, go to the gate from which you entered the facility and badge out of the refinery

Returning to Work after an Emergency
- When the all clear sounds, proceed back to your work site.
- Work may not commence until operations has re-issued your permit or updated and initialed the old one.

Personnel must be aware of the location of the nearest Rally Point and On-Site Evacuation Point at all times. The location of the nearest Rally/On-Site Evacuation Point shall be identified prior to work assignment.

Do not operate vehicles during any emergency. Move the vehicle to the side of the roadway, shut it off and leave the keys in the ignition and proceed on foot to a Rally Point.
GENERAL SAFETY RULES

Housekeeping
• It is the responsibility of all Contractors at the Refinery to keep their work areas free of debris and orderly.
• Daily walkthroughs will audit for housekeeping and Toolbox Safety Meetings will review any issues.
• Keep materials out of aisles and walkways.
• When using electrical cords, air, water, or nitrogen hoses, place them so they do not pose a tripping hazard.
• Dispose of all used material in the proper trash containers. If the container is full, make arrangements to empty.
• Remove all trash and surplus materials from pipe racks or platforms before coming down.
• Decontaminate, clean and return all safety equipment to the proper location after each use.
• Do not discard used PPE without decontaminating.
• Remember that a clean area is a safe area. Unless your work area is clean, Operations will not issue a Work Permit and will not sign off as completed.

Scaffolding
• All scaffolding shall be constructed in accordance with OSHA regulations (29 CFR 1910.28 and 1926.451). A trained competent person will supervise all scaffold building and scaffold alterations. Fall protection is required when erecting or dismantling scaffolds.
• Scaffold Inspection – Construction Scaffolds

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
A construction scaffold is required to be inspected and tagged by a competent person before each shift of use. (i.e. turnaround, short outages)

**Scaffold Inspection – Maintenance Scaffold**

- A maintenance scaffold is required to be inspected and tagged by a competent person every 24hrs. (i.e. routine Operations or Maintenance activities). And after any occurrence which could affect a scaffold’s structural integrity.
- Inspection tags affixed to the scaffold must be updated to show proof of inspection.
- Scaffold builder's "Competent Person" who performs the inspection must attach a tag holder to the scaffold, approximately 5 feet from the base of the access ladder, not attached to the ladder rungs.
- Tags must be completed and legible at all times. Only one approved scaffold tag is to be attached on the scaffold.

**NOTE:** Scaffolds shall not obstruct block valves, fire extinguishers, and safety showers. Minimize scaffolds that are built in main walkways.

- Trained scaffold users must verify proof of inspection by reading the scaffold inspection tag, review the hazards listed on the scaffold inspection tag and visually check for any obvious hazards prior to accessing any scaffold, including the need
for fall protection. Any problems will be reported to their supervisor.

- Any scaffold under construction or left unattended prior to inspection must have a **DO NOT USE SCAFFOLD TAG** or a scaffold tag holder with the wording **DO NOT USE SCAFFOLD** affixed to the scaffold.

- Completed scaffolds will be affixed with a scaffold inspection tag shall include the following information:
  - Date erected
  - Location
  - Name of inspector
  - Loading schedule (light, medium, or heavy duty)
  - **Hazards** (missing hand rail, toe board, uneven deck, etc.)
  - Inspection date

Scaffold Tags:
- **Green Tag** – Denotes a completed scaffold
- **Red Tag** – Denotes an uncompleted scaffold that must not be used
- **Yellow Tag** – Denotes a scaffold that can be accessed, but requires special precautions or PPE (wear fall protection, overhead obstacles etc.). The tag shall indicate the hazard.

**Ladder Safety**
- The Refinery requires a full body harness and tie off whenever employees are over 6’ or more above
the working surface and the platform is not protected by handrails. This is a minimum requirement.

- Inspect all ladders before each use.
- Remove and tag-out any ladder that is unsafe for service.
- All ladders brought into the Refinery must comply with Refinery site procedures (Procedure 9: Working at Heights).
- Position ladders so that the horizontal distance from the base to the vertical plane of the support is approximately one-fourth the ladder length between the ladder and the support. (For example, place a 12-foot ladder so that the bottom is three feet away from the object against which the top is leaning.)
- Do not position ladders in front of doors that open toward the ladder unless the doors are secured to prevent opening.

- Tie-off ladders before performing any type of work from the ladder. Have a second person hold the ladder in position at the bottom while it is being securely fastened at the top level. A safety harness is required when working from a ladder above six feet.
- Ladders must extend at least three feet above exit point, when exiting onto roofs or work platforms.
- Ladders must not be positioned against or near (within reach) of unprotected electrical power lines.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• Do not climb higher than the third rung from the top of the ladder.
• Always face the ladder when ascending or descending or working from the ladder.
• Set ladder on a solid level and secure surface.
• Keep shoulders between the side rails to prevent falls.
• Do not carry anything in hands while climbing the ladder. Always use a hand line and bag to hoist tools.
• Keep base of ladder clear of tools and materials
• Maintain 3-point contact with the ladder.

Fall Protection
• Employees/contractors shall be protected by a fall protection system when working/walking in any area with an unprotected sides, or edges that is six feet (6 ft) or greater above a lower level. Fall protection may be required less than six feet under certain circumstances – and shall be a judgment call by the permit issuer.
• Fall Protection System - A system used to safeguard employees from falls or from falling objects. It consists of guardrails, ladder cages, warning lines, barricades, wire mesh, canopy structures, or a personal fall arrest system.
• Personal Fall Arrest System - A system used to arrest an employee in a fall from a working level. It consists of an anchor point, connectors, and full body harness and may include a lanyard,
For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)

deceleration device, lifeline, or suitable combinations of these.

- **Full Body Harness** - A device made up of straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest and shoulders with means for attaching it to other components of a personal fall arrest system.

- **Shock Absorbing Lanyard** - A flexible line of rope, or strap which generally has a connector at each end for connecting the body harness to a deceleration device, lifeline, or anchorage. The shock absorbing mechanism on the lanyard is designed to absorb up to 80% of the stopping force of regular lanyard.

- **100% Tie-off** - Always being tied off when working on anything other than an approved structure or platform.

- Must be trained and understand the proper use, care, and limitations of fall protection equipment before use.

- All contractors shall supply and maintain their own fall protection systems, training, inspection program and record retention.

- Immediately report a fall where the fall protection system is involved.

- Visually inspect your safety harness and lanyard prior to use. If damages or defect are observed, the system shall be tagged and removed.
Compressed Gas Cylinders

- Store cylinders in assigned places where they cannot be knocked over or damaged.
- Individually chain cylinders if not in a proper storage area.
- Never drop cylinders or permit them to strike each other violently.
- Keeps caps on cylinders where caps are provided for valve protection, except when cylinders are in use. Never transport cylinders without caps in place.
- Never transport a cylinder suspended from a sling (rope or chain). Transport all gas cylinders in approved racks provided, or by securing on the bed of a truck. Use of mobile equipment is acceptable when a safe cradle or platform carrier is provided to hold the cylinders securely in place.
- Never use cylinders for rollers, supports or any purpose other than to carry gas.
- Cylinders shall be secured by means of a chain, cable, or #9 wire. Rope is not an acceptable substitute. Roll-around carts, metal box frame enclosures and cylinders mounted on mobile vehicles are acceptable, provided the cylinders are secured by a substantial metal enclosure. Some large volume compressed gas cylinders are designed to be free-standing and have been designed with built-in valve protection.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• Open cylinder valve slowly. Use wrenches or tools provided or approved by the gas manufacturer.
• Secure the cylinder valves and regulators at the end of the workday or for prolonged absence from the job.
• Never tamper with the safety devices on valves on cylinders or use cylinders without proper regulators.

• The use of non-regulated, high pressure nitrogen or compressed air cylinders for routine maintenance activities is prohibited during normal plant operations.
• During refinery turnarounds when refinery air or nitrogen is unavailable, an exception will be made allowing the use of high pressure nitrogen or compressed air cylinders to test or calibrate equipment. In these circumstances, the equipment testing procedure must include the following items as a minimum:
  o A pressure reducing regulator to reduce the pressure within the testing range. The regulator set point must be below the maximum allowable working pressure (MAWP) of the equipment being tested.

• A pressure gauge with appropriate range to accurately monitor within +/- 10% of the testing pressure. Ideally, the test pressure should be within 30 to 75% of the pressure gauge scale.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• If the equipment being tested is not already protected by a relief device, a pressure relief device (relief valve or rupture disc) is required as part of the testing system to protect the equipment from being over-pressured in case of regulator failure. The relief device set point must be at or less than the maximum allowable working pressure (MAWP) of the equipment under test.

• Never attempt to repair or alter cylinder valves. Tag the damaged cylinders with “DANGER – DO NOT OPERATE” tags and explain the problem for vendor’s repairs. Remove damaged bottle from the unit.

• Protect gas cylinders from exposure to heat at all times. Place oxygen, acetylene and fuel gas cylinders a safe distance from ignition sources.

• Do not tamper with numbers or permanent marking on cylinders.

• Do not place cylinders of any type gas inside an enclosure, vessel or tank.

• Segregate storage areas for breathing air cylinders from all other cylinders.

**Fire Extinguishers**
All hot work requiring a fire watch will have a fire extinguisher on the job site under the control of the fire watch. Charged fire hoses will be specified by

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
Operations on the permit. Fire watches must be trained in the use and care of fire extinguishers. All fire extinguishers shall have a current inspection. Any fire watch must wear a bright colored vest and radio/air horn.

**Portable Fire Extinguisher “Quick Checks”**

- This guide can be used for the inspection of fire extinguishers located on golf carts, Gators, welding machines, etc. and is intended to be used by the equipment user/owner.
- NFPA 10, Portable Fire Extinguishers, explains in section 1-3 that a quick check simply determines whether the extinguisher is available for use and appears to be in working order.
- “It is intended to give reasonable assurance that the fire extinguisher is fully charged and operable,” the code states. The quick checks must be done on a monthly basis.
- If you have questions or problems with the visual inspection, call your supervisor, foreman or Rental Company if equipment is rented.
- Use the following checklist for your monthly fire extinguisher inspections:
  - Is the extinguisher in the proper location?
  - Is the extinguisher accessible and visible?
  - Is the operating tag of the extinguisher facing out?
  - Is the tamper seal of the extinguisher intact?
  - Does the extinguisher feel full? Use your best judgment by lifting the extinguisher
  - Is the shell of the extinguisher in good condition?

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• Is the stored pressure of extinguisher within the allowable range?
• Is a hazardous material identification system label on the canister?
• Is the discharge nozzle free of clogging?

• Initial and date the back of the service inspection tag
• If you remove the extinguisher, remember to immediately replace it with a properly working one.

**Electrical Safety**

• All workers not qualified for electrical work must remain at least 20 feet away from any un-insulated live electrical devices. The 20 feet rule includes any tools or equipment that the worker is using.
• All electrical energy sources must be isolated and the Lock Out / Tag Out Procedure used to prevent any exposure to electrical shock.
• Inspect all portable electrical tools before each use. Use only approved connections.
• Do not modify or change, in any way, the electrical plugs or receptacles. This includes removing prongs to make a connection.
• Portable cord and plug connected equipment and flexible cord sets (extension cords) shall be visually inspected, before use on any shift, for external defects (such as loose parts, deformed and missing pins, or damage to outer jacket or insulation) and for evidence of possible internal damage (such as pinched or crushed outer jacket).

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
Cord and plug connected equipment and flexible cord sets which remain connected once put in place and that are not damaged need not be visually inspected until they are relocated.

- Portable equipment shall be handled in a manner that will not cause damage. Flexible cords may not be used for raising or lowering equipment and may not be hung in a manner that will damage the cords outer jacket.
- Procedure 12 Electrical Safety is designed to ensure that anyone working with or near electrically energized equipment is protected from electrical hazards. It includes minimum requirements for extension cords, receptacles, and plugs on portable hand tools and a process for periodic testing and/or visual inspection of electrical cord sets and receptacles that are not part of the permanent wiring of a building or structure.
- Ground fault circuit interrupters (GFCI) will be used for portable tools and lighting at all times. Inspect and test all circuits before each use. GFCI’s will be checked each shift before entry into a confined space.

**Grounding**
The purpose of IEA-PRO-009 Temporary Grounding of Portable Equipment this procedure is to provide instructions on how to apply temporary grounds to portable equipment along with identifying the specific material needed. This procedure will also identify the
needed equipment and specifications for grounding equipment in close proximity to power lines.

- The procedure will cover but not limited to generators, sandblasting machines, fuel tanks, compressors, blast pots, welding machines, light stands, frac tanks and equipment in close proximity to power lines.
- Barricades shall be used with safety signs, to define the 20’ exclusionary zone for non qualified worker, when it is necessary to prevent access to work areas where exposed energized circuits are present.
- A qualified electrical technician shall perform all electrical repairs.
- Grounding of portable equipment must be performed by electrically qualified personnel or personnel designated by IEA Engineering.
- HRO electricians are considered to be electrically qualified personnel.

- References: HSSE Field Manual – Procedure 12- Electrical Safety
- EA-PRO-009 Temporary Grounding of Portable Equipment
- Electrical Safety Policy IEA-POL-001

**Temporary Electrical Cables Routed at Grade**

- Cables should be routed in a way as to minimize traffic around the cable.
• If a cable must be routed through a walkway, a ramp or scaffold bridge shall be constructed over the cable.

• Cable shall be labeled or identified with red barricade tape or something comparable.

• A fence of scaffold materials shall be constructed on both sides of the cable route to permit crossing the cable at only designated locations where the cable is protected by a walkway, ramp or scaffold bridge.

• Electrical cables can be covered in a variety of ways. The list below is not all inclusive.

• Cable tray can be used to route cables at grade. With the cable tray having raised sides, a top cover does not have to be built over the cable. Cable tray must have red barricade tape identifying the hazard of the energized cable.

  *** Caution ***

• At no time are any nails to be nailed into a material in close proximity to a cable

• A wooden cover may be built alongside the cable; after the wooden trough is constructed it can then be placed over the de-energized cable.

• Special attention must be made to verify the cable is not damaged due to protruding sharp objects.
• Sturdy PVC pipe may be used to cover cable at grade. This will be approved on a case by case basis.

Inspection

• After the electrical cable is covered, the insulation integrity shall be tested with a 1000v dc megger test.

• The final inspection will be performed by an electrical supervisor, electrical specialist, electrical engineer or a designee.

Contractor Tools and Equipment

• All equipment brought into the Refinery must be inspected and in safe working operating condition. All guards and safety devices must be in place and must meet all applicable Refinery, manufacturer and government requirements.

• All portable electrical equipment will be inspected by the contractor and marked with the appropriate inspection colors per the Houston Refinery inspection and testing process.

• Follow the Refinery maintenance procedures for all inspections, at a minimum.

Transfer of Flammable Liquids to Containers, Equipment and Vehicles

• The vehicle or equipment operator will use the following precautions while refueling:
• Any employee refueling a vehicle from the pumps will wear flame retardant clothing.
• Select appropriate fuel for vehicle or equipment.
• Ensure that the vehicle or equipment engine is shut off.
• Connect grounding cable to the metal of the vehicle or equipment prior to refueling.
• Set meter to zero.
• Stand where fumes/vapors will not be breathed in.
• Begin refueling operation.
• Observe for leaks while refueling.
• When refueling is complete, remove the nozzle, shut the pump off, record amount used, zero the meter, replace filter cap and disconnect the grounding cable.
• Fuel will only be pumped into approved fuel tanks or safety cans having no visible structural defects or leaks. If tanks are unattached to vehicle or equipment, they must have a sign indicating the correct fuel contents.
• Gasoline and diesel fuels will be stored in approved tanks/containers only. Signs will be properly affixed to the tank or container that correctly identifies the fuel.
• An approved fire extinguisher must be readily available during all refueling operations.

Cranes (Refinery Lifting Procedure, Fixed and Mobile Cranes, “Above the Hook”)
To ensure the safety of personnel and equipment when cranes or other lifting devices are used. This procedure shall be used in conjunction with all other applicable rules and procedures in the Houston Refining LP’s HSE Field Manual to ensure work is completed in the safest possible manner.

- Rental and Contractor cranes must be inspected prior to use in the Refinery complex. The Refinery Crane and Rigging Department would be the primary group to perform the inspections. The Refinery Crane and Rigging Department Supervisor will designate an alternate qualified inspector if a Refinery Crane and Rigging Department member is unavailable. The crane inspector will complete the Mobile Crane Pre-Operational Inspection Form. The cranes will be inspected at the crane and rigging yard. All cranes shall have proof of a formal annual inspection.

**Crane Inspection**

- Daily and monthly inspections are required for all cranes. All inspections shall be executed using required Refinery forms.
- A daily inspection Form must be in any crane that is in use. Refinery Crane and Rigging Department may audit use of crane inspections at any time.

**Rigging Strategies**

- Contractors using rigging shall be trained by their employer in selection, inspection and rigging practices.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• Each contractor will need to have their slings inspected by their designated competent person verifying compliance and documenting inspection process (e.g. inspection tags)
• All slings will be inspected prior to using the slings on site.
• Any rigging that meets the retirement criteria shall be discarded or removed from the Refinery.
• Softeners or sling protectors must be attached to sharp points that sling may come in contact with.
• Contractors performing rigging practices using fixed equipment to lift from must know the weight of the object they are lifting and size the correct rigging needed for the lift.
• No slings will be attached around insulated equipment or where the slings may come in contact with the insulation.

**General Lifting Requirements**
When operating cranes or making material, personnel or overhead hoists in the refinery, refinery personnel and contractors shall comply with OSHA regulations, the manufacturer’s specifications and limitations, and best work practices, including but not limited to the following:
• No operation of cranes within 20 ft. of overhead electrical lines (see Procedure 12: ELECTRICAL SAFETY).

• Rated load capacities, recommended operating speeds, and special hazard warnings or
instructions must be posted on all cranes. Instructions shall be visible to the operator of the equipment.

- Horns, flagman, standby personnel or other means of warning shall be used prior to making a lift and at any time the load is moving.
- Tag lines are required for control of suspended loads.
- No work will be allowed under a suspended load.
- Cranes operated on plant roads shall follow all plant traffic rules and shall require an escort if the load or boom could interfere with the operator’s vision.
- Areas within the swing radius of the rear superstructure of the cranes shall be barricaded or a flagman shall be posted to protect personnel and equipment in the area.
- All required safety devices and safety interlocks shall be in service and operating properly.

**Outrigger Operation**

- Set-up of cranes 15 ton and above: immediate area around cranes 15 ton and above must be clear of all nonessential personnel before extending outriggers. Only personnel assisting in the setup of the crane shall be present and must stay in constant contact with the crane operator.
- Set up of cranes below 15 ton: Before the set up of any machine with direct deploy outriggers (carry deck, drott, etc.) to make a lift, the area around all outriggers shall be barricaded in such a way to
ensure safe deployment of all outriggers, and area shall be clear of personnel, including the rigger. In addition, the crane operator and rigger shall maintain visual and/or two way radio contact while outriggers are operated.

- The exception is when a machine with direct deploy outriggers is being parked and to be left unattended. The rigger shall place an orange cone at the left front outrigger and clear the area where.

**Overhead Cranes**

**Pre-Shift Inspection**

- All operators must be trained.
- Only use lifting devices you are familiar with and trained to use.
- Is there a “Do Not Use” tag on the crane?
- Is the annual inspection current?
- Operate all of the controls to ensure they operate correctly without sudden jerking.
- Know location of emergency stop.
- Inspect intended path of travel for adjacent work activities and personnel.
- Move crane several feet in each direction.
- Conduct an inspection of the crane and all lifting devices before each use.
- Insure the Crane and Lifting Device can handle the weight of the load.
- Remember 1 TON = 2000lbs.
LIFE CRITICAL PROCEDURES & WORK PERMITS

- HSE-FM-001: SAFE WORK PERMIT
- HSE-FM-004: HOT WORK PERMIT
- HSE-FM-005: CONFINED SPACE ENTRY
- HSE-FM-006: LOCKOUT/TAGOUT
- HSE-FM-007: LINE BREAK
- HSE-FM-009: WORKING AT HEIGHTS
- HSE-FM-011: EXCAVATIONS
- HSE-FM-023: BREATHING AIR QUALITY

Violation of any Life Critical Procedure could potentially result in Loss of Life. Life Critical violations may result in immediate removal from Refinery property.

The following information regarding Life Critical Procedures is for informational purposes and is not designed in any way to replace existing training requirements.

Permit Checklist and Memory Joggers

- Are all energy sources identified and included on the Lock out Tag out (LOTO) or Energy Isolation List (EIL) form?
- ALL BLEED VALVES NEED ONLY BE TAGGED BY OPERATIONS.
- Are special devices needed for Lock out? (Electrical systems, valves with hard to secure handles)

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
- Is an electrical breaker involved, is the breaker labeled properly?
- Are locks, tags and special devices in the proper place? (Bleed valves tagged open, electrical switches locked in open position, chains through wheel)
- Check equipment for energy sources. (Depress start/stop switches, check pressure gages, rod out bleed valves, verified with O\textsubscript{2} and Combustible Meter)
- Are there additional sources of energy? (Heaters, low voltage systems, electrical heat tracing, steam tracing, utilities hard piped to system)
- Are there any reactants? (Catalyst, polymer, peroxides)
- Is there any instrumentation involved? (Impulse lines, float gauges, seal pots, varecs)
- Have all utilities used for clearing been disconnected at the vessel? (Hoses, hard piping)
- Is a GFCI or low voltage needed for tools and lighting?
- Has the line, vessel or equipment been cleared, steamed, washed and purged properly?
- Is there adequate air flow in the work area? (Air mover needed?)
- Is the WCR at the job site? (Has the SDS been checked?)
- Have all units that may be affected been contacted?

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
- Do not use any Davit or Lifting Arms located on towers, vessels, tanks, etc
- When removing lead-based paint or asbestos insulation, make the appropriate contacts.
- Have YOU identified your Rally Point locations and Evacuation Routes?
- Have YOU located the Safety Shower/ Eye Wash station and verified operation?
- Have YOU checked the Breathing Air Certificate of Analysis “C of A”? Blue and red tag in use?
- Have YOU checked to see if an Engineering Package is required for the job?
- Have YOU charged a steam hose or lance? Is it ready if needed for Flare Header opening?
- Have YOU checked the fire extinguisher gauge and inspection date?
- Have YOU barricaded off the area and danger tagged properly
- Have YOU informed each member of the work group of the permit requirements?
- HSSE DEPARTMENT can be called as a resource if needed.

Work Permits and Preparation
- Persons desiring entrance into process areas, tank farms, or other restricted areas must request permission from Operations. At a minimum, a Safe Work Permit will be required for work that could impact process equipment

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• Permits and the JSA are to be posted at the job site.
• Permits are issued by the Operations Dept. and designated permit writers in the area where the work is to be performed. Operators and permit writers will be able to make rounds and answer your questions. Learn the operators, permit writers and supervisors in your areas. If you are not sure always ask.
• All Safe Work Permits can be written for up to seven days, but must be updated each shift if work is ongoing, or at least once in a 24 hour period when the work is not continuous. The original book copy and the permit hard copy shall be updated.
• The permit updates section must be initialed by the Equipment Owner to indicate that gas checks have been performed (if applicable) at the beginning of each shift and the area has been checked for operating conditions that may have changed making it unsafe for the permit to be updated.
• Safe Work Permits not reviewed within 24 hours of the last update shall be terminated and a new Safe Work Permit shall be required.

NOTE: The daily review will not be considered valid and work will not start until the atmospheric tests and results section and the permit update section has been completed and initialed by the Equipment Owner and Work Crew Representative.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• Any emergency alarm other than a test will void all permits. Permits will be initialed or re-issued for contractors to resume work.

• All Contractors performing the work will follow all PPE requirements and special instructions checked or written on the permits.

• If a job is abandoned for 2 or more hours then the permit will be suspended until the area is re-evaluated by both the Equipment Owner and Work Crew Representative.

• Permits will be valid for 12 hours during turnarounds when maintenance works 12 hour shifts.

Permit Process Workflow
• After signing into the unit, the worker will meet the equipment owner at the job site and communicate the work activity that is to be performed.
• The equipment owner will inspect the area using the oxygen/combustible gas meter to determine oxygen and flammability readings if necessary and ensure that the area is free from recognizable hazards. Oxygen reading must be 19.5% to 23.5% or equal to atmospheric conditions. Flammability must be zero for jobs which have a potential ignition source. Other direct reading instruments such as PID meters will be used to determine toxicity when necessary. The permit-qualified

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person will verify atmospheric readings and ensure the area is free from recognizable hazards.

- The following personnel will sign the safe work permit based on the type of permit issued authorizing work to begin; the Equipment Owner, Work Crew Representative (WCR).
- The personnel performing work will comply with all HSSE procedures that apply to the work activity.
- The Safe Work Permit and JSA will be posted at the designated location until job completion.
- Should the WCR be replaced before completion of the job, he will review the permit requirements with his replacement and the replacement will sign the permit.
- Sounding of the Refinery Emergency Alarm in your area, except for testing purposes, immediately voids all work permits. They will have to be initialed or re-issued after the “All Clear” is sounded.

Unit Sign in and notifying operations in person is required for the following examples, but are Not Limited To:

**NOTE:** - JSA will be required prior to perform the job tasks
- These exempt areas are not exempt from the Confined Space Entry Permit requirements, if applicable.

- ERT Training Bldg, Fire Training Group and Fire Stations

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• Maintenance Bldg, Central Maint Shops, Coker Shop, C&P Maint Shop, Permanent T/A Fab Shop by North Fire Stations, Contractor Hill
• Shipping, Stores
• Veolia and Brock Compounds
• Administration Building, Gate Security Buildings, Medical Building, Time Office Building and Safety Supply
• Site D
• Ops and Maint Change Houses
• FCCU, Coker, Crude and Capital Bag & Tag Areas
• Nomex Trailers
• Sandblast Yard, Laydown Yards, Scrap Metal Yard
• PTRA Railroad Tracks
• Wax Building
• Operation of Global Thermal Oxidizer Area

**Safe Work Permit (Procedure 1)** the following are examples of tasks that would require a safe work without gas check:
• Battery powered, intrinsically safe tools
• Abrasive blasting on new equipment
• Abrasive blasting tanks, structural members, piping and equipment previously in service which **does not** contain a flammable or combustible material and/or **does not** have a vapor space above a flammable or combustible material
• Asbestos and lead removal
• Radiography work and radioactive tracer testing
• Elevated work, Scaffolding
• Insulating with asbestos or non-asbestos, refractory or non-refractory materials
• Any work that has lead exposure potential
• High pressure water cleaning
• Hot Bolting (See Hot Bolt sections of Procedure 07 Line or Equipment Opening)
• Cold cutting (e.g. hand pipe cutter)
• Painting

Safe Work Permit (Procedure 1) the following are examples of tasks that would require a safe work with gas check:

• Electric soldering irons, drill motors, hammers, saws, and other similar tools
• Any work involving line or equipment opening with potential exposure to hazardous materials
• Temporary bullpen (smoking permits)
• Tar pots
• Portable gasoline, diesel or propane-powered equipment
• Mechanized excavation equipment (e.g. backhoes, ditch witch)
• Lawn mowers, weed cutters, etc. within the battery limits of an operating area, or within tank dike walls.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
- Sustained vehicle operation within operating areas (forklift, picker, air compressor, and light bank, etc.) If the engine/vehicle is turned off for more than one hour, the permit is suspended until the area can be gas checked
- Work conducted in any temporary enclosure

**Hot Work Permit** (Procedure 4)
- Any work or the operation of any equipment that may create a source of ignition.
- Electric or gas welding
- Gas cutting torch, gas torch soldering, brazing
- Grinding (electric or pneumatic)
- Sandblasting on tanks or equipment that have a vapor space and are in service or have not been cleared of flammable or combustible materials
- Any use of open flame

**NOTE:** if unsure of classification, contact an HSSE Representative for clarification.

**Confined Space Permit:**
All Confined Space Entries require a Confined Space Entry Permit and either a Safe Work or Hot Work Permit (see Procedures 1&4). All sections of the Confined Space Permit must be properly completed including the authorized signatures (Equipment Owner, Work Crew Representative, Chief or the First Line Supervisor, and the Safety Attendant). The permit should be posted at the entry in a permit-only plastic bag.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• The Equipment Owner will perform all initial and periodic atmospheric testing for the confined space entry and document it on the Confined Space Permit (both copies).
• Each hazard that could potentially have a direct impact on the confined space entry must be identified and controlled according to this procedure and other applicable procedures (such as Procedure 4: Hot Work Permit).
• The Confined Space Permit is valid only for 24 hours, then it must be closed and a new permit issued if the work is not complete. If work does not begin within two hours of permit issuance or if work ceases for two hours or more, the permit is suspended and requires the Entry supervisor approval for reactivation, including retesting of the confined space atmosphere...

Confined Space (Proc. 5 Confined Space Entry)
This procedure applies to all Refinery employees, as well as all contract employees working in the Refinery.

Confined Space Entry- means the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant’s body breaks the plane of an opening into the space.

Confined Spaces- are areas which

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• Have limited or restricted means for entry or exit including (but not limited to): tanks, vessels, vessel skirts, storage bins, hoppers, vaults, pits, cooling towers, heaters, excavations four feet or more deep, tank cars, sewers and under some identified compressor deck
• Are large enough and so configured that an employee can bodily enter and perform assigned work
• Are not designed for continuous employee occupancy

**Welding in Confined Spaces**
• During welding jobs within confined spaces, one of the following requirements must be achieved:
  • 2000 cubic feet per minute (CFM) of air flow per welder
  • Local exhaust ventilation
  • Ventilation 6-12 inches above the welding point (i.e. using a Coppus blower, hoses, etc.) or supplied-air respiratory protection for entrants

**Special Requirements, Considerations, Exceptions**
• When using diesel or gasoline powered equipment, or any equipment that has the potential to generate harmful contaminants in the vicinity of a confined space entry, care should be taken to keep the exhaust fumes or contaminants from entering the confined space.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• The Work Group Representative (WCR) and work crew must take the necessary steps to guard against the possible hazards of gas leaks from torches or hoses, and to guard against the depletion of oxygen by torches or other flames in closed or partially closed confined spaces. Breathing air equipment may be required.

• When possible, low voltage (48 volt or less) explosion-proof lights should be used. The transformer must remain outside of the confined space at all times and be protected by a ground fault circuit interrupter. The user must visually inspect extension cords before they are used, regardless of the date of the last inspection.

• Exception: 120 volt portable electric lights protected with a ground fault circuit interrupter meet the shock prevention intent of the above. The ground fault circuit interrupter shall be kept outside of the confined space. Use of ground fault circuit interrupter must be included on the permit.

• Portable (battery powered) lighting shall be kept at-the-ready outside of the confined space opening. This lighting shall be used in the event of failure of the principle system and shall be capable of providing explosion proof illumination for a period of at least one hour.

• An approved dry chemical fire extinguisher shall be available at the entrance to confined space, or in the case of large or complex confined space configurations at or near the hot work activity while

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
welding/cutting operations are in progress. The object is to have proper fire suppression capability immediately available to the hot work area.

- Any job that could increase flammable gas concentrations inside the confined space must be discontinued until the entry/welding job is complete.
- Oxygen and acetylene hoses used inside of confined spaces shall be inspected prior to entry to assure no leakage. Oxygen and acetylene hoses must be removed form the space or disconnected at the cylinder when not in use or during periods when the confined space is not occupied or when oxygen and acetylene hoses will be idle for an extended period (2 hrs or more) when the confined space is occupied.
- Compressed gas cylinders, except those containing breathing air for RESCUE or ESCAPE, shall not be allowed inside the confined space.
- Air moving equipment should be arranged based on the configuration of the space and the type of ventilation required. Air moving equipment shall be rated for Class I Division I explosion proof electric service or shall be powered by compressed air. All compressors shall be placed away from exhaust fumes or other air contaminants that may be present in any area of the plant. If the use of an air mover is not specifically required on the entry permit, the entry supervisor should evaluate, on a job by job basis, the positioning of a stand by air
mover at the access opening. Ventilation devices driven by air hoses shall exhaust out of the confined space. Approved electric driven ventilators may blow into (positive pressure ventilation) or exhaust from the space (negative pressure ventilation).

- All air movers shall be equipped with a bonding cable and clamp. The cable shall be attached to the confined space at all times, or if the confined space is an excavation the cable shall be attached to a grounding rod.
- Excavations or other confined spaces with no roof whose length is greater than four times the depth, or those with no toxic or flammable material carrying lines passing through the excavated volume may not require ventilation at the discretion of the Entry Supervisor.
- Provided that the tube sheet is still in place, standing inside of a horizontal exchanger channel head, to perform work such as plugging tubes, or hydro-blasting tubes, where there is no restricted egress and for a depth of 4’ or less, will not require a confined space entry permit. All other isolation and decontamination requirements still apply.
- Provide that the tube sheet is still in place, standing on a walking and working surface and reaching into a horizontal exchanger channel head to perform work will not require a confined space entry permit. All other isolation and decontamination requirements apply.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
- All Confined Spaces shall be continuously monitored by qualified attendants for Oxygen and LEL (flammability) while personnel are present in the space. A minimum of one meter, with the qualified attendant, will be used per confined space. Consideration should be given to space configuration and equipment service that may require additional meters and monitoring capability, such as H₂S, SO₂ and CO
- All attendants will be trained, have proof of training and have a radio and wearing a brightly colored vest.

Excavation (Proc. 11 Excavations)
- A Safe Work Permit or Hot Work is required for all Excavations (Trenching and Digging) depending on the equipment being used.

- All soil in the Refinery is considered to be Class “C”

- Excavation Competent person must perform the planning and execution shall be assigned to a competent person. Prior to starting an excavation, the competent person shall evaluate the excavation work scope including work methods, potential hazards and employee protection requirements associated with the excavation work. Methods shall be implemented to identify and physically locate underground hazards such as sewers, pipelines, electrical installations, etc.
• All excavations over 5 feet in depth shall be sloped, shored and/or shielded.
• Competent person must ensure all pipeline or utility owners are notified before the excavation begins when excavations are conducted in areas where pipeline or utility rights-of-way are located.

• Excavation Competent person must conduct a daily inspection to ensure all protective measures are in place and adequate.
  o Daily, prior to starting work: inspects and assesses excavation integrity, protective systems and adjacent areas.
  o Inspect excavation area following rain storms or other hazard-increasing events.
  o If there is evidence of possible cave-ins, soil cracking or slides, all work will cease until necessary precautions have been taken to protect personnel and equipments.
  o Other activities in “close proximity” to excavation area (e.g. railroad tracks, roadways, other excavations, power line poles).
  o If water accumulates within an excavation, all personnel must exit the excavation until the water level is safely removed or controlled and a firm working surface is provided.
A Confined Space Permit is only required if workers are going to enter an excavation that is or greater than 4 feet in depth.

NOTE: Excavations that are less than 4 feet in depth and examination of the ground and work area by a competent person provides no indications of cave-ins; basic PPE is required. Excavation is equal to or greater than 4 feet in depth requires additional PPE while working in the confined space such as but not limited to; safety harness.

Precautions

- No mechanized equipment (backhoes, pickers, etc.) will be used within 20 feet of any overhead lines (including power, control or communication lines) without first contacting a refinery Electrical Supervisor, Electrical Engineer, Plant Shift Superintendent or their designee. (See procedure 12: ELECTRICAL SAFETY)

- No “teeth” will be allowed on the buckets of any mechanical equipment (backhoe, bulldozer, etc.) used for excavation work. A flat bar may be attached across the teeth to prevent the snagging of any underground obstruction.

Line Break (Procedure 7)

- Requirements for opening of any process equipment with potential to contain an energy source are described in Refinery Procedure 7- Equipment and Pipe Opening. The equipment

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owner in charge of the area must verify lock out/tag out (see Procedure 6 LOCKOUT AND TAGOUT) with maintenance personnel, and be present during the first break and until the equipment is shown to be clear. Equipment Owner will inform all personnel in the immediate area when the equipment and surrounding area is clear and specified work or preparation for that work may begin.

- Prior to performing any equipment and pipe opening, workers must:
  - Locate the nearest safety shower.
  - Clear area of personnel not actually performing the work (including watch).
  - Select appropriate PPE. Refer to the Refinery PPE Procedure at the end of this section.
  - Consider the possible “Line of Fire” prior to the start of the task. For flanges, the line of fire can be in any radial direction from the flange. Position yourself on the side opposite of the break.
  - Determine the need to establish a barricaded area around potentially impacted areas (a minimum of 10 feet).
  - Line Break is the physical opening or breaking apart of a portion of chemical process piping, tubing, hose, vessels or equipment which contains or may contain hazardous or unknown material or an energy source. Physical breaking includes but is not limited to, unscrewing, unbolting, and cutting of screwed, flanged, cemented, welded, or other types of connections on pipelines or process
equipment. Subsequent breaks in lines or equipment are considered line breaks if any potential exists for exposure or release of energy.

- The key part of the permit is to identify the material and the proper PPE for the task. PPE can only be downgraded by Operations of HSSE.
- All contractors must train their employees on the proper use, limitations and care of PPE. It is the responsibility of the contractor to decontaminate and/or clean the PPE after use.

**Lockout/ Tag out (Procedure 6)**

- It is the policy of the Refinery to protect all employees and contractors who are engaged in servicing, maintenance, inspection, construction and/or similar activities on equipment. This is accomplished by ensuring the control of hazardous energy sources, by means of lockout/tag out procedures, to prevent energization, start-up or release of stored energy that could cause injury to workers. This procedure is in compliance with OSHA Standard for Control of Hazardous Energy (Lockout/Tag out).
- Before starting work on any equipment, all energy sources to the equipment must be isolated, locked, tagged, and tested.

**Blinding**

- **Maintenance** personnel who arrive at the unit will follow the LOTO procedure below before beginning the installation of blinds.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• **Operations** will indicate the location of required blinds by filling out and applying a “GREEN BLIND LOCATION TAG” at the location of each blind point for maintenance personnel.

• **Maintenance** personnel will notify operations when they are set up and ready to make the line break.

• **Equipment Owner** will remain with the maintenance personnel who are installing the blinds until the equipment is shown to be cleared.

• **Maintenance** personnel will install the blinds. If the GREEN BLIND tag is removed as part of blind installation Maintenance must replace the tag after work is complete.

• When the **maintenance** personnel have completed the installation of the required blinds, they will report to operations that blinding is complete.

• **Equipment Owner** will verify the correct placement of the blinds and remove the “GREEN BLIND LOCATION TAG” and fill out and apply an “ORANGE BLIND INSTALLED TAG” to each blind location. If a blind is part of more than one lockout situation, a separate tag for each lockout should be applied to that blind.

• **Equipment Owner** and **Work Crew Representative (WCR)** will initial the Energy Isolation List, indicating that the blinds have been installed.

• Operations Lockout is now complete.

• **Maintenance** personnel arrive at the area satellite control room and are accompanied to the work site by the **Equipment Owner**. If there are multiple...
crafts persons then an individual from each craft would be required to secure the appropriate permit and would be designated as its **WORK CREW REPRESENTATIVE (WCR)**.

- **Equipment Owner** will review the Energy Isolation List (EIL) and variances, if applicable, with **WCR** as they look at each energy isolation device.

- The **WCR** from each craft will verify that an operations controlled access lock and/or tag are on all lockout devices, including the electrical switchgear. Then he/she will initial the spaces corresponding to each device on EIL.

- The **WCR** will apply a general craft lock AND his/her personal lock to the Lock Box. (If the WCR will not be a part of the work crew, the **WCR** will apply a general craft lock only.)

- The permit is issued by the **Equipment Owner** and placed in a pouch located at the work site L by the **WCR**.

- The **WCR** reviews the LOTO with his/her work crew and ensures that each work crew member places a personal lock on the Lock Box. **Contractors** must use a single-keyed lock that identifies the owner of the lock and their company.

**Work Proceeds**

- The **WCR** for each craft will ensure that all work crew members apply or remove their personal lock as they join or leave the crew during the workday.

**Operations Shift Change**

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• **Equipment Owner** informs their relief of all lockouts in their assigned area. Remove their personal locks from the lock box (Leaving only their craft lock) if their blinding job is incomplete. If the oncoming shift plans to continue the job, then the new crew will add their personal locks to the lock box.

• **Equipment Owners** on the oncoming shift will renew the permit(s) according to the permitting procedure.

**Maintenance Work Day Ends (Job Incomplete)**

• **WCR** will ensure that all work crew members remove their personal locks from the Lock Box, leaving only their general craft lock.

• **WCR** writes job status on the permit and returns it to operations as required by the permit procedure.

**Maintenance from Other Crafts or On Additional Shifts**

Repeat steps 10-15 of **Initial Setup of LOTO**

**Job Completion**

• On completion of their work, **each craft** will ensure that all job related trash, material, tools and equipment have been removed from the work site and properly disposed of or stored.

• As **each craft** completes their work on the equipment, each **WCR** ensures that all work crew members remove their personal locks from the Lock Box.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
• **WCR** removes their general craft lock from the Lock Box.

• **WCR** writes job status on the permit and returns it to operations as required by the permit procedure.

• **Maintenance personnel** will coordinate with **Equipment Owner** as they remove blinds (if applicable) perform necessary cleanup, remove their personal locks and their general craft lock from the Lock Box, and turn in their permit. If Equipment Owners remove any blinds, they must first evaluate any hazards of the job task before proceeding and then follow same procedures as maintenance.

• **Maintenance** is required to return the ORANGE BLIND tag to the **Equipment Owner** after the blind is removed.

**Group Lock out**
A lockout in which a Work Crew Representative places a single craft lock along with the personal locks of all work crew members or tag with work crew signatures on the applicable lock box thereby affording protection for all of the members working within that Work Group.

**Industrial Hygiene (IH)**
Contractors are responsible for their employees Industrial Hygiene issues. These issues may include but are not limited to PPE and personal monitoring. Refinery IH will assist as necessary.

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Hazard Communication/ Material Safety Data Sheets (Hazard Communication)

- All chemicals at the Refinery have Safety Data Sheets (SDS) available. These can be obtained from your job representative, Operations or HSSE.
- If there are any new chemicals or agents utilized during the task, they must be approved through the Refinery Chemical Approval process prior to use. This includes contractors transporting chemicals and agents on-site as well.
- All cleaning and decontamination agents shall be processed prior to coming on-site.
- All portable containers must be labeled.
- Contractors are responsible to train employees in the HAZCOM standard.
- The contractor is responsible to provide training to his/her employees on the hazards associated with the chemicals and the operations of the Refinery to which they may be exposed.
- All permits issued will list the chemicals and the potential for exposure.

Asbestos and Lead

- Prior to removing insulation or paint from a line, vessel, tank, or other process equipment, the potential for the presence of Asbestos and/or Lead must be determined. If this is unknown, the appropriate tests must be conducted and/or additional precautions determined prior to initiating any maintenance work. Refer to Proc. 15 Asbestos Abatement or Proc. 17 Lead Removal for specific.
additional information. Report any suspect material prior to disturbance.

- All abatement projects must be performed by trained/qualified contractors.
- Complete the asbestos/lead tracking prior to working on asbestos/lead.

**Industrial Radiography** (Proc. 13 Radiation Safety)

- Site HSSE personnel will periodically conduct and document audits on industrial radiography jobs.
- The audits are to ensure the radiographers are complying with state regulations and meeting the 2 mR/hr barricade regulatory limit.

**Work on NORM-Contaminated Equipment**

- **NORM**- (PROCEDURE 14: NATURALLY OCCURRING RADIOACTIVE MATERIAL)
- NORM can concentrate in propylene streams.
- External surveys have not indicated that NORM is present at the Refinery. However, when propylene equipment is opened during maintenance activities, internal surveys must be conducted. Contact HSSE any time such equipment is to be opened.
- Equipment to be worked on in the refinery are not required to be decontaminated, but all personnel working on equipment must receive the proper training and wear the following minimum personal protective equipment:
  - Full face negative pressure respirator with HEPA cartridges
• Chemical or other impervious gloves
• Flame-retardant disposable coveralls with hood
• Disposable shoe covers or rubber boots (when working inside vessels).

Sampling and Analyses of Process Equipment prior to Maintenance
• Before contractors are allowed to begin working on any piece of equipment, it must be decontaminated and cleared by Operations.
• Operations will sample and analyze the equipment to determine the PPE requirements for the task.

Supplied Breathing Air
• Breathing air used at the Houston Refinery must comply with Grade D breathing air requirements described in NSI/ Compressed Specification for Air, G- 7.1- 1997 and OSHA 29 CFR 1910.134. No synthesized or reconstituted air shall be used by the Refinery or contract personnel. Breathing air couplings must be incompatible with outlets for non-respirable worksite air or other gas systems (i.e. nitrogen/plant air/regular non-grade D Compressors).
• Air Compressors may be used to supply Grade D breathing air in lieu of breathing air cylinders. When using an air compressor, Grade D breathing air quality tests are required to be performed when the compressor breathing air system is initially set up and at least every 90 days thereafter. The use of breathing air should be stopped and air quality
testing performed if there is a report of perceived odor, taste, or other reported unwanted issues with the breathing air system.

- System modification will also require additional air quality testing (i.e. different compressor, after repair work, compressor relocated, etc.). In addition to Refinery Requirements, all compressor manufacturer guidelines must also be followed.
- The compressor shall be located in an area that prevents entry of contaminated air into the air-supply system. The system will have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer’s instructions. A tag containing the most recent change date and the signature of the person authorized to perform the change. The tag shall be maintained at the compressor. An inline carbon monoxide alarm set at 10ppm or below will be used to monitor carbon monoxide levels. Carbon monoxide alarms must be calibrated at least monthly or more frequently according to manufacturer recommendations. A “bottle watch” will be assigned to monitor breathing air panels and carbon monoxide alarms.
- Breathing air cylinders must be tested for oxygen content at least once prior to use. Breathing air from compressors must be checked daily prior to use. The oxygen content must be between 19.5%-23.5%. Oxygen testing will be performed with a
properly calibrated, standard hand-held oxygen meter. Multiple breathing air cylinders comprised to provide a single source of air, such as 12 pack, must be tested individually for oxygen content.

- Oxygen test records shall be maintained on-site. A certificate of analysis from the supplier is required for breathing air cylinders prior to use.
- Breathing air cylinders and multi-packs must be tagged after testing to ensure O2 content between 19.5%-23.5% in accordance with Grade D specifications.

- The breathing air cylinders must be tagged using the blue contractor O2 tag (Appendix 3) to identify an oxygen quality check. This tag is available in the warehouse (item # 2037832).
- All breathing air hose line connections must use the red “Breathing Air In Use” tag (Appendix 2) to ensure hoses are not disconnected while in use. This tag is available in the warehouse (item # 2037831).
- Bottle air must be rechecked every 6 months to ensure O2% content. Breathing air cylinders and multi-packs must be replaced at least annually with fresh ones.

**Toxic Substances Control Act (TSCA)**
- The Toxic Substances Control Act requires LyondellBasell to develop a compliance procedure that addresses the reporting of allegations of health and environmental effects, the investigation of
those allegations, and the development of the necessary reports and notifications to the EPA.

- It is the contractor’s responsibility to report any information or incident associated with any chemical or mixture that results in an adverse health or environmental effect. Report any incident immediately to your Houston Refinery Representative.

Environmental Requirements:

- The Refinery has developed environmental policies and procedures to ensure the site complies with relevant federal, state, and local environmental. These policies and procedures cover the requirements for air emissions, water discharges (both storm water and process wastewater), hazardous and non-hazardous waste, and upset reporting.

- Upsets and spills will be reported in accordance with the Spill Response and Prevention Plan (SPCC). The Environmental Department unit contact (days) or on call representative (night) is responsible for any agency notifications.

- The contractor must follow all relevant Refinery environmental procedures and guidelines and coordinate all related activities with their Refinery job representative and the Refinery Environmental/Waste Management Team.

For a copy of the HSE procedures, the contractor may request a copy from the site Point Of Contact (POC)
**Wastewater and Storm Water**

- If materials to be discharged to the wastewater treatment system are new or are in concentrations not normally generated during operating or maintenance activities, coordination with Utilities and Environmental personnel must occur prior to the activity.
- If Utilities cannot viably handle the stream, Environmental personnel will work with your Refinery Representative arrange for alternative storage or disposal.
- No materials, liquids, wastes, chemicals, etc. shall be discharged to any storm water ditch or on the ground leading to any ditch. Examples prohibited materials include: cutting fluids, biodegradable products, oils or hydraulic fluid drips, equipment wash downs, concrete rinse outs, concrete spoils, and hydrostatic test waters. All water generated through hydro blasting of VOC contaminated equipment and wash downs of VOC contaminated equipment, must be treated through the Utilities wastewater treatment system. Equipment should be cleared of liquid volatile organic chemical (VOC) materials and purged of VOC vapors as much as is feasibly possible prior to opening to atmosphere. Solids should be removed after VOC emissions are minimized.

**Waste Issues**

- The type and qualities of wastes (both hazardous and non-hazardous) that may be generated from...
contractor maintenance activities must be estimated by Operations and Environmental personnel prior to these maintenance activities in order to ensure that the proper containers are ordered and shipments may be scheduled. Each vessel with the potential to generate hazardous waste shall be identified by Operations prior to maintenance activities.

- All non-routine waste should be sampled prior to being removed from equipment for disposal. This will expedite the transfer of material off-site for proper disposal. If material can not be sampled prior to its removal, the waste must be stored until it has been analyzed and profiled with an approved disposal facility. Coordinate with your Refinery representative and the Environmental group to determine sampling needs.

- All waste materials must be segregated and placed into proper containers. Waste must not be mixed with different types of waste.

- All waste containers, hazardous or non-hazardous, must be labeled in accordance with Refinery labeling requirements. The common name for the waste must be on the label.

- Tarps, covers, or hatches must be kept closed on all containers when not in the process of being filled.

- If any Naturally Occurring Radioactive Material (NORM) contamination is suspected, the HSSE group should be contacted and handled as referenced in the **NORM Procedure**. If detected, a
NORM lay down yard will be established for the weathering process. The Environmental Department will arrange for disposal of NORM waste material as needed.

- The HSSE must be notified if any asbestos will be removed. The Environmental Dept. will arrange for asbestos disposal.
- If excavation of an area is needed, use the (Proc. 11 Excavations) as guidance and coordinate with the Environmental T/A Coordinator to obtain required environmental approvals.
- All waste disposal activities, on-site and off-site should be handled and coordinated through the Solid Waste Coordinator.

**Incident Reporting**

- It is the responsibility of the contractor to report all incidents including near misses and injuries to their Refinery Representative immediately.
- Before the end of the shift, write a preliminary report for each incident including medical descriptions of any injury and all actions taken to prevent recurrence. Contractors will have a person assigned to manage safety to ensure incidents are properly managed.
- Contractors will conduct formal incident investigations for all recordable incidents or as dictated by the Refinery Representative.
- All incidents will be entered into tracking system by the appropriate Refinery Representative.

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Medical Treatment

- The Contractor may provide minor first aid for employees if qualified care personnel and facilities are available.
- The Refinery has EMT’s on site trained to respond to any medical emergency when needed.
- Any major medical emergency shall be immediately reported and activate the plant VERT to respond.
- Any outside emergency assistance will be coordinated through Refinery VERT. This assures that the right people are notified and in place whenambulances or emergency equipment arrives.
Hand Safety
The Houston Refinery’s Hand Safety procedure 32 emphasizes 10 Cardinal Hand Safety Rules. Use these to your advantage in avoiding hand injuries.

1) Keep hands away from pinch points and crushing hazards. A large number of hand and finger injuries result when they are caught between objects. This happens frequently when handling materials. Inspect materials for slivers, jagged edges, burrs and rough or slippery surfaces. MATERIAL HANDLING

2) Always consider HAND ERGONOMICS.

3) Use the correct HAND TOOLS for the job and use them properly.

4) Always wear the proper GLOVES according to a thorough hazard assessment or job safety analysis. Never wear gloves when working around rotating equipment.

5) Hand JEWELRY e.g. Rings, bracelets, watches, etc… can pose hazards when performing a job around electrical, rotating equipment, and general work. There is a potential hazard of catching on a moving machine part or a fixed object when the body is moving rapidly, the hand/finger could be torn off or severely damaged. Be aware of these hazards and consider removing hand jewelry prior to performing tasks.

6) Make sure all EQUIPMENT/SAFETY GUARDING is in place before beginning any job and stays in place until the job is completed.

7) Always de-energize, perform LOCK OUT/TAG OUT and verify Zero Energy State on machinery and equipment before reaching into repair, clean, maintain or make adjustments.

8) Use a cloth or brush when CLEANING up. Never use your fingers or hand.

9) Know the DANGER ZONES (i.e. line of fire and pinch points).

10) Practice good PERSONAL HYGIENE. Keep your hands clean. Don’t ignore hand injuries, no matter how slight.
3 for Me

1. Knowledge
   - I know the procedure/job plan
   - I have been trained on the task
   - I know where to go for help

2. Commitment
   - I will follow procedures/use PPE
   - I will say “no” to short cuts
   - I will work safely for my family’s sake

3. Attention
   - I am alert and aware of my surroundings
   - I look for potential hazards
   - I expect the unexpected
     
     Always predict the worst outcome of the hazard, and then decide how to execute your plan safely

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Goal **ZERO** at Houston Refining LP:

We are committed to preventing all injuries, incidents and work-related illnesses.

1. **GoalZERO** is sourced out of a personal commitment where everyone holds themselves responsible for not only their own safety and well-being, but for that of everyone else.
2. Everyone is valued not only for what they do, but for who they are. **GoalZERO** is not only numbers and statistics – but also relationships and people.
3. We are one team engaged in the safety process because we care about each other.
4. We take safety into account in all aspects of a job; from concept to start-up, through operating and maintaining.
5. We work safely with each other because it is the right thing to do. We choose to be safe because our co-workers, families and loved ones are counting on us.
6. When something goes wrong, we respond positively as one team to learn, share and improve.
7. We seek out opportunities for coaching and welcome being coached without threat, intimidation or taking offense. A person doing something at-risk is not a confrontation to avoid, but an opportunity to share concern, coach, learn, and build relationships.

**We celebrate success!**

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