



**SAFETY ORIENTATION  
HANDBOOK**

**24 Hour Emergency Number  
1-866-618-0772**

**KEY COMPANY PERSONNEL - TELEPHONE LISTS**

**24-Hour Emergency Telephone Number:  
1-866-618-0772**

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**1.0 HEALTH, SAFETY & ENVIRONMENT POLICY STATEMENT**

Caltex Energy Inc. (Caltex) is committed to conducting their activities in a manner that will safeguard the health and safety of our employees and the public, and preserve the quality of the environment for future generations. Management, employees and Contractors share responsibility for providing the leadership and direction needed to effectively manage the required plans and programs.

We believe exemplary performance in the areas of Health, Safety and the Environment is essential to fulfilling our business goals and meeting the needs and expectations of our many stakeholders. Our commitment is to integrate the following objectives into the decisions affecting our operations:

- Ensure that employees and Contractors have the abilities needed to attain these goals.
- Ensure employees and Contractors strive to meet or exceed all regulatory requirements and industry standards.
- Promote consultation with the public, government agencies and other stakeholders regarding company operations and be responsive to their concerns.
- Ensure that Emergency Response capabilities are in place and that periodic tests are completed.
- Report all accidents and conduct investigations that result in the improvements needed to prevent reoccurrence.
- Conduct audits and assessments of company operations to identify risks and take proactive steps that reduce or prevent exposure.
- Encourage innovative solutions that will help us improve our Health, Safety and Environment.

We expect excellence in Health, Safety and Environmental performance to be achieved through the support and active participation of all management, employees and Contractors working for Caltex.

## **2.0 USING THE HANDBOOK**

### **2.1 Purpose of Handbook**

#### ***Why is this book important?***

The purpose of the Safety Orientation Handbook is to provide you, as an employee or Contractor of Caltex, with the basic Health and Safety Regulations and work practices that apply to all locations operated by Caltex.

If you have any questions about rights or responsibilities, or would like more details or clarification on anything in this handbook, contact the Caltex Representative at your worksite.

### **2.2 Contractor Safety Orientations**

If you are a Contractor, you must receive orientation when:

- It is your first time working at a Caltex worksite.
- The current orientation is outdated (annually).

Every orientation must include a review of responsibilities and requirements on the worksite as outlined in *Sections 3 and 4* of this handbook or as provided in the Caltex Safety Orientation presentation. When applicable, orientations must also include a review of any applicable permits and approvals.

**This handbook can also be used to review specific policies and procedures relevant to the task at hand. A checklist of the key policies and procedures are included at the beginning of *Section 5.0* in this book.**

**Your orientation must be recorded.** Documentation is in the form of:

- A signed and dated orientation card.

You should have a current, signed Orientation Card to prove that you received an Orientation as well as a Caltex handbook for future reference.

**Note:** An injury and accident-free workplace is the goal. Everyone is expected to participate in the activities needed to operate, in a safe and environmentally responsible manner.

### 2.3 Definition of Terms

The following definitions are used in this handbook to ensure common understanding among the users of these Guidelines.

**Cold Work** - any work where no danger exists from ignition but where other potential hazards exist or are suspected such as toxic fumes, dusts, vapours, chemicals, steam, high-pressure air, water or electricity.

**Competent Worker** - a person whose knowledge, training and experience qualifies him or her to perform the work properly and safely without continual supervision.

**Confined Space Entry** - any type of work inside tanks, vessels, towers, or any spaces with restricted access or egress that are being entered for the purpose of construction, inspection or for performance of maintenance work where a hazardous environment may develop.

**Consultant** - an individual or firm that provides expert advice with recommendations to Caltex, as the basis for making a decision or taking a certain course of action.

**Contractor** - an individual or firm hired by Caltex specifically to give advice and/or provide direct services with respect to specified tasks or projects.

**EUB** – Alberta Energy and Utilities Board, which regulates the Upstream Oil and Gas Industry in Alberta.

**Hazardous Area** - premises, buildings, or parts thereof in which exist the potential for fire or explosion, as defined by the Workplace Health and Safety (WH&S) Regulations or other applicable regulation.

**Hot Work** - any work where a source of ignition may exist in areas where combustible materials may be or are present. This includes welding, grinding burning, hot tapping, sand blasting, introduction of a combustion engine, and the use of open flame or sparking devices.

**Hydrogen Sulphide ( $H_2S$ )** - a deadly gas commonly found in sour gas and oilfields. Small amounts in the air have a rotten egg smell but higher amounts will temporarily deaden the sense of smell. Concentrations of  $H_2S$  over 0.02% can cause unconsciousness in a few minutes and unless the victim is removed from the area, death will follow very quickly.

**Incident** - an event which caused or had the potential to cause injury, property damage or environmental release.

**LEL** - Lower Explosive Limit, which is the lowest limit of gas and oxygen that, when mixed, will create an explosion.

**MSDS** - Material Safety Data Sheets, which documents information on the potential health effects of exposure to chemicals, or other potentially dangerous substances, and on safe working procedures when handling chemical products.

**Caltex Representative** - the person designated by Caltex to supervise work activities at a worksite.

**BCOGC** – British Columbia Oil and Gas Commission, which regulates the Upstream Oil and Gas industry in British Columbia.

**Prime Contractor** - the owner of the site is considered the Prime Contractor unless an agreement is in place for some other individual or Contractor to assume the role. The responsibility of the Prime Contractor is to ensure that Health and Safety Regulations are in compliance.

**Q.A.P.** or **Q.M.P.** - Quality Assurance Plan or Quality Management plan including the associated documents, plans and actions needed to ensure compliance with the Safety Codes Act or corresponding regulations in other provinces. This is usually associated with pipeline and pressure welding activities.

**SIR** - Saskatchewan Industry and Resources, which regulates the Upstream Oil and Gas industry in Saskatchewan.

**SOP** - Safe Operating Procedures, which provides guidelines and procedures to assist Operations Staff and Contract Personnel in performing their work duties in a safe and diligent manner.

**SCBA** - Self-Contained Breathing Apparatus, which is a type of breathing apparatus for protection from H<sub>2</sub>S in the Petroleum Industry.

**TDG** - Federal Transportation of Dangerous Goods Regulations and corresponding Provincial Regulations governing the handling, offering for transport and Transporting of Dangerous Goods by all modes of transport.

**Unsafe Act** - violation of an accepted safe procedure, which could cause an incident.

**WH&S** - Workplace Health and Safety department, which is the regulatory body that enforces Safety Regulations.

**WHMIS** - Workplace Hazardous Materials Information System. WHMIS is a hazard communication standard designed to ensure that all workers have information on hazardous materials including labeling, Material Safety Data Sheets (MSDS) and training.

**Work Permit** - written record issued by a Caltex Representative in charge of a worksite, which authorizes a worker and/or work crew to safely do a specific job at the worksite and identifies the hazards associated with the work and/or worksite as well as the safety requirements for a particular job.

**Work Practices** - procedures for carrying out a task which, when followed, will ensure that a worker's exposure to hazardous situations and substances is controlled.

**Work Site** - any location where a worker is engaged in operations, such as: Seismic, Drilling, Well Servicing, Construction, Production and Operating Facilities, and also includes vehicles or equipment on location.

**3.0 RESPONSIBILITIES FOR EMPLOYEES AND CONTRACTORS**

**3.1 Regulatory Compliance**

Obeying the law is a priority at Caltex. Employees and Contractors are responsible for meeting regulations and industry guidelines. Regulatory agencies are placing the onus on Caltex to operate in a responsible manner and are monitoring our performance through inspections and audits.

It is the responsibility of the Caltex Representative to ensure the worksite is in compliance with the following regulations:

- Making sure the required permits and approvals have been obtained.
- Making sure copies are available at the location.
- Personnel are aware of the regulations that apply to the work being completed.
- Making sure a *Hazard Assessment* has been completed and the hazards are listed on the work permit.
- The Safe Operating Procedures for the task have been reviewed.
- Equipment and procedures have been checked to ensure they are in compliance.

**3.2 Right to Refuse Unsafe Work**

No employee or Contractor should perform any task that would put them or another worker in a situation where they might be injured. You have the right to refuse to perform a job that you believe to be unsafe.

The following are the steps that need to be taken after your decision to refuse dangerous work:

Step	Procedures
1	Notify your employer or Supervisor and explain the reason for your decision.
2	Your employer or Supervisor together with a Caltex Representative must investigate the situation and take the necessary actions to correct the danger. This must also be documented and a copy provided to the person who refused the work.

### **3.3 Prime Contractor Responsibilities**

The Prime Contractor is responsible for:

- Control of the designated work area.
- Making workers aware of their responsibilities.
- Making sure that all relevant regulations are followed.
- Co-ordinating the work of the various Sub-Contractors on-site.

**Know who the Prime Contractor is at your worksite.** In most cases, Caltex takes on the role of the Prime Contractor and has a Representative on location at the worksite. In specific cases, a Contractor may take on this responsibility. A Prime Contractor is required if there are two or more workers on a site.

### **3.4 Contractor Requirements**

**ALL** Caltex Contractors and their employees must meet or exceed the following requirements and responsibilities:

#### ***Proof of Coverage***

Contractors must present proof of being covered by the Worker's Compensation Act (current year's Experience Rating No.) in the province where work is being conducted and proof of appropriate liability insurance coverage (\$2,000,000.00 minimum for Liability and \$1,000,000.00 minimum per vehicle). Only Contractors on the approved Contractor list can work on Caltex sites.

#### ***Safety Program***

All Caltex Representatives must know and enforce these principles and guidelines of the company. Contractors are responsible for putting into effect and maintaining a safety program that meets provincial regulatory requirements and IRP #16 (e.g. Partnerships Certificate of Recognition). As a Contractor, it is your responsibility to take all the necessary safety measures to ensure the safety of your employees, Sub-Contractors and the public while working on a Caltex worksite. If you do not have a safety program, ***please notify Caltex immediately.***

***Enforcement of Policies***

It is the Contractors' Responsibility to enforce the policies and procedures outlined in this handbook.

***Treatment of Sickness and Injuries***

Contractors must make the necessary arrangements to provide First Aid and transportation to help treat any sick or injured employee. Arrangements must be made in accordance with the relevant provincial WH&S and/or Worker Conservation Board (WCB) Regulations.

***Equipment***

All your tools, personal safety equipment, and clothing must be in good condition. The Contractor is expected to supply all of the Personal Protective Equipment (PPE) listed in this handbook and it must be in good condition. In addition all Contractors conducting work on a Caltex site must have a 3-Head Personal monitor. Exceptions to this requirement must be approved by the Caltex Representative. This monitor must be able to monitor O<sub>2</sub>, H<sub>2</sub>S and LEL. This monitor must be bump tested to show calibration prior to entering onto a Caltex site. The results of the bump test must be documented and made available to a Caltex Representative if requested. On a sour critical Drilling and Completions site; the safety company will be required to bump test all monitors and document the results, prior to allowing anyone onto the site.

***Training Requirements***

All Contractors and their employees must have the following valid and current training certificates on their person when working on a Caltex site:

- H<sub>2</sub>S Alive (sour location)
- First Aid
- WHMIS
- TDG

There may be other certificates required for specific tasks such as *Confined Space Entry* and *Ground Disturbance*. These must be discussed with the Caltex Representative prior to beginning work.

### **3.5 Individual Responsibilities**

Caltex has developed a list of standard personal responsibilities that all Employees, Contractors and Sub-Contractors must follow:

#### ***Personal Care***

- **Present yourself physically and mentally fit at the start of each shift.**
- Make sure head and facial hair is worn at a length that will not interfere with your vision, snag in rotating equipment, or prevent use of respiratory protective equipment.

#### ***Behaviour***

- Perform your work in a way that ensures the safety of yourself, your co-workers and the public.
- Do not engage in practical jokes, wrestling or other forms of horseplay.
- Co-operate with others during normal and emergency conditions.
- Refrain from smoking on any location, except in the designated areas. Strike anywhere matches and single action lighters are not permitted.
- Do not bring any firearms or explosives to a Caltex worksite, except when such equipment is required on the job (e.g., flare pistols, perforating explosives). These exceptions must be approved by the head corporate office.

#### ***Reporting to Supervisor***

- Report defects or condition of any equipment that could threaten health and safety.
- All incidents including injuries and work-related illnesses must be reported to your Supervisor, the appropriate government agencies and the Caltex Representative as soon as possible. Failure to report an injury may lead to disciplinary actions. Hazards that have the potential to cause an incident should also be reported to the Caltex Representative.

### 3.6 Drugs and Alcohol

**No worker is permitted to enter a worksite while their ability to work is affected by alcohol or drugs.** The use, possession, or sale, of these substances on the job site will result in disciplinary action, which may include dismissal.

**Note:** Workers are required to notify their Supervisor of any prescription medications they are taking which could affect their work performance. Your duties may need to be adjusted accordingly.

### 3.7 Driving Conduct

Driving is one of the highest-risk activities for injury and property damage. In particular, driving on Oilfield roads requires special safety precautions. The following guidelines have been developed in conjunction with provincial and local regulations.

#### ***Pre-Driving Considerations***

- Keep vehicles in proper operating condition.
- Ensure loads are secure at all times.
- Carry proper documentation and signage.
- Carry extra clothing and emergency supplies

#### ***Driving Considerations***

- Wearing seat belts is mandatory.
- Drive with headlights and taillights on at all times to increase visibility.
- Stay on the right side of the road on corners; crest of hills and at intersections.
- Limit the use of cell phones and field radios while driving. If possible, pull over to use these items.
- Always try to back into parking spots, especially in Sour Operations.
- Reduce speed when driving on poor roads or in poor visibility.
- Do not pass on loose gravel or on slippery roads during poor visibility.

- **Logging Roads** create additional hazards because they are likely to be narrow, with large-vehicle traffic. Also they are also often radio controlled, which requires you to have appropriate communication.
- **Ice Roads** present a unique set of driving conditions and hazards which include cracks in the ice, and the weight-bearing capabilities of the ice when vehicles travel over it. Slower speed is absolutely essential when dealing with these hazards.
- Drive at posted speed limits or as per road conditions.

### 3.8 Personal Protective Equipment

PPE provides a final barrier between a worker and a potential hazard or threat to personal health or safety. If you do not know what PPE to use, or how to use it, ask your immediate Supervisor.

Wearing appropriate personal protective equipment is a mandatory requirement. The following items **must be worn at all times** while working on a Caltex worksite:

- Canadian Standards Association (CSA) approved hard hat.
- Appropriate CSA approved steel-toed boots that must be ankle high.
- Safety glasses
- Fire retardant coveralls
- Natural fibers such as cotton, wool or leather must be worn under coveralls. No synthetic materials.

Other items that must be worn under certain worksite conditions include:

- Hearing protection, where a “Hearing Protection Required” sign is posted.
- A calibrated, working 3-Head Personal monitor.

When Operations are conducted in environments that are hostile or unforgiving, the proper clothing is very important. For example; warm clothing must be worn for operations in cold winter conditions. Additional PPE for the protection of hands, face, feet and head as required by specific job hazards, may be required.

***Clothing Policy***

Applies to personnel at a location who:

- Are working at a company facility or lease.
- Are directly involved in operations (such as drilling, construction, supervising, etc.).

***Acceptable Clothing***

Outer wear:

- Fire retardant outerwear must be worn at all times.

Inner wear:

- In most circumstances, long pants and long sleeve shirts should be worn. This provides an additional layer of insulation with increased protection in the event of a fire.
- Clothing must be cotton; no synthetics allowed. In high heat environments, you can wear shorts and short sleeve shirts under the fire retardant outer wear.

***Unacceptable Clothing***

Inner wear:

- Fusible fabrics like nylon or other synthetic, static-gathering material must not be worn.

**A reduced level of protective clothing is allowed under the following conditions:**

Applies to personnel at a location who:

- Are on-site for a short duration.
- Are not directly involved in any operations.
- Are present in an area where there is no abnormal risk of hydrocarbon releases, and
- Are accompanied by a Caltex Representative.

**Note:** Visitors on a tour of a facility; truckers delivering items to a non-hazardous site; inspectors or surveyors.

### **3.9 Discipline Policy**

Caltex has a progressive discipline policy in place, which encompasses verbal warnings, written warnings, and finally suspensions and/or terminations. However there may be instances where due to the seriousness of the offence, the process may begin at a higher level.

***Table 1  
Checklist***

<b>Checklist - Before performing any job:</b>
<ul style="list-style-type: none"><li>• Know who the Prime Contractor at your worksite is.</li><li>• Understand what is required of you as a Caltex Employee or Contractor.</li><li>• Know the hazards in the area where you are working.</li><li>• Know what kind of protective equipment you need for the job at hand</li><li>• Know the regulations that apply to the work you are doing.</li></ul>

## **4.0 WORK SITE REQUIREMENTS**

**This section outlines important standard activities that are expected to take place at your worksite. They include:**

### **4.1 Hazard Assessments**

Recognizing potential hazards and taking steps to control them is a major part of the Caltex Safety Program. **Site-Specific and Task Specific Hazard Assessments** are included in pre-job and work permit/clearance documentation. Caltex has a complete set of SOP's. These must be reviewed for the work that is being done. **This must be done!** This allows Supervisors and workers to review the job that is to be completed along with the dangers associated with the task, and the control and safety measures that are to be used. Supervisors are assigned the responsibility of ensuring that hazard assessments take place, as well as include all workers involved in the work.

**Note:** A hazard is any situation or task with the potential to injure people, damage property, or the environment.

### **4.2 Meetings and Communication**

Good communication between Caltex, its Contractors, and all levels of employees is essential to a safe operation. Regular meetings are required to make sure Employees and Contractors understand the work that needs to be done, and how to go about it in the safest possible manner.

#### ***Pre-job/Tailgate Safety Meetings***

**Supervisors are required to hold a pre-job Safety Meeting before starting the job.**

The purpose of the meeting is to make sure workers understand the following:

- What work is to take place.
- Any specific work permits conditions.
- Safety measures needed for work to proceed safely.

- Job hazards and the order of activities should also be reviewed and adjusted as necessary to maintain worksite safety. This is especially important when there are two or more activities at a worksite.

**Pre-job meetings must be documented.**

A Caltex Representative reserves the right to review Contractor Safety Meeting minutes and attend general or pre-job meetings at any worksite.

***General Safety Meetings***

General Safety Meetings should be **scheduled regularly**. The purpose of the meetings is to review:

- Reports of current incidents, what caused them, and how they can be prevented in the future?
- Follow-up action taken, or required by reports of investigations and inspections.
- Any other matters important to Health, Safety and the Environment.
- Copies of recent meeting minutes and follow-ups must be kept at the worksite.

**4.3 Work Permits**

Caltex has established a Work Permit system for its worksites. A *Cold Work Permit (Section A)* only is issued for non-dangerous routine tasks. A *Safe Work Permit (Sections A and B)* is issued for Hot Work, Confined Space, or Hazardous tasks. Before beginning any work, find out if a work permit is required.

Permits are written records that are issued to:

- Assign control of the job task, worksite, or area.
- Identify the work to be done, the hazards involved, and the safety measures to be taken.
- Define the length of time the permit is valid.

Consideration should be given to the following circumstances in determining if a *Safe Work Permit* is to be issued:

- The product being contained may escape to the atmosphere.
- A safeguard requires repair or maintenance.
- Work takes place on rotating equipment that requires a lockout device.
- Hazardous chemicals are handled.
- *Hot Work* occurs.
- *Confined Space Entry* occurs.
- Vehicles enter into areas outside the normal parking or traffic areas which are in the immediate vicinity of process equipment.
- Lifting with equipment occurs.
- Contractors are involved in the task.
- There is trenching.
- Overhead and underground electrical lines are present.

Additional considerations with regards to *Safe Work Permits* are:

- Both Caltex and Contract personnel are reminded that the person holding the *Work Permit* is in control of the worksite.

On any Caltex worksite, all personnel are expected to comply with the hazard control measures implemented by the permit holder. Therefore, all personnel entering the worksite must first check in with a Caltex Representative.

- Hot work by its very nature is a high-risk activity. Due diligence dictates that a site visit is required to verify that it is safe to allow workers to carry out a hot work task.

**Table 2**  
**Permit Type / Function / Duration**

Type of Permit	Function	Length of Time
Safe Work Permit	<ul style="list-style-type: none"> <li>• Given to a specific worker or crew for a specific task or series of tasks</li> </ul>	<ul style="list-style-type: none"> <li>• Issued for one day/shift and can not be extended</li> </ul>

**Note:** All Personnel entering onto a Caltex (critical) Sour Drilling or Completion site will report to the Safety Trailer and will **stay there** until the safety person returns with the Site-Supervisor. There will be no entrance onto a sour site unless this procedure is followed.

#### **4.4 Good Housekeeping**

**Good housekeeping is mandatory.** Work locations, equipment, exits, stairways, aisles, and roadways are to be kept clean at all times. In particular, all doors to buildings are to be kept free from obstacles.

After work is completed, the area is to be cleaned up and all guards are to be put in place. Remove and dispose of garbage in an appropriate manner.

#### **4.5 Work Site Inspections**

Work Site Inspections must be made at appropriate intervals, in order to prevent the development of unsafe working conditions. Any unsafe or harmful condition found during these inspections must be remedied immediately.

Supervisors should be aware of specific inspection requirements and make sure these are included in their work practices.

Regulations require regular inspections of:

- Buildings, structures and grounds.
- Tools and equipment (e.g. Drilling and Service Rigs).
- Work methods and practices.

Competent workers must complete inspections. Workers doing the inspections should use company checklists for equipment and work being performed.

**Copies of recent inspection reports must be maintained at the worksite.** Caltex Representatives reserve the right to review inspection reports and conduct inspections or audits of any worksite.

## 4.6 WHMIS / TDG

Workers must be WHMIS and TDG trained to meet the required regulations and do the following:

- Review applicable MSDS's before handling chemicals. You can get MSDS's from your Caltex Representative.
- Complete all necessary permits, manifests and labeling when Transporting Dangerous Goods or wastes.
- If hazardous goods are being transported using *Exemption Permits*, a current permit must be in the vehicle.

## 4.7 Sour Service

***Additional safety measures need to be taken at worksites containing "sour gas". A facility is considered sour when the potential H<sub>2</sub>S content is 10 ppm or greater.***

**Sour wells and facilities must be posted with poisonous gas warning signs. All workers on a sour gas site must have a current H<sub>2</sub>S Alive Certificate.**

### ***Sour Drilling Site***

It is a policy at any Sour Drilling or Completion site that any Contractor or visitor entering the site must first stop at the Safety Trailer located at the entrance to the site.

The safety watch will ask to see the H<sub>2</sub>S, First Aid, WHMIS and TDG certification prior to letting anyone enter. Contractors will require safety orientation if they have not had it previously.

Also all Contractors will have to verify the certification of their 3-Head Personal monitor. The personal monitor must be bump tested at the Safety Trailer. All contractors may be asked to show their daily bump test logs.

In addition, no Contractors will be allowed on to the site until the Caltex Representative has come to the Safety Trailer to meet him and escort him to the job site.

***Anyone entering on to the site without following this policy will be dismissed from the site immediately!***

**Further information on safety for sour areas is presented in *Section 5.0* of this handbook.**

#### **4.8 Environmental Protection**

Protection of the environment is the responsibility of all Caltex employees, Contractors and agents. To fulfill that commitment, it is important to use operating practices that are consistent with good environmental management. This requires that you:

- Ensure that any required environmental approvals are in place before starting work. The conditions of the approval must be followed.
- Ensure that hazardous materials and wastes are properly stored in accordance with EUB *Directive 55* or applicable provincial regulations.
- Hazardous materials and wastes must be properly transported and disposed of in accordance with EUB *Directive 58* or other applicable provincial regulations.
- Take the necessary steps to prevent spills and control air emissions. Begin clean up of spills immediately and ensure spills and other releases are reported.
- Where possible, eliminate or reduce wastes and conserve energy and water.
- Make sure that any vegetation control (herbicide application) is carried out by licensed applicators.
- Be aware of local environmental or community issues and take the steps needed to address them.
  - Additional information on specific environmental issues is presented in *Section 5* of this handbook.

#### **4.9 Community Relations**

Maintaining positive relationships with those living near Caltex Operations is important.

- Conduct operations in ways that reduce landowner concerns.
- Key landowner concerns include flaring, odour, noise, traffic and dust.
- If concerns are identified, ensure that they are addressed in a timely manner.
- When concerns cannot be resolved at the field level, notify and involve Caltex management.

**Note:** Do not make any commitments to a landowner or resident without approval from Caltex management.

#### **4.10 First Aid Supplies and Services**

The Caltex Representative for the worksite is ultimately responsible for ensuring that appropriate First Aid supplies and services are located on their worksites. As a minimum, these must be kept to the standard required by the applicable jurisdiction.

You must also do the following:

- Determine if any First Aid transportation vehicle or ambulance is required and where it should be positioned. The regulations allow the Prime Contractor, in some cases, to comply with the First Aid requirements by placing a suitable First Aid emergency transportation vehicle or ambulance at a strategic location, from which it can support more than one worksite. (40 minutes from a medical site).
- Determine the number and training level requirements for First Aid attendants. Confirm the qualifications of these individuals and that they are situated in the most appropriate location(s).
- Determine the number and content requirements for First Aid kits and any First Aid stations. Confirm that supplies are situated in the most appropriate location(s).
- Ensure workers are aware of the locations of First Aid supplies, services and transportation.
- Maintain confidentiality of First Aid records.

#### 4.11 Response to Emergencies

**Local emergency phone numbers must be confirmed and posted prior to starting work on a new project.** For this information, refer to Caltex’s Corporate and/or Site-Specific Emergency Response Manual. It is also recommended that there be at least one vehicle on-site with a communication device such as a cellular phone or mobile radio.

If a well, pipeline or facility is considered sour, an area specific *Emergency Response Plan* must be in place. In these situations the *Emergency Response Plan* will be used to outline the applicable emergency procedures. The Caltex Representative is responsible for activating the plan and ensuring that personnel on-site are familiar with their responsibilities.

**Note:** Some production facilities will have established a set of emergency signals to indicate and deal with process upsets, fire conditions, H<sub>2</sub>S or other gas releases. If you are uncertain of the appropriate response action, ask the Caltex Representative.

#### ***Steps to Take in Cases of Emergency***

<b>Steps</b>	<b>Procedures</b>
<b>1</b>	All work affected by the emergency must be stopped immediately and personnel evacuated from the area.
<b>2</b>	Sound an alarm or make a call to notify others.
<b>3</b>	Assess the situation and protect yourself.
<b>4</b>	Give assistance to other workers as required. Assistance should only be offered if it can be done safely.
<b>5</b>	Give First Aid and call for medical aid if required.
<b>6</b>	Secure the surrounding area.
<b>7</b>	Equipment should only be rescued if it can be done safely.

#### 4.12 Injuries

If you or your co-workers suffer any work-related personal injuries, apply First Aid and obtain medical aid if needed. Know your First Aid certificate holders and the location of First Aid supplies. These incidents must be reported to the Caltex Representative.

**4.13 Investigating and Reporting Incidents**

**It is your responsibility and duty, as an employee or a Contractor, to report unsafe acts and conditions, incidents and environmental infractions.**

All incidents including injuries and work-related illnesses must be reported to your Supervisor, the appropriate government agencies and the Caltex Representative as soon as possible. Failure to report an injury may lead to disciplinary actions. Hazards that have the potential for causing an incident should also be reported to the Caltex Representative.

Incidents must be reported using *Work Place Incident Forms* whenever possible. Reporting on Contractor incident forms is also acceptable.

**Table 3  
Checklist**

<b>Checklist - At your worksite, make sure you:</b>
<ul style="list-style-type: none"><li><input type="checkbox"/> Identify any worksite hazards.</li><li><input type="checkbox"/> Obtain the necessary safe work permit.</li><li><input type="checkbox"/> Conduct a pre-job Safety Meeting.</li><li><input type="checkbox"/> Make arrangements for handling any emergencies or injuries that may occur.</li><li><input type="checkbox"/> Familiarize yourself with the safety measures required when monitoring or working in a sour area.</li><li><input type="checkbox"/> Meet TDG and WHMIS requirements.</li><li><input type="checkbox"/> Keep your worksite clean and orderly.</li><li><input type="checkbox"/> Conduct your operations in an environmentally responsible manner.</li><li><input type="checkbox"/> Investigate and report any incidents.</li></ul>

**5.0 SPECIFIC WORK PRACTICES**

**Table 4**

<b>Do any of these Guidelines apply to the task you are performing?</b>
<ul style="list-style-type: none"> <li><input type="checkbox"/> Air Emissions (including odours) <i>Section 5.1</i></li> <li><input type="checkbox"/> Asbestos <i>Section 5.2</i></li> <li><input type="checkbox"/> Benzene <i>Section 5.3</i></li> <li><input type="checkbox"/> Cables, Chains and Ropes <i>Section 5.4</i></li> <li><input type="checkbox"/> Communication Equipment <i>Section 5.5</i></li> <li><input type="checkbox"/> Compressed Gas Cylinders <i>Section 5.6</i></li> <li><input type="checkbox"/> Confined Space Entry <i>Section 5.7</i></li> <li><input type="checkbox"/> Cranes and Hoisting Devices <i>Section 5.8</i></li> <li><input type="checkbox"/> Flammable and Hazardous Liquids <i>Section 5.9</i></li> <li><input type="checkbox"/> Ground Disturbances Guidelines <i>Section 5.10</i></li> <li><input type="checkbox"/> Hand and Power Tools <i>Section 5.11</i></li> <li><input type="checkbox"/> Heaters and Open Flame Equipment <i>Section 5.12</i></li> <li><input type="checkbox"/> Hot Taps <i>Section 5.13</i></li> <li><input type="checkbox"/> Hydrate and Ice Plug Handling <i>Section 5.14</i></li> <li><input type="checkbox"/> Locking Out and Securing Equipment <i>Section 5.15</i></li> <li><input type="checkbox"/> Naturally Occurring Radioactive Materials <i>Section 5.16</i></li> <li><input type="checkbox"/> Purging <i>Section 5.17</i></li> <li><input type="checkbox"/> Respiratory Protective Equipment <i>Section 5.18</i></li> <li><input type="checkbox"/> Sour Service <i>Section 5.19</i></li> <li><input type="checkbox"/> Spill Response &amp; Treatment <i>Section 5.20</i></li> <li><input type="checkbox"/> Storage Requirements (including Tanks &amp; Flare Pits) <i>Section 5.21</i></li> <li><input type="checkbox"/> Surface Water &amp; Groundwater Protection <i>Section 5.22</i></li> <li><input type="checkbox"/> Tank Truck Loading Procedures for Sour and Flammable Fluids <i>Section 5.23</i></li> <li><input type="checkbox"/> Timber Removal <i>Section 5.24</i></li> <li><input type="checkbox"/> Trailers, Bunkhouses &amp; Camps <i>Section 5.25</i></li> <li><input type="checkbox"/> Vehicles, Mobile Equipment and Machinery <i>Section 5.26</i></li> <li><input type="checkbox"/> Waste Management <i>Section 5.27</i></li> <li><input type="checkbox"/> Weed and Vegetation Control <i>Section 5.28</i></li> <li><input type="checkbox"/> Welding and Burning <i>Section 5.29</i></li> <li><input type="checkbox"/> Working Alone <i>Section 5.30</i></li> <li><input type="checkbox"/> Working at Heights <i>Section 5.31</i></li> <li><input type="checkbox"/> Working Near Overhead Power Lines <i>Section 5.32</i></li> </ul>

Caltex has developed manuals and guidelines to direct how work is done. The Caltex Representative may issue additional site-specific procedures.

## **5.1 Air Emissions (Including Odours)**

Caltex is committed to reducing air emissions from the facilities it operates. Actions to reduce air emissions include:

- Nuisance odours and black smoke must be avoided wherever possible.
- Benzene emissions from dehydrators cannot exceed the levels outlined by provincial regulators.
- Optimize and maintain equipment to reduce emissions and conserve energy.
- Use start-up procedures that reduce electrical load and fuel gas consumption.
- Where safe and economical to do so, tie-in fugitive emission sources (e.g. Vapour Recovery Units).
- Obtain the necessary approvals/permits prior to flaring and burning (e.g. well testing, turnarounds - EUB *Directive 60*).
- Avoid excessive flaring.
- Respond to public complaints in a timely manner and take action to correct and prevent similar occurrences. Record all public complaints.

**Note:** Any Sour gas release with the potential of creating off-site odours must be reported to the EUB.

## **5.2 Asbestos**

Caltex has committed to using only qualified and certified personnel to deal with any asbestos found at any of its sites.

### 5.3 Benzene

Benzene is found naturally in many geological formations and therefore may be found at Caltex production facilities. The amount of benzene normally given off at a facility is not of a high enough concentration to be a health concern. However, some special safety measures may be required. These precautions include respiratory protection and hygiene procedures for handling chemicals.

If you are performing a task where you may be exposed to vapours from a glycol dehydrator or condensate storage, you should check with the Caltex Representative, to determine if benzene exposure is an issue in that area.

### 5.4 Cables, Chains and Ropes

The following precautions should be taken when working with ropes:

- Inspect ropes before use.
- Watch for abrasion in the rope fibers.
- Untwist the rope in several places. If you see black or rusty brown spots, this may indicate chemical burns.
- Do not take any chances with an unsafe rope, or use a rope you believe to be defective. Notify your immediate Supervisor if in doubt as to the condition of any rope.
- **Only tow ropes or tow straps are to be used for towing.** Hooks are not to be used for ends, only a clevis end is permitted.

The following precautions should be taken when working with chains, hooks and cables:

- Inspect all chains, hooks and cables before use, and do not use if they are worn or frayed.
- Return defective equipment to the approved repair shop.
- Notify your immediate Supervisor about any unsafe equipment.

## **5.5 Communication Equipment**

The use of cell phones, two-way radios, or other non-intrinsically safe electrical equipment is not permitted without the permission of the Site-Supervisor. This equipment presents a significant hazard in an explosive atmosphere, or where blasting activities such as perforating or seismic activities are being carried out.

## **5.6 Compressed Gas Cylinders**

Cylinders should not lay about the worksite, but should be returned immediately to a storage area after use. Place protective caps over the cylinder valves when they are not being used, or are being transported.

Cylinders should be stored in an upright position, secured to a stationary object or structure, and handled in accordance with provincial WH&S and/or WCB regulations.

## **5.7 Confined Space Entry**

**This guideline is intended to help you recognize, evaluate and handle potentially dangerous or unhealthy situations, in confined space that could lead to illness, death or property loss.**

Anyone entering a confined space must have the proper certification in *Confined Space Entry*.

Any work done in a confined space should be completed under the direction of a Supervisor who is familiar with potential hazards, accident prevention, and rescue methods. If you are going to do work in a confined space, make sure before entering that you are told how to proceed safely.

Safety, both at the time of entry and during the entire operation, is the responsibility of the Prime Contractor Representative.

This guideline provides general guidelines only. More detailed site or job specific procedures are available to suit the task at hand. This will include things like isolation points, lockout requirements, venting procedures and site-specific hazards.

**Note:** Before starting work in a confined space, you need to be informed of:

- Potential hazards
- Safety measures required to deal with the hazards
- The necessary training on rescue methods

### **General**

The following is a list of topics that should be brought to worker's attention:

### **Work Permits**

- Any alarms that may sound and what they mean.
- MSDS sheets of any chemical that may be encountered.
- Planning and discussing rescue methods before entry.
- Additional safety equipment needed for rescue must be in place before a *Confined Space Entry* occurs.
- Keeping unauthorized personnel and vehicles out of the area.
- Carrying out air quality testing in enclosed areas (e.g., inside dykes around tanks).
- Following proper blinding and grounding procedures and using explosion-proof electrical equipment where needed.
- No walking on tank roofs unless there is a proper walkway or a safety belt and line is worn.

### **Preparation**

- The confined space must be depressurized and/or fluid levels pumped as low as possible.
- All inlet and outlet lines must be isolated by the use of blanks/blinds or an approved alternate method (listed in the CAPP Petroleum Industry Guideline, *Entry into Confined Space*) that provides an equal level of safety. A breathing apparatus may be necessary to do this.
- All energy sources to the Confined Space must be locked out and tagged.

- Where purging is necessary to prevent the development of hazardous atmospheres in the confined space, water, steam or nitrogen should be used. Exercise caution around any exhaust vapours.

***Ventilation***

- Where circumstances allow, the confined spaces must be thoroughly ventilated, preferably by a positive method of mechanical ventilation.
- If ventilation requires opening man-ways or clean-out doors, then a catch pan or possibly a vacuum truck should be available to control and remove the flow of liquids/sludge coming out of the Confined Space.
- If ventilation is not possible, additional precautions are required.

***Initial Entry***

- All atmospheres that have not been tested should be considered dangerous to life and health.
- Initial testing for H<sub>2</sub>S, LEL, CO and oxygen can be taken from the exhaust air.
- If the exhaust air is considered safe (above 19.5% oxygen, 0% LEL and less than 10 ppm H<sub>2</sub>S (CAPP Guideline), a qualified worker wearing a breathing apparatus and other appropriate PPE may now enter to do further testing of all areas of the Confined Space.
- Testing times and findings must be entered onto the *Safe Work Permit*.
- Disturbance of any sludge that is present in the Confined Space may result in the release of hydrocarbon gases. This may result in the development of a toxic, flammable or oxygen-deficient atmosphere. All sludge must be removed before *Confined Space Entry* may begin.

***Ensuing Entries***

- As much of the work as possible should be done from the outside.
- If the atmosphere tests are safe, as stated above, workers wearing the appropriate PPE may enter the Confined Space. Combustible gas testing must confirm that the atmosphere is at, and remains at, 0% LEL (CAPP guideline). This ensuing testing and recording of the findings must be noted on the safe work permit.
- Monitoring must be repeated periodically:

- to ensure that a contaminant has not re-entered the space;
- if work is suspended for a significant period of time, or
- Hot Work is to be carried out.

**Note:** This must be done at a frequency determined at the pre-job Safety Meeting.

- A stand-by/safety watch must be in place at all times while a worker is in a Confined Space. He must be wearing a SCBA and be ready to put a mask on for a rescue if required.

### ***Waste Disposal***

- All waste generated during the cleaning process must be properly managed. This includes characterization, classification and disposal, and may require manifesting.

### ***Job Completion***

- A thorough inspection must be conducted to ensure that no workers, tools, or equipment have been left behind.
- Ensure all blanks/blinds or other isolating devices are removed and valves are returned to their correct positions. When returning the process to service, exercise caution to avoid the possibility of introducing an ignition source to a flammable atmosphere.
- Purge with sweet gas at a controlled rate.
- Return the work permit to the responsible Supervisor.

## **5.8 Cranes and Hoisting Devices**

Cranes and hoisting devices are to be operated only by trained and certified personnel.

- The crane operator must work with an experienced signaler.
- Make sure to work within the rate capacity of the equipment.
- Workers should ensure they do not walk under loads being hauled by cranes.
- When working near an electrical power line, ensure the crane operator keeps a safe distance (7 m from his longest reach or swing).

- WH&S regulations require that cranes and hoists be inspected and maintained according to manufacturer's recommendations with proper documentation.

## **5.9 Flammable & Hazardous Liquids**

Flammable and hazardous liquid containers and storage tanks must be WHMIS labeled, identified and located in a safe space away from any open flame, fire or engines in operation.

- Where there is a potential for pressure buildup or plastic container degradation, drums and small non-safety containers must not be left exposed to direct sunlight.
- Containers must be grounded when pouring flammable liquids in or out of them and containers must be of an approved type.
- Gasoline engines must be refueled only when engines are stopped. Safety cans must be used unless the tank is filled directly from the storage container via a piped system.
- Smoking is not permitted near flammable storage areas. A "No Smoking" and "No Open Flame" sign must be posted at all storage areas.

## **5.10 Ground Disturbances Guidelines**

A *Ground Disturbance* is:

- Any work that results in the penetration of the ground to a depth of more than **30 cm**, or
- A stripping operation that reduces cover over a line.

Activities such as excavating, digging, trenching, plowing, drilling, tunneling, auguring, backfilling, blasting, topsoil stripping, land leveling, clearing and grading would all be considered *Ground Disturbances*.

Caltex has developed a guideline which explains how to conduct Ground Disturbance activities in a manner that ensures worker safety and avoids contact with pipelines and underground utilities. If you need further

information, a more detailed guideline is available in the Caltex *Safe Operating Procedures*, or from the Caltex Representative. This guideline applies to all pipeline rights of way, company leases, and construction sites. It meets all Regulatory Agency requirements.

**Note:** Extreme caution must be used at all times during Ground Disturbance activities.

### ***Responsibilities as Owners of Pipeline***

- Provide information to people undertaking a *Ground Disturbance*.
- Locate the pipeline and mark the surface location using a qualified line locator.
- Carry out inspections necessary to keep the pipeline safe.
- If requested, be present at the time of the exposure. Inspect the pipeline before backfilling.
- Report any damage.

### ***Supervision***

- A designated Supervisor is responsible for ensuring that the work is carried out safely. This includes determining the existence of underground facilities and their proper locating and exposure.
- The Supervisor must have specific experience and training to supervise *Ground Disturbance* activities.
- The Supervisor must have a *Level II Ground Disturbance Certificate*.

### ***Search and Notification***

- Records must be searched for buried facilities within **30 m** of the proposed *Ground Disturbance*.
- Alberta, British Columbia and Saskatchewan One-Call must be notified of all proposed excavations.
- Owners of a facility within the search area should be informed of the intent to create a *Ground Disturbance* and asked to confirm the location of their facility.

### ***Crossing Agreements and Approvals***

- Agreements are required if the *Ground Disturbance* is on a lease or right-of-way or within 5 m of any facility.
- The crossing agreement must be on-site before starting the *Ground Disturbance*.

**Locating Facilities**

- All facilities within the **30 m search** area should be located and marked by competent personnel.

**Permits**

- A Site-Specific *Ground Disturbance* record must be completed as part of the safe work permit for each crossing or disturbance within 5 m of a located buried facility.

**Pre-job Safety Meeting**

- A pre-job Safety Meeting must be conducted. All aspects of the *Ground Disturbance* must be documented.

**Exposure**

- The facility owner may request to have a Representative on-site during the exposure.
- All facilities within 5 m of the *Ground Disturbance* must be either hand exposed or hydro-vac'd, unless the entire excavation perimeter is hydro-vac'd to 15 cm below the *Ground Disturbance* depth.
- There will be **no** mechanical equipment within 60 cm of a buried line.
- If contact with a pipeline occurs, it must be reported to the owner of the facility as soon as possible.
- It is the responsibility of the company making contact with a pipeline to notify the appropriate government agencies (EUB, SIR, and BCOGC).

**Backfill**

- The line owner should inspect and document the crossings before and during burial.

**5.11 Hand and Power Tools**

- Use tools only for their intended purpose and ensure they have been properly maintained; inspect equipment to ensure that it is in safe working condition.
- The power and/or air supply must be disconnected from the tool before adjustments are made.

- All guards are to be properly fitted and in good condition at all times.
- All portable and stationary grinding tools must be equipped with the appropriate tool rests.
- Eye protection (full face shields) must be worn at all times when using grinding tools.
- Power and air tools are not to be used in an intrinsically safe area unless it has been checked for LEL and a Hot Work Permit has been issued.

### **5.12 Heaters and Open Flame Equipment**

- When lighting fired heaters and furnaces, eye protection and gloves are to be worn.
- Portable heaters are to be used only for the service for which they have been approved.
- Adequate ventilation should be maintained in order to prevent a build-up of exhaust gases.
- Anything that could potentially catch fire is to be removed from the immediate area.
- Open flame-type equipment such as space heaters (Herman Nelson) and/or propane torches (tiger torches), are to be used only in special circumstances and then only in combination with a *Hot Work Permit*.

### **5.13 Hot Taps**

A hot tap refers to any penetration into live piping or a pipeline where there is no existing fitting. Welding on pressurized piping systems without taking the proper precautions is dangerous and can result in a major failure. Fatalities have occurred as a result of welding on pressurized piping. The Caltex *SOP* must be followed for this procedure. If proper steps are not followed, it is possible for a hot tap to result in:

- Pipe failure caused by “burn through” during welding.
- Ignition and burning of the product inside the pipe.
- Damage to equipment downstream of the hot tap due to cuttings.
- Delayed failure of the weld due to hydrogen or stress corrosion cracking.

Workers involved in supervising or performing a hot tap are expected to ensure that the proper pre-planning is completed and approved by Caltex production management.

Step	Procedure
1	Determine if the hot tap is really necessary.
2	Assess the risk to ensure that the likelihood and consequence of a failure is acceptable

In all cases the decision to proceed with a hot tap will be based on the ability to perform the hot tap safely. A hot tap cannot be done without the written approval of the Caltex Representative.

### **5.14 Hydrate and Ice Plug Handling**

Prevention is the best policy when it comes to hydrates. **Hydrates can be prevented, and should not be accepted as normal operating routine.** If proper procedures are not used when removing hydrates, very large forces may be created when hydrates begin to move, which can result in serious injury to personnel and damage to equipment.

Hydrate removal must not begin without consultation with the Caltex Representative.

The following steps will meet the site-specific procedures to safely remove solid hydrates:

**Table 5**  
**Procedures for safely removing solid hydrates**

Step	Procedure
1	The removal of a solid hydrate should be directly supervised by a foreman or a trained designate.
2	A meeting to discuss safety consideration and procedures should be held with all involved before beginning site activities. A <i>Safe Work Permit</i> is to be issued.
3	In piping and pipelines, assume all hydrates are multiple plugs unless this can be proven otherwise.
4	Determine the location of the hydrate plug or plugs. Means for doing this include: <ul style="list-style-type: none"> <li>• Past experience with hydrates in the system</li> <li>• System geometry (may indicate low spots)</li> </ul> Other volumetric or sonic detection methods; piping system design (e.g., location of restrictions, valves, etc.).
5	If a <b>single hydrate</b> is positively confirmed, <u>simultaneously</u> depressurize both sides of the hydrate to the point at which the hydrate is formed, but not to zero.
6	If <b>multiple hydrates</b> are suspected, attempt to remove them without depressurization. The objective is to decompose the hydrate without allowing it to move, as this may create excessive forces. Means for accomplishing this include: <ul style="list-style-type: none"> <li>• Methanol squeeze. Do not create differential pressure more than 10% of normal operating pressure.</li> <li>• Coiled tubing with methanol injection.</li> <li>• Portable heaters (e.g., steamer units).</li> </ul>
<b>Note:</b> Apply heat at the end, rather than the middle, of hydrate areas to avoid over pressuring as the hydrate decomposes.	
7	When all methods outlined in <i>Step 6</i> have been tried or considered and rejected, the final recourse is to physically break down the hydrate by inducing movement in a controlled manner. Movement should be directed down the longest length of flow line available, with the least differential pressure across the hydrate (Note: this is not applicable for downhole operations).

Recognizing that this is a potentially hazardous operation, all efforts should be made to secure the area, avoid unfavorable piping geometry (e.g., sharp bends, tees, elbows, etc.) and minimize the number of personnel involved.

The procedure for this is as follows:

- Shut in the well(s), flow line(s) and any other equipment involved.
- Inject methanol into one end of the line before beginning to depressurize the other end.
- Depressurize at the point farthest from the hydrate (e.g., use distance to your advantage) in increments of 10% of normal operating pressure. Let the line sit for one hour between each increment and monitor pressures for indication of movement.
- Before proceeding to depressurize below 50% of normal operating pressure, consult with the area Caltex Representative or their designate.

**Note:** Do not fully depressurize.

### ***Special Considerations – Downhole***

Methods used for removal of downhole hydrates will depend upon each well's specific condition or characteristic. Methods of removal include:

#### ***Methanol Squeeze***

- DO NOT depressurize the wellhead below 90% of its normal shut-in pressure.
- Use a pressure truck to pump as much methanol as possible down the tubing. Allow wellhead pressure to climb, but do not exceed Maximum Operating Pressure (MOP) of any wellhead part.

#### ***Coiled Tubing Wash***

- Use methanol/water solution.

#### ***Wireline***

- Dump-bail methanol on top of hydrate plug.

**Note:** Maintain equal pressure across the hydrate for this operation.

- Use of a flanged connection to the wellhead as opposed to a threaded one is recommended for high pressure or sour wells.

### **5.15 Locking Out and Securing Equipment**

Before doing maintenance or repair work on air, electrical, hydraulic, and mechanical driven equipment, any harmful substance contained within equipment, pipes and pipelines must be isolated or removed to get rid of any hazard or otherwise de-energized. Always refer to the Caltex *SOP*. All equipment must be locked and tagged in accordance with the applicable provincial WH&S, electrical, or pressure vessel regulations.

- A Caltex Representative must always Lock and Tag out equipment.
- A Contractor should place his lock over the operators.
- A policy of first lock on – last lock off is to be used at all times.
- This must be documented on the safe work permit.

### **5.16 Naturally Occurring Radioactive Materials (NORM)**

NORMs develop in some geological formations and are brought to surface by Oil and Gas Operations. The amount of radiation able to penetrate processing equipment is generally not large enough to present a health risk. However, scale and sludge that accumulate in the processing equipment may be harmful when the equipment is opened for inspection and repair. Exposure may occur by inhaling or ingesting radioactive dust. In these cases proper PPE and hygiene practices must be followed.

If workers are going to be exposed to scales and sludge, the local field Supervisors should be consulted to determine if NORM is an issue in the area.

### **5.17 Purging Lines/Vessels**

Purging is the practice of displacing the existing gas and/or fluid. Purging is often used to remove toxic or explosive/flammable fluids and gases from a system before opening the system to atmosphere, or prior to shipment of equipment. Alternately, before equipment start-up, air must be purged from

equipment in preparation for its being put back into service. Always follow the Caltex SOP.

### ***Possible Purge Mediums***

Consideration should be given to the use of an inert Purge Medium. However, it is recognized that it is not always practical to use an inert Purge Medium for all operations. Flammable purge mediums can be successfully used as long as special precautions and procedures are used. Depending on the application, commonly used purge mediums are listed below. Each of these has advantages and disadvantages.

#### ***Inert Gases (N<sub>2</sub>, CO<sub>2</sub>)***

- Addresses both, potentially toxic and explosive atmospheres. It is the preferred method of preparing a tank or vessel for *Confined Space Entry*.
- The atmosphere will be oxygen deficient. If *Confined Space Entry* is planned, the space must be ventilated prior to entry, or breathing apparatus must be worn.
- This purge medium must be purchased and is not always readily available at all locations.

#### ***Propane or Sweet Gas***

- Commonly used to purge “sour” hydrocarbons from equipment to address the toxic vapour hazard.
- May also be used to purge air from equipment prior to start-up, but caution must be exercised because the air/hydrocarbon mixture will create an explosive atmosphere.
- By itself, it is not suitable for purging in preparation for *Confined Space Entry*.

#### ***Sour Gas (Well Gas)***

- This readily available Purge Medium is used at small remote locations to purge air, prior to start-up of equipment.
- Similar to propane or sweet gas, caution must be exercised because the air/hydrocarbon mixture will create an explosive atmosphere.
- The added hazard created by any toxic vapours vented must also be addressed.
- A SCBA must be worn and there must always be a safety alert person on stand by.

- By itself, it is not suitable for purging in preparation for *Confined Space Entry*.

**Water**

- May be used to flood a vessel or tank to push out the hydrocarbon hazards and is a suitable Purge Medium for preparing a tank/vessel for *Confined Space Entry*.
- When the water is drained and air is introduced into the system, caution must be taken since sludge in the vessel/tank may release flammable and/or toxic vapours.
- Depending on the amount of water used, safe and economical disposal may pose a problem.

**Steam**

- Being similar to water, steam may be used to push out the hydrocarbons, and to deal with both the flammable and toxic hazards, and therefore is a suitable Purge Medium for preparing a tank/vessel for *Confined Space Entry*.
- Steam also has the added benefit of driving additional flammable/toxic vapours from the sludge.
- Caution must be exercised so that workers do not receive burns from escaping steam.

**Air**

- Commonly used to purge an inert gas from a tank/vessel in preparation for a *Confined Space Entry* (forced ventilation).
- This medium, if used to purge hydrocarbons, will at some point create an explosive mixture inside the vessel or tank being purged.

**General Precautions**

Regardless of the Purge Medium used, each presents its own hazards. Hazards must be assessed and appropriate steps taken.

Depending on the task to be completed, and the Purge Medium used, some general precautions include:

- Pre-job Safety Meetings must be conducted whenever non-routine purging operations take place.
- Exhaust gases can be used to test for oxygen content, LEL, and toxicity.

- When purging hydrocarbon with air or air with hydrocarbon, introduce the purge gas slowly. This will help prevent the build up of static and/or causing any loose debris to tumble through a pipe or vessel, creating a spark.
- Purging should be done as near to atmospheric pressure as possible, as increased pressure changes the explosive limits and lowers the ignition temperature.
- As a minimum, individuals involved in purging operations must wear the proper personal protective equipment as outlined in the PPE section of the *Caltex Health and Safety Manual*.
- All elements of the system being purged must be electrically bonded and grounded.
- Considerations for the purged gases include:
  - The air/gas mixture must be considered when purging to live flare system.
  - In some cases flares should be snuffed out prior to purging, or a temporary/alternate vent system laid out to a “Safe” Area.
- Potential ignition sources that need to be considered include:
  - Flashbacks from flares.
  - Static electricity.
  - Friction heat.
  - Spontaneous combustion at critical pressures and temperatures.
  - Spontaneous combustion of compounds such as iron sulphides.
  - Electrical currents from lightning and power sources.
  - Closed tanks/vessels must be de-pressured and not be on vacuum before opening the system.
- Consider the corrosive effects of fluids that may be purged.
- Consider the environmental impact of escaped fluids, gas or waste products.

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**5.18 Respiratory Protective Equipment Code of Practice (WH&S)**

The summary in this handbook outlines the key requirements of the WH&S Regulations dealing with the selection, maintenance and use of respiratory protective equipment.

***Appropriate Selection and Use***

The hazards you may encounter will determine the type of Respiratory Protective Equipment you must wear. If you are in an oxygen-deficient environment or a situation immediately hazardous to life or health, you must use positive pressure Self-Contained Breathing Apparatus (SCBA).

For atmospheres containing gas/vapour or particulate contaminants above the allowable provincial exposure limits, the appropriate cartridge, filter or combination respirator must be worn.

Some common petroleum industry hazards and the appropriate equipment for that hazard are as follows:

**Table 6**  
**Respiratory Hazards Associated with Petroleum Industry**

<b>Hazard</b>	<b>Type of Protection Recommended</b>
Ammonia	Self Contained Breathing Apparatus (SCBA) or Supplied Air Breathing Apparatus (SABA)
Asbestos	Mechanical Filter Cartridge (Asbestos Approved)
Chemical Fumes	Chemical Cartridge (specific to components of chemical involved) or SCBA
Chlorine	SCBA or SABA
Hydrogen Sulphide (H <sub>2</sub> S)	SCBA or SABA
Painting	Mechanical/organic filter mask (spray painting-disposal type, brush- reusable, organic vapours, chemical cartridge)
Solvents	Chemical cartridge (organic vapours)
Process Areas	SCBA or SABA, used in case of leak, equipment failure or turn-around.
Nuisance dusts	Mechanical Filter (disposable)
Nuisance Odours	Mechanical Filter (disposable)
Oxygen Deficiency	SCBA or SABA
Sandblasting	Total body-encapsulated suite with (major operation) SCBA or SABA
Silica	Mechanical Filter (cartridge type)
Welding Fumes	Mechanical Filter (disposable and approved for metal)

***Fit Testing Requirements and Procedures for Respiratory Protection***

Workers who are, or may be required, to wear Respiratory Protection Equipment, must be clean-shaven where the face-piece meets the skin, to ensure an effective facial seal.

Workers who are, or may be required, to wear Respiratory Protection Equipment, must be able to ensure an effective seal with the device by passing a qualitative or quantitative respirator fit test. A test should be conducted when choosing an appropriate respiratory device and at intervals thereafter (quarterly, at Safety Meetings).

Every time a respirator is used, one of the following tests should be conducted:

- Negative Pressure Fit Test.
- Positive Pressure Fit Test.

### ***Cleaning, Inspection & Storage of Respiratory Protective Equipment***

- All types of respirators should be cleaned and disinfected after each use. This is particularly important if the respirators are not individually assigned.
- Respiratory equipment should be inspected once a month according to manufactures' instructions (documented).
- Cylinders should be checked for condition and hydrostatic test date.

Review the source of compressed breathing air annually to ensure it meets *CSA Standard 2180.1 M85, Compressed Breathing Air and Systems*.

### ***Training of Workers***

All employees and Contractors who may be required to use Respiratory Protection Equipment must be trained in:

- Selection of protection equipment (including MSDS training).
- Care and maintenance.
- Referencing the H<sub>2</sub>S Alive training manual.

### ***Supervisors must***

- Receive the same training as employees.
- Monitor the selection, care and use of all respiratory protection equipment.

### **5.19 Sour Service Guideline**

If workers will be exposed to H<sub>2</sub>S levels of 10 ppm or greater, three ongoing steps must be taken:

- **detection**
- **training**
- **protection**

**Table 7**  
**Sour Service Guideline**

Step	Necessary Actions				
Detection	<input type="checkbox"/> Use a continuous or personal monitor to determine the level of H <sub>2</sub> S in a work area				
Training	<input type="checkbox"/> Workers should have certificates verifying that they have H <sub>2</sub> S training				
Protection	<input type="checkbox"/> An approved self-contained or supplied breathing apparatus must be worn when maximum time exposure (determined by WH&S and the WCB) will be exceeded. In B.C., the ceiling exposure for any time period is 10 ppm. For AB/SK jurisdictions the time exposures are: <table data-bbox="487 735 1331 871" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;"><u>H<sub>2</sub>S Concentration</u></th> <th style="text-align: center;"><u>Maximum Time Exposure</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">10 ppm</td> <td style="text-align: center;">8 hours</td> </tr> </tbody> </table>	<u>H<sub>2</sub>S Concentration</u>	<u>Maximum Time Exposure</u>	10 ppm	8 hours
<u>H<sub>2</sub>S Concentration</u>	<u>Maximum Time Exposure</u>				
10 ppm	8 hours				

**Table 8**  
**Summary of the Effects of H<sub>2</sub>S**

1 ppm = 1/10,000 of 1%	H <sub>2</sub> S can be smelled.
10 ppm = 1/1,000 of 1%	Occupational Exposure Limit (OEL). Allowable for 8 hours exposure. (Alberta) B.C ceiling limit is 10ppm
15 ppm = 1/667 of 1%	Ceiling OEL in Alberta. At this level of concentration, workers must wear appropriate breathing apparatus.
100 ppm = 1/100 of 1%	Loss of sense of smell in 2 to 15 minutes. May burn throat, cause headache & nausea. Burns eyes and throat. IDLH in Alberta.
200 ppm = 2/100 of 1%	Loss of reasoning and balance.
500 ppm = 5/100 of 1%	Sense of smell lost rapidly. Respiratory disturbances in 2 to 15 minutes. Prompt resuscitation needed.
700 ppm = 7/100 of 1%	Immediate unconsciousness. Causes seizures, loss of control of bowel and bladder. Breathing will stop and death will result if not rescued promptly. Immediate resuscitation is required.
1,000 ppm = 1/10 of 1%	Causes immediate unconsciousness. <b>DEATH OR PERMANENT BRAIN DAMAGE MAY RESULT UNLESS RESCUED PROMPTLY.</b>

**Note:** ppm = parts of gas per million parts of air by volume.  
(e.g. 10,000 ppm =1% by volume)

**Safe Work Policy for Operations in Sour Areas**

There are three key elements to the Caltex Safe Work Policy for operations in sour areas:

- H<sub>2</sub>S monitoring.
- Normal routine operations.
- Operations when H<sub>2</sub>S levels exceed the maximum exposure limits as defined in the applicable WH&S or WCB Regulations.

***H<sub>2</sub>S Monitoring***

- Determine whether or not you are operating on a sour worksite. Can you potentially be exposed to H<sub>2</sub>S levels of 10 ppm or greater?
- Use detection equipment such as 3 or 4 head personal or continuous monitors in these areas.
- Personal monitors must be worn and turned on at all times by anyone on a company sour site.
- Contractors must wear 3 or 4 head personal monitors if they are working on a sour site.
- Dangers must be clearly posted.

***Normal Routine Operations***

H<sub>2</sub>S monitoring equipment must be turned on and used at all times while on location. Communication equipment must be in good working order and intrinsically safe.

- A breathing apparatus, in good working order and with an adequate supply of air, must be available.
- Caution must be taken before entering any building that does not have a permanent H<sub>2</sub>S monitor. Three or 4 head monitors may be used as detection devices, if the vacuum tube is attached and the unit is capable of drawing in a sample of air.
- Unless a breathing apparatus is worn, workers should not enter dyked areas, and tank gauging should only be done using external gauges.
- A backup man is not required for routine operations when a site-specific procedure has been developed and where the potential for H<sub>2</sub>S levels to exceed occupational exposure limits is known to be minimal.
- If an H<sub>2</sub>S monitor sounds an alarm at any time while you are entering or working at a safe area, leave the area immediately and report what happened to the Caltex Representative.

***Operations above Safe Exposure Limits***

- You cannot work alone in an area where the level of H<sub>2</sub>S in the air exceeds occupational exposure limits. The appropriate Caltex Representative must be notified immediately and suitable safety measures taken before work is continued.
- When completing any operation where the release of gas is expected to expose you to H<sub>2</sub>S levels that exceed the occupation exposure limits, a breathing apparatus must be worn.
- You must not attempt to fix an uncontrolled release without a back-up person present, and you must have a breathing apparatus on.
- The back up person is needed in these situations and they must be wearing their breathing apparatus.
- For any job requiring the use of a breathing apparatus, the foreman or Supervisor will determine the necessary number of workers, taking into account:
  - the scope of the job
  - H<sub>2</sub>S exposure
  - the availability of required safety equipment
  - work procedures, including the need for a back-up person.

**5.20 Spill Response & Treatment**

Spills must be brought under control as soon as they are discovered. Clean up of the spill should be started immediately. An early and efficient response can reduce the environmental impact. Safety is a key element in spill response and should never be jeopardized during containment and recovery operations. The verbal reporting of spills is equally important and should be done as soon as the source is shut-in and the spill is contained.

## **Initial Spill Response**

The key steps for the initial clean up of a spill include:

Steps	Procedures
1	Clear the area and ensure the area is safe.
2	Assess the situation by considering PPE and flammability/toxicity issues.
3	Shut-in the source as quickly as possible.
4	Contain the spill to as small an area as possible.
5	Recover as much of the fluid as possible.
6	Clean up as much contaminated soil and liquid as possible immediately.
7	Report the spill to government agencies and the Caltex Representative once the spill is discovered and contained.
8	Contact landowner/residents (as required).

## **Spill Treatment**

General rules of thumb for treating a spill are summarized below. Contractors working for Caltex must be aware of these requirements:

- Spill areas that can be accessed by cattle should be fenced.
- Appropriate Ground Disturbance measures must be taken (e.g. line locates).
- Always salvage topsoil prior to repair of pipelines (e.g. line locates).
- Trenches and bell holes should be kept shallow and cleaned prior to back filling.
- Do not use heavy equipment in sensitive soil areas.
- Flushing may assist with clean up, but soils should be stable to minimize erosion (flushing is a preferred method for graveled leases).
- Spills on agricultural soil containing salt water must never be flushed with fresh water before calcium has been applied (e.g. calcium nitrate or calcium sulphate [gypsum]).

- The Caltex workplace incident tracking form must be completed
- Always consult the Calgary for guidance on spill treatment and clean up.

## 5.21 Storage Requirements

It is important to ensure all stored materials including liquids and solids are stored in appropriate containers or tanks and in a manner that prevents exposure to the elements.

- All containment storage facilities and dykes must be designed to meet regulatory requirements (e.g. EUB *Directive 55*).
- Aboveground tanks less than 5 m<sup>3</sup> volume do not require secondary containment due to the limited potential for environmental damage. These include: glycols, amines, demulsifiers, corrosion inhibitors, solvents, and fuel tanks.
- Methanol tanks and tanks that are less than 1m<sup>3</sup> do not normally require any secondary containment unless they are within 100 m of a watercourse. The use of underground storage tanks should be avoided.
- All new underground storage tanks must be double walled tanks.

**Note:** Additional information can be found in **EUB Directive 55**

## 5.22 Surface Water & Groundwater Protection

All facilities that store and handle hydrocarbon liquids or produced water pose a risk to surface and groundwater, through undetected leaks or uncontained spills and releases. Groundwater is particularly vulnerable to releases of light-end hydrocarbons such as condensates, which can be extremely mobile in subsurface environments and contain water-soluble components such as Benzene, Toluene, Ethyl Benzene and Xylene (BTEX).

All containment dykes must be designed to meet regulatory requirements (e.g. EUB *Directive 55*).

Ensure any water in run-off containment areas (where required by operating licenses or approvals), or waters captured in secondary containment dykes are sampled and tested prior to discharging to the surrounding off-lease area. Caltex has a surface water release document and a landowner notification document that must be completed prior to release.

Testing must include:

- Chlorides (less than 500 ppm), pH (between 6.5-9.0), visible hydrocarbon sheen, volume discharged, and date.
- A release must be obtained from the landowner prior to release.
- Maintain records of all surface water discharges, indicating dates of discharge, analytical test results and estimated volumes.

### **5.23 Loading Procedures for Sour/Flammable Fluids**

Truck loading or unloading in sour areas must be in compliance with the Caltex Sour Service Requirements. Refer to Caltex SOP for additional information. Additional requirements include:

- Observe all posted rules and regulations at lease entrance.
- Tank trucks must be equipped with internal H<sub>2</sub>S scrubbers.
- Tank trucks must be equipped with positive air intake shut off.
- External tank gauges are to be used to determine volume of fluid loaded.
- Thief hatches on production tanks are to remain closed, as production tanks may be pressurized with sour gas.
- Lights on trucks are to be shut off prior to loading during daylight.
- Bonding/grounding cables are to be connected prior to loading.
- Emergency brakes are to be fully engaged.
- Servicing or maintenance on trucks while loading or unloading is prohibited.
- Drivers must be in attendance at the point of transfer to monitor for leakage of hoses, pumps, lines, valves and tank truck levels in order to eliminate potential spills of any description.
- Drivers delivering or loading oil must have active 3-head personal monitors.

### **5.24 Timber Removal**

- Workers responsible for logging shall plan and conduct such operations in a manner consistent with regulations and with recognized safe working practices.

- In British Columbia, all “fallers” must be certified.
- Workers operating chain saws shall wear effective, protective devices.
- Any trees, snags or other objects that might endanger workers shall be felled or removed. Particular care shall be taken in falling snags and in working around snags.

### **5.25 Trailers, Bunkhouses and Camps**

- All trailers, bunkhouses and camps must be located at a safe distance from drilling rigs and operation equipment, and must be positioned upgrate of any fuel storage facilities.
- Hitches must be accessible so the trailer or bunkhouse can be readily moved in case of emergency.
- Electrical wiring and fixtures must meet the applicable Provincial Electrical Code.
- Smoke detectors must be installed.
- Fire extinguishers shall be provided as required by the Provincial Fire regulations.
- A copy of the *Emergency Response Plan* (ERP) must be available to the camp if it is located inside the *Emergency Planning Zone* (EPZ).
- Camp personnel must be trained in the evacuation procedures.

### **5.26 Vehicles, Mobile Equipment and Machinery**

Only authorized vehicles are allowed on Caltex worksites. Unauthorized vehicles will park in designated areas only. They will be allowed on a worksite only after approval of a Caltex Representative. Refer to the Caltex *SOP*.

- Internal combustion engines (gas or diesel) may not be operated in areas classified as hazardous or intrinsically safe, unless atmosphere tests have been made that indicate that the work may be done safely.
- In particular, precautions should be taken within 2 m of a wellhead and 3 m of process equipment and buildings.

- Procedures must be in place to ensure the continued safe performance of this *Hot Work*.
- Diesel engines that are to remain running within 25 m of a potential gas release must be equipped with positive air intake shut-off device.
- Gas engines that are to remain running within 25 m of a potential gas release must be equipped with remote shut-off device.
- All vehicles on-site must be in safe operating condition and operate in a safe and courteous manner.
- All mobile welding rigs must be equipped with proper 30 lb. fire extinguishers before entering the worksite. All welders and helpers must know how and when to use such fire extinguishers.
- Fire extinguishers must be on the ground next to the job when welding or grinding is being done.
- Construction equipment with restricted vision is not to be moved in the vicinity of other workers, except under the direction of a designated guide. Back up alarms will be installed and used in accordance with the applicable legislated standards.
- All terrain vehicles must adhere to company and Provincial regulations and appropriate personal protective equipment must be worn.
- No person shall operate any equipment or machinery unless the operator has received the required training and is authorized to do so.
- Equipment (bobcat, backhoe etc.) must have rollover structures and seat belts where required by safety regulations.

### **5.27 Waste Management**

WASTE MATERIAL generated by Oil and Gas activities requires proper handling, storage and disposal. Poor management can result in soil and water contamination, which may lead to costly clean up. All wastes generated in day-to-day operations must be properly characterized, classified, manifested (tracked) and disposed. In Alberta, Oilfield Waste Management is regulated by the EUB, *Directive 58*. Outside of Alberta, including B.C., Saskatchewan and Manitoba, regulated wastes must be shipped using a TDG manifest.

- Apply 3 R's by looking for ways to Reduce, Reuse, and Recycle waste material (e.g. filter elements, lube oil, rag recycling)
- Ensure that wastes are removed from work areas during and after project completion (e.g. sulphur, sludge, etc.).
- Ensure that a waste manifest is completed and distributed for all waste as per the *Caltex Waste Management Plan*.
- Store wastes in accordance with regulatory requirements (e.g. EUB, *Directive 55*).
- Ensure that manifests are retained for two years and copies are forwarded to the appropriate waste tracking company.
- Ensure that the waste disposal facility is approved by the provincial regulators (e.g. Waste Reclaimers, Industrial Landfills, etc.).
- Contractors working for Caltex must be aware of their waste responsibilities (e.g. service rigs, drilling rigs, etc.).

**Note:** Refer to the Caltex Waste Management Procedures. If there are any concerns regarding the proper shipment and disposal of waste, contact Visser Consulting Ltd. at (403) 239-3797.

## **5.28 Weed and Vegetation Control**

Preventing the spread of problem weeds and controlling the growth of unwanted vegetation is important.

- Ensure all equipment is adequately cleaned, especially if it has been working in areas with known weed problems.
- Regularly remove unwanted vegetation mechanically or by hand.
- Use only domestic non-residual herbicides (e.g. *Roundup*) on Caltex property, performing spot applications.
- “Blanket” applications of restricted or commercial herbicides can only be applied by a licensed applicator.
- Use native vegetation wherever possible to prevent/control soil erosion.
- Use grasses, natural vegetation or agricultural covers on non-operational areas requiring “vegetation free” conditions.

## 5.29 Welding and Grinding

All work to install or repair pressure equipment will be completed by Contractors with a registered quality control program and a “B” Pressure welding ticket in accordance with owner/user program. The owner/user program is a Contractor-generated QA/QC program. Only experienced/certified workers are allowed to use welding and burning equipment. Refer to site specific SOP for more detailed information.

Suitable precautions must be taken against exposure of welding (and other) personnel to excessive ultraviolet radiation, fire, explosion, asphyxiation or exposure to toxic gases, fumes or dust when welding or cutting equipment is used. All gas-welding hoses are to be equipped with appropriate flame arrestors or check valves.

### **Before beginning any welding:**

- Area must be checked for gas levels. (LEL = 0%)
- Fire detectors are to be bypassed.
- A flare curtain is in place.
- When welding at a hazardous location, a standby man with a fire extinguisher is to be on-site.
- A **30 lb. fire** extinguisher is ready on-site.
- A *Hot Work Permit* is required.

## 5.30 Working Alone

Contractors conducting work alone on behalf of Caltex must either address this issue with their own program, or be integrated into the Caltex program. Work Alone procedures are based on the Safe Operating Procedures of each task to be performed. Standard tasks will require a call in at the start and end of each day. The office or Supervisor will document these calls. Contact with other operators during the day is required.

### **5.31 Ladders and Scaffolds**

When working overhead, the area below shall be roped off or other equivalent measures taken to protect workers at the worksite. Signs readings “Danger - Workers Overhead” shall be conspicuously posted. If conditions justify, a watchman shall be stationed within distance of voice communication.

- All workers shall wear safety harnesses and lifelines when working **above 3.0 m** on a ladder. A work platform is preferable to a ladder above this height.
- All scaffolds, platforms and ladders must be constructed in accordance with applicable provincial WH&S and/or WCB regulations.
- Ladders with broken or weakened steps, supports, etc. are not to be used.
- All ladders should be equipped with the proper safety feet to suit the job.
- The feet of the ladder shall be placed  $\frac{1}{4}$  of the length of the ladder away from the building.
- At least three rungs of the ladder will be left when a ladder extension is used.
- A ladder shall extend at least 1 m above a building when used to access a roof.
- Ladders used while carrying out electrical work must be made out of wood or other approved non-conducting material.
- Never stand on the top rung of a step ladder.
- The center fold up section of a stepladder shall be secured when working off the ladder. This will prevent the ladder from collapsing.

### **5.32 Working Near Overhead/Buried Power Lines**

Extreme caution must be used when working near overhead power lines. Activities involving work such as high loads, excavation work, crane work or using gin-pole trucks, creates circumstances with the potential for injuries, fire and explosion or property damage. Caltex has developed guidelines that outline what needs to be done when working around overhead power lines and this guideline is consistent with both regulatory and power company requirements.

Before working near overhead power lines, two important steps must be taken:

Step	Procedure
1	Notify the Utility Company and obtain any required crossings agreements.
	Confirm the voltage and <b><i>maintain a 7 m distance from overhead lines.</i></b>

When working under or near overhead/buried power lines, the following precautions must be taken:

- **Danger Overhead Power Lines** signs must be in place before work commences, ***1.8 m above ground and 7 m on either side of line or parallel to the line.*** These signs are 51 cm x 71 cm in size.
- ***There is to be no work done within 7 m below or beside a power line at any time.***
- If work is required inside the specified clearance area, it must be performed with the power lines de-energized by a qualified utility employee.
- If the line cannot be de-energized, the work must be supervised by a qualified utility employee and requires a designated signaler with communication.
- Work in the vicinity of power lines must be performed in accordance with the standards established by the appropriate jurisdiction.
- All work to be performed within 5 m of a buried power line must be treated as a *Ground Disturbance*.
- All procedures contained in the section on *Ground Disturbance Section 5.10* must be followed.
- A *Hot Work Permit* must be issued.
- A pre-job Safety Meeting must be held and documented.

Safety Orientation Exam

**Note:** All persons completing this orientation must achieve 100% on this exam in order to work on a Caltex site.

1. Who is the Prime Contractor? \_\_\_\_\_
2. Hazard Assessment must be conducted prior to beginning work?  
True / False
3. Safe Work permits are good for more than one day? True / False
4. All injuries must be reported even if they are minor? True / False
5. Confined Space Entry requires special certification? True / False
6. A Ground Disturbance includes digging with a shovel?  
True / False
7. Vessels / tanks / piping should be purged even if they are not sour? True / False
8. I can work in H<sub>2</sub>S up to 20 ppm without a breathing apparatus?  
True / False
9. As long as spills are on lease and I clean it up right away I don't have to report it? True / False
10. All work around overhead power lines must maintain at least a 7m distance? True / False

Please detach and give to the Caltex Representative.

Name: \_\_\_\_\_ (Print)  
*First Last*

**Table 9**  
**Required Training Certificates**

Training Certificate	Expiry Date	Verified	
		Yes	No
H <sub>2</sub> S Alive ( <i>required for sour sites</i> )			
WHMIS ( <i>required</i> )			
TDG ( <i>required</i> )			
First Aid ( <i>required</i> )			
Confined Space ( <i>required if performing this work</i> )			
Level 2 Ground Disturbance ( <i>required if performing this work</i> )			
Second Line BOP ( <i>required for well Site-Supervisors</i> ) for Drilling only)			
Others (please list)			

**Note:** Please detach this page and present it to the Caltex Representative upon completion of the orientation.

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**ORIENTATION ACKNOWLEDGEMENT FORM**

**Date:** \_\_\_\_\_

**Company Name:** \_\_\_\_\_

I agree that I have taken the Caltex Energy Inc. Orientation Program. I agree that I will obey all Federal, Provincial and Municipal regulations and requirements. I also agree to be in compliance with all Caltex Energy requirements, policies and procedures.

In addition, I agree to perform my work in a safe manner and obey all safety requirements as per this handbook.

I acknowledge that I have the right to refuse to perform any work that is unsafe.

I acknowledge that I have received the Caltex Energy Handbook and Orientation Card.

I acknowledge that I am in possession of the required current training certificates. I will have these certificates on my person when working on a Caltex Energy site.

I acknowledge all of the above by my signature.

**Name:** \_\_\_\_\_ *(Print)*  
*First* *Last*

**Signature:** \_\_\_\_\_

**Caltex Representative:** \_\_\_\_\_ *(Print)*

**Note:** Please detach and return to the Caltex Representative upon completion of this orientation.

**Head Office**  
**Caltex Energy Inc.**  
200, 717 - 7th Avenue S.W.  
Calgary, Alberta T2P 0Z3

**Please send the following to the above address to receive an orientation card: (if applicable)**


- Orientation Acknowledgement Form
- Safety Orientation Exam
- Required Training Certificates Form and Copy of Certificates

All orientation records will be sent in to the Calgary.

Anyone entering a Caltex site must have a signed orientation card to prove that you received an orientation. If you cannot provide this then a Caltex Representative will orientate you **on-site**.

This hardhat sticker does not provide evidence of training. When requested, you must be able to provide your wallet card.

Do not remove sticker until a Caltex representative has signed the wallet card below.

	<b><u>SAFETY ORIENTATION CARD</u></b>
<b>Name:</b> _____	
<i>First Name</i>	<i>Last Name</i>
<b>Expiry:</b> _____	
<i>(mm/yyyy)</i>	
<b>Orientated by:</b> _____	
<b>Authorized By: Caltex Energy Inc.</b>	