



Lewis Energy Group®

STANDARD OPERATING PRACTICE

Permit Required Confined Space

Lewis Energy Group
Version 1.2
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1.0 Purpose & Policy Statement

This Standard Operating Practice (SOP) provides information to ensure the safety of Lewis Energy Group (LEG) and contractor personnel during confined space entry operations conducted at LEG locations and facilities.

LEG Policy Statement

A **confined space** is defined as any space that meets the following criteria:

1. Is large enough and so configured that a person can bodily enter and perform assigned work.
2. Has limited or restricted means of entry or exit.
3. Is not designed for continuous personal occupancy.

A **permit-required confined space** has one of the following characteristics:

1. Contains or has a potential to contain a hazardous atmosphere.
2. Contains a material that has the potential for engulfing an entrant.
3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section.
4. Contains any other recognized serious safety or health hazard.

Lewis Energy Group's (LEG's) Confined Space Program is designed to prevent unauthorized entry, ensure safe entry into confined spaces and for work within a permit-required confined space by authorized Team Members. Team Members must abide by the Confined Space Standard Operating Practice (SOP).

2.0 Applicability

This SOP applies to all LEG Team Members conducting confined space entry work at LEG locations and facilities. Contractors acting on behalf of LEG must adhere to this confined space entry program SOP. It is the responsibility of the LEG Authorized Company Representative (ACR) to ensure that compliance with this SOP is maintained for any confined space work activity within the area of operation. Each contractor working on LEG property, facilities or leased property has a responsibility to perform their work activities in a manner consistent with this SOP.

3.0 Confined Space Entry Work Requirements

Entry into a confined space shall be by permit only unless designated as a non-permitted entry. The permit is an authorization and approval in writing that specifies the location and type of work to be done, certifies known hazards have been evaluated by the ACR, and necessary protective measures have been taken to ensure the safety of each Team Member. In addition to the confined space entry permit, a confined space entry log will be maintained. A copy of the confined space entry permit and log are included in Appendix A of this document. The ACR will be responsible for securing the permit and will issue, or in the case of a contractor or third party performing confined space entry work, verify that the following actions have been identified and reviewed:

- Entry operations remain consistent with terms of the entry permit and acceptable entry conditions are maintained;
- Identify authorized entrants and attendants, determine what emergency equipment and procedures are necessary and verify availability for qualified personnel to use if needed;
- Identify hazards;
- Identify special Personal Protective Equipment (PPE) requirements to prevent contact with the skin, lungs, or other body parts;
- Indicate the complete list of points for isolation by blinding, disconnection, double block and bleed, Lockout/Tagout (LO/TO) points (electrical and mechanical);
- Individual is familiar with the hazards that may be faced during entry including information on the mode, signs or symptoms, and consequences of exposure;
- Location and description of the work to be done;
- Perform atmospheric testing for oxygen, combustibles and toxic gases;
- Removal of unauthorized individuals who attempt to enter the permit space during entry operation;
- Set up for continuous monitoring if necessary;
- Terminate the entry and cancels the permit as required;
- Verification of personnel training and complete understanding of the specific hazards associated with materials that are, or may have been in the confined space;
- Verifies that rescue services are available and the means for summoning them are operable; and
- A check and verification of the appropriate entries have been made on the permit that all tests specified by the permit have been conducted and all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.

4.0 Work Requiring a Written Permit

Some examples of activities that may require a confined space entry permit include but are not limited to:

- Applying a protective coating to inside walls of storage tanks
- Cleaning mud pits (drilling rigs)
- Cleaning pig launchers and receivers
- Cleaning salt water disposal sumps
- Cleaning storage tanks (production, frac, flow-back)
- Cleaning vacuum trucks
- Entering wellhead cellars to perform work (depends on depth)

If a confined space entry permit is required, it must be issued by the LEG ACR.

5.0 Non-Permit Required Confined Space

A confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain a hazard capable of causing death or serious physical harm does not require a permit to enter.

Permit required confined spaces may be reclassified by an ACR who is present at the site (prior to entry) and who has fully and properly completed a hazard assessment. A copy of the hazard assessment must be posted at the site of the confined space entry (see Appendix B).

In order to obtain the information required to complete the hazard assessment, the following activities must be performed without entering the confined space:

- Check all hazardous energy sources for proper isolation including, but not limited to, proper lockout/tagout (LO/TO) of valves, power sources, pneumatic, hydraulic, stored energy, etc. (Refer to the Lockout/Tagout SOP for proper isolation methods);
- Check all lines, tanks, vessels and other containers to ensure that the subject equipment is/has been rendered safe by venting, purging, washing, and/or other means;
- Eliminate all other identified hazards within the confined space;
- Atmospheric conditions must be monitored by a properly trained person using an appropriate, properly functioning meter. Air monitoring may be continuous or periodic, as determined by the ACR based on the nature of the task to be completed. Acceptable atmospheric conditions are as follows:
 - Oxygen level (O₂): 19.5-23.5%
 - Lower explosive limit (LEL): <10%
 - Hydrogen Sulfide (H₂S): <10 ppm
 - Carbon Monoxide (CO): <50ppm
 - Natural Occurring Radioactive Materials (NORM): < 50microR/hr.

The acceptable atmospheric conditions listed above must be present and maintained for the reclassification to remain valid. **Note: Control of atmospheric hazards through forced air ventilation renders the space a permit required confined space.**

As appropriate, notify others on site of the non-permit required confined space entry operations. If necessary, cordon off the area with barricades, flagging, or other appropriate methods to notify Team Members of restricted access into the immediate area.

If hazards arise within a non-permit required confined space, each person in the space must exit the space immediately. The ACR will then reevaluate the confined space and determine the proper classification of the confined space (permit required or non-permit required).

A confined space reclassification hazard assessment expires when one or more of the following conditions occur:

- Atmospheric limits are exceeded
- Conditions become hazardous
- The job has been completed
- The current shift has ended or
- 12 hours have elapsed since the permit was issued

When a hazardous assessment has expired, it must be returned to the ACR for filing.

6.0 Responsibilities

LEG Team Members or contractors may serve multiple roles listed below if they can successfully perform all duties outlined in this section. For example, a Gas Tester can perform the duty of a Fire Watch with proper training and knowledge of duties for each position.

The type of responsibility and responsible personnel are discussed below.

Attendant

An Attendant is an individual trained in confined space entry. This individual is stationed outside a permit required confined space(s). They are responsible for remaining outside of the space and continuously monitoring for the development of hazardous conditions while the space is occupied. The Attendant must have sufficient mastery of the language spoken by the ACR and personnel inside the confined space, enabling them to communicate and coordinate with in the event of an emergency.

Authorized Company Representative (ACR)

The ACR is in charge of the physical location where confined space work will be performed, and ensures that job activities comply with all requirements on the written work permit. The ACR is capable of identifying existing and predictable hazards in the confined space entry surroundings, or working conditions which are hazardous to Team Members. The ACR has authorization to take prompt and corrective measures to eliminate these hazards. The ACR assures that all required preparations and precautions (isolation, LO/TO, etc.) concerning the work site have been taken. The ACR is responsible for signing and issuing the written permit. The ACR can act as the confined space entry supervisor when confined space entry is not being performed by contractors or third party personnel. When acting as confined space entry supervisor, the ACR must stay on location where the confined space entry is being performed.

Persons designated as an ACR must meet the following qualifications:

- Be aware of the hazards posed by the confined space entry process
- Have familiarity with applicable instrumentation, and PPE
- Received training and has maintained competency (annual refresher)

Confined Space Entry Supervisor

Confined Space Entry Supervisor is a person that has received confined space entry training, and is responsible for determining if acceptable entry conditions are present at a permitted space where entry is planned. This individual will authorize entry and will monitor entry operations. This individual has the authority to terminate entry as deemed necessary under the LEG Stop Work Authority and this policy.

Entrant

Entrant means an individual authorized by the ACR, who is trained in confined space entry, and who, because of their knowledge, training, medical clearance, and experience with the required PPE such as a respirator, are qualified to enter a confined space.

Fire Watch

A Fire Watch is required for activities that involve hot work in a confined space that requires a confined space entry permit. Primary functions of the Fire Watch are:

- To observe conditions in the immediate and adjacent areas to assure that hot work is performed safely.
- Immediately extinguish a small fire in its beginning phase should one occur.
- Be trained in the use of portable fire extinguishers, the hazards involved with firefighting, and the methods for sounding an alarm in case of fire.
- Maintain a dedicated fire watch for 30 minutes after the hot work is completed to detect and extinguish possible smoldering fires.
- As per the Stop Work Authority Policy, have the authority to stop the job if the Fire Watch suspects that conditions have changed or are about to change due to some outside interference.
- Be trained as a Fire Watch.

Fire extinguishers will be available in all work areas and will be maintained in a state of readiness.

Gas Tester

A Gas Tester is a LEG Team Member who has been trained to operate portable gas testing equipment and is required to conduct the gas testing at the job site. Proof of training and qualifications must be provided to the LEG ACR prior to starting work or issuance of a permit. Gas testing results will be recorded on the confined space entry permit at least every two hours. These records will be provided to the ACR at the end of the work shift.

Confined Space Rescue

The removal of a live entrapped, sick, or injured person from a permit-required confined space.

7.0 Job Safety Analysis

A JSA will be performed by LEG Team Member prior to beginning Confined Space Entry work.

8.0 Protective Systems

Due to the complexity of confined space entry activities, protective systems will be in place to provide a diverse range of protection for affected Team Members. These protective systems include:

- Atmospheric testing for oxygen content, flammability, toxic gasses such as Carbon Monoxide and Hydrogen Sulfide, and natural occurring radioactive materials (NORM)
- Confined space Entry signs
- Confined space Ventilation
- Site emergency evacuation plan
- Isolation procedures (LO/TO)
- Personal protective equipment (PPE)
- Protective barricades around confined spaces to prevent unnecessary traffic
- Rescue equipment

9.0 Confined Space Entry Permit Form Information

Prior to starting confined space entry work, the confined space entry permit form will be completed (Appendix A). If a contractor is performing the confined space entry, they will complete their own company confined space entry form and have conditions verified by the LEG ACR.

10.0 Instruments

Instruments purchased for use in the confined space entry program will be pre-approved by the LEG Health Safety and Environmental (HSE) Department. The HSE Department can be used as a resource to research instrument choices available for atmospheric testing.

11.0. Definitions

Attendant – An individual trained in Confined Space Entry. This individual is stationed outside the Confined Space(s). They are responsible for remaining outside of the space and continuously monitoring for the development of hazardous conditions while the space is occupied. The Attendant must have sufficient mastery of the language spoken by Team Member inside the Confined Space and the ACR, enabling them to communicate and coordinate with everyone, in the event of an emergency.

Authorized Company Representative (ACR) – The ACR is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are hazardous to contract employees/Team Members. The ACR has authorization to take prompt corrective measures to eliminate these hazards. This ACR individual (e.g. safety captain, safety tech, etc.) assures that all required preparations and precautions (isolation, LO/TO, etc.) concerning the work site have been taken and then signs the permit.

Blinding/Blanking – The absolute closure of a pipe, line, or duct by the fastening of a solid plate or cap which completely covers the bore, and which is capable of withstanding the maximum pressure and chemical properties of the process, of the pipe, line, or duct with no leakage beyond the plate.

Confined Space Entry Permit – The confined space entry permit is an agreement between the requesting representative and the issuing representative that verifies all conditions have been discussed and the confined space has been isolated, locked/tagged (LO/TO) and hazards have been minimized and conditions are safe for entry to perform work.

Confined Space Entry Supervisor – A person that has received confined space entry training, and is responsible for determining if acceptable entry conditions are present at a required permitted space where entry is planned. This individual will authorize entry and will monitor entry operations. This individual has authority to terminate entry as deemed necessary as per the LEG Stop Work Authority Policy.

Confined Space – Means a space that is large enough and so configured that a Team Member can enter and perform work; has limited or restricted means of entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits), and spaces that may have limited means of entry and are not designed for continuous employee occupancy.

Double Block and Bleed – The closure of a line, duct, or pipe by closing and locking or tagging two in-line valves, and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

Emergency – Any occurrence (including any failure of hazard control or monitoring equipment) or events internal or external to the confined space which may endanger the authorized entrants.

Entrant – An individual authorized by the ACR, who is trained in Confined Space Entry, and who, because of their knowledge, training, medical clearance, and experience with the required PPE such as a respirator, is considered to be qualified to enter the Confined Space.

Entry – The act where a person passes through an opening into a Confined Space that requires a Permit, and performs work activities in that space. The Entrant is considered to have entered as soon as any part of the Entrants body breaks the plane of an opening into the space.

Entry Permit Process – The entry permit process includes written procedures for preparing and issuing permits for entry, and returning the permit space to service, it also designates by name or title, the individuals who may authorize entry.

Fire Watch – At least one individual dedicated solely to looking out for the occurrence of fires.

Gas Tester – A person trained to operate portable gas testing equipment.

Hazardous Atmosphere – An atmosphere which exposes Team Members to a risk of death, incapacitation, impairment or ability to self-rescue (that is, escape unaided from a permit space), injury or acute illness from one to more of the following causes:

- A flammable gas, vapor or mist in excess of 10% of its Lower Explosive Limit (LEL)
- An airborne combustible dust at a concentration that obscures vision at a distance of five feet or less
- An atmospheric oxygen concentration below 19.5% or above 23.5%
- Any atmospheric condition recognized as immediately dangerous to life or health (IDLH)

Isolation – The separation of a permit required confined space from unwanted forms of energy or substances which could be a serious hazard to confined space entrants. Isolation is usually accompanied

by such means as blanking or blinding removal or misalignment or pipe sections or spool pieces, double block and vent or LO/TO. The process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such a means such as blanking or blinding, misaligning or removing lines, pipes, or ducts, a double block and bleed system, LO/TO of all sources of energy or blocking or disconnecting all mechanical linkages.

Job Safety Analysis – is a method that can be used to identify, analyze and record:

- The steps involved in performing a specific job
- The existing or potential safety and health hazards associated with each step
- The recommended action(s)/procedure(s) that will eliminate or reduce these hazards

Lockout/Tagout (LO/TO) – To safely isolate potentially hazardous energy sources in the work area, during service or maintenance activities.

Lower Explosive Limit (LEL) – The minimum concentration below which the vapor-air mixture is too “lean” to burn or explode.

Naturally Occurring Radioactive Material (NORM) – Materials in subsurface formations that are generally dissolved into water. Production of oil, gas and water can transport these materials to the surface where they may be deposited in pipe, vessels, tanks and other equipment.

Non Permitted Confined Space – A confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

Parts Per Million (PPM) – A concentration which refers to parts of vapor or gas per million parts of air by volume.

Permit Required Confined Space – Is any confined space which has one or more of the following characteristics:

- Contains or has contained a known potential hazardous atmosphere.
- Contains a material with the potential for engulfment.
- Has an internal configuration such that the entrant could be trapped or asphyxiated by inwardly converging walls or a floor which slopes downward and tapers to a smaller cross-section.

Personal Protective Equipment (PPE) – Is any material or device worn to protect the worker from exposure to or contact with any harmful material or force. Equipment provided to shield or isolate a person from chemical, physical, and thermal hazards that may be encountered. Adequate personal protective equipment should protect the respiratory system, skin, eyes, face, hands, feet, head, body, and hearing.

Protective Systems – Diverse range of protection including LO/TO, PPE, atmospheric testing, emergency evacuation protocol, emergency notifications, ventilation, rescue equipment, signage and protective barricades.

Rescue – An individual located outside of the Confined Space Entry who is responsible for monitoring the Confined Space Entrant.

Respirator – A protective device for the human respiratory system designed to protect the wearer from inhalation of harmful substances. An Air Purifying Respirator is a respirator that uses filters or sorbents to remove harmful substances from the air. Air Supplied Respirator is a respirator that provides a supply of breathable air from a clean source outside of the contaminated work area.

Retrieval System – The equipment, (including a retrieval line, full body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

Stop Work Authority – The authority that all LEG Team Members/contractors are given when they believe a situation exists placing them, their co-worker(s), contracted personnel, or the public, at risk or in danger, and/or if a Team Member is not comfortable that he/she has enough information to safely execute a procedure or process.

12.0. Document Control Process

This SOP will be reviewed every 3 years or as necessary, to ensure that the policies and procedures remain current and appropriate. Whenever it is necessary to implement changes to procedures, this SOP will be updated, reviewed and approved. In the event this SOP describes a process that is no longer followed, it will be retracted from the current file, archived and retrievable for audit purposes. The dates and details of all changes or withdrawals will be documented below.

Document Change History

Version	Change Date	Change Description	Changed by	Approved by	Approval Date
1.0	8/20/19	<ul style="list-style-type: none"> Add Policy Statement Change Business Objective to Purpose Change Procedure to Practice 	Colin Clark	Ken Phillips	8/20/19
1.1	10/16/19	<ul style="list-style-type: none"> Update Cover Page 	Colin Clark	Ken Phillips	10/16/19
1.2	6/20/2024	<ul style="list-style-type: none"> Review only 	Colin Clark	Ken Phillips	6/20/2024

NOTE: Changes to this document shall be reviewed by the Sub-Committee and approved by the Executive Safety Committee (ESC). Any document revisions are to be noted on the Document Review Change Log. This form shall be kept current to maintain audit compliance.

Appendix A

CONFINED SPACE ENTRY PERMIT AND LOG

Confined Space Entry Permit and Log

Lewis Energy Group

Company Name:									
Permit Start: Date: Time:			Permit Completion: Date: Time:						
Work Area:									
Specific Equipment To Be Worked On:									
Work Description/Purpose:									
SPECIAL PRECAUTIONS									
1. Pre-job safety meeting (JSA) held with all affected personnel?								[]	
2. Have all personnel involved in the confined space entry process been trained in their duties?								[]	
3. Have all hazardous energy sources been controlled? (i.e. electrical, mechanical, pneumatic, etc.)									
4. Are all lines that enter the space isolated? Disconnected [] Blanked or blind plated [] Double block and bleed []								[]	
5. Does the atmosphere need to be purged or continuously ventilated?								[]	
6. Based on the monitoring results, is the atmosphere acceptable for entry?								[]	
7. Is there a communication procedure? Voice [] Radio [] Other [] (specify):								[]	
8. Have all other serious known and potential hazards been addressed and controlled? (i.e. slippery surfaces, lighting, etc.)								[]	
9. Are emergency rescue services available?								[]	
10. Are response personnel trained and equipped? [] Non-entry rescue apply?									
11. Rescue equipment available for use by trained personnel. [] Tripod, [] Lifeline									
12. Personal Protective Equipment Hardhat [], Safety Glasses [], Face shield [], FRC [] Gloves [], Safety toe footwear [], Chemical Resistant coveralls [], Rubber boots []								[]	
13. If respiratory protection is required, are entrants and rescue medically approved [], Fit tested [], and clean shaven []?								[]	
								[]	
ATMOSPHERIC TESTING									
Instrument:			Serial#:			Calibration Date:			
Authorized Gas Tester:			Frequency: [] Initial [] Continuous [] periodic						
Test	Reading	Time							
O ₂	19.5%- 23.5%								
LEL	Any % over 10%								
H ₂ S	10 PPM								
CO	50 PPM								
Instrument:			Serial#:			Calibration Date:			
Authorized Gas Tester:			Frequency: [] Initial [] Continuous [] periodic						
Test	Reading	Time							
NORM	50microR/hr.								
PERSONAL PROTECTION									
Full Body Harness []		SDS Review []		Respiratory Protection []					
Fire Extinguisher []		Lighting/GFCI []		Fire watch (trained) []					
Lockout/tagout []		Intrinsically Safe Eqpt. []		Rescue Equipment []					
AUTHORIZATION SIGNATURES									
Issuing Representative:					Attendant:				
Requesting Representative:					Cancellation Description:				
Confined Space Entry Supervisor:									
Authorized Company Representative:									

Lewis Energy Group

Confined Space Entry Log

Appendix B

HAZARD ASSESSMENT CHECKLIST

Hazard Assessment Checklist
29 Code of Federal Regulations – Part 1910.146
Lewis Energy Group

(Check all that apply)

- 1.) All hazardous energy sources have been isolated and controlled?

<input type="checkbox"/>	Electrical
<input type="checkbox"/>	Pneumatic
<input type="checkbox"/>	Mechanical
<input type="checkbox"/>	Hydraulic
<input type="checkbox"/>	Chemical
<input type="checkbox"/>	Thermal
<input type="checkbox"/>	Radiation (NORM)

- 2.) The confined Space has been cleaned, vented, purged and no special PPE has to be worn for protection?

<input type="checkbox"/>	Cellar
<input type="checkbox"/>	Tank
<input type="checkbox"/>	Vessel
<input type="checkbox"/>	Excavation

- 3.) Atmospheric conditions are being monitored continuously or periodically by an Authorized Company Representative (ACR) using a calibrated instrument?

<input type="checkbox"/>	Oxygen (O ₂) level 19.5 – 23.5%
<input type="checkbox"/>	Lower Explosive Limit (LEL) < 10%
<input type="checkbox"/>	Hydrogen Sulfide (H ₂ S) < 10 ppm
<input type="checkbox"/>	Carbon Monoxide (CO) < 50 ppm
<input type="checkbox"/>	NORM < 50microR/hr.

- 4.) Other identified hazards have been eliminated/controlled?

<input type="checkbox"/>	Water accumulation
<input type="checkbox"/>	Traffic
<input type="checkbox"/>	Rodents
<input type="checkbox"/>	Insects
<input type="checkbox"/>	Snakes

Based on the hazard assessment above, the confined space is classified a non-permit required confined space.

Authorized Company Representative: _____

Location: _____

Date: _____