

TABLE OF CONTENTS

Section 1	Introduction	Page 1
Section 2	Purpose	Page 1
Section 3	Search and Controlled Areas	Page 1
Section 4	Notification to the Pipeline Owner	Page 2
Section 5	Foreign Pipeline Owner's Responsibilities	Page 2
Section 6	Ground Disturbance Responsibilities	Page 3
Section 7	Approvals	Page 4
Section 8	Hand Exposure	Page 4
Section 9	Proper Location and Marking Procedures	Page 4
Section 10	Items to Aware of When Conducting a Ground Disturbance	Page 5
Form 1	Information Request for Alberta One- Call	Page 6
Form 2	Ground Disturbance Permit	Page 7
EUB G-30	Guidelines for Safe Construction Near Pipelines	Page 8 & 9
Form 3	Backfill Report	Page 10
Form 4	Project Notes	Page 11

GROUND DISTURBANCE OPERATING PROCEDURES

NOTE – This Procedures Handbook is a Summary of Ground Disturbance Requirements. For more detail when conducting Ground Disturbance, refer to Section 6.1 in the Caltex Energy *PIPELINE OPERATING and MAINTENANCE GUIDELINE MANUAL* and/or Section 8.0 in the Caltex Energy *SAFE OPERATING PROCEDURES MANUAL*.

1. INTRODUCTION

Ground Disturbance means any activity that result in the disturbance of the earth.

This is usually associated with pipeline, buried utilities, setting anchors, soil stripping, auguring, trenching or tunneling work.

Any ground disturbance resulting in a **disturbance of 30 cm** or more **MUST** follow these ground disturbance requirements.

All personnel; both company and **Contractors** involved in the actual Ground disturbance must as a minimum have Level II Certification in Ground disturbance. The certificate number must be recorded on the Hot Work Permit. This includes, hoe operators, trenchers, foremen and others directly involved in the ground disturbance work.

Refer to Alberta One-Call – Form 1 and Ground Disturbance Permit – Form 2 as appropriate.

2. PURPOSE

The purpose of the Ground Disturbance SOP is to provide procedures that will:

- Comply with all requirements of the Pipeline Act and Regulations.
- Comply with all Workplace Health and Safety Regulations.
- Eliminate or reduce the possibility of a pipeline or underground utility hit or contact.
- Eliminate or minimize a pipeline rupture that could cause harm to the public.
- Ensure the safety of company and contract workers.
- Eliminate or minimize an incident that could cause injury or death to workers.
- Minimize adverse environmental effects of a pipeline break or rupture.
- Minimize the loss of production fluid or natural gas.

3. SEARCH AND CONTROLLED AREAS

3.1 Search Area

- The Search Area is the area within 30 meters where the ground disturbance will occur. Approval from a licensee must be obtained when conducting a search to undertake a ground disturbance within **5 meters** of the pipeline or utility when there is no defined right of way.

3.2 Controlled Area

- The **controlled area** is the area located 30 meters wide on either side of the known pipeline or utility.

4. NOTIFICATION TO THE PIPELINE OWNER

When conducting a pipeline or utility disturbance the following notification must be given to the owner of the pipeline or utility:

- At least 2 days and not more than 7 days notification of your intent to conduct a pipeline disturbance must be given (excluding weekends).
- The nature of the disturbance.
- The proposed schedule of the disturbance.

The most common notification method is calling Alberta One-Call at **1-800-242-3447**. Complete the Information Request for Alberta One-Call (Form 1) located at the back of this document.

It does not matter if the company is not a member of Alberta One-Call.

5. FOREIGN PIPELINE OWNER'S RESPONSIBILITIES

This also applies when someone is crossing it's own pipeline.

Once the owner of the pipeline has been contacted and a Pipeline Crossing Agreement is in place the following steps must be taken:

- Provide information about the pipeline and right of way upon request.
- Provide reasonable assistance to those conducting the ground disturbance.
- **Remember: make sure a crossing agreement is in place before starting.**
- Properly locate and mark his pipeline with visible stakes or flags.
- Inspect pipeline for nicks or signs of contact when it is exposed prior to backfilling.
- Complete a crossing / backfill inspection and provide a copy to the pipeline owner
- Supervise the mechanical excavation within the right of way.
- **Ensure / Document** that on-site excavation supervisors and equipment operators have proper Level 2 Ground Disturbance certification.

6. GROUND DISTURBANCE RESPONSIBILITIES

All precautions must be taken to avoid hitting or rupturing a pipeline or underground utility. This applies when doing a ground disturbance on someone else’s pipeline and is equally as important when **conducting a ground disturbance on your own pipelines.**

The following table illustrates each person’s responsibilities when conducting a ground disturbance on a foreign or your own pipeline.

R = RESPONSIBILITY

S = SUPPORT

Responsibility	Site Supervisor	Project Engineer/ Superintendent	Surface Land	Contractor
Review existing: survey drawings, construction drawings for existing underground pipelines or buried utilities.	R	R		R
Obtain written approvals for line crossing agreement.		R	R	
Ensure all crossing agreements are in place prior to a ground disturbance.	R	R		
Ensure the on site Supervisor is competent and has level II Ground Disturbance certification.	R	R		
Review scope of work with engineer.	R	R		
Conduct a pre-job site visit to visually look for underground pipelines and check with local operator.	R	S		S
Contact Alberta One-Call at least 24 hours before crossing.	S	R		
Contact all landowners or operators who may be able to identify any pipelines not shown on survey or drawings.	R	S		
Contact all third party line crossing at least 48 hours before crossing.	S	R		
Ensure all buried lines are identified and clearly marked with stakes or flags. An electronic line locator must be used.	R	S		R
Meet with landowner if required to explain ground disturbance.	R		S	
Have pre-job meeting with engineering firm, contractor to explain ground disturbance rules.	R	R		R
Meet with on-site supervisor, contractor and his crew to review certification requirements and ground disturbance policies.	R	S		R
Have a tailgate safety meeting each day/document.	R	R		R
Ensure that work crew knows there is to be no mechanical digging within 60 cm of an exposed pipeline.(document the discussion).	R	R		R
Fill out the ground disturbance/ line exposure checklist for each individual line (separate form for each line).	R	S		R
Fill out Co. Safe Work Permit (separate permit for each ground disturbance).	R	S		R
Ensure the site supervisor is on-site when lines are exposed and excavation takes place.	R	S		

7. APPROVALS

- A written approval in the form of a Crossing Agreement must be in place when crossing a foreign line or having a company cross a Your line. If there is no written agreement on-site then **no Ground disturbance must take place.**
- A written approval must be in place when there is to be ground disturbance within 5 meters of your own line or a foreign line where there is no right of way.
- A separate Ground Disturbance Permit must be completed when crossing one of your own lines. If you are crossing more than one line, then a separate form must be completed for each line and must be attached to the Safe Work Permit.
- The on-site supervisor and the area foreman must sign the Ground Disturbance Permit to ensure proper line marking and hand exposures are completed.
- A verbal approval to proceed is not acceptable.
- Not following the above approval process prior to beginning a ground disturbance may result in suspension or dismissal.

8. HAND EXPOSURE

- **Hand expose** any existing pipelines prior to conducting a ground disturbance that will **cross or come within 5 meters** of an existing pipeline.
- The Hydrovac method may be used.
- A Hydrovac hole must be large enough to determine the pipe size and alignment.
- The Hydrovac ditch must be one (1) meter wide perpendicular to the pipe.
- The depth of the Hydrovac must be a minimum of **30 cm** below the pipe or **30 cm beneath** the intended depth of the excavation.
- **Mechanical excavation is not allowed** within **60 cm** of a pipeline after it has been located.

9. PROPER LOCATION AND MARKING PROCEDURES

- All known pipelines and buried utilities as noted on the plot plans, site drawings, maps, and facility searches that pass within the controlled area (30 meters) or the search area (5 meters if no right of way) must be located and staked or flagged.
- Stakes must indicate location, alignment of pipeline, size and depth.
- A certified operator must use an electronic locator.
- The line locator must have all the necessary drawings, maps and other materials.
- The line locator must perform a function test on a known pipeline prior to searching for the unknown pipelines to the satisfaction of the site supervisor.
- On-site supervisor must review the equipment calibration tags.
- When conducting a blind search, the area must be swept in four grid patterns (N, S, E, and W) and then swept in an angular position to ensure maximum detection.
- Direct clamping or connection should be used, if possible.

- The on-site supervisor must ensure that the locators locate and mark (stake/flag) all known pipelines and utilities within 30 meters of either side of a ground disturbance. Mark the locations on the plot plan and maps as well.

- When locating and marking Your pipelines, ensure that the markings for the location of the pipeline extend off of your right of way on each side so that live markings will remain visible.

The following color codes for marking **must be used**:

White	Proposed excavation
Pink	Temporary survey markings
Red	Electric power lines, cable conduit, light cables
Yellow	Gas, Oil, Petroleum lines
Orange	Telephone, cable, communication cables
Blue	Potable water lines
Green	Sewer lines, storm sewer lines
Purple	Irrigation lines

10. ITEMS TO BE AWARE OF WHEN CONDUCTING A GROUND DISTURBANCE

- Check all records and use area operators experience when locating lines.
- Ensure the alignment of the pipeline is clear. Expose more of the line if unsure and set markings close together so the alignment is clear.
- Ensure all lines in a right of way are marked and hand exposed. Use a separate inspection form for each line.
- Make sure the pipeline owners come out to locate and mark their line(s) before beginning a ground disturbance.
- Conduct additional hand exposures (Hydrovac) on a line to ensure you know the depth and alignment of the line. **Do not Assume!**
- **Ensure both the on-site supervisor and Area Foreman sign the Ground Disturbance Permit prior to beginning any ground disturbance work.**
- Replace damaged or knocked over markers immediately.
- **Remember: it is the on-site supervisor's responsibility to keep crews informed and it is the crews' responsibility to be informed. Communication!!!**



Information Request for Alberta One-Call Form 1

Alberta One-Call: 1-800-242-3447	Assigned Number:
Company Name:	Office Phone:
Contact Name: _____	
Position: _____	
Phone: _____	
Fax No.:	Cell: E-mail:
Alternate Contact: _____ Position: _____	
Phone: Cell: E mail:	

City or Town:	Location of Work:
Property Owner's name:	Subdivision Name:

Legal Land Description:
¼ section: Section: TWP: RGE: Meridian: W

Additional information: _____

Type of Work Being Done: _____

Depth of Work:

Type of Property: Public Private Street Other (circle and explain)

Company Work Being Done For:

Work Start Date: Time:

Scheduled Meeting Date: Time:

Companies already notified:



Ground Disturbance Procedures

GROUND DISTURBANCE PERMIT

Form 2

A SEPARATE PERMIT MUST BE COMPLETED FOR EACH GROUND DISTURBANCE

For the purposes of this permit "Ground Disturbance" shall be defined as any excavation or construction activity (other than hydrovac or hand exposure) that involves the use of powered mechanical equipment and results in the penetration of the ground to a depth of 30 cm or greater.

Date: _____ Location: _____ Permit Valid From: _____ To: _____
Location(s)

Brief description and scope of ground disturbance activity:

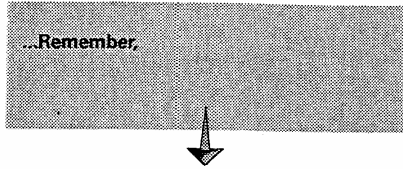
This permit shall be regarded as "void" and must be re-issued if:

- a) the permit expires b) there is a change of Designated Supervisor c) job description or scope change**

Section A: Surveyor/ Line Locating Company Responsibilities	Date	Line Locator/ Company Rep Initial
Obtain latest EUB area maps for all potential disturbance areas		
Obtain latest company site plan		
Flag ROW and crossing - surveyor.		
Locate and identify lease boundaries.		
Meeting to minimize crossings and identify tie-in points.		
Identify underground utilities on-site		
Identify facilities accessing and leaving lease		
Sweep the ground disturbance area within 30 metres of Pipeline Crossing - four separate grid patterns (N, S, E, W)		
Numerically identify and flag all buried pipelines and utilities showing line number, size, depth to a distance of 30 m from the location		
Prepare site sketch of all underground utility locations (to remain with on-site supervisor)		
Section B: On-Site Supervisor Responsibilities Prior to Construction or Reclamation	Date	On- Site Sup's Initial
Meet with surveyors/electrical/operations during initial survey.		
- minimize line conflicts		
- Determine tie-in locations		
- Review latest available site sketch of underground utility locations drawings		
Alberta One Call notification		
Landowner notification		
Contractor notification/pre start-up meeting.		
Verify crossing agreements and crossing locations - drive ROW and verify.		
Verbal hand-expose permission from foreign utility owner.		
Notify pipeline/utility owner 48 hours before crossing.		
On-Site supervision by the company's representative and foreign representative throughout exposure procedure. If mechanical equipment will be operating within 5 meters of the staked line all buried utilities must be exposed by hand or use of a hydrovac.		
Review EUB Guide 30 and "Safe Procedures" manual with surveyors and operations.		
Section C: On-Site Supervisor Responsibilities During Construction Reclamation	Date	On- Site Sup's Initial
EUB notification/permit		
Alberta Environmental notification		
Foreign line representative on site during backfill		
Review ground disturbance activities with all equipment operators, in detail, prior to any work being conducted. Level II Certification # Here _____ On-site supervisor will ensure that: 1. Lines are identified, remain staked at all times, 2. Lines have been hand exposed where ground disturbance activities occur within 5 meters of any underground utility. These lines will be clearly marked with a 3" I.D. PVC pipe extending at least 2 feet above ground until all ground disturbances is complete. 3. Scope of work is known to all contractors and are aware of digging and ripping restrictions as per EUB Guide 30.		

I verify that the aforementioned construction responsibilities were completed.

Company's designated supervisor: _____ Date: _____
Company's Second supervisor: _____ Date: _____
Contractor designated supervisor: _____ Date: _____

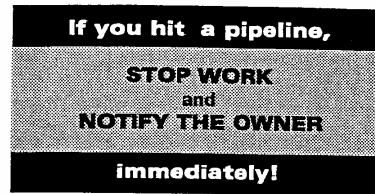


Your responsibilities are to

- check records for the existence of pipelines
- obtain written permission for working within the pipeline right-of-way
- call pipeline owner at least two full working days before you dig so pipeline position can be marked
- erect temporary fencing along right-of-way, if needed
- construct proper crossings to allow access over right-of-way, if needed
- hand-expose pipeline before using machinery within 5 m, requesting attendance of pipeline owner
- avoid using machinery within 60 cm of pipeline, unless supervised by the owner
- call the pipeline owner at least one full working day before you cover any exposed pipeline

The pipeline owner's responsibilities are to

- provide pipeline information upon request
- provide reasonable assistance to anyone carrying out a ground disturbance
- mark the position of the pipeline before a ground disturbance takes place
- be present, if asked, during hand exposure
- inspect the pipeline for damage prior to backfilling, and keep a written record of this inspection
- supervise any mechanical excavation within 60 cm of the pipeline



The information contained in this brochure is intended for use as a guide only. Consult the *Pipeline Act* and the *Pipeline Regulations* for further information.

For more information call your local EUB field centre, open 24 hours a day:

- Bonnyville (780) 826-5352
- Calgary South (403) 297-8303
- Drayton Valley (780) 542-5182
- Grande Prairie (780) 538-5138
- Medicine Hat (403) 527-3385
- Red Deer (403) 340-5454
- St. Albert (780) 460-3800
- Wainwright (780) 842-7570

For more information about the EUB, please contact:

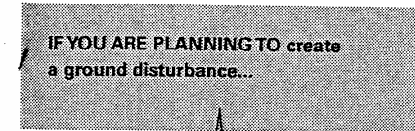
Information Services
 Alberta Energy and Utilities Board
 640-5 Avenue SW
 Calgary, Alberta T2P 3G4
 Tel: (403) 297-8311

or visit the EUB Web Site at:
<http://www.eub.gov.ab.ca>

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Guidelines for Safe Construction Near Pipelines



...such as excavating, digging, trenching, plowing, drilling, tunneling, augering, backfilling, blasting, stripping topsoil, levelling, removing peat, quarrying, clearing, grading or pounding posts...

READ THIS BROCHURE CAREFULLY!

These actions are all defined as “ground disturbances” in the *Pipeline Act* and the *Pipeline Regulations*. Careless construction near pipelines can cause serious accidents—and cost you a lot of money—if you do not follow proper pre- and post-construction procedures.

The requirements in this brochure apply to

- operating pipelines
- discontinued pipelines
- abandoned pipelines

PLEASE NOTE

There are two exceptions that do not qualify as “ground disturbances”:

1. land disturbances of less than 30 cm that do not reduce the pipeline cover to less than that when first installed, and
2. normal cultivation that does not exceed a 45-cm depth

Alberta Energy and Utilities Board

If you are planning to carry out a **GROUND DISTURBANCE** anywhere, you must

then...

DETERMINE where your project will be in relation to the existing pipeline.

and...

If you will be working in the controlled area **OUTSIDE** of the pipeline right-of-way, you must

or...

If you will be working **WITHIN** the pipeline right-of-way, you must:

1. Look for pipelines in the following records:

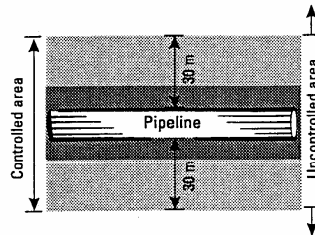
- Call Alberta One-Call at 1-800-242-3447 (*Note: not all companies are registered on the One-Call system*)
- Call the Alberta Energy and Utilities Board (EUB) to check area records for the existence of pipelines
- Check with your local utilities services
- Check land title for easements that may indicate the location of pipelines

2. Look for pipelines at the site:

- Look for warning signs where pipelines cross roads or waters
- Look for wells, tanks, or valves which may indicate the presence of pipelines
- Look for ground settling from previous work
- Talk to nearby/adjacent landowners and residents

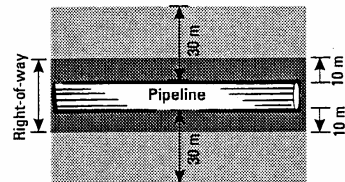
What is a controlled area?

A pipeline's controlled area is the land bordering it for 30 m along each side.



What is a right-of-way?

A pipeline right-of-way is the land allocated for the pipeline and its maintenance as set out in the agreement between the landowner and the pipeline company. The right-of-way will usually be less than the 30-m controlled area, but may, in fact, sometimes be more.



1. **Call the pipeline owner** at least two full working days before you dig so the pipeline can be located and marked before you dig



2. **Install temporary fencing**, if necessary, to control access



1. **Get written approval** from the pipeline owner before you dig



2. **Call the pipeline owner** at least two full working days before you dig so the pipeline can be located and marked before you dig



3. **Expose the pipeline by hand** before digging with machinery within 5 m of the pipeline



4. **Ensure that NO machinery** comes within 60 cm of a pipeline without the supervision of the pipeline owner



5. **Call the pipeline owner** at least one full working day before you cover any exposed pipeline

BACKFILL / CROSSING INSPECTION REPORT

Project Number: _____

Location: LSD _____ SEC _____ TWP _____ Range _____ W _____ Date: _____

*NOTE – Before any backfill/crossing work begins, the owner of the facility/land must be notified 24 hours in advance.
 - Attach all written notes / comments to this report if more space is required.

Type of Crossing (Check one)

Pipeline (If yes, check type)

Oil Gas Water

CO-OP

Gas Water

Water Course

River Creek/stream Drainage

Lake Slough

On Section Plan below, please include:

- 1) All surface improvements (i.e. roads, railways, fence)
- 2) All land characteristics (rivers, lakes, sloughs etc.)
- 3) Staging areas
- 4) Direction (show North)

Road

Trail Gravel Paved

Railway

Telecommunications

Other (Specify) _____

Facility Information (required)

Name of the existing owner: _____

Crossing Agreement No: _____

New Installation (facility) Info. _____

Contractor: _____

Line type: _____

Line size: _____

Weight: _____

When a new installation does not cross an existing facility (line), but the new installation is within 5 meters of the 3rd party's ROW, or in the ROW, the line must be exposed to determine its exact location.

Coating/type:

Cathodic Protection Yes No

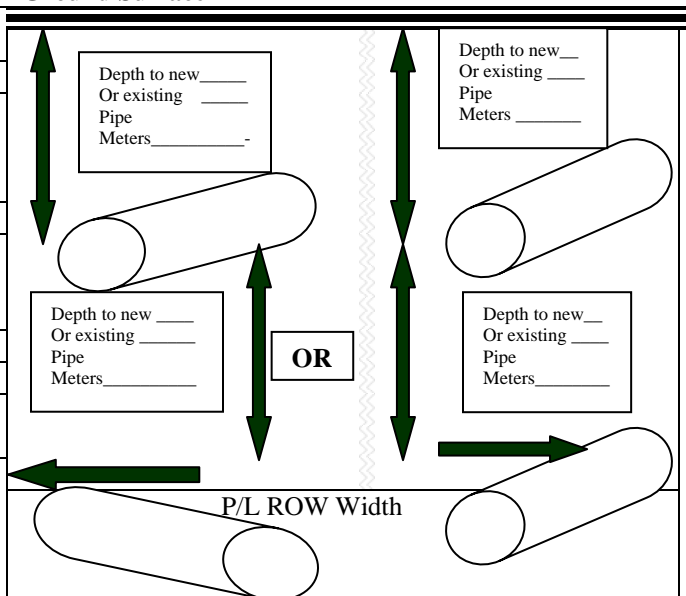
Was there damage present during Exposure/installation Yes No
 If yes, explain- _____

Was there damage to facility as a result of Backfill operations Yes No
 If yes, explain: _____

Was the EUB & Owner notified of damage
 Yes No- if no, notification to both parties is required

Description of any and all repairs: _____

Ground Surface



Prepared by: _____

Backfill Complete Date: _____

Approvals (If Backfill conditions Satisfactory)

Owner: _____

Company Rep.: _____

