



## LOCATING AND MARKING BURIED FACILITIES

A number of BCCA members have approached their Regional Associations to express their frustration with doing locates. There is a general concern about liability and safety issues. The following questions were identified:

1. Should BC Utility companies be responsible for doing in-person locates to identify and mark their underground cables and lines?
2. What is the situation regarding locates in Alberta and elsewhere in North America?
3. Should all Utility companies be required to join the One-Call system?

The following is a brief outline of information gathered regarding these concerns.

### **1. Background: One-Call Systems and Best Practices**

One-Call systems are non-profit organizations. Currently, every state in the USA has a One-call system. In Canada, Alberta, BC, Ontario and Quebec have One-Call, with Saskatchewan about to set one up. Alberta was the first province to institute One-Call, back in 1984. Their system is well used with over 200,000 calls last year. In contrast BC only had about 35,000 calls last year. This is primarily because not all utilities and municipalities have signed up, and therefore the contractor doesn't receive the value in the service that he/she would get if all underground facilities were registered.

One-Call systems are set to assist with safety concerns. The members are the owners and operators of buried facilities (pipelines, gas, electrical, water utilities, telecommunications) who bear the cost of the system. The users are those who are planning to disturb the ground, and the system is free to them. One-Call does not do locates, they simply advise the excavator which member companies will be notified and those member companies follow their procedures for advising of the location of their buried facilities. The benefits of a One-Call system are stated as being: *Reduced risk of accidents, injury, environmental or facility damage and down time, as well as improved safety and lower litigation and compensation costs.*

Many states actually legislate the requirement for utilities to be members of the One-Call System. There is a website entitled Dig Safely ([www.digsafely.com](http://www.digsafely.com)) that provides contacts for all One-Call systems across North America as well as the pertinent legislative requirements for all U.S. states.

Best Practices for locating and marking buried facilities have been identified in the *Common Ground Study*, sponsored by the U.S. Department of Transportation. Out of this study an organization was formed called the Common Ground Alliance whose mandate is to focus and support the best practices identified in the Study.

The *Common Ground Study* identified 17 best practices for locating and marking buried facilities. These practices were reached by consensus of all stakeholders involved in the process, which included utility companies, contractors, contractor associations, and government.

1. Locators utilize available facility records at all times.
2. If a facility locator becomes aware of an error or omission, then the facility locator provides information for updating records that are in error or to add new facilities.

3. A uniform color code and set of marking symbols is adopted nationwide.
4. A single locator is used for multiple facilities. (Use of One-call systems is also recommended)
5. Locators are properly trained. Locator training is documented.
6. Locates be performed safely.
7. A visual inspection is completed during the facility locating process.
8. Facilities are adequately marked for conditions.
9. Positive response is provided to facility locate requests.
10. Multiple facilities in the same trench are marked individually and with corridor markers.
11. Information on abandoned facilities is provided when possible.
12. When locating electro-magnetically, active/conductive locating is preferable to passive/inductive locating
13. The facility owner/operator is identified.
14. Communication is established between all parties.
15. Documentation of work performed on a locate is maintained.
16. A damaged facility is investigated as soon as possible after occurrence of damage.
17. Forecasting/Planning for Predictable Workload Fluctuations. A plan is developed for dealing with unpredictable fluctuations.

Of particular note is #5 which recommends that locators be properly trained.

Minimum training guidelines include

- understanding system design/prints/technology
- understanding construction standards for all types of facilities
- equipment training and techniques
- theory of locating
- written and field training

Clearly, any individual expected to locate buried facilities should have adequate training and experience in order that the proper safety measures can be achieved. In the US there is a National Utility Locating Contractors Association (NULCA), which produces the document: *Locator Training Standards and Practices*. This document outlines the areas of competency required for an individual to be able to safely conduct locates. Training in visual observation and a thorough knowledge of the different types of buried facilities as well as learning the necessary safety precautions for each facility are all part of being a competent locator. According to experts across North America, this type of work should not be left to contractors or individuals who do not have such training.

## **2. Currently, in British Columbia**

In BC a number of utility companies and municipalities belong to BC One-Call, including BC Gas. Unfortunately BC Hydro has not joined and as a result a number of other utilities and municipalities have refused to sign up until they do. BC Hydro appears to be satisfied with its own system and sees no need to be a part of BC One-Call. They also cite “reorganization” pressures as getting in the way of joining the organization.

BC One-Call is currently working on a strategy for bringing more municipalities and BC Hydro into their fold. In discussions with Scott Henley at BC One-Call, he indicated to us that he would like meet and investigate potential strategies that BCCA could be involved in to help in this pursuit. BCCA intends to follow up on this suggestion.

**Recommendation: That in the interests of safety, all stakeholders should work towards increasing membership in BC One-Call. Potential for creating legislation to mandate registration of buried facilities could be explored.**

Although BC Gas has signed on with BC One-Call, this does not help with the locates problem as the utility, not BC One-Call is still responsible for actually doing the locate. BC Gas does not feel it is necessary to send out a representative to do locates, instead they rely on as-builts, providing contractors with diagrams and expecting them to find the lines/cables. Upon investigation it would appear that all gas utilities in North America, outside of BC, do locates.

Many American states actually legislate the requirement to do locates. In BC there is no legislative requirement to do locates. The Gas Safety Regulations state:

*16(1) On request of a person intending to excavate in the vicinity of a gas installation, the gas company shall indicate the location of gas installations owned or operated by it in the area where the excavation is intended to be made.*

*(2) The location of gas installations shall be indicated by one or more of the following methods as appropriate for conditions at the excavation site:*

- (a) provision of a plan or listing of facility locations by measurement from a surface datum point;*
- (b) surface staking*
- (c) surface marking.*

Clearly BC Gas is within its rights not to send someone out to do locates. This is, however, viewed as an inappropriate method by every other jurisdiction in North America as it is deemed to be unsafe. Drawings can easily be wrong and should not be relied upon for identifying underground facilities. It places undue liability upon the contractor who must rely on these drawings, and opens the door to potential accidents occurring. Locating is considered an industry in the US

and individuals doing locates are expected to be properly trained in the best practices and standards of that industry.

**Recommendation: In the interests of safety, the Ministry of Community, Aboriginal and Women’s Services should make the appropriate changes to the Gas Safety Regulations to ensure that locates are done by facility owners.**

### **3. Currently in Alberta**

In Alberta most, but not all (Shaw cable is not a member) utilities belong to Alberta’s One-Call system. It is not mandatory to belong, although there are current revisions being worked on that will make it mandatory for utilities that install certain pipelines (related to high pressure) to register with Alberta One-Call. All utilities are required to do locates as requested, locates being defined as sending someone out to the property in question to identify and mark the lines. Alberta One-Call has developed the document: *Call Before You Dig: Guidelines for Safe Excavations in Alberta*, which is an excellent overview of the requirements and standards in that province.

Anyone planning to “disturb the ground” must look to several pieces of legislation to determine responsibilities:

- Alberta Gas Distribution Act
- Alberta Occupational Health and Safety Act – General Safety Regulation
- Alberta Safety Codes – Alberta Electrical and Communication Utility Code
- Alberta Mines and Minerals Act – Exploration Regulation
- Alberta Pipeline Act – Pipeline Regulation

- National Energy Board Act – National Energy board Pipeline Crossing Regulations, Parts I and II

In Alberta, a ground disturbance is defined as any work, operation or activity that results in a disturbance of the earth except agricultural cultivation less than 450mm in depth and except a disturbance of the earth less than 300mm in depth provided it does not reduce the earth cover over a buried pipeline to a height less than that provided when the pipeline was installed.

However, there are exceptions to this, such as urban areas where many buried lines and cables are within 300mm of the ground surface. Basically any ground disturbance can require locates, regardless of depth.

When owners of buried facilities (Utilities) receive a locate request they make the determination on whether the proposed ground disturbance will impact on their facilities. They contact the contractor within the 2 days advance notice required and either advise the excavator that there is no conflict or to make mutually agreeable arrangements to meet **on site** to identify and mark the locations of the buried facilities.

The buried facilities are marked with paint, stakes or flags at no charge to the excavator and provide the excavator with a locate slip. The locate slip is proof that the locate has been done.

Locators will not give depth but should warn the excavator if they suspect a particular facility is deeper or more shallow than might normally be expected.

The marking of the locations follows the International Colour Code introduced by the American Public Works Association and recognized in Canadian Standards Association C22.3 No. 7-94, Underground Systems.

Currently locate marks are generally good for 14 days, although on long term projects the locate is generally good for 30 days. However, there is a movement to revise this to locates being good for 14 days period, with no exceptions.

Every Utility is responsible for ensuring that its buried facilities are marked properly . The excavator must ensure that **all** buried facilities in potential conflict with the excavation have been marked prior to excavating.

Once locates are done, the excavator must not use mechanical equipment in the hand expose zone until the facilities are hand exposed and clearly visible.

During work the excavator is responsible to support and protect any exposed facility and notify of any damage done to it.

The hand expose zone is one metre on either side of the location marks. There are special requirements for direct bury toll or trunk fibre optic cables and high pressure pipelines.

If the excavator has made a reasonable effort to hand expose but can't find the facility he must call the Utility for help.

As a rule Utilities do not charge for locates, unless it is outside of regular working hours.

**Recommendation: That Industry, Government and BC One-Call work together to develop appropriate guidelines, similar to those in Alberta for managing locates and marking of buried facilities.**