

**THE CASE
FOR
PROVINCE-WIDE DAMAGE STATISTICS
AND A
UNIVERSAL DAMAGE REPORT FORM**

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BACKGROUND

Historically, the tracking of third party damages to buried facilities has not been consistent. The definition of what constitutes a damage has not only varied from one type of buried facility to another, but from one owner to another of the same type of facility.

The information collected on individual damage incidents has been used primarily to monitor product losses, costs of repair, specifics of the facility damaged and the recoverability of costs. With very few exceptions, the information gathered has not been used in a proactive manner as a damage prevention tool.

All owners of buried facilities need to be concerned about the prevention of damage to their facilities in order to preserve the integrity of their underground systems. Properly gathered and managed information on third party damages can be a very important asset in damage prevention programs.

DAMAGE DEFINITION

Across the spectrum of types of buried facilities there is enough in common to allow the definition of a damage. On 02 Feb 1990, the Board of Directors of Alberta One-Call approved the following definition .

"A damage to a buried facility shall mean physical damage caused by unauthorized contact which results in a cost or service disruption."

Under this definition, the scraping of the protective coating on a pipeline, the cutting of a cable TV service or the breaking of a tracer wire on a plastic gas line would all be considered damages.

However, if a contractor were instructed to cut through telephone or cable TV service drops while plowing in cable or told not to worry about street light wires while breaking out sidewalk, any resultant service disruptions would not be considered damages, under the definition, because they would have been authorized.

IMPACT OF DAMAGES

Damages to buried facilities can affect the general public, customers, the excavator and the facility owner. The possible consequences of damages to buried facilities include:

- loss of life
- personal injury
- environmental contamination
- evacuation of residential areas
- explosion, fire, flood or toxic gas escape
- disruption of essential services
- inconvenience to the public
- third party property damage
- damage to construction equipment
- contractor down time and loss of production
- loss of product and revenue
- costs to rehabilitate injured workers

- costs to repair facilities
- costs to rehabilitate environment
- costs to repair or replace construction equipment
- police, fire department and ambulance costs
- lawsuits
- medical costs
- legal costs
- administration costs
- increased WCB assessments
- increased insurance premiums
- reduced credibility with the public
- reduction in contractors' ability to be competitive
- fines
- jail terms

With the value of the underground infrastructure in Alberta measured in billions of dollars and with society's increasing perception of all services as essential, it is incumbent on the prudent owners of buried facilities to be proactive in preventing damage to their facilities.

Responsibility for the prevention of damages to buried facilities is not restricted to the facility owners. Like safety, responsibility lies with all of us, as homeowners, contractors and facility owners, and must be reflected in how we conduct our businesses on a daily basis.

MISCONCEPTIONS

Too often there is an adversarial attitude between the owners of buried facilities and the digging community. Occasionally, facility owners are still heard to make the comment that contractors are put on the face of the earth to dig up buried facilities.

If we consider the possible consequences of damages to buried facilities it is very obvious that the prudent and reputable contractor cannot afford to damage buried facilities. The construction industry is so competitive that if a contractor loses money on one job, he is very unlikely to be able to make it up on the next one. He cannot increase the mill rate to increase revenue nor can he apply to the Public Utility Board for a rate increase to cover his costs. Rather, he must live with a tendering process where the lowest bidder usually gets the job.

Sometimes, we forget that facility owners are also members of the digging community, undertake excavation activities with their own forces, and are responsible for a significant percentage of damages to buried facilities. Damages to buried facilities are not a simple case of "them" and "us".

There are owners of buried facilities who put the onus on the digging community to determine who might have facilities near a proposed excavation. Is this a reasonable expectation? Does this demonstrate a concern for the integrity of the facility owners' buried systems? Is this a proactive approach to the prevention of damage to buried facilities?

Facility owner representatives often comment that: "Damages are up, something needs to be done." The only proper and logical response should be: "Relative to what?" Damages do occur and will continue to occur. The number of damages over a given period of time may be a reflection of construction activity. To comment that damages are up is analogous to saying that a vehicle is

using more fuel.

DAMAGE PREVENTION

In order to prevent or reduce damages to buried facilities, it is necessary to establish some benchmarks for future reference, analyze the current situation in terms of who, what, where, when, why and how, develop strategies in response to the analyses, communicate the strategies to the digging community, monitor the effectiveness of the strategies and fine tune them to achieve the desired results.

Proactivity, on the part of owners of buried facilities, in the prevention of damage to buried facilities, requires a commitment to damage prevention programs. Facility owners must establish a dialogue with the digging community to address areas of mutual concern and foster co-operation toward reducing the adversariality of the relationship, understanding the constraints under which each group operates and making expectations compatible.

INFORMATION ON DAMAGES

Every damage prevention program must have a target audience. The more specifically that audience can be defined, the better the program and its message can be structured and the results measured. Organizations will be much more supportive of programs when their effectiveness can be measured and demonstrated.

Most owners of buried facilities have the information to identify target audiences. Unfortunately it may not be in a readily usable format or available to the right groups of people. Perhaps it just has not been perceived as a tool for positive results.

Of perhaps more importance is that information related to damages be in a consistent format from one organization to another across the province. Given this commonality, a central clearing house can assemble, manage, sort and report on information related to damages on an ongoing basis.

What sorts of information should we be able to extract from damage reports? When consistent province-wide reporting is in place we will be able to identify and measure changes in at least the following areas.

- activities most likely to result in damages
- sectors of the digging community most prone to causing damages
- types of buried facilities most likely to be damaged
- urban versus rural damage patterns
- service versus main damage patterns
- sectors of the digging community least likely to request locates
- specific members of the digging community who cause a disproportionate share of damages
- whether or not buried facilities have been hand exposed

Over time, the gathering of information on damages in a consistent format will also allow measurement of the effectiveness of public awareness and damage prevention programs.

UNIVERSAL DAMAGE REPORT FORM

The purpose of a universal form is to provide a format for the gathering and managing of statistical information related to damages to buried facilities on a province-wide basis for all owners of buried facilities. The form has been several years in development and is intended to be very user friendly.

Design of the form has been based on a review of damage report forms in use by facility owners around the province, input from major facility owners, the identification of what information should be included and ease of use. The form has been field tested by members of the Federation of Alberta Gas Co-ops Ltd. for two years. Very few problems have been encountered.

The form has some key features to enhance its flexibility and user friendliness.

- The information required for statistical analysis is restricted to one-half of an 8½" x 11" sheet leaving half a sheet for the specific use of individual facility owners. The rural gas co-ops, for example, have added fields to include pipe size, material, manufacturer and specification, depth of installation, method of repair, description of damage and time and date of both break and repair to allow calculation of product losses.
- The form includes fields to allow the owners of surface and aerial facilities to track damages to them.
- It is very probable that facility owners can incorporate or combine existing reporting forms into this one to reduce paperwork.
- Some fields may not be applicable for some facility owners. These may be deleted provided the field numbering system is not altered.
- The form has been designed to keep writing to a minimum yet to provide sufficient detail to allow extraction of meaningful data.
- The available choices in each section of the form have been selected to minimize the use of "other" and "unknown".

DESCRIPTION OF FIELDS

On the assumption that Alberta One-Call is the most logical organization to manage damage statistics, the universal damage report form has been designed to incorporate the following information.

Report No. - This field is for the Call Centre's use but may also be utilized by the individual facility owner to maintain a sequential file of reports.

Entered - This field is for the Call Centre's use to provide evidence that a particular damage report has been entered into the system.

Facility Owner (01) - Name of the organization whose facility has been damaged.

District/Office (02) - Operating subgroup of facility owner to allow tracking of damages by geographical or operational area. For example, if Canadian Western Natural Gas were the

facility owner, they might use Central, Midnapore, Whitehorn, Crowfoot or Lethbridge in this field.

Ref/Serv/TapNo. (03) - Allows the facility owner to more specifically identify the particular part of their system that has been damaged. Rural gas co-ops, for example, use "tap number" to identify a particular service. Many facility owners may choose not to use this field.

Date (04) - Date the damage occurred or was discovered. In the format yy/mm/dd, 17 January 1994 would appear as 94/01/17.

Site Location (05) - Definitive description of the location of the site of the damaged facility by street address, legal land description, or lot, block and plan number of a rural subdivision as appropriate.

Municipality (06) - Appropriate political subdivision containing the location of the site of the damaged facility, such as Calgary, Trochu, Bentley, Burntstick Lake, County of Flagstaff, MD of Pincher Creek or ID #17 (West).

The next two sections on the form provide more generic information about the location of the site of the damaged facility.

Area Urban (07) - An urban site would be one that can be identified by a street address or as being within the boundaries of a population centre.

Rural (08) - A rural site would be one that is identified by its legal land description down to the quarter section. Rural subdivisions would be included in this field.

Site Private Property (09) - Includes residential, commercial, farm or industrial land not covered by an easement, right-of-way or lease.

Easement/ROW/lease (10) - To describe the site of the damage when it is within an easement, right-of-way or lease across private property.

Road Allowance (11) - Includes highway ROW's and municipal road allowances but does not include back lanes or alleys in municipalities.

Lane (12) - Restricted to back lanes and alleys in urban centres.

Other Public Property (13) - Includes public parks or crown land.

Under **Plant Damaged**, facility owners may choose to use terms more appropriate to their particular business. Since most damages occur in urban areas, to the shallow utilities, the form has been set up to accommodate them.

Trunk (14) - A trunk facility is the primary portion of a facility owner's system. It could be a high pressure gas main, telephone toll or fibre optic line, electrical duct bank, major transmission line, trunk sewer or trunk watermain.

Main (15) - A main is the secondary portion of a facility owner's system. For municipal services, it would include those portions of systems from which individual services are fed.

Service (16) - Services are the connections between mains and the point of consumption at a residence or commercial building.

Underground (17) - Buried facilities.

Surface (18) - Includes pedestals, transformers, metering stations. Surface facilities could be damaged by lightning or vehicular accident as examples.

Aerial (19) - Aerial plant is usually restricted to electrical, telephone and cable TV facilities. High loads are a major cause of damage to such facilities.

Type of Incident provides 11 fields to describe the damage incident and to allow screening of statistics. Virtually all damages to buried facilities will be of the **Dig Up (20)** type although other types may occur occasionally.

The 18 fields under **Activity** allow identification of the activity that led to the damage. An activity description such as machine excavation was found to be too broad a classification to provide meaningful statistics.

Backhoe/Trackhoe Excavation (31) - Includes shovel or hoe excavation with wheeled or track equipment having boom, stick and bucket.

Bobcat/Loader Excavation (32) - Includes excavation with wheeled or track equipment having a loader bucket on the front.

Trencher Excavation (33) - Restricted to wheel type trenchers with chains or buckets such as a Ditch Witch.

Grader/Dozer/Scraper Excavation (34) - Includes stripping and bulk earthmoving activities using bladed equipment.

Ditch Shaping (35) - Includes excavation related to ditch improvements with equipment such as gradealls, scrapers or backhoes.

Saw Cutting/Jack Hammer (36) - Restricted to concrete or asphalt saw cutting and use of jack hammers.

Blasting/Vibrosis (37) - Restricted to seismic activities.

Demolition/Breakout (38) - Includes any demolition activity including blasting or breakout of existing structures such as roads, curb and gutter, sidewalks or beaver dams.

Snow Removal (39) - This classification is included as it is a major cause of damage to temporary and surface facilities.

Cable/Pipe Plowing (40) - Involves the direct burying of facilities by plowing them in.

Deep Tillage (41) - Includes ground penetration by agricultural equipment to depths greater than 450mm. Common activities include subsoil aeration and rock picking.

General Agriculture (42) - Restricted to ground penetration by agricultural equipment to depths of up to 450mm.

Landscape/Tree Planting (43) - Includes general landscaping activities such as grass cutting, garden preparation and tree planting.

Vertical Augering/Drilling (44) - Includes post hole digging, water well drilling, installation of sign posts, excavation for caissons and oil rig drilling.

Horizontal Auger/Bore/Push (45) - Includes horizontal ground disturbances such as augering, boring, pipe pushing, tunneling or so-called trenchless technology.

Driving Bars/Stakes/Posts/Anchors (46) - Includes driving survey bars, guy wire anchors, ground rods, grade stakes and pins for sidewalk and curb and gutter forms and pounding in fence posts

Hand Excavation (47) - Restricted to excavation with hand equipment such as picks and shovels. Does not include hand operated post hole augers.

Other (48) -This is an escape field to be used only for an activity that cannot reasonably be considered one of the other 17 activities.

The 25 fields under **Damaged By** describe various sectors of the digging community. The intent is to identify the type of business "damaged by" was involved in when this particular damage occurred. An individual organization may be involved in several types of business but only one field should be identified.

Landowner/Tenant (49) - To be used when a landowner or tenant was doing the work himself. Does not include contractors working for the landowner.

Municipality (50) -To be used when work was being done by municipal employees including sewer and water departments. It does not include contractors working for a municipality or municipal electrical system employees.

Provincial Government Department (51) - To be used when the work was being done by provincial government employees. Does not include contractors working for the province.

Federal Government Department (52) - To be used when the work was being done by federal employees. Does not include contractors working for the federal government.

Indian Band (53) - To be used when the work was being done by Indian Band employees. Does not include contractors working for the band.

Electrical/Gas/Telephone/Cable TV Utility (54) - To be used when the work was being done by utility employees, including those of municipal electrical systems. Does not include contractors working for a utility.

Electrical/Mechanical Contractor (55) - To be used when the work was being done by private contractors in the electrical, mechanical, or plumbing trades. Work is usually on private property.

Drilling Contractor (56) - To be used when the work was being done by private contractors engaged in vertical or horizontal drilling, augering or boring.

Utility Contractor (57) - To be used when the work was being done by private contractors engaged in the installation of electrical, telephone, cable TV or natural gas distribution systems.

Excavation Contractor (58) - To be used when the work was being done by private contractors engaged in bulk excavation such as house foundations, dug outs, land levelling, topsoil stripping and earthmoving.

Landscaper (59) - To be used when the work was being done by private contractors engaged in landscaping activities including tree planting and moving and minor retaining wall structures.

Pipeliners (60) - To be used when the work was being done by private contractors engaged in the construction of oil and gas pipelines.

House Builder (61) - To be used when the work was being done by private contractors engaged in the construction of residential homes, except those engaged in foundation excavation.

Irrigation District (62) - To be used when the work was being done by irrigation district employees. It does not include contractors working for an irrigation district.

Railway (63) - To be used when the work was being done by railway employees. It does not include contractors working for a railway.

General Contractor (64) - To be used when the work was being done by private contractors engaged in general commercial and industrial construction including major retaining wall structures. It does not include subcontractors who can be more specifically identified.

Fence/Sign Contractor (65) - To be used when the work was being done by private contractors engaged in the installation of fences and signs.

Well Site Contractor (66) - To be used when the work was being done by private contractors engaged in the development, maintenance, servicing or rehabilitation of well sites.

Surveyor/Engineer (67) - To be used when the work was being done by employees of a land surveyor or consultant engineer.

Seismic Contractor (68) - To be used when the work was being done by private contractors engaged in geophysical exploration activities.

Concrete/Paving Contractor (69) - To be used when the work was being done by private contractors engaged in surface construction activities related to fine grading, paving, curb and gutter and sidewalks.

Road/Grading Contractor (70) - To be used when the work was being done by private contractors engaged in road subbase construction, ditch excavation and grading or highway construction other than surface works.

Sewer/Water Contractor (71) - To be used when the work was being done by private contractors engaged in the installation of sewers, watermains and major irrigation system piping. It does not include plumbers.

Petroleum/Resource Company (72) - To be used when the work was being done by employees of oil and gas exploration, production and pipeline companies. It does not include private contractors working for them.

Other (73) - This is an escape field to be used only when the work was being done by an organization that cannot reasonably be described by one of the other 24 fields.

The next several fields under **Damaged By** identify the specific organization that damaged the facility.

Company Name (74) - The name of the individual, company or organization that damaged the facility. An individual's name would only be used in the case of a landowner or tenant or an owner operator of a small company.

Contact (75) - To be used for the name of a contact person within the organization that damaged the facility.

Mailing Address (76) - The address of the organization that damaged the facility. Include postal code.

Phone (77) - The main office number of the organization that damaged the facility. Fax number may be included.

Working For (78) - To be used to identify for whom the organization that damaged the facility was working at that time. It could be "self" in the case of a landowner. It could be a municipality in the case of a sewer contractor. It could be a general contractor in the case of a sub-contractor.

Under **Locates Requested?** there are three choices: **Yes (79)**, **No (80)** or **Not Applicable (81)**. If a facility owner wishes to track damages to other than buried facilities, not applicable would be used in the case of a vehicle accident for example.

If locates were requested, they were either **Done (82)** or **Not Done (83)**, the two choices under **Locates Done?** Locates may have not been done in the situation where the facility owner did not respond in a timely manner or in the situation where the excavator began work before locates were done. If locates were not applicable (81), both (82) and (83) would be left blank.

The accuracy of the locates is addressed under **Locates Accurate?** which also has two choices **Yes (84)** or **No (85)**. With the exception of high pressure pipelines and fibre optic cables, the excavator should expect to find the buried facility within one metre either side of the location marks. If locates were not applicable (81), both (84) and (85) would be left blank.

Having had locates done is only the first step in the prevention of damage to buried facilities. **Hand Exposed?** addresses the second step with the choices **Yes (86)** or **No (87)**. Non-destructive excavation techniques are considered equivalent to hand exposure. If locates were not applicable (81), both (86) and (87) would be left blank.

If locates were requested, the **Locate Ticket Number** would be entered in **(88)** and **Date Located** in **(89)**.

Facility Marked By offers 6 choices to indicate the method used.

Flags (90)

Paint (91)

Stakes (92)

Maps (93)

Verbally (94)

Not Marked (95)

On the assumption that all damages must be reported, **Contact Authorized?** with the choices **Yes (96)** or **No (97)** provides an escape field to screen those damages that result from authorized contact. Occasionally contact is authorized. For example, an excavator may be instructed to cut through street light wiring or telephone or cable TV drops to expedite construction.

Damage Preventable? with its choices **Yes (98)** or **No (99)** requires a judgment call. It is expected that the individual completing the report would be objective and consider the situation from both the facility owner's and the excavator's perspectives.

PROPOSAL

The Board of Directors of Alberta One-Call support the acceptance and implementation of a universal damage report form to gather and manage statistical information related to damages to buried facilities. Damage statistics are considered necessary to measure the effectiveness of public awareness and damage prevention programs and to identify the specific audiences to which such programs should be aimed.

Alberta One-Call is uniquely positioned to manage damage statistics and is prepared to do so as part of its ongoing activities.

The confidentiality of any information included in damage reports will be maintained and, within the context of statistical analyses, specific incidents are unlikely to be identifiable.

FEEDBACK

If the use of this form is not perceived as beneficial to the various owners and operators of buried facilities, its use will be inhibited. Any suggestions for revisions, additions or deletions are welcomed and will be considered. Please contact Bob Chisholm in Calgary at 531-3700 with your comments.

FACILITY DAMAGE REPORT FORM				Report No.	Entered
01 Facility Owner		02 District/Office		03 Ref/Serv/Tap No.	04 Date (yy/mm/dd)
05 Site Location (Street Address/ Legal Land Description/Lot, Block, Rural Subdivision)				Municipality/M.D./County	
Area	Site	11 <input type="checkbox"/> Road Allowance	Type of Plant Damaged		
07 <input type="checkbox"/> Urban	09 <input type="checkbox"/> Private Property	12 <input type="checkbox"/> Lane	14 <input type="checkbox"/> Trunk	15 <input type="checkbox"/> Main	16 <input type="checkbox"/> Service
08 <input type="checkbox"/> Rural	10 <input type="checkbox"/> Easement/ROW/Lease	13 <input type="checkbox"/> Other Public Property	17 <input type="checkbox"/> Buried	18 <input type="checkbox"/> Surface	19 <input type="checkbox"/> Aerial
Type of Incident		23 <input type="checkbox"/> Vandalism	27 <input type="checkbox"/> Fire/Water Damage		
20 <input type="checkbox"/> Dig Up		24 <input type="checkbox"/> Animal	28 <input type="checkbox"/> Vehicle Accident - Identified		
21 <input type="checkbox"/> Near Miss		25 <input type="checkbox"/> Natural Elements	29 <input type="checkbox"/> Vehicle Accident - Not Identified		
22 <input type="checkbox"/> High Load		26 <input type="checkbox"/> Thaw - Deliberate	30 <input type="checkbox"/> Other _____		
Activity		37 <input type="checkbox"/> Blasting/Vibrosis	44 <input type="checkbox"/> Vertical Augering/Drilling		
31 <input type="checkbox"/> Backhoe/Trackhoe Excavation		38 <input type="checkbox"/> Demolition/Breakout	45 <input type="checkbox"/> Horizontal Auger/Bore/Push		
32 <input type="checkbox"/> Bobcat/Loader Excavation		39 <input type="checkbox"/> Snow Removal	46 <input type="checkbox"/> Driving Bars/Stakes/Posts/Anchors		
33 <input type="checkbox"/> Trencher Excavation		40 <input type="checkbox"/> Cable/Pipe Plowing	47 <input type="checkbox"/> Hand Excavation		
34 <input type="checkbox"/> Grader/Dozer/Scraper Excavation		41 <input type="checkbox"/> Deep Tillage	48 <input type="checkbox"/> Other _____		
35 <input type="checkbox"/> Ditch Shaping		42 <input type="checkbox"/> General Agriculture			
36 <input type="checkbox"/> Saw Cutting/Jack Hammer		43 <input type="checkbox"/> Landscape/Tree Planting			
Damaged By (Digging Community Sector)		57 <input type="checkbox"/> Utility Contractor	66 <input type="checkbox"/> Well Site Contractor		
49 <input type="checkbox"/> Landowner/Tenant		58 <input type="checkbox"/> Excavation Contractor	67 <input type="checkbox"/> Surveyor/Engineer		
50 <input type="checkbox"/> Municipality		59 <input type="checkbox"/> Landscaper	68 <input type="checkbox"/> Seismic Contractor		
51 <input type="checkbox"/> Prov Gov't Dept		60 <input type="checkbox"/> Pipeliner	69 <input type="checkbox"/> Concrete/Paving Contractor		
52 <input type="checkbox"/> Fed Gov't Dept		61 <input type="checkbox"/> House Builder	70 <input type="checkbox"/> Road/Grading Contractor		
53 <input type="checkbox"/> Indian Band		62 <input type="checkbox"/> Irrigation District	71 <input type="checkbox"/> Sewer/Water Contractor		
54 <input type="checkbox"/> Elec/Gas/Com Utility		63 <input type="checkbox"/> Railway	72 <input type="checkbox"/> Petroleum Resource Company		
55 <input type="checkbox"/> Elec/Mech Contractor		64 <input type="checkbox"/> General Contractor	73 <input type="checkbox"/> Other _____		
56 <input type="checkbox"/> Drilling Contractor		65 <input type="checkbox"/> Fence/Sign Contractor			
74 Company Name			75 Contact Name		
76 Mailing Address				77 Phone	
78 Working For					
Locates Requested?		Locates Done?		Locates Accurate?	
79 <input type="checkbox"/> Yes	80 <input type="checkbox"/> No	81 <input type="checkbox"/> N/A	82 <input type="checkbox"/> Yes	83 <input type="checkbox"/> No	84 <input type="checkbox"/> Yes
				85 <input type="checkbox"/> No	
				86 <input type="checkbox"/> Yes	
				87 <input type="checkbox"/> No	
88 Ticket No.	89 Date Located	Facility Marked/Information Provided By		90 <input type="checkbox"/> Flags	91 <input type="checkbox"/> Paint
				92 <input type="checkbox"/> Stakes	
				93 <input type="checkbox"/> Maps	94 <input type="checkbox"/> Verbally
				95 <input type="checkbox"/> Not Marked	
Contact Authorized?		Damage Preventable?			
96 <input type="checkbox"/> Yes	97 <input type="checkbox"/> No	98 <input type="checkbox"/> Yes	99 <input type="checkbox"/> No		
Comments					