Looking in the rearview mirror to prevent damages on the horizon, what can we learn when things go wrong?

An excavation crew, with locate ticket information in hand and an “All-Clear” positive response from the One-Call center, starts digging on a morning that begins like any other. Not long after the very first dirt is moved something goes horribly wrong. One of the crew was almost 100 yards away when he heard a loud THUMP, and was soon rocked by a tremendous explosion. The crew had struck a high pressure, large diameter, natural gas pipeline.

These types of incidents always garner a great deal of attention, followed by an abundance of finger pointing, and eventual legal skirmishes. Regulatory agencies and courts will rule on who was right or wrong. It is important to look back without casting blame to learn what could have been done to avoid the tragedy in the first place.

In this instance, the pipeline operator’s employee incorrectly notified the contractor that there was no conflict. That was a human error and could obviously have been avoided. Beyond that, had the pipeline been clearly marked within line-of-sight, the experienced crew would have never hit the pipe. But that does not relieve the contractor of his responsibility for the safety of the crew. A thorough pre-excavation checklist (like the example given here) would have set off a number of alarm bells.

The crew should have noticed they were beginning construction on a well cleared and maintained ROW. A survey of the adjacent area could have turned up a pipeline sign that was present but covered in vegetation. Each crew should perform their own locate of the dig area to look for ferrous material. The large diameter, steel pipe would have been easy to detect. There are normally things on either side that should be done to avoid such disasters.

There are things that can be learned from far less ominous circumstances as well. A homeowner contracted with a landscaper to remove some old shrubbery and plant some new trees. The contractor called Ontario One Call, had the area marked, and began digging. About half-way through the project the homeowner returned and realized he had no phone, internet, or cable service. The worker had severed a broadband cable in the yard that had not been marked.

While the contractor was not legally at fault for the damage, there are things he could have done to avoid both the damage and unhappy customer. Prior to excavation, the contractor could have asked the homeowner what utilities served the home (gas, telephone, electric, water, sewer, CATV). Surveying the jobsite, the landscaper should have taken note of the absence of CATV marks. With no overhead lines all facilities should have been accounted for. There was a marked CATV pedestal in the yard, and while a closure alone may not be enough to set off alarm bells, a decal clearly identifying the pedestal as CATV should have. There was also evidence of a service line into the house. A thorough survey of the area and good communication with the owner, would have prevented the inconvenience.

A contractor was hired to install a number of traffic control signs on a large corporate campus. After making the call to Ontario One Call, meeting with the electrical utility who was going to be in conflict with a portion of the proposed installation, and noting all utilities were marked, excavation began. The contractor safely used vacuum excavation to expose the electric utilities line, and install the sign at that location. After the fill was replaced, the vac truck was sent away. Later in the day as a worker used an auger to dig, a high voltage electric cable that fed the lighting to the parking lot and common areas was struck. The worker suffered severe burns and permanent nerve damage. The cable was a private facility, not part of the one-call system, and it was not marked.

There are a number of ways this incident could have been avoided. The crew could have taken advantage of the presence of the vac truck and potholed each sign installation. The facility owner never offered, nor did the contractor request, maps of the campus. The contractor should have noted the presence of the lighting, as

well as lack of marks indicating the electrical cable that fed them. The facility owner could have easily installed some permanent pavement marker disks indicating the presence of the high voltage cable.

Unfortunately all too often we get caught up using our 20/20 hindsight for assigning blame and exacting retribution. It is even more important to look back at what went wrong and take note of what can be done to avoid making the same mistakes in the future. A comprehensive checklist of damage prevention procedures, to be performed prior to every excavation, should be on every jobsite. Keep the list current, and update it every time there is a hit or near miss. Almost every damage can be prevented- from the most benign, to the most disastrous.

PRE-EXCAVATION CHECK LIST
Important steps to remember before EVERY excavation

In the office

- Contact Ontario One Call at least 5 business days before digging
- Set on-site meetings with all critical facilities in locate area (gas/oil pipelines, high-voltage cables, fiber-optic)

At the Job-site

- Survey the construction site and adjacent area
  - Look for permanent markers
    - Signs or posts
    - Permanent curb markers
    - Pavement markers (stamped nails, pavement decals)
    - Soil markers and others surface signage for landscaped areas
  - Note all locate marks and log all utilities present and marked
  - Consult any maps or field sketches of the location
  - Identify all services to buildings such as:
    - Gas meters
    - Cable pedestals
    - Electric cables
    - Water valves
    - Sewer laterals
    - Telephone closures
  - Look for evidence of trench lines or cleared ROWs
  - Look for evidence of cuts in asphalt or concrete
  - Interview the property owner or general contractor to identify potential private facilities that would not be marked
    - Lighting
    - Outbuildings
    - Pools/Spas
    - Irrigation
    - Sewer laterals
    - Propane tanks
    - Communications lines
  - Photograph the jobsite
    - Pictures of locate marks and flags from 360° at varying distances for perspective
    - Photos of permanent signage and location relative to the dig area
  - Note the location, height, and operator of overhead lines
  - Record all required safety signage
    - Barricades for streets or sidewalks
    - Caution or barricade tape
    - Fencing

Before you dig

- Locate the area checking for ferrous material
- Schedule vacuum or hydro excavation for all lines parallel to the dig
- Note all locations for hand digging within the tolerance zone
- Ensure representatives for all critical facilities are present
- Emergency equipment available when hazardous atmospheres are potentially present
- Have a list of all emergency contact numbers for assets in and adjacent to the dig zone
    - Know the location and directions to the nearest hospital

This is only an example of a Damage Prevention oriented Pre-Excavation Checklist.
Please review all safety procedures carefully