

Incident Summary #II-894392-2019 (#14873) (FINAL)

SUPPORTING INFORMATION	Incident Date	August 19, 2019	
	Location	Penticton	
	Regulated industry sector	Electrical - Low voltage electrical system (30V to 750V)	
	Impact	Qty injuries	0
		Injury description	None
		Injury rating	None
	Damage	Damage description	Damaged outer jacket of cable and inner insulation of conductor.
		Damage rating	Insignificant
	Incident rating	Insignificant	
	Incident overview	Direct buried electrical conductors shorted out when a homeowner hit them with a shovel while they were gardening.	
INVESTIGATION CONCLUSIONS	Site, system and components	A direct buried electrical wire normally is to be covered by 18" of soil in areas not accessible to vehicles. This wire additionally should have marking tape installed halfway between the conductors and the finished grade level. When the wire is buried to an acceptable depth as well as marking tape provided the personnel digging would hit the marking tape indicating a live electrical wire below. This allows persons to be aware of the hazard and continue with caution to avoid damaging the installation. Electrical installation permits allow for oversight of installations to ensure compliance with the adopted electrical codes.	
	Failure scenario(s)	The homeowner used their shovel to dig a hole for installation of the new flowers. He had recently dug holes in his yard to have the irrigation fixed in the immediate vicinity so he ruled out any possible hazards with buried wiring in the immediate area. When the shovel was pushed into the ground at a depth of approximately 5" he felt the wiring and heard the breaker trip. The short happened quickly and concealed underground limiting the exposure to the homeowner. The breaker tripped as intended but the wire was damaged beyond repair and will need to be replaced.	
	Facts and evidence	<p>Pictures identify</p> <ul style="list-style-type: none"> • Wire buried at a depth of approximately 5" from the finished grade level. • No marking tape was provided above the wiring • Visible cut mark on outer jacket of cable. • Cut mark visible on inner insulation exposing copper <p>The homeowner stated they recently purchased the home and had no knowledge of installation of the wiring.</p> <p>No permit was able to be found for the installation of the buried wiring</p>	

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Causes and contributing factors

It is Highly Probable that the wiring was hit and damaged due to a lack of compliance with the electrical code during its installation with regards to the depth of burial and lack of marking tape installation. If the wiring had been buried and marked as per the requirements then the homeowner would have been able to dig a minimum of 9" before contacting the marking tape and the incident likely would have never happened.



Direct buried wire at shallow depth



Damage to Direct Buried wire from shovel head