

## Incident Summary #II-1213932-2021 (#22571) (FINAL)

SUPPORTING INFORMATION	Incident Date	June 15, 2021	
	Location	Chase	
	Regulated industry sector	Electrical - Low voltage electrical system (30V to 750V)	
	Impact	Qty injuries	0
		Injury description	Not applicable
		Injury rating	None
	Damage	Damage description	The rigid metal service mast was damaged as well as the energized identified conductor insulation and internal stranded copper conductor.
		Damage rating	Moderate
Incident rating	Moderate		
Incident overview	<p>A worker was drilling holes through the exterior wall into the interior of a residential single-family dwelling for the installation of security cameras and drilled through the electrical service mast installed within the building envelope containing unfused service conductors.</p> <p>This caused damage to the rigid service mast and the identified conductor contained within the raceway and caused the homeowner to endure a power loss when the damage was repaired.</p>		
INVESTIGATION CONCLUSIONS	Site, system and components	<p>The rigid steel service mast is designed to protect unfused service conductors from damage and accidental contact.</p> <p>The thick metal of a rigid service mast provides additional protection for the conductors inside as they are protected only by the utility overcurrent protection. Typical installation of an overhead electrical service will see the overhead utility conductors terminate to the consumer service cables installed in a rigid service raceway ahead of the meter-base, from the meter-base the consumer service conductors will supply a main distribution protected by a main overcurrent device.</p> <p>Continuous drilling can eventually break down the thicker metal of a rigid steel service mast.</p>	
	Failure scenario(s)	<p>The location in which the worker chose to install the final security camera was positioned directly over the energized electrical meter-base and below the overhead service conductors.</p> <p>Unaware the rigid service mast and energized service conductors posed a threat as they were installed within the exterior wall and he could not physically see them the worker then proceeded to drill using a 3/4" drill bit for a duration greater than 30 minutes.</p> <p>Once the exterior building material was penetrated the worker realized that he was drilling into metal material but assumed it was not anything of importance and continued drilling.</p>	
	Facts and evidence	<p>Interview with the Lead technician;</p> <p>Not the original installer but completed the installation and the programming of the security system after the incident took place.</p> <p>Unclear on the events leading up to the incident only stating that the worker responsible has poor knowledge of the surrounding electrical system.</p>	

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	<p>Interview with the worker;          The worker stated that he is not an electrician did not hold any industry qualifications or training, receiving only 2.5 weeks of training from his employer.          The worker stated that he did not have great situational awareness due to his lack of experience and industry training.          The worker stated that he could see that he was drilling into some metal material but was unaware of the potential risk it posed as he his unfamiliar with electrical systems.          The worker felt uncomfortable completing installations on his own due to his lack of experience and training.</p>
<p>Causes and contributing factors</p>	<p>It is highly probable the service mast and conductors were damaged due to the lack of experience and training held by the worker completing the installation.</p>

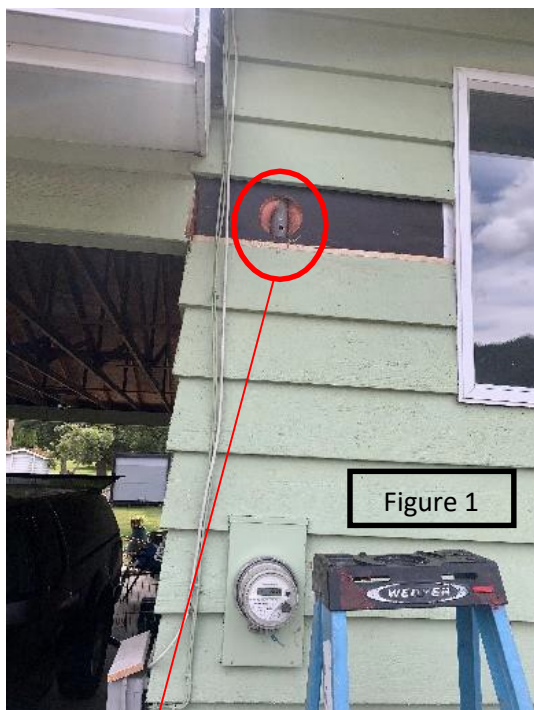


Figure 1

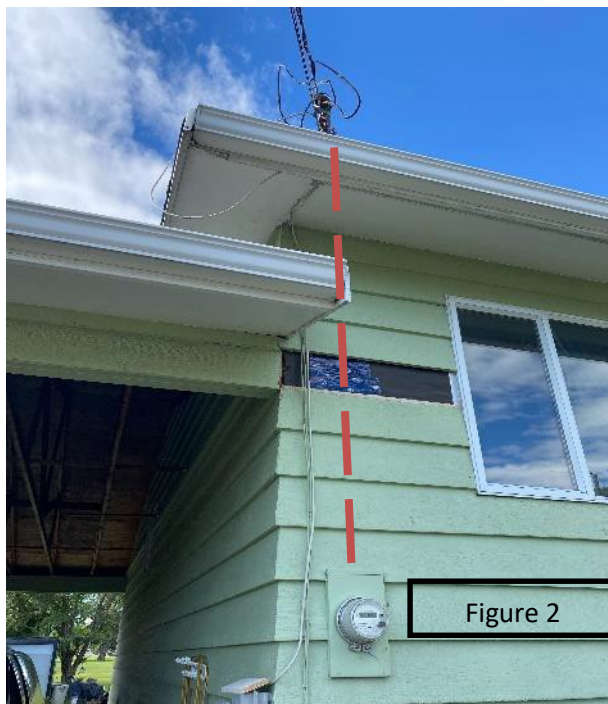


Figure 2

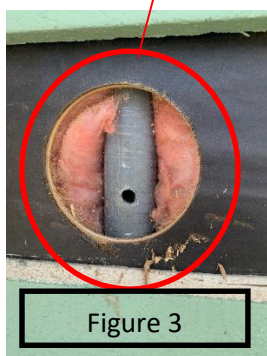


Figure 3

Figure 1 – Shows the damaged service mast behind the building envelope.

Figure 2 – Shows the vertical path of the service mast behind the building envelope in relation to the meter-base and the utility overhead conductors

Figure 3- Shows a close up of the damaged service mast.

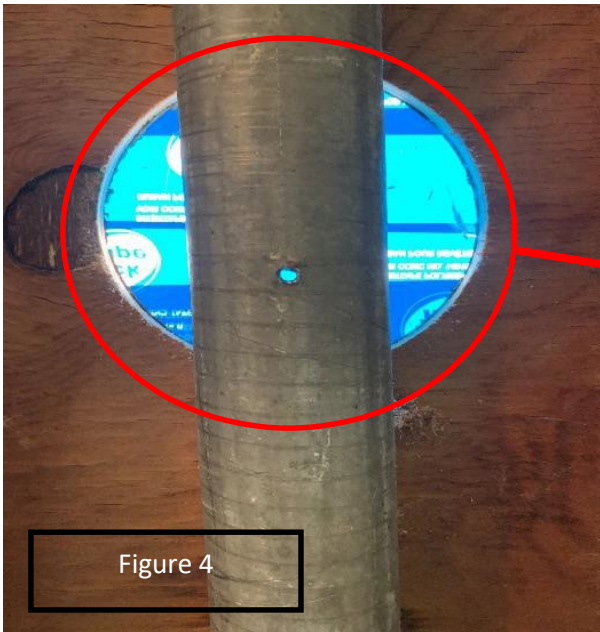


Figure 4

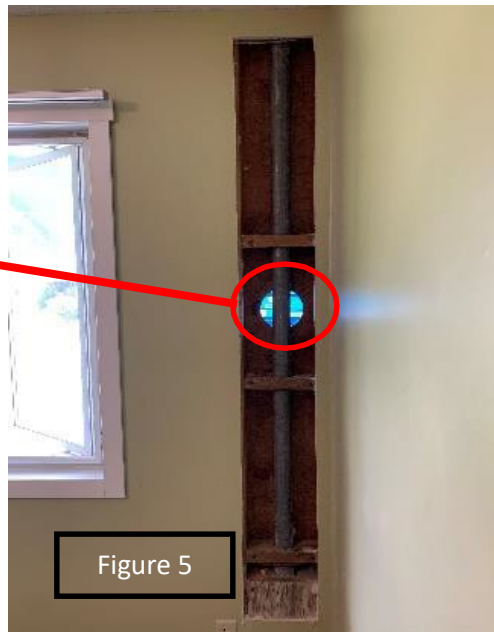


Figure 5

Figure 4 – Close up of the hole penetrating the mast within the building.

Figure 5 – position of the service mast within the building.

Figure 6 +7 – Close up of the drilled mast and the damaged internal conductor.

Figure 8 – Damaged mast and conductor once removed.

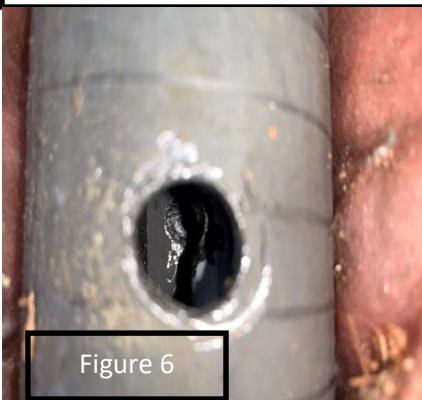


Figure 6

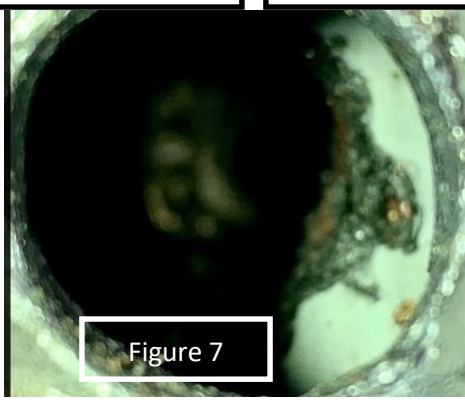


Figure 7



Figure 8