

## Incident Summary #II-1035471-2020 (#18692) (FINAL)

SUPPORTING INFORMATION	Incident Date	July 7, 2020	
	Location	Shawnigan Lake, BC.	
	Regulated industry sector	Electrical - Low voltage electrical system (30V to 750V)	
	Impact	Qty injuries	0
		Injury description	No injuries
		Injury rating	None
	Damage	Damage description	Breaker overheated
		Damage rating	Minor
	Incident rating	Minor	
Incident overview	On July 7, 2020 tenants of a dwelling unit located in a multi-family dwelling lost power to their unit. The tenants called an electrician who reset the breaker located in a locked electrical room. When the breaker was reset by the electrician they could smell smoke and could hear a burning noise. The breaker was then immediately turned back off.		
INVESTIGATION CONCLUSIONS	Site, system and components	<p>Main Utility Service is a 600 Amp - 240 Volt fused disconnect located in the electrical room.</p> <p>Sub-distribution consists of 3 meter stacks with 2 pole 90 Amp breakers that feed the units within the multi-family dwelling.</p> <p>125 Amp load centres are located in each dwelling.</p> <p>NMD90 3C/ #2 Aluminum conductors are installed as feeders to each unit.</p>	
	Failure scenario(s)	The dwelling unit obtains power from an electrical system located in the distribution and metering room. The electrical installation has been in place for over 30 years and during that time the connected load has not changed. Although, at the time, the system was probably operating within its normal load capacity it was too much for the failing termination at the 2 pole 90 Amp breaker located in the meter stack. It is likely that this termination was not installed as per manufacturers specifications for torque at the time of installation, as this termination deteriorated over time.	
	Facts and evidence	<p>Homeowner Interview:</p> <ul style="list-style-type: none"> <li>- Homeowner indicated they were watching tv when the power went out.</li> <li>- No unusual loads were on as far as cooking, heating or the dryer.</li> </ul>	

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	<p>Safety Officer Observations:</p> <ul style="list-style-type: none"><li>- Electrical panel in unit looked original without additional loads as indicated by the panel directory</li><li>- NMD90 3C/#2 AWG conductor showed no signs of damage from heat</li><li>- 2 pole 90 Amp breaker only showed damage on one termination point only</li><li>- Pitting, arcing and discolouration of termination point observed is consistent with a loose termination</li></ul>
<p>Causes and contributing factors</p>	<p>The cause of this incident was very likely due to overheating of a breaker termination. It is likely this termination was not torqued to manufactures specifications at the time of installation. Electrical equipment in the province of BC is required to be maintained in safe and proper working conditions, it is possible this overheating condition may have been identified during regular maintenance by a qualified individual.</p>



2 Pole 90 Amp breaker shows overheating on one side only



Arcing and pitting on the back of the termination pad



Termination point on the side of the breaker that did not fail. No arcing, pitting or signs of overheating.