Incident Summary #II-877057-2019 (#14064) (FINAL)

SUPPORTING INFORMATION	Incident Date		July 2, 2019
	Location		Oliver B.C
	Regulated industry sector		Electrical - Low voltage electrical system (30V to 750V)
	Impact – Injury	Qty injuries	0
		Injury description	No Injury
		Injury rating	None
	Impact – Damage	Damage description	Fire resulting in electrical panel and all associated components being destroyed
		Damage rating	Moderate
	Incident rating		Moderate
	Incident overview		Dry location rated electrical panel installed outdoors caught fire and destroyed all associated equipment.
INVESTIGATION CONCLUSIONS	Site, system and components		Under normal conditions in outdoor and other locations subject to falling water/rain, a rain tight electrical panel (type 3R rating) should be installed. The installed electrical panel limits and distributes electricity to receptacles, lights and other electrical devices used daily by the general public. A type 3R electrical panel will help prevent water infiltration and corrosion of internal components.
	Failure scenario(s)		A dry location main distribution panel was installed on an electrical pole in an outdoor location. The panel board was installed in a 3/8” plywood enclosure with roofing materials on top but with holes all around the enclosure including on the top. **(See Photo #1)** Water was able to infiltrate the plywood enclosure and eventually the panel board resulting in corrosion building up on the electrical connections at the internal components.
	Facts and evidence		-Type 1 (dry location) panel board was installed in an outdoor location in a plywood enclosure. -Plywood enclosure had holes in it as confirmed by the electrical contractor who removed the damaged equipment. -Panel board has been in place for a lengthy amount of time as indicated by the age of the components. -Recent weather conditions in this area of the valley have been extremely wet with above average rain fall. -Water on electrical components will result in an oxidation of the metal over time. -Oxidation of metal increases the electrical resistance of the connections and will result in excessive heat at the termination points.

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	-Plastic cases of the circuit breakers in panel and the insulation on the jackets of the wiring are flammable when exposed to a high enough temperature. -Fire damage was contained to panel and surrounding enclosure no other ignition sources found.
Causes and contributing factors	It is probable that the panel which was only rated to be installed in a dry location has been subjected to water and moisture while installed in an outdoor damp location. The introduction of water to the connection points internal to the panel built up corrosion over time and subjected the connections to higher resistance and heat than the components where designed for. The additional heat can cause an internal fire in the panel which would have been sustained with the fuel of the plastic parts used for insulation purposes.

Photo #1

As found by condition after fire.

Photo #2

Source of heat and visible corrosion on wiring.

Photo #3

Panel after removal destroyed

Photo #4

Enclosure of similar construction on same property. This service has been disconnected by owners since the fire on the first service.