

## Incident Summary #II-1619613-2023 (#40337) (FINAL)

SUPPORTING INFORMATION	Incident Date	October 17, 2023		
	Location	Prince George		
	Regulated industry sector	Electrical - High voltage electrical system (greater than 750V)		
	Impact	Qty injuries	0	
		Injury	Injury description	N/A
			Injury rating	None
	Damage	Damage description	One of the high voltage current transformers arced to the high voltage switchgear enclosure.	
		Damage rating	Moderate	
Incident rating	Moderate			
Incident overview	One of the high voltage current transformers (CT) within the outdoor high voltage switchgear arced to the switchgear enclosure. The CT appears to have a crack in the molded case around the CT. The failure caused the BC Hydro fuses to trip causing the emergency generator to start. A second generator large enough to run the whole building was brought to site and connected until the high voltage switchgear could be repaired.			
INVESTIGATION CONCLUSIONS	Site, system and components	Three high voltage CT's monitor the current level passing through each phase of the high voltage buss within the high voltage switchgear.		
	Failure scenario(s)	<p>The CT that failed had a visibly large crack in its case. Upon inspection of all CT's after their failure and removal, each CT could be seen to have cracks with the failed CT having the largest crack. Once the CT casing cracked it left a small enough exposed air gap between the high voltage winding of the CT and the switchgear enclosure for there to be an arc between this exposed high voltage winding and the metal grounded switch gear enclosure.</p> <p>The contributing factors are the CT casing material appears to be porous material. The inside of the switchgear where the CT's are located does not have heat. With the switchgear enclosure being outdoors, over time moisture built up within the porous casing. In winter the freezing temperatures caused the CT casings to start to crack.</p>		
	Facts and evidence	The attached photos show the CT casings have cracked.		
	Causes and contributing factors	The cause of the flashover within the high voltage compartment of the switch gear was cracking of the CT casing exposing the internal high voltage winding. This winding was able to arc across the air gap to the grounded high voltage metal switch gear enclosure.		

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The contributing factors were that the only heat source within the switch gear is a small baseboard electric heater on the opposite side of the switch within the PT compartment. There is no way for proper heat transfer between these two sides of the high voltage switch; therefore, once the CT casing was exposed to moisture due to condensation from the switch being outside and exposed to the sun, the moisture within the CT casing started to crack with the extreme low winter temperatures.



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INSTRUMENT TRANSFORMERS, INC.  
CURRENT TRANSFORMER MSV 15.5KV  
100.5 A. 0.1 B0.9 RF 1.33 @ 30°C  
BIL 110KV 50/60Hz CTWH5-A-110-T150-101



E145172



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