

Incident Summary (5611933) Final

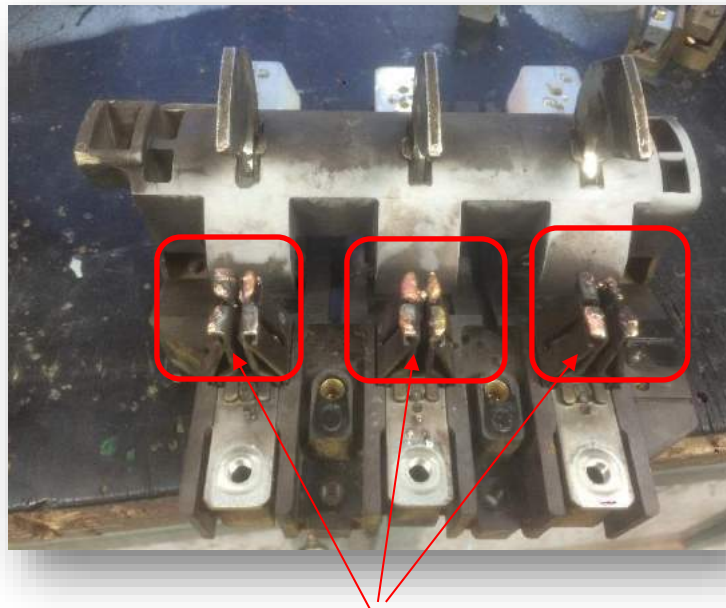
SUPPORTING INFORMATION	Incident Date		January 26 2017	
	Location		Mackenzie BC	
	Regulated industry sector		Electrical	
	Impact	Injury	Qty injuries	1
			Injury description	Hair on wrist burned off, swelling of right thumb & index finger, black on face, temporary vision impairment seeing colours
			Injury rating	Minor
	Damage		Damage description	Minor damage to MCC disconnect
			Damage rating	Minor
	Incident rating		Minor	
	Incident overview		The employee locked out the edger and tested the lockout. While turning the disconnect back on, an arc flash event occurred.	
INVESTIGATION CONCLUSIONS	Site, system and components		<i>The edger has a number of motors and drives that are locked out on a regular basis. There is a machine lockout procedure that is posted beside the operator. The edger is controlled by an Allen Bradley PLC 5. The PLC, with the edger optimizer control the flow of wood through the machine. Most of the edger controls are done through PLC logic, but there are still "Hard Wired" safeties to ensure the PLC cannot energize the drive while the disconnect is locked out.</i>	
	Failure scenario(s)		<i>During the company investigation, it was noticed the MCC bucket door switch was jumped out. This door switch, is a physical set of contacts that opens the control circuit when the disconnect handle is turned off. This ensures the mag relay cannot close with the disconnect in the off position. PLC control power is the source control voltage for the MCC. It is possible for the PLC to energize the motor mag relay even with the disconnect turned off. During the lockout procedure, a test is performed to check the lockout integrity. The theory is the operator hit the start button one extra time, energizing the mag relay. When the operator finished, he removed his locks and turned the disconnect on with the mag relay energized,</i>	
	Facts and evidence		<i>The PLC control voltage was the source of the control power for the edger. The door switch for this bucket was jumped out due to problems with the door switch. This could have been a faulty switch or a problem with the way it was mounted. This was left jumped out for days.</i>	

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Door Switch is located here

The door switch was found jumped out, allowing the PLC to energize the mag relay with the disconnect in the off position. The operator locked out the machine and tested the lockout. The start button must have been pushed after the stop during the test procedure, energizing the mag. There is no visual means to see if the mag is de-energized. When the operator finished, the individual turned the disconnect on, energizing the 150 HP top head motor, causing an arc flash.



Arc damage to the disconnect.

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	<p>Causes and contributing factors</p>	<p><i>The door switch was jumped out due to problems with the switch. The maintenance staff did not check the repair work that fixed the door switch. The fix was to remove the door switch from the control circuit. This may have fixed the control issue, but created a new issue. The PLC was the source of the control voltage for the MCC. With the control voltage supplied remotely it is possible for the PLC to energize the mag relay when the disconnect handle is off. In this case it is very likely the operator pushed the start button one extra time during the test procedure. When the operator turned the disconnect back on, the 150 HP motor started, creating an arc flash, damaging the disconnect and injuring the operator.</i></p>

Photos or diagrams (if necessary)