



Small Markings lead to Large Impact

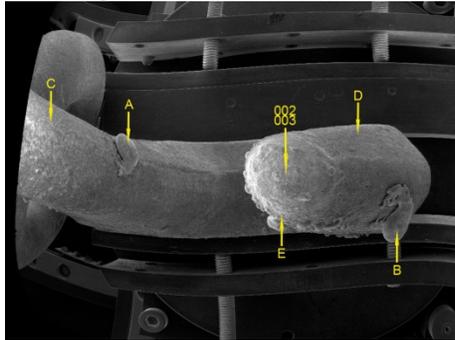
The impact of a logging chain imprinting a minor blemish on an energized bus bar and its relationship to an expansive electrical arc blast was the crucial topic in a personal injury to an electrician and major products liability case. The case involved the intentional insertion of a logging chain through an opening between the de-energized Load Side and the energized Line Side of a line-up of Switchgear by the electrician. Reportedly, the logging chain was intended to be utilized as a fulcrum for a pulley for the pulling of electrical cable through conduit with a cable puller. A grounded metal Isolation Barrier was positioned between the Line Side and the Load Side of the Switchgear. The electrician inserted a short length of the logging chain, and the links and hook swung and contacted the electrically energized phase of the incoming electrical feed bus bar. An expansive electrical arc blast occurred between the stationary ends of the three phases of the bus bars and the grounded Isolation Barrier, resulting in significant thermal injuries to the electrician.



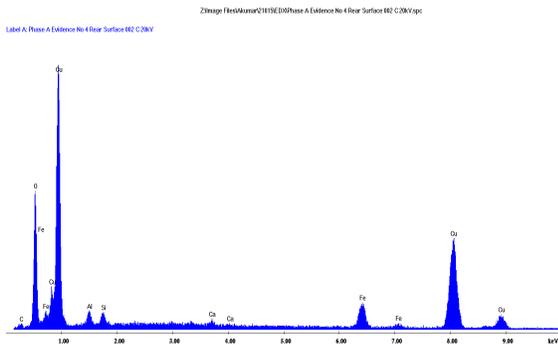
The Plaintiff's experts alleged that the Isolation Barrier was too flimsy to serve its intended purpose of isolating the two sides of the Switchgear. The proposed causation scenario was that the electrician, while positioned in the Load Side Section of the Switchgear, had leaned against the Isolation Barrier, which in turn deflected and contacted the energized phases of the bus bars positioned on the Line Side Section of the Switchgear.



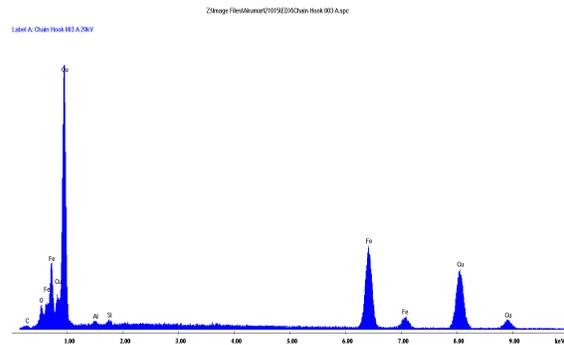
Examination of the subject bus bar revealed a small oval shaped dimple with metal spatter around the perimeter of the blemish. The blemish was located approximately 3 inches from the end of the bus bars where the majority of the electrical damage was located. Materials Analysis of the spatter and the end of the logging chain revealed evidence of material transfer. The iron based logging chain revealed evidence of copper deposits, and the copper based bus bar revealed evidence of iron deposits. Further, the links of the logging chain had welded together and to the frame of the switchgear, due to electrical current flow through the logging chain during the initiating event of the electrical fault.



BUS BAR



CHAIN HOOK



At trial, Defense described the formation of a plasma, an electrically conductive ionized gas, upon the initial contact between the end of the logging chain and the energized bus bar. The generation of the plasma then expanded and created the conductive means for the stationary ends of the energized bus bars to electrically fault to the grounded metal Isolation Barrier. The major damage which was evident between the ends of the bus bars and the Isolation Barrier was created by the initiation of the plasma from the momentary contact of the moving logging chain and the energized bus bar. The Trial Judge issued a Directed Verdict after the testimony of the Defense Expert Witness during the Defense Phase of the Trial Proceeding.