

1 **Q. (Reference Application, 4.2 Mobile Hydro Plant Refurbishment, page 19)**
2 **It is stated "deferring the refurbishment would not address current safety risks**
3 **associated with arc flash hazards resulting from the switchgear." For how long**
4 **has this safety risk existed?**
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6 A. The arc flash hazard has been present since the plant was constructed. In the 1990s,
7 the industry recognized arc flash as a hazard and developed standards to deal with it in
8 switchgear. In 2004, the Canadian Standards Association ("CSA") reviewed the United
9 States National Fire Protection Association standard *NFPA 70E* which resulted in the
10 formation of the *CSA Z462* committee and the new standard was published in December
11 of 2008 and subsequently revised in 2012, 2015, 2018 and the latest revision in 2021.¹
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13 An arc occurs between contacts or conductors when electrical current is interrupted
14 resulting in an arc flash occurring as the electrical current flow becomes uncontrolled,
15 ultimately passing through the air gap between conductors effectively *jumping* from one
16 conductor to the other. The results are often violent and when a human is in close
17 proximity to the arc flash, serious injury and even death can occur.
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19 The risks of an arc flash occurring increases as the switchgear ages and reaches end of
20 life. The elimination of the hazard requires replacement of the switchgear.
21 Replacement of the switchgear requires larger scale plant modifications, which are being
22 completed as part of the overall refurbishment project.

¹ *CSA Z462* is the standard that addresses electrical safety requirements for employees. It provides guidance on the assessment of electrical hazards and design of safe work spaces around electrical power systems. It stipulates requirements for identifying hazardous equipment and for the development of safe work procedures around this equipment. This standard also gives guidance to electrical workers on the selection of personal protective equipment and protective clothing for protection from electrical arc flash hazards.