Ceramic Beam Dump Insulator Yield Test #2

October 17, 2014

With 60 psi water pressure we applied a load 12” from ceramic center with a dial indicator positioned under the insulator two inches from ceramic center. For this test we used a sturdier machined clamp system to ensure we didn’t get downstream flex and that the force was applied to the ceramic insulator rather than swaged fittings. In ten pound increments we applied an upward force noting changes in the dial position. Once we reached 60 lbs. of load we needed to keep steady tension on the chain fall in order to stop the extended tube from relaxing. On this test it was found that the Nickel and Stainless portion of the fitting where distorting when loads over 60lbs where applied. These portions seemed to create a pinching force on top while a pulling force on the bottom. Once we reached 170lbs the ceramic gave and instantaneously failed.

Load Deflection

10lbs .005”

20lbs .010”

30lbs .015”

40lbs .020”

50lbs .025”

60lbs .030”

70lbs .035”

80lbs .040”

90lbs .045”

100lbs .055”

110lbs .060”

120lbs .070”

130lbs .080”

140lbs .095”

150lbs .110”

160lbs .130”

170lbs .185”