KINECTRICS NORTH AMERICA INC. TEST REPORT
FOR 3M 1272 kcmil ACCR CONDUCTOR

Test Name:	**TENSION TESTS ON FULL TENSION SPLICES FOR 1272 kcmil ACCR CONDUCTOR AT ROOM TEMPERATURE**
Test Date:	September 23-25, 2003
Cable Supplier:	3M Company
Laboratory:	Kinectrics Inc. 800 Kipling Avenue Toronto, Ontario M8Z 6C4 CANADA
Standard:	Based on ANSI C119.4-2003, Paragraph 7.3.4
Kinectrics Staff:	Mr. Craig Pon **Mr.** Mike Kastelein Mr. Gord Hale

OBJECTIVE

The objective of the test was to verify the room temperature maximum load carrying capability of the Alcoa-Fujikura Ltd. (AFL) Class 1, full tension splices for 1272 kcmil ACCR conductor.

TEST SET-UP

Three (3) samples each comprising a full tension splice installed between two (2) equal lengths of 1272 kcmil conductor were prepared by AFL at their facilities. The samples were shipped to Kinectrics where two ends of each sample were terminated with an epoxy-resin clamp.

Each sample was installed in a hydraulically-activated horizontal test machine. The distance between pulling eyes of the two epoxy-resin clamps was about 14.5 m (47.6 ft).

INTRUMENTATION

The MTS equipment associated with load cell #17356-0 that monitors the load and controls the load rate was last calibrated on March 18, 2003. It is due for calibration on March 2004.

TEST PROCEDURE

A test machine having a load accuracy of ± 2% was used for this test. The tension in the sample was increased at a rate of 2273 kgf/min (5000 lbf/min) until failure occurred. The temperature of each sample was approximately 22^{o}C during the test.

TEST RESULT

The samples failed at the following loads:

Sample #1 – 43,927 lbf (100.6% RTS) at north epoxy-resin clamp. The splice remained intact at failure.
Sample #2 – 43,732 lbf (100.1% RTS) at north epoxy-resin clamp. The splice remained intact at failure.
Sample #3 – 38,212 lbf (87.5% RTS) at south epoxy-resin clamp. The splice remained intact at failure. The failure was a premature break at the epoxy-resin clamp, and thus for the purposes of qualifying the splices, this test may be discarded.

Photographs of the splices after the tension tests for Samples #1, #2 and #3 are shown in Figures 1a-c, 2a-c and 3a-c, respectively.

ANSI C119.4 specifies that connectors should support > 95% RTS in a tension test. The Alcoa-Fujikura Ltd. (AFL) Class 1, full tension splices for 1272 kcmil ACCR conductor meet this criterion.

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DISCLAIMER

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the Department of Energy.

Figure 1a: 1272 kcmil Full Tension Splice after Tension Test at Room Temperature (Sample #1)

Figure 1b: Failed 1272 kcmil Conductor after Tension Test at Room Temperature (Sample #1)

Figure 1c: 1272 kcmil Conductor at North Epoxy-Resin Clamp Location after Tension to Failure Test at Room Temperature (Sample #1)

Figure 2a: 1272 kcmil Full Tension Splice after Tension Test at Room Temperature (Sample #2)

Figure 2a: Failed 1272 kcmil Conductor after Tension Test at Room Temperature (Sample #2)

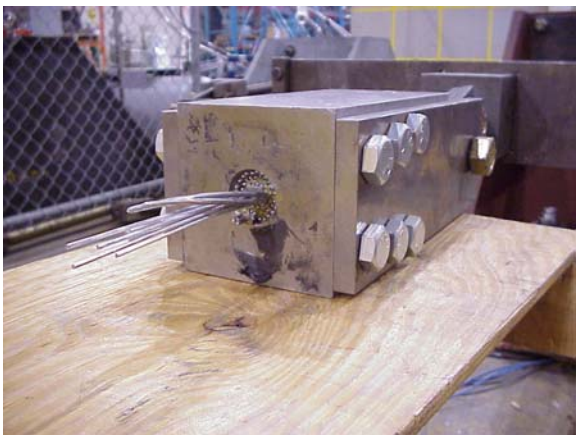

Figure 2c: 1272 kcmil Conductor at North Epoxy-Resin Clamp Location after Tension to Failure Test at Room Temperature (Sample #2)

Figure 3a: 1272 kcmil Full Tension Splice after Tension Test at Room Temperature (Sample #3)

Figure 3a: Failed 1272 kcmil Conductor after Tension Test at Room Temperature (Sample #3)

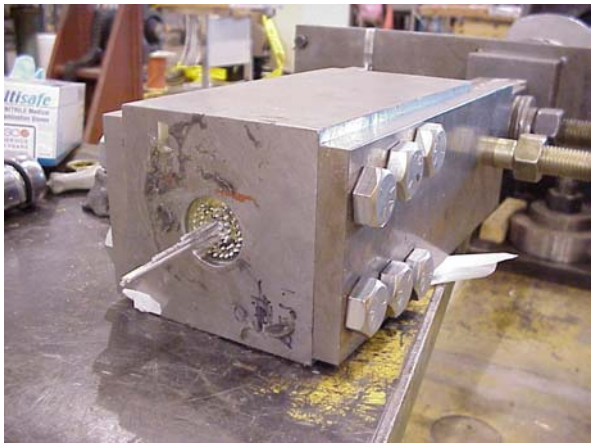

Figure 3c: 1272 kcmil Conductor at South Epoxy-Resin Clamp Location after Tension to Failure Test at Room Temperature (Sample #3)