

J. Derald Morgan & Associates, Inc.

108 Carriage Oaks Drive
Branson West, Missouri 65737
256 426 7181
April 25, 2012

Derald@electricalforensicengineer.com
www.electricalforensicengineer.com

Hugh Pratt, PhD
Marchioness Building
Commercial Rd
Bristol BS 16TG, UK

Dear Dr. Pratt:

I am writing this letter at your request. This letter has been prepared after review of the following materials:

- My handwritten notes setting forth a protocol for the evaluation of the “Load Insulator” Insulated Link that were produced for Grove in preparation of making an initial evaluation of the Link.
- The proposed CPLSO-2004 National Standard for Insulators- Crane-Insulating Device Type that was produced following the Grove protocol.
- My annotations of the proposed CPLSO-2004 that were provided to you. These annotations were incorporated in the final standard proposal.
- The American Standard UL 2737-2010
- The test report from Kinectrics dated 23 June 2009 where Kinectrics tested the “Load Insulator” Insulated Link in accord with the American Standard UL 2737-2010

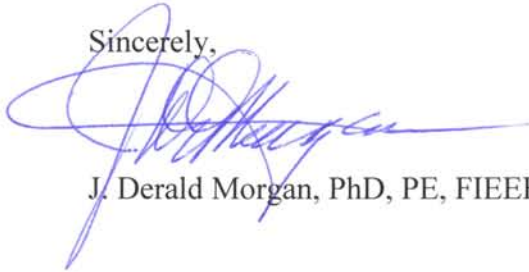
As you are aware I was initially engaged in the testing of various crane safety devices beginning in 1980 for Bucyrus Erie and later for Grove and National Crane. Over the next 20 years many tests were developed and performed for these and other crane manufacturers. It was clear from the beginning of the testing program and often validated that an insulated device used in the construction industry would be subjected to a dirty, wet and severely contaminated environment. Further the link would be subjected to sever and rough handling and use. It also will likely not be maintained by workers familiar with the properties of electricity on contaminated devices. Further any device tested at the beginning of work will likely not maintain its electrical properties during work in a construction environment.

In about 1998 I was engaged by Grove Worldwide to evaluate the methods of production and the performance of the recently introduced “Load Insulator” Insulating Link. This was the first new entry to the market since the beginning of the testing in 1980. In 2000 I developed the handwritten notes setting forth a protocol for Grove Worldwide to use in the initial evaluation of the “Load Insulator”. Links were shipped to A. B. Chance and

shortly thereafter the testing program was put on hold as Grove entered Chapter 11 bankruptcy proceedings. Subsequently the CPLSO 2004 was developed and was never adopted by any of the Standards Bodies. Over the past several years the suggested testing protocols were considered by ANSI, IEC and CIGRE Committees without reaching a final conclusion. During these attempts to establish a standard testing protocol several additional tests were suggested by various experts and were subsequently added to those originally proposed. Many of these suggested protocols were incorporated into the current American Standard UL 2737-2010.

After reviewing the American Standard UL 2737, it is my opinion that this standard meets and exceeds the original Grove protocol and represents a significant improvement of the protocol. Based on the Kinectrics report setting forth the results of testing of the "Load Insulator" according to the American Standard UL 2737 it is my opinion that the "Load Insulator" meets and exceeds the test requirements of the standard.

Sincerely,



J. Derald Morgan, PhD, PE, FIEEE, FNSPE, FNAFE