

**Appendix T - Executive Summary of the "Trolleyphone Repeater Report"**  
**U.S. Department of Labor**

Mine Safety and Health Administration  
Industrial Park Road  
RR1, Box 251  
Triadelphia, West Virginia 26059



March 30, 2007

MEMORANDUM FOR RICHARD A. GATES

District Manager, Coal Mine Safety and Health, District 11

FROM:

JOHN P. FAINI   
Chief, Approval and Certification Center

SUBJECT:

Executive Summary of Investigation of Gai-Tronics Corporation  
Trolleyphone Carrier Repeater

A trolleyphone communications system utilizing components manufactured by Gai-Tronics Corporation was installed at Wolf Run Mining Company's Sago Mine at the time of an explosion on January 2, 2006. One of the components, a Trolleyphone Carrier Repeater, was found to be nonfunctional during underground inspection on January 28, 2006. The device was recovered, and inspected and tested in the Electrical Safety Division laboratory to (a) determine the operational status of the repeater, and, if appropriate, (b) determine the cause of the failure.

In the laboratory, the Trolleyphone Carrier Repeater, Exhibit Number GH-91P, did not repeat the behavior observed at the Sago Mine on January 28, 2006. It was able to receive and re-transmit signals in the laboratory, although the measured signal voltage was sub-optimal. The reduced measured carrier voltage level is most likely due to the method of testing in the laboratory, specifically the impedance mismatch between the external load resistor, 25 ohms, and the measured internal terminating resistance of 46.3 ohms. Inspection and testing revealed no damaged components; all fuses were intact, suggesting that the carrier repeater was not subject to high voltage surges at the power supply terminals.

The definitive cause of the malfunction observed in the underground mining environment could not be determined by laboratory testing of the trolleyphone carrier repeater.

Comprehensive test results can be obtained from the Chief of the A&CC, RR 1, Box 251, Industrial Park Road, Triadelphia, West Virginia 26059.