U.S. Department of Labor

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

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 the Motorola Incorporated, Model PR400 Portable Two Way Radios recovered from the Sago Mine

The Approval and Certification Center (A&CC), as requested by Coal Mine Safety and Health, conducted a laboratory investigation of five (5) radios recovered from a fatal explosion at Wolf Run Mining Company's Sago Mine, Mine I.D. No. 46-08791 on January 2, 2006. The request was to determine the following: (A) the operational status of the radios above ground, (B) whether the radios show evidence of a possible source for initiating an explosion, (C) differences between MSHA-approved radios and the recovered radios, and (D) the operational range limitations in under ground mines.

The examination and testing of the radios determined the following:

- The functionality of the radios recovered from Sago were compared with two new Motorola PR400 radios and functioned as well above ground as the new units did.

- None of the radios exhibited visual signs that the radio produced a spark or thermal ignition source for the ignition of coal dust or methane-air mixture.

- The Motorola PR400 radio is not MSHA approved for use in permissible areas of underground coal mines, but is approved by Factory Mutual as Intrinsically Safe for use in above ground explosive atmospheres, including methane-air mixtures. MSHA does not accept the Factory Mutual approval in lieu of an MSHA approval.

- Information obtained through the A&CC's Emergency Communications and Tracking System Committee indicates that radios operating in the UHF band communicate an approximate maximum distance of 1500 feet within the same entry, with severely limited propagation around corners. This is highly dependent on coal seam height, entry geometry, and infrastructure within the entry.

See the attached report for details of the tests and evaluation.