APPENDIX U-8

EXECUTIVE SUMMARY OF THE INVESTIGATION OF SEVEN POWER AIR PURIFYING RESPIRATORY (PAPR) HELMET BATTERY ASSEMBLIES AND PIECES

U.S. Department of Labor

Mine Safety and Health Administration
Approval and Certification Center
765 Technology Drive
Triadelphia, West Virginia 26059

November 17, 2011

MEMORANDUM FOR NORMAN G. PAGE
Accident Investigation Team Leader

FROM: JOHN P. FAINI
Chief, Approval and Certification Center

SUBJECT: Executive Summary of the Investigation of Seven Power Air Purifying Respiratory (PAPR) Helmet Battery Assemblies and Pieces Recovered from Performance Coal Company's Upper Big Branch – South Mine

The Approval and Certification Center (A&CC), as requested by Upper Big Branch Mine Accident Investigation Team Leader, Norman Page, conducted a laboratory investigation of seven power air purifying respiratory (PAPR) helmet battery assemblies and pieces recovered from a fatal mine explosion at the Upper Big Branch Mine-South on April 5, 2010.

The components examined were:

1. Exhibit No. B11-B, Battery for longwall face helmet 3M (Minnesota Mining and Manufacturing) NiCad, recovered from the longwall face.
2. Exhibit No. PE-0205, Airstream helmet battery, recovered from Survey Spad # 22692 (SS# 22692).
3. Exhibit No. PE-0208, Airstream helmet battery, recovered from SS# 22701.
4. Exhibit No. PE-0270, Airstream helmet battery, recovered from longwall Shield 121.
5. Exhibit No. PE-0151, Airstream helmet battery case portion, recovered from between SS# 22738 and SS# 22759.
6. Exhibit No. PE-0152, Airstream helmet duct and cable, recovered from SS# 22759.
7. Exhibit No. PE-0481, Airstream helmet duct and cable, recovered from Longwall Shield 109.

The locations of the evidence were copied from the evidence ID tags.

The examination of these exhibits showed that:

- None of the electrical components or assembly materials of the exhibits showed signs of arcing, sparking or electrical heating.
- No ignition of methane gas occurred during a spark ignition test with the highest short circuit current and highest open circuit voltage that was measured from any of the exhibit batteries.
- All electrical components, assembly materials and assemblies were in accordance with approval documentation on file with MSHA under approval number 2G-3143-0 and its subsequent extension (-1).