

APPENDIX G

ACCIDENT INVESTIGATION PROTOCOLS



**Performance Coal Company
Upper Big Branch Mine-South
Accident Investigation**



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Mine Safety and Health Administration**
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Beaver, West Virginia 25813-9426

**State of West Virginia
Office of Miners' Health Safety and Training**
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Upper Big Branch Mine – South – Accident Investigation Protocols

The underground portion of the investigation being conducted at Upper Big Branch Mine – South of the April 5, 2010 explosion accident will be conducted pursuant to the following investigation protocols. The parties involved in the underground portion of the investigation include: The Department of Labor, Mine Safety and Health Administration (MSHA); the State of West Virginia, Office of Miners' Health, Safety and Training (OMHS&T); the State of West Virginia Governor's Independent Investigation Panel (GIIP); Performance Coal Company, including Massey Energy and any of its related entities (the Company); and duly recognized representatives of the miners of the Upper Big Branch Mine, including the United Mine Workers of America (UMWA).

General Protocols

1. The underground investigation will consist of the following teams:
 - a. Five Mapping Teams;
 - b. Ten Mine Dust Survey Teams;
 - c. Three Electrical Teams;
 - d. Three Photography Teams;
 - e. One Flames and Forces Team;
 - f. One Geologic Mapping Team;
 - g. One Evidence Gathering Team.

MSHA and OMHS&T may add additional teams as necessary.

2. Each investigation team will consist of at least one MSHA representative and at least one OMHS&T representative. One Company representative, one GIIP representative, and one miner's representative may accompany each team. Additional members may accompany the team at the discretion of the MSHA and OMHS&T representative(s).
3. The members of each team will remain together at all times while inside the mine.
4. Prior to traveling underground each day, specific assignments will be given to each team by MSHA's Accident Investigation Team, in consultation with the OMHS&T team.
5. The members of each team may take notes during the investigation.

Mapping Protocols

6. One map only shall be produced by each Mapping Team for each area of the mine. All team members shall sign and date the map when completed. It is anticipated that copies will be made at the conclusion of each shift. They will be distributed to each investigation team.
7. The originals will be retained by MSHA.

Mine Dust Survey Protocols

8. For purposes of the mine dust survey, the underground workings in or near the area affected by the explosion have been partitioned into 22 separate sections. Each of the Mine Dust Survey Teams will be assigned one or more of these sections of the mine to take MSHA compliant mine dust samples.
9. All 22 section locations are marked on a single map that is included in the packages provided to each Mine Dust Survey Team. The provided package also contains one or more individual section maps that are applicable to each individual Mine Dust Survey Team. The section maps clearly indicate the sample locations where that particular team is responsible for taking samples.
10. Only MSHA representatives will take samples. MSHA anticipates that on many occasions, it will obtain excess materials in its samples; in such cases, it will share this excess with the parties so that they may perform their own tests should they so desire.
11. Samples are to be taken at each location near to the center of the pillar. In the event that water, debris, or other obstruction prevents an acceptable sample from being taken at the center of the pillar, it is acceptable to relocate the sample to within 20 feet of the original location on either side of the centerline of the pillar. This provides for a length of 40 feet along each pillar in which an acceptable sample can be obtained. The MSHA and OMHS&T representative(s) will decide where to precisely take each sample.
12. Sample tags shall be filled out at each sample location. The tag must indicate the sample location and the type of sample taken.
13. If no acceptable sample can be obtained within the 40 feet length, a sample tag shall still be completed that includes the location identification. Also, the reason for no sample shall be designated on the tag.
14. If any Mine Dust Survey Team completes the sampling requirements for their assigned section or sections, then they can provide assistance to any other Team that has not yet completed their sampling.
15. Sampling bags and tags will be provided to each Team.
16. Evidence is not to be disturbed during the sampling process.

17. Samples are to be taken out of the mine at the end of the shift. All samples are to be transferred to the custody of MSHA's investigators on the Evidence Gathering Team. The Evidence Gathering Team will store all samples in a secure location.

Electrical Protocols

18. The primary purpose of the Electrical Teams will be to analyze circuits and equipment in proximity to the point of origin in order to identify potential ignition sources.

19. Machine mounted methane monitors from all working sections will be tested in place and/or taken into custody by MSHA for further testing.

20. Electrical equipment and circuits not in proximity to the point of origin will be examined by MSHA and OMHS&T electrical specialists to collect evidence and to assess compliance with the requirements of 30 CFR and state law.

Photography Protocols

21. No photographs other than the official team photographs will be taken by any party. Only MSHA or OMHS&T representatives will take photographs for each team.

22. The MSHA and OMHS&T persons on each Photography Team are responsible for determining which photographs to take. GIIP, Company, and Miner's Representatives may request additional photographs. MSHA and OMHS&T will make good faith efforts to take these requested photographs.

23. A Photography Team will specifically photograph evidence to be removed from the mine for investigative purposes. The MSHA representative(s) on this Photography Team will also act as the MSHA representative(s) on the Evidence Collection and Testing Team.

24. When requested, a Photography Team will travel with the Flames and Forces Team and will take photographs of any item designated by the MSHA or OMHS&T representatives on the Flames and Forces Team.

25. A Photography Team will be responsible for taking photographs of damage to ventilation controls, equipment, and other items of interest in the extended area affected by explosion forces, as determined by the Accident Investigation Team.

26. From the time that any Photography Team enters the mine, methane will be continuously monitored at their location. In the event that the methane concentration reaches 1% or greater, all camera equipment will be moved to a location with less than 1% methane and all photography work will cease until the methane concentration is reduced to less than 1%.

27. All photographs will be retained by MSHA. While underground, GIIP, Company, and Miner's Representatives Photography Team members may spend a reasonable time reviewing photographs taken on the digital screen after they are taken. MSHA anticipates providing GIIP, the Company, and Miner's Representatives copies of each photograph on a disk (or via similar method) at the conclusion of

each shift. Should this not be feasible on particular occasions, MSHA will provide copies within 24 or 48 hours after they have been taken.

Flames and Forces Protocols

28. The primary purpose of the Flames and Forces Team is to:
- a. Determine the extent of flame;
 - b. Determine the magnitude and direction of the primary forces;
 - c. Determine the location of the origin of the explosion;
 - d. Determine the fuel consumed in the explosion; and
 - e. Assist in identifying the source of ignition.

Geological Mapping Protocols

29. Locations for photographs will be annotated on the map, and a Photography Team will accompany the Geologic Mapping Team upon completion of the geologic mapping to collect photographs in annotated areas. Photograph collection will be at the direction of the MSHA and OMHS&T geologic mapping team member.

30. Geologic mapping will be performed by the MSHA and/or OMHS&T representative. One map only shall be produced by the Geological Mapping Team for each area of the mine. All team members shall sign and date the map when completed. It is anticipated that copies will be made at the conclusion of each shift. They will be distributed to each investigation team.

31. Individual members on the Geological Mapping Team are responsible for their own notes regarding observations and interpretations of geologic or stress features, which may be kept separate from the map.

Evidence Gathering Protocols

32. Evidence will be identified by MSHA and OMHS&T investigators and tagged with reflective markers, if necessary.

33. Only the Evidence Gathering Team will gather evidence. Other teams may identify and flag evidence for referral to the Evidence Gathering Team.

34. After a Photography Team photographs the designated evidence, the Evidence Gathering Team will place the evidence in containers to be removed from the mine.

35. All evidence tagged, photographed, and removed from the mine property will require Chain of Custody sheets to be completed.

36. Upon removal from the underground areas of the mine, evidence will be placed in a secure location on the surface area of the mine for transport to storage or testing facilities.

37. MSHA and OMHS&T shall maintain custody and control over the items they have received or taken at all times unless release of the items is necessary for the purpose of allowing testing by an outside laboratory. In such an event, MSHA and OMHS&T shall agree on the best means to ensure that adequate custody is maintained. Except as set out below, MSHA and OMHS&T shall also protect and preserve the items in their custody in the same condition as when the items were received from the Company.
38. While at any MSHA or OMHS&T facility, each and every item shall be kept secure and access shall be limited to only those persons necessary to conduct tests and examinations of the items.
39. All parties will be notified within 48 hours (or another reasonable time frame if not possible) of any tests to be conducted on evidence, the locations and dates where evidence testing is to occur, and any other relevant information, and given an opportunity to attend the testing. The parties will be provided with testing protocols relating to the particular evidence at issue prior to the testing whenever possible, and will be given an opportunity to provide input into the testing procedures to be followed. This provision shall not apply to testing on rock dust samples.
40. Should MSHA or the OMHS&T so request, the Company will maintain control and custody over any item returned to it pursuant to the same conditions listed above for a period of time to be specified by MSHA or the OMHS&T.
41. Team members shall consult with each other prior to the removal of physical evidence. MSHA or OMHS&T shall map the area prior to the removal of physical evidence.

APPENDIX H

POST-ACCIDENT MAPPING TEAM MAP

**CAN BE FOUND IN THE BACK OF THE
BINDER**