

**REPORT of INVESTIGATION**  
**into the**  
**SAGO MINE EXPLOSION**  
**which occurred JANUARY 2, 2006**  
**UPSHUR CO. WEST VIRGINIA**



**WEST VIRGINIA OFFICE of MINERS' HEALTH,  
SAFETY, AND TRAINING**  
**DECEMBER 11, 2006**  
**RON WOOTEN, DIRECTOR**





*State of West Virginia*

**Joe Manchin III, Governor**

**WV Office of Miners' Health, Safety & Training**

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The West Virginia Board of Coal Mine Health and Safety  
1615 Washington Street, East  
Charleston, WV 25311

Gentlemen:

There follows the report of the West Virginia Office of Miners' Health, Safety and Training, regarding the fatal explosion at the Sago Mine, which occurred on January 2, 2006. This represents the final report of the Agency on this matter.

You may note as you read the report that all questions may not be answered. The Investigative Team recognizes this and continues to seek those answers. We recognize, however; answers to all questions associated with this tragedy may never be answered. Because of this uncertainty, it is important to move forward with our report. As the Team continues its work, should additional answers be found, the report will be supplemented. Additionally, it is important that we focus our efforts on doing what we can to assure that nothing similar occurs in the future. This will be the primary goal of our investigators as they move forward.

The Investigative Team will be available to answer any questions that you may have. Once you have read the report, please notify this agency and we will reassemble the Team in an effort to completely respond to your questions.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Ronald L. Wooten", with a long horizontal flourish extending to the right.

Ronald L. Wooten

Director



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**The Board of Coal Mine Health and Safety**

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# DEFINITIONS

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- WV Office of Miners' Health Safety and Training:** Various abbreviations used in this report include WVOMHS&T, WVMHS&T of OMHS&T
- NIOSH:** National Institute for Occupational Safety and Health
- Portal:** Mine entrance (a.k.a. “drift” or “drift mouth”)
- Mains:** Major travel-way of a mine. Starting at the portal and usually continuing to the farthest extend of the mine.
- Section:** Work area of a mine. The location where coal is actively extracted for the mine.
- Face:** Farthest extent of the mining section. Area where the coal is actually extracted.
- Mouth:** Beginning of the section. Area where section branches from the mains.
- Inby:** Direction or location from your present location and progressing in an inward direction of the mine (looking / moving from the outside - in).
- Outby:** Direction or location from your present location and progressing in an outward direction of the mine (looking / moving from the inside – out).
- First mining:** The initial development of a section. Mining in an area where the mine has not been developed. (a.k.a. “advance mining”).
- Second mining:** Additional mining of support pillars or sometimes a lower coal seam that commences, after first mining is completed, as the sections withdraws outby (a.k.a. “bottom mining” or “retreat mining”).
- Bottom mining:** A special form of retreat-mining where a lower coal seam is recovered.
- Omega blocks:** A relatively lightweight cementaceous block used in the construction of seals, stoppings, and overcasts.

- Seal:** A barrier / wall constructed across all the entries of an abandoned area. This barrier / wall isolates the abandoned portion of the mine from the active portion of the mine.
- Stopping:** A wall constructed in the crosscuts between adjacent entries in series to channel fresh air to working areas (intake air) and channel contaminated air away from the working area (return air).
- Overcast:** A structure that channels two separate air courses through an intersection. (similar to a road intersection crossing.)
- Omega block seal:** A seal constructed of Omega blocks and high strength mortar. Has a minimum construction criteria to protect the active area from abandoned areas.
- Omega seal:** The term is used mostly in this report to that specific line of Omega block seals built across the mouth of Old 2<sup>nd</sup> Left Section.



# ERRATA

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Corrections made to report text subsequent to January 25, 2007 posting to [www.wvminesafety.org](http://www.wvminesafety.org)

**Bold:** text which has been added

~~strike through:~~ text which has been deleted

## Section 5.2-1

p. 2, line 12: The elevation control points provided have been compiled into a set of contour maps by OMHS&T and are included in Appendix ~~5.4~~ **5.4-1**: Floor Contour Map/ Roof Contour Map.

## Section 5.5-1

p. 4, line 2: Deficiencies were found, both on the surface and underground, resulting in 33 non-contributing violations being issued by the West Virginia Office of Miners' Health, Safety & Training. (Appendix ~~5.5-1~~ **5.1**: Statistics and Fact Finding).

p. 5, line 1: On January 5, 2006, the OMHS&T ordered a report of lightning strikes in the Sago area at about the time of the explosion from Vaisala-Thunderstorm<sup>1</sup> in Tucson, Arizona Vaisala provided strike locations in latitude and longitude coordinates, together with estimates of the peak current in the discharges and the polarity (see Appendix ~~5.4-1~~ **5.5-2**: STRIKEnet Report LA105304).

## Section 5.5-2

p. 6, footnote (5): <sup>5</sup> Memorandum to Doug Conaway from Monte Hieb dated January 12, 2006 (see Appendix ~~5.5~~ **5.5-2**)

