

**Internal Review of MSHA's Actions at the
Aracoma Alma Mine #1
Aracoma Coal Company, Inc.
Stollings, Logan County, West Virginia**



U.S. Department of Labor
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U.S. Department of Labor
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June 28, 2007

Preface

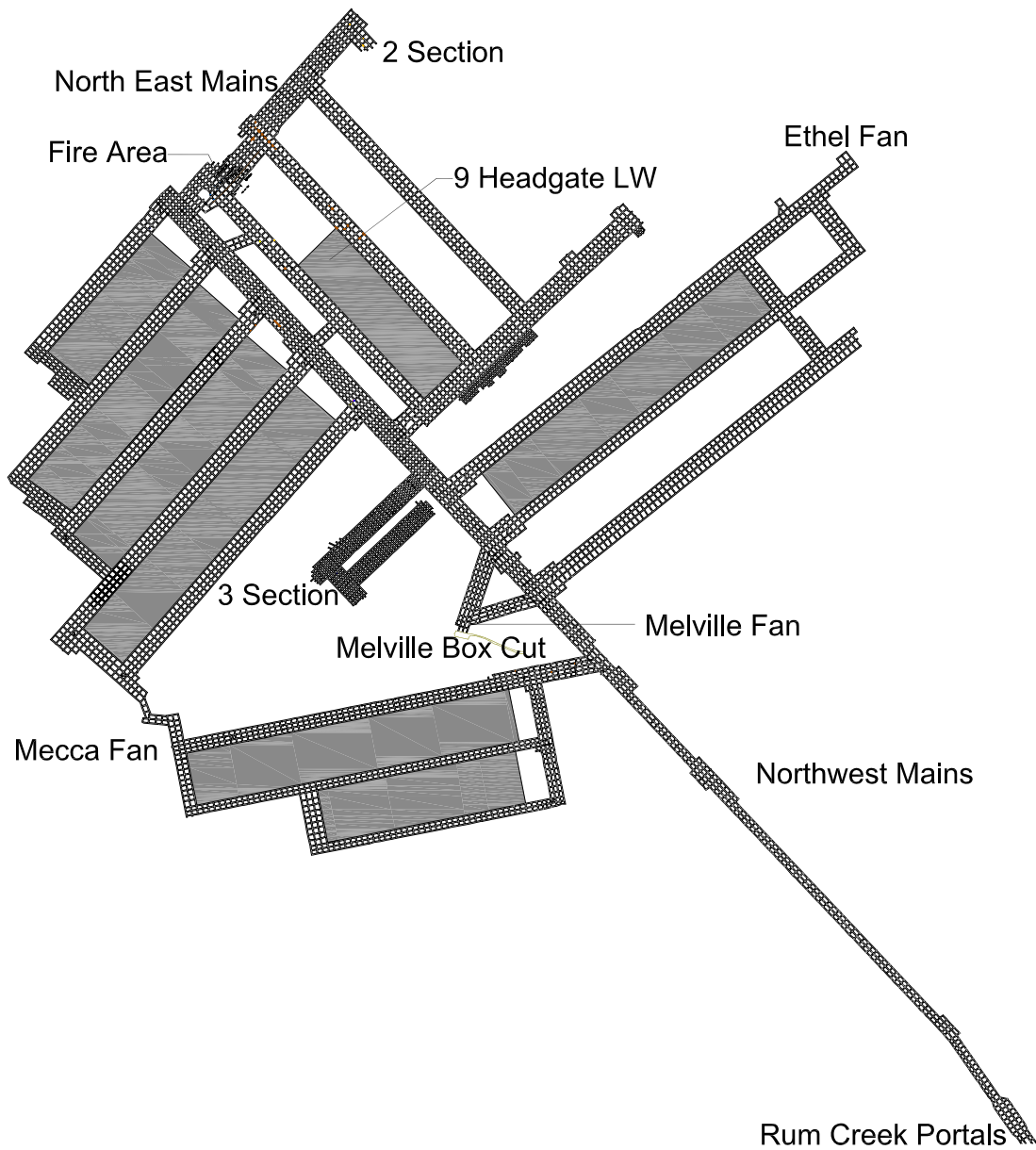
This internal review report identifies numerous issues related to MSHA's inspection activities and use of enforcement authority at the Aracoma Coal Company's Aracoma Alma Mine #1. However, this report is in no way intended to denigrate the contributions of the many dedicated MSHA personnel throughout District 4 and the nation who have devoted thousands of hours conducting inspections and investigations. Through steadfast enforcement of the Federal Mine Safety and Health Act, MSHA inspectors have identified numerous hazardous conditions and required mine operators to implement corrective actions. Their continued devotion to MSHA's mission will be critical to providing a safer and healthier work environment for the nation's miners. It is our fervent hope that this internal review will support those efforts and honor the victims of the fatal fire by providing a basis for making continual improvements in the quality of MSHA inspections and, in that way, will permit MSHA to play an even more effective role in identifying and addressing mining hazards.

Moreover, the internal review team has not discovered information suggesting that these issues are common to MSHA inspections at other coal mines. The team members are unaware of a similar situation in which health and safety hazards were so prevalent, and conditions in the mine so deplorable, yet MSHA personnel at so many levels failed to follow established Agency policies and procedures which are designed to provide that coal mines will be fully and effectively inspected.

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Not to Scale

Overview of Aracoma Coal Company Inc., Aracoma Alma Mine #1 located near Stollings, Logan County, West Virginia (ID 46-08801)

Executive Summary

This internal review was conducted to evaluate the actions of the Mine Safety and Health Administration (MSHA) prior to the fatal fire at the Aracoma Alma Mine #1 and to formulate recommendations to improve the quality and effectiveness of MSHA's enforcement program and other MSHA efforts to assure the health and safety of miners. It is essential that we continually strive to make improvements in order to provide the utmost protection to the mining industry's most precious resource, the miner. This internal review compared MSHA's actions with the requirements of the *Federal Mine Safety and Health Act of 1977* (Mine Act), its standards and implementing regulations, and MSHA policies and procedures. The internal review team examined inspection records, traveled underground to the fire area, and interviewed MSHA employees with personal knowledge of pertinent events.

Prior to the fatal fire on January 19, 2006, the Aracoma Coal Company, Inc. (a subsidiary of Massey Energy Company) failed to comply with a significant number of federal requirements promulgated to prevent the loss of life and to minimize injuries in the event of an accident at the Aracoma Alma Mine #1. MSHA's accident investigation team determined that the Aracoma Coal Company's failure to comply with numerous mandatory safety standards contributed to the cause and severity of the January 19, 2006, fatal fire. Conditions and practices that violated the Mine Act, which are discussed in detail in this report, include:

- inadequate training;
- inadequate firefighting and emergency evacuation procedures;
- failure to adequately mark personnel doors along escapeways;
- failure to provide an audible and visual fire alarm at all affected working sections when carbon monoxide sensors used for early warning fire detection reached alarm levels;
- inadequate examination of these alarms and sensors;
- failure to promptly notify appropriate personnel of alarm signals;
- failure to promptly notify affected personnel of alarm signals and withdraw them to a safe location;
- failure to conduct adequate examinations and to ensure that hazardous conditions identified during examinations were posted, corrected, and recorded;
- failure to provide isolation for the primary escapeway;
- failure to conduct adequate escapeway drills;
- failure to prevent accumulations of combustible materials;
- failure to maintain a water supply to fight the fire directly;
- the incompatibility of the threads on the firefighting hoses and fire outlet valves;
- inadequate coverage of the water sprinkler system for the 9 Headgate longwall belt conveyor takeup storage unit;

- inadequate weekly examinations of the water sprinkler system;
- failure to conduct annual functional tests of fire hydrants and fire hoses;
- inaccurate mine maps;
- failure to conduct an immediate evacuation of miners working on 2 Section; and
- the operation of the 9 Headgate longwall belt conveyor in an unsafe condition.

MSHA's accident investigation team determined that the mine operator failed to prevent, identify, and correct numerous hazardous conditions. MSHA's standards incorporate a series of redundant safety measures intended to prevent fires and to protect miners in the event of a fire. If the mine operator had complied with one or more of the redundant requirements, the incident may have not occurred, and if it had, the fire likely would not have resulted in the deaths of two miners. However, given the numerous failures to comply with mandatory safety standards, once the fire started, it quickly spread out of control. Two miners ultimately died because many of the structural and procedural mechanisms necessary to effectively address the event and to assure the safety of miners were not available.

The mine operator bears responsibility for the failure to continuously provide and maintain these mechanisms, as well as the failure to comply with other mandatory federal requirements. However, the number and extent of conditions and practices adversely affecting the health and safety of miners at the mine also indicate that MSHA did not utilize the Mine Act to effectively enforce health and safety standards promulgated to provide miners with the protections afforded by the statute. Violations at the Aracoma Alma Mine # 1 developed in an atmosphere of indifference on the part of the mine operator to comply with mandatory safety standards, coupled with MSHA's failure to effectively utilize its enforcement authority and to perform the oversight necessary to identify inspection shortcomings prior to the fatal fire. This combination permitted widespread violations and hazardous conditions to exist throughout the mine. While it may not be possible to definitively determine all of the reasons why some of these hazards were not identified and appropriately cited during MSHA inspections preceding the fire, the internal review team determined that basic, established inspection procedures were not strictly followed.

The internal review identified numerous weaknesses in MSHA's performance at the Aracoma Alma Mine #1. Some involved oversights that have already been addressed and corrected. However, fundamental factors that affected MSHA's performance included ineffective use of MSHA's enforcement authority coupled with inadequate supervisory and management oversight. Inadequacies in these areas were manifested in the specific deficiencies identified in this report, and recommendations are provided to prevent the recurrence of such lapses. MSHA had policies and procedures in effect at the time of the fire that, if followed within District 4 and MSHA headquarters, would have improved performance and corrected a number of the deficiencies found at both the field office and District levels.

Although MSHA personnel expressed genuine concern for the safety of miners, deficiencies at the field office, district office, and national office levels significantly undermined MSHA's ability to effectively enforce the Mine Act and to assure miners at the Aracoma Mine #1 the level of protection afforded by the Mine Act. As detailed in this report, the internal review team concluded that, to various degrees, one or more of the mine inspectors:

- failed to exercise their authority in a manner that demonstrated an appreciation of the importance of strict enforcement of the Mine Act and its direct impact on the health and safety of miners;
- failed to conduct inspections in a manner that reliably detected violations and assured the prompt correction of hazardous conditions;
- lacked the technical support necessary to effectively evaluate and address certain complex health and safety conditions; and
- lacked sufficient familiarity and failed to comply with MSHA policies and procedures that, if followed, would have significantly improved the scope, quality, and effectiveness of mine inspections.

As detailed in this report, the internal review team concluded that, to various degrees, supervisory personnel at the field office, district office, and MSHA national office levels:

- did not provide adequate supervision of inspection activities and failed to promote the importance of strict enforcement of the Mine Act and its direct impact on the health and safety of miners;
- did not effectively communicate that inspectors would have full agency support for appropriately utilizing Mine Act enforcement tools necessary to effectively address the hazards at the Aracoma Alma Mine #1; and,
- did not adequately engage in oversight activities, many of which were established in existing MSHA policies, that were necessary to quickly detect and correct the identifiable deficiencies associated with MSHA inspections at the mine.

Inadequate supervision and management contributed greatly to the failure of MSHA personnel to provide an adequate level of enforcement and follow established inspection procedures at the Aracoma Alma Mine #1. Ineffective use of MSHA's Performance Management System permitted poor performance to continue uncorrected. Additionally, MSHA's Accountability Program is fundamentally flawed in that weaknesses are identified but the root causes are not addressed to prevent recurrence of deficiencies. The program does not hold employees accountable for correcting and preventing deficiencies. These issues must be promptly and effectively addressed to prevent similar shortcomings in future inspections.

The internal review team believes these poor practices occurred over time and that they may have become automatic and unconscious, although, when the team analyzed and scrutinized the inspection deficiencies, many persons recognized the deficiencies. Proper management leadership, supervision and oversight will prevent or identify and correct such poor practices at an early stage. Training will not provide a permanent solution for these deficiencies, and actions must be taken at all levels within the Agency to resolve these failures. For the few deficiencies caused by a lack of knowledge and understanding of regulations or inspection procedures, comprehensive training is the most effective means to diminish the likelihood of repetition during future inspections and investigations.

A root cause analysis was conducted for the deficiencies identified related to inspections conducted at the Aracoma Alma Mine #1. This process was conducted to remove the layers of symptoms and eventually identify the root causes of each deficiency in order to prevent its recurrence. Recommendations were provided by the internal review team to address the root causes of the deficiencies.

In acknowledging the significant extent and scope of the deficiencies associated with MSHA inspections and other enforcement activities at the Aracoma Alma Mine #1 in the months before the fatal fire, the internal review team does not intend to convey an impression that such deficiencies are common to MSHA inspections and enforcement activities at other mines. Indeed, quite to the contrary. The members of the internal review team were shocked by the deplorable condition of the mine and information that they gathered during the internal review precisely because it demonstrated such a gross deviation from MSHA standards. Likewise, the internal review team offers its recommendations not with a sense that there exist endemic problems within the Agency that must be corrected on a nation-wide basis, but rather with the sense that the specific shortcomings which produced inadequate inspections at the Aracoma Alma Mine #1 must be promptly and effectively addressed. By disseminating these recommendations throughout the Agency, other MSHA personnel will recognize practices that, once implemented, will improve the quality of already effective MSHA inspection and enforcement efforts within their offices.

Background

The *Federal Mine Safety and Health Act of 1977* states that mine operators, with the assistance of the miners, have the primary responsibility to prevent unsafe and unhealthful conditions and practices in the nation's mines. The Mine Safety and Health Administration (MSHA) has the responsibility to develop and promulgate mandatory safety and health standards, to inspect mines to determine whether there is compliance with these standards, and to investigate accidents to determine their causes.

On January 19, 2006, an underground coal mine fire occurred at approximately 5:14 p.m. at the 9 Headgate longwall belt take-up storage unit of the Aracoma Alma Mine #1 located near Stollings, Logan County, West Virginia. Twenty-nine miners were assigned to work underground at the time of the fire. During the evacuation of the mine, the 2 Section crew encountered smoke in the primary escapeway. Two miners, Don Bragg and Ellery Hatfield, became separated from the rest of the crew, could not be located, and eventually perished. On January 21, 2006, the deceased miners were located and recovered by mine rescue teams. The fire was fully extinguished on January 24, 2006.

At the time of the fatal fire, the Aracoma Alma Mine #1 was under the jurisdiction of MSHA's Coal Mine Safety and Health (CMS&H) District 4 office headquartered in Mt. Hope, West Virginia. Inspection activities at the mine were coordinated and conducted by personnel stationed in the Logan, West Virginia field office. A regular safety and health inspection was started on January 3, 2006, and was ongoing at the time of the fatal fire. The last documented MSHA inspection presence at the Aracoma Alma Mine #1 prior to the fatal fire was on the surface on January 18, 2006. The last documented MSHA underground presence was on January 12, 2006.

Immediately after the fire, the Administrator for CMS&H directed that an investigation be conducted to determine the cause of the accident. The team was led by Kenneth A. Murray, District 6 Manager, and included personnel from CMS&H Headquarters and Districts 2, 6, 8, 10; Technical Support; and the Office of the Solicitor. The accident investigation team conducted interviews with individuals who had knowledge of events surrounding the accident, reviewed pertinent mine records, collected and tested physical evidence, examined and mapped underground areas of the mine, and documented conditions with digital photographs. An MSHA mine ventilation investigation was also conducted and the findings discussed with the mine operator and MSHA District 4 personnel.

MSHA's accident investigation team determined that carbon monoxide (CO) sensors in the 9 Headgate longwall belt unit area of the mine detected alarm levels of CO at approximately 5:14 p.m. on January 19, 2006. Twenty-nine miners were assigned to work underground at the time. The fire occurred as a result of frictional heating when

the 9 Headgate longwall conveyor belt became misaligned in the belt take-up storage unit. This frictional heating ignited accumulated combustible materials. The required fire suppression system was not installed in the area where the fire occurred. Water was turned off to the firefighting waterline in the area, and fire hoses could not be used to fight the fire. The fire extinguishers used did not extinguish the fire. Stoppings that were required to maintain separation between the No. 7 belt entry and the primary escapeway for 2 Section previously had been removed. Airflow carried the smoke from the fire to the No. 7 belt entry and then into the primary escapeway for 2 Section through the openings created by the stoppings that previously had been removed.

Mine management did not immediately withdraw miners from the affected areas (2 Section and the Longwall Section) to a safe location when the Atmospheric Monitoring System (AMS) alarm signals were activated. Evacuation of miners on 2 Section was delayed until mine management determined the fire could not be extinguished. At 5:39 p.m., the dispatcher attempted to alert the 2 Section crew by remotely stopping the 2 Section belt. At approximately 5:42 p.m., the 2 Section foreman called the dispatcher regarding the belt stoppage, and was instructed by the dispatcher and the afternoon shift mine foreman to evacuate. During the evacuation process, two of the 12 miners from 2 Section became separated from the remainder of the crew after the crew encountered dense smoke. Initial attempts to locate the missing miners and extinguish the fire were unsuccessful. These two miners, Don Bragg and Ellery Hatfield, died as a result of the fire.

The accident investigation team determined that numerous violations contributed to the cause and severity of the fatal mine fire. These included:

- inadequate training;
- inadequate firefighting and emergency evacuation procedures;
- failure to adequately mark personnel doors along escapeways;
- failure to provide an audible and visual fire alarm at all affected working sections when carbon monoxide sensors used for early warning fire detection reached alarm levels;
- inadequate examination of these alarms and sensors;
- failure to promptly notify appropriate personnel of alarm signals;
- failure to promptly notify affected personnel of alarm signals and withdraw them to a safe location;
- failure to conduct adequate examinations and to ensure that hazardous conditions identified during examinations were posted, corrected, and recorded;
- failure to provide isolation for the primary escapeway;
- failure to conduct adequate escapeway drills;
- failure to prevent accumulations of combustible materials;
- failure to maintain a water supply to fight the fire directly;

- the incompatibility of the threads on the firefighting hoses and fire outlet valves;
- inadequate coverage of the water sprinkler system for the 9 Headgate longwall belt conveyor take-up storage unit;
- inadequate weekly examinations of the water sprinkler system;
- failure to conduct annual functional tests of fire hydrants and fire hoses;
- inaccurate mine maps;
- failure to conduct an immediate evacuation of miners working on 2 Section; and
- the operation of the 9 Headgate longwall belt conveyor in an unsafe condition.

MSHA's official *Report of Investigation, Fatal Underground Coal Mine Fire, January 19, 2006, Aracoma Alma Mine #1, Aracoma Coal Company Inc., Stollings, Logan County, West Virginia, ID No. 46-08801* was made available to the public on March 29, 2007.

Purpose, Scope, and Methodology

The Assistant Secretary of Labor for Mine Safety and Health instructed the Director of Program Evaluation and Information Resources to conduct an internal review of MSHA's actions at the Aracoma Alma Mine #1. The purpose of the review was to evaluate MSHA's actions prior to the fatal fire at the mine and to make recommendations for improvements where appropriate.

The internal review team compared MSHA's actions with the requirements of the Mine Act, its standards and implementing regulations, and MSHA policies and procedures. The team examined inspection records, mine plans, the accident investigation report, and pertinent data from MSHA's Standardized Information System (MSIS). The team also traveled to the mine site and examined conditions underground, including the fire area. The review team interviewed MSHA employees with personal knowledge of pertinent events and reviewed transcripts from interviews taken during the accident investigation. MSHA bargaining unit employees were afforded the opportunity to have union representation during their interviews with the internal review team. All persons interviewed cooperated with the review team during these interviews. A list of persons who were interviewed or who provided information is included in Appendix A.

Internal review guidance, which is set forth in the MSHA *Administrative Policy and Procedures Manual*, requires that every allegation of possible misconduct on the part of MSHA employees be examined. If the internal review team determines that there is credible evidence of possible employee misconduct, the procedures require the team to refer any such allegations for appropriate action to the Administrator of the program area being reviewed. During this internal review, several issues regarding potential employee misconduct were identified and referred to the appropriate parties for further consideration and investigation. Because a review and analysis of these personnel

matters are beyond the scope of the internal review, they are not addressed in this report.

Report Organization

This report is organized into several categories, each focusing on issues identified by the review team. The categories include: Enforcement Activities; Enforcement of Specific Safety Standards (Contributory Violations); Enforcement of Specific Safety Standards (Non-contributory Violations); Miscellaneous; and Management Issues. These issues were identified from information gathered during the review team's evaluation of relevant documents and interviews of MSHA employees.

Each issue described in the report is divided into several sections. The "Requirement" section describes the relevant provisions of the Mine Act, as well as its standards and implementing regulations. The "MSHA Policies and Procedures" section describes relevant policies and procedures.¹ The "Statement of Facts" presents the facts as found by the review team. The "Conclusion" contains the review team's analysis of the facts. A Root Cause Analysis was performed to determine the source or origin of the deficiency and recommendations were provided to address each deficiency.

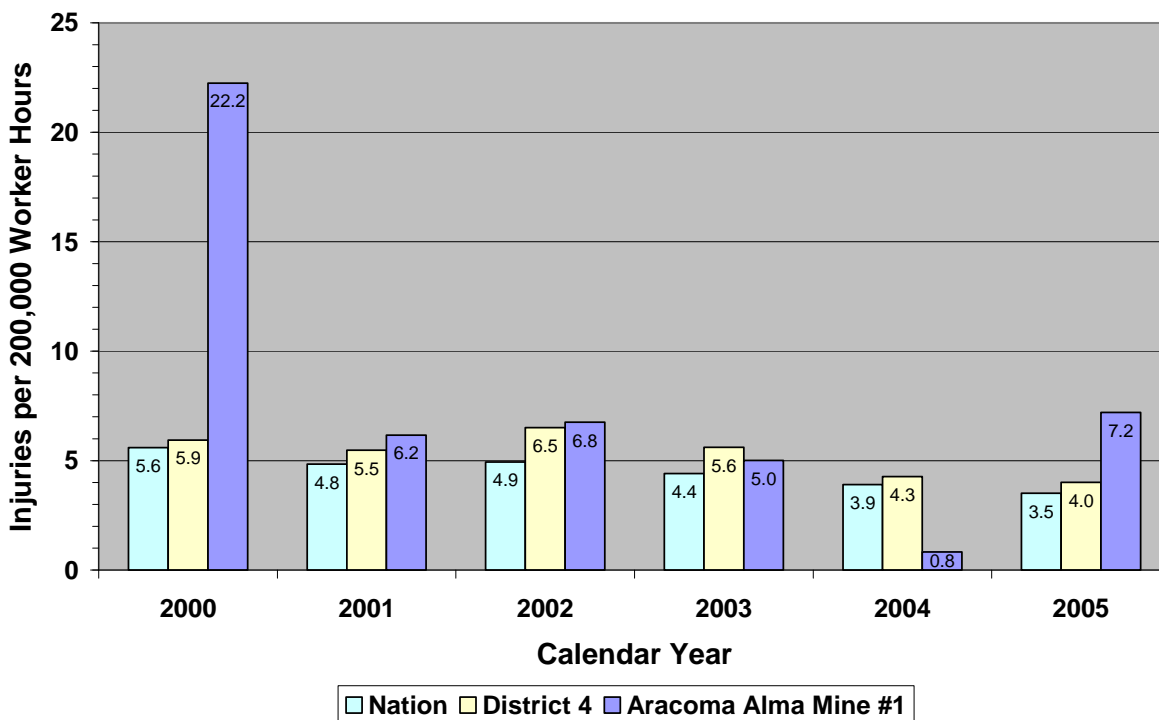
After the Assistant Secretary for Mine Safety and Health reviewed the internal review report, he transmitted the report to the CMS&H Administrator and directed the Administrator to respond to the report's recommendations. A copy of the Administrator's response is included in Appendix B.

Injury Incidence Rates for the Aracoma Alma Mine #1

The review team examined the nonfatal, days-lost (NFDL) injury incidence rates for the Aracoma Alma Mine #1 from calendar year 2000 through calendar year 2005. The NFDL injury incidence rate is the number of nonfatal, days lost injuries per 200,000 worker hours. Two-hundred thousand worker hours is roughly equivalent to 100 miners working 1 year. In 2000, the NFDL injury incidence rate at the Aracoma Alma Mine #1 was almost four times the rate for all underground coal mines. The rate dropped significantly in 2001 but remained above the national average until 2004, when again it dropped significantly. The rate increased dramatically in 2005 to more than twice the national rate. The following chart compares the reported Aracoma Alma Mine #1 NFDL injury incidence rates with District 4 and national rates.

¹ *This report refers to provisions from both the Coal General Inspection Procedures Handbook (PH95-V-1) and subsequent revisions up to the time of the fatal fire.*

**2000 - 2005 NFDL Injury Incidence Rates
(Contractors and Office Workers Excluded)**



Following the fatal fire, MSHA conducted an audit of the Aracoma Alma Mine #1's reporting of injuries and worker hours for 2003 through 2005 under 30 CFR Part 50. This audit did not disclose any reporting issues in calendar year 2003. In 2004, however, the mine operator did not accurately report the number of days lost as a result of one injury. The mine operator did not report the seven days that the injured miner was limited to restricted duty. In 2005, the mine operator under-reported worker hours for one quarter by approximately 5,000 hours. The mine operator also inaccurately reported the days lost as the result of three injuries.

Enforcement Activities

This section addresses inspections and investigations conducted under Section 103 of the Mine Act and the use of enforcement tools provided by Sections 104 and 314 of the Mine Act. Appendix C contains a list of MSHA inspections and investigations conducted at the Aracoma Alma Mine #1 during the review period.² Appendix D includes a list of all enforcement actions at the mine during this period.

² The review period covers MSHA's inspection and enforcement activities from January 1, 2005, through January 19, 2006.

Section 103(a) Inspections

Requirement: Section 103(a) of the Mine Act states that authorized representatives of the Secretary shall make an inspection of each underground mine in its entirety (regular inspection) at least four times a year for the purpose of determining whether an imminent danger exists and whether there is compliance with the mandatory health or safety standards or with any citation, order or decision issued under the Mine Act. Section 103(a) of the Mine Act also authorizes MSHA to conduct other mine inspections, including “spot inspections” to address other hazardous conditions in mines.

MSHA Policies and Procedures: The MSHA *Program Policy Manual* is a compilation of Agency policies on the implementation and enforcement of the Mine Act and Title 30 of the Code of Federal Regulations (30 CFR) and supporting programs. The manual also contains procedural instructions related to conducting inspections and investigations.

The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1)³ outlines procedures for conducting inspections of coal mines. Relevant provisions of this handbook provide that inspectors shall perform the following activities when conducting a regular inspection of an underground mine.

1. Inspect the mine in its entirety including air courses, escapeways, first aid equipment, ventilation facilities, communication installations, roof and rib conditions, fire protection, and availability of potable water.
2. Determine whether the person(s) performing the weekly examinations of the bleeder systems are traveling the bleeder entries in their entirety or to key locations approved in the ventilation plan, to measure methane and oxygen concentrations and to determine whether the air is moving in the proper direction.
3. Inspect the surface areas of the mine in their entirety including hoisting equipment, first aid equipment, ventilation facilities, communication installations, ground control conditions, fire protection, availability of potable water, and availability of sanitary facilities.

³ A revised version, *General Coal Mine Inspection Procedures Handbook* (PH06-V-1), was not nationally adopted until 2006; however, it was being used as part of a pilot program after June 30, 2005. The purpose of the pilot program was to evaluate a computer-based application for tracking and documenting inspections.

4. Inspect all face equipment (diesel and electric), electric installations, and all mobile equipment as encountered, and document the equipment examined by company number, serial number, or some other means.
5. Examine all record books required by the Mine Act and regulations. Any record books examined must be listed in the inspection notes.
6. Examine at least the preshift and on-shift record books before going underground, paying particular attention to record book entries concerning conditions in an area of the mine that may identify a serious or potentially hazardous problem. The inspector should proceed to this area(s) immediately. Any record books examined must be listed in the inspection notes.
7. Selectively travel (at least once) with the person(s) who performs the preshift, on-shift, and weekly examinations to evaluate the thoroughness and completeness of such examinations.
8. Evaluate the adequacy of SCSR training by discussing donning procedures with a representative number of individual miners to ascertain their understanding of how to use the SCSR.
9. Test for the presence of methane, oxygen deficiency, carbon monoxide, and nitrogen dioxide in mines using diesel equipment.
10. Collect samples of mine air for analysis to determine the quality of the air with respect to noxious or explosive gases and oxygen content, and conduct noise surveys.
11. Observe searches for smoking materials to ensure that the searches are done as prescribed in the mine's search program, determine whether an adequate search program exists by reviewing the records, and interview a number of miners concerning the search program.
12. Verify, through visual observation and physical measurements, compliance with all of the dust control parameters stipulated in the approved ventilation plan. The inspector shall record the findings on MSHA Form 2000-86 (Revised) and determine whether the parameters appear to be adequately controlling the dust.
13. Routinely collect air samples in main return(s) at or near the point where the return is vented to the surface to measure the quantity of methane liberation.
14. Make uniform rock dust surveys in each advancing section. Also, areas not sampled during prior regular inspections because of wet conditions shall be

identified. Locations where two or more consecutive samples were not collected shall be inspected and samples collected when conditions permit.

15. Ensure that all required documentation is included in the final inspection report.

Statement of Facts: In October 2004, the District 4 Manager permanently reassigned technical specialists located in remote field offices to inspection work groups, and were given specific mine inspection assignments. Although beneficial for the completion of mandated inspections, inspectors stated during interviews that these reassignments had a detrimental effect on the availability of technical expertise within each field office. Additionally, interviews revealed that District 4 managers met with national office staff on September 7, 2005, informing them of a need for additional inspection resources. Final staffing levels are determined by the national office which allocates available inspection resources among all CMS&H Districts.

The District 4, Logan, West Virginia, field office was responsible for inspecting the Aracoma Alma Mine #1. Regular inspection responsibilities were assigned to a lead inspector each quarter and additional inspectors provided assistance to complete the regular inspection of the mine. During the review period, District 4 personnel conducted regular inspections at the Aracoma Alma Mine #1, beginning their inspections within the first two weeks after the start of each calendar quarter. The regular inspections remained open for approximately three months, with frequent inspector presence documented throughout the inspection.

District 4 personnel conducted four regular inspections of the Aracoma Alma Mine #1 from January 3 through December 23, 2005. A fifth regular inspection had been initiated on January 3, 2006, and was ongoing when the fatal fire occurred on January 19, 2006. After the fatal fire, the completion of this inspection was supervised by District 4 personnel from outside the Logan Field Office. The internal review team reviewed the four regular inspections conducted in 2005, and the regular inspection that was ongoing when the fatal fire occurred on January 19, 2006. The team's review included interviews with inspectors and an evaluation of the inspection notes, citations and orders, subsequent actions, and associated paperwork. During interviews, each lead inspector reviewed their inspection notes and associated enforcement actions with the internal review team. The review team's findings regarding the five regular inspections follow.

Regular Inspection, January – March 2005 (Event No. 4108089)

This inspection was conducted from January 3 through March 30, 2005, and inspectors charged 231 hours to this event, which included 159 (69 percent) onsite inspection

hours. During this inspection, 12 citations and 1 Section 104(b) order were issued.⁴ No documentation was available in the inspection report to indicate that the following items or areas were inspected in their entirety:

- Mine examination record books
- Mine surface areas
- Mine air courses and evaluation points
- Longwall section – Mechanized Mining Unit (MMU) 006
- Continuous mining sections – MMUs 003, 004, 009, 010

A review of the inspection notes indicated a lack of documentation to demonstrate compliance with the following inspection procedures:

- Traveling with mine examiners (preshift, on-shift, and weekly)
- Advising miners of Section 103(f) rights
- Reviewing the mine map
- Recording methane with air samples collected
- Observing personnel carriers in and out of the mine
- Collecting all required bottle samples

A review of the inspection report revealed the following forms were not completed in accordance with established inspection procedures:

- Copy of Mine Atmosphere Sampling Card (MSHA Form 2000-43)
- ATF⁵ Inspection Form (ATF F-5030.5)
- Diesel Equipment Inventory Form (MSHA Form 2000-198)

A detailed list of the specific deficiencies outlined above is included in Appendix E.

Regular Inspection, April – June 2005 (Event No. 4103928)

This inspection was conducted from April 11 through June 30, 2005, and inspectors charged 169.5 hours to this event, which included 112 (66 percent) onsite inspection hours. During this inspection, 23 citations were issued. No documentation was available in the inspection report to indicate that the following items or areas were inspected in their entirety:

- Mine examination record books
- Mine surface areas
- Mine air courses and evaluation points

⁴ Unless otherwise noted, the term “citation” refers to a citation issued under section 104(a) of the Mine Act.

⁵ Bureau of Alcohol, Tobacco and Firearms

- Longwall section – MMU 006
- Continuous mining sections – MMUs 003, 004, 009, 010

A review of the inspection notes evidenced a lack of documentation to demonstrate compliance with the following inspection procedures:

- Traveling with mine examiners (preshift and weekly)
- Collecting all required bottle samples
- Completing air sample cards and submitting in a timely manner, air sample bottle J0018 used at two locations at the mine on four separate occasions

A review of the inspection report revealed the following forms were not completed in accordance with established inspection procedures:

- Mine Atmosphere Sampling Card (MSHA Form 2000-43)
- ATF Inspection Form (ATF F-5030.5)
- Diesel Equipment Inventory Form (MSHA Form 2000-198)

A detailed list of the specific deficiencies outlined above is included in Appendix F.

Regular Inspection, July – September 2005 (Event No. 4108728)

This inspection was conducted from July 13 through September 30, 2005, and inspectors charged 233.25 hours to this event, which included 144 (62 percent) onsite inspection hours. During this inspection, 20 citations were issued. No documentation was available in the inspection report to indicate that the following items or areas were inspected in their entirety:⁶

- Mine examination record books
- Mine surface areas
- Mine air courses and evaluation points
- Longwall section – MMU 006
- Continuous mining sections – MMUs 003, 004, 009, 010

⁶ Starting in the third quarter of 2005, inspection progress at the Aracoma Alma Mine #1 was documented in a new MSHA inspection tracking system, which provided an automated process for identifying areas and items that had been inspected and required inspectors to certify that they had inspected each of the areas and items listed under particular categories. For purposes of this section of the report, the team has presumed that all areas and items identified as having been inspected in the tracking system were in fact inspected when inspectors certified that they had completed activities in an inspection category.

A review of the inspection notes evidenced a lack of documentation to demonstrate compliance with the following inspection procedures:

- Recording methane with air samples collected
- Collecting all required bottle samples

A review of the inspection report revealed the following forms were not completed in accordance with by established inspection procedures:

- Plan Review of Ventilation and Roof Control Plans (MSHA Form 2000-204)
- Mine Atmosphere Sampling Card (MSHA Form 2000-43)
- ATF Inspection Form (ATF F-5030.5)

A detailed list of the specific deficiencies outlined above is included in Appendix G.

Regular Inspection, October – December 2005 (Event No. 4113204)

This inspection was conducted from October 11 through December 23, 2005, and inspectors charged 197 hours to this event, which included 128 (65 percent) onsite inspection hours. During this inspection, 28 citations and 1 Section 103(k) order were issued. No documentation was available in the inspection report to indicate that the following items or areas were inspected in their entirety:

- Mine examination record books
- Mine surface areas
- Mine air courses and evaluation points
- Longwall section – MMU 006
- Continuous mining sections – MMUs 003, 004, 009, 010

A review of the inspection notes evidenced a lack of documentation to demonstrate compliance with the following inspection procedures:

- Recording methane with air samples collected
- Collecting all required bottle samples

A review of the inspection report revealed the following forms were not completed in accordance with established inspection procedures:

- Mine Atmosphere Sampling Card (MSHA Form 2000-43)
- ATF Inspection Form (ATF F-5030.5)

A detailed list of the specific deficiencies outlined above is included in Appendix H.

Regular Inspection, January 2006 (Event No. 4113207)

This inspection was initiated on January 3, 2006, but due to the fatal fire on January 19, 2006, the inspection was interrupted before all areas of the mine were inspected. The last MSHA presence underground was January 12, 2006. Prior to the fatal fire, the inspector issued 10 citations and charged 53 hours to this event, which included 26 (49 percent) onsite inspection hours. The internal review team could not perform an analysis of the completeness of this inspection because it had been initiated only 16 days prior to the fatal fire.

In addition to the specific deficiencies described above for each inspection, the internal review team identified the following issues common to all of the regular inspections.

- There was insufficient documentation in the inspection notes to indicate that the mine was inspected in its entirety during any of the four regular inspections conducted in 2005.
- Inspection notes for the five regular inspections as well as 103(i) spot inspections generally documented large fluctuations in the quantity of air measured at the main mine fans. During the review period, MSHA air quantity readings at the Ethel fan ranged from 146,412 cubic feet per minute (cfm) to 371,391 cfm, and readings at the Mecca fan ranged from 72,747 cfm to 316,557 cfm. On June 22, 2005, two separate air quantity readings taken at the Mecca fan were documented to be 129,000 cfm and 295,470 cfm. No ventilation changes were approved that would account for these variations. Investigations were not conducted by the inspector to ascertain the cause(s) of the fluctuations, and comparisons were not made with previous air quantity readings.
- Inspectors frequently did not collect air samples in a manner that would allow an accurate determination of the total methane liberation at the mine.
- Documented air quality readings are questionable. Although oxygen and methane concentrations often vary to some extent and instruments produce some measurement variations, 117 out of 128 (91.4 percent) air quality readings in the mine were recorded to be precisely 20.8 percent oxygen and 0.0 percent methane.
- Rock dust samples were not collected during any of the five regular inspections. All rock dust surveys documented on the Dust Sampling Lab Reports (MSHA Form 2000-156) before the fire indicated that all areas were “too wet” to sample. However, 195 samples were collected following the fire by MSHA. Eighty-five of these samples were below the minimum required incombustible content. During the accident investigation, there were 28 sampling locations (13 percent) listed as “too wet” to sample.

- Areas in which previous rock dust surveys documented conditions to be “too wet to sample” were not rechecked during subsequent regular inspections in an attempt to collect valid rock dust samples.
- MSHA respirable dust surveys were not conducted according to procedures, and complete dust parameter information was not collected. Respirable Dust Sampling and Monitoring Data Sheets (MSHA Form 2000-86) were submitted without all material information. When high concentration sample results were received by District 4 personnel, required follow-up inspections generally were not conducted. Citations for excessive respirable dust were extended without proper justification, even after continuing non-compliance was documented by subsequent samples.
- Scrubber readings were not obtained by inspectors when determining compliance with the operator’s approved dust control parameters. During interviews, the inspectors indicated they were not supplied with the proper equipment (e.g., Pitot tube and differential pressure gauge) to obtain scrubber readings.

The internal review team identified the following issues and concerns with documentation during one or more of the regular inspections of the mine during the review period.

- The total number of air samples entered on the Mine Activity Data Sheet (MSHA Form 2000-22) differed from the total number of air samples that were collected during the regular inspections.
- The survey stations (SS) documented in the inspection notes used to depict areas of the mine that had been inspected were inconsistent with the survey stations documented on the mine map.
- The Weekly Time and Activity Data sheets (MSHA Form 2000-60) used to document inspector activities were not always consistent with the inspectors’ notes and citations issued. There were several instances where the time sheet indicated that the inspector was at Aracoma Alma Mine #1, but inspection notes and citations indicated that the inspector was at a different mine.
- Inspection notes did not document all measurements (area and velocity) needed to properly calculate air readings.
- Inspection notes often lacked adequate descriptions of violations and the surrounding conditions. The notes did not record all material facts relative to the

condition or practice cited or information specific to the mine relative to negligence and gravity determinations.

- Inspection notes typically did not provide sufficient justifications for extensions or terminations of citations.

From January 3, 2005, through January 18, 2006, District 4 personnel conducted seven other inspections and investigations at the Aracoma Alma Mine #1, in addition to regular inspections and Section 103(i) spot inspections. During these seven inspections and investigations, District 4 personnel issued three citations and one Section 104(g)(1) order. Five other citations related to respirable dust violations were issued as a result of office generated activities.

From January 1, 2005, through January 19, 2006, District 4 inspection personnel issued a total of 95 citations and orders at the Aracoma Alma Mine #1 during four regular inspections and one partial inspection. There were no safeguards issued during this time. After the conclusion of rescue and recovery efforts associated with the January 19 fatal fire, MSHA resumed the regular inspection that had been initiated on January 3, 2006, and completed the inspection on March 31, 2006. During the remaining portion of this inspection following the fire, MSHA enforcement personnel issued 299 citations, orders, and safeguards at the mine. Furthermore, the MSHA accident investigation team issued an additional 124 citations and orders at the mine.

A review of the citations and orders issued during the regular inspection and accident investigation completed after the fire, interviews with District 4 personnel, and a review of inspection records indicated that the inspectors did not identify and cite numerous violations that were in existence, neither did they require the mine operator to take corrective actions, during one or more regular inspections prior to the fire. These violations are discussed in detail under the sections of this report entitled: "Use of Enforcement Authority Provided by the Mine Act; Enforcement of Specific Safety Standards (Contributory Violations); and Enforcement of Specific Safety Standards (Non-contributory Violations)."

Conclusion: The internal review team found significant deficiencies in the manner in which the inspections were conducted and documented at the Aracoma Alma Mine #1. District 4 inspectors assigned to inspect the mine did not recognize and cite numerous violations that existed during one or more of the inspections; neither did they require the mine operator to take corrective actions. Although District 4 inspectors initiated the required number of regular inspections at the Aracoma Alma Mine #1, the four regular inspections conducted during 2005 had significant lapses where required records, activities, and areas of the mine were not documented as having been inspected. In each of the five regular inspections conducted during the review period, documentation was incomplete and did not fully comply with MSHA inspection procedures.

The internal review team recognizes that an in-depth review of any MSHA inspection may identify errors and oversights. However, the number and nature of the issues identified in the inspections at the Aracoma Alma Mine #1, indicates significant lapses on the part of MSHA inspectors, field office supervisors, and District 4 management. Effective oversight by supervision and management would have identified and possibly prevented many of these lapses.

It is apparent to the review team that over a period of time, and under pressure to complete mandated inspections, enforcement personnel deviated from established procedures, and management failed to take action to correct the identifiable breaches of inspection procedures. Eventually, some inspectors, supervisors, and managers may have acted on the assumption that the procedures no longer applied in practice, but were merely goals they did not believe they could achieve. An effective accountability program will identify such weaknesses and can lead to implementation of corrective actions to help manage these situations.

Section 103(i) Spot Inspections

Requirement: Section 103(i) of the Mine Act states in pertinent part, “When the Secretary finds that a coal or other mine liberates more than two hundred thousand cubic feet of methane or other explosive gases during a 24-hour period, he shall provide a minimum of one spot inspection by his authorized representative of all or part of such mine every 15 working days at irregular intervals.”

MSHA Policies and Procedures: The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) and MSHA *Program Policy Manual* state in relevant part, “Section 103(i) of the Act defines the conditions in mines under which spot inspections at various time intervals are to be conducted. Such a spot inspection shall not constitute a part of any other category of inspection, and the inspection is to be directed specifically to the problems, hazards, or conditions under which the mine was classified as a Section 103(i) mine. However, this does not prevent another category of inspection or investigation from being conducted during the same visit to the mine.”

The *Coal General Inspection Procedures Handbook* (PH95-V-1) also states “Section 103(i) spot inspections should be scheduled so they are conducted on different days of the week or randomly.”

CMS&H Memorandum No. HQ-01-017-S, issued on April 13, 2001, revised MSHA policy to require the actual working schedule of the mine be considered when determining the required inspection frequency, recognizing that many mines operate 7 days per week. The memorandum directs that mines working more than 5 days per week must receive

appropriate spot inspections at intervals determined by the mine's actual working days. This memorandum also indicates that for mines on a 15-day spot inspection schedule, more than 15 days can elapse between consecutive Section 103(i) spot inspections as long as an inspection occurs within each 15-day block of time.

Statement of Facts: A review of MSIS data indicates that the Aracoma Alma Mine #1 was placed on a Section 103(i), 15-day spot inspection schedule on March 1, 2003. This 15-day spot inspection schedule was in effect at the time of the fatal fire.

Information provided by the accident investigation team indicates that the Aracoma Alma Mine #1 operated seven days per week during calendar year 2005. Accordingly, a Section 103(i) spot inspection was required to be conducted within each 15-day block of time. Between the first Section 103(i) spot inspection in calendar year 2005 and the date of the fatal fire, 25 Section 103(i) spot inspections were required. A review of MSIS data and inspection reports indicates that District 4 inspectors conducted 28 Section 103(i) spot inspections at the Aracoma Alma Mine #1 during this period. Three of the 28 spot inspections were not conducted within the required 15-day blocks of time. In one instance, 36 days elapsed between subsequent Section 103(i) spot inspections. A review of the data indicates that District 4 inspectors conducted the spot inspections at irregular intervals. Inspectors did not issue any citations or orders during the 28 spot inspections. The following table summarizes the Section 103(i) spot inspections conducted at the Aracoma Alma Mine #1 during the review period.

Event No.	Date	Day of Week	Underground Time	Surface Time	Total Time ⁷
4108088	01/04/2005	Tuesday	0.00	5.50	9.00
4108095	01/20/2005	Thursday	3.50	0.50	5.00
4103924	02/04/2005	Friday	0.00	1.00	4.00
4103925	02/22/2005	Tuesday	0.00	2.00	4.00
5914655	03/04/2005	Friday	0.00	1.00	2.00
5914654	03/18/2005	Friday	0.00	2.00	5.00
4103930	04/11/2005	Monday	0.00	2.00	4.00
4103934	04/26/2005	Tuesday	*	*	*
4109423	05/12/2005	Thursday	0.00	3.00	4.00
4103940	05/25/2005	Wednesday	0.00	1.50	4.00
4103941	06/07/2005	Tuesday	0.00	3.00	6.00
4103942	06/22/2005	Wednesday	0.00	1.00	2.00
4111554	07/12/2005	Tuesday	6.50	1.50	9.50
4108729	07/22/2005	Friday	1.00	0.50	2.25
4103944	08/10/2005	Wednesday	0.00	1.50	3.00
4103946	08/26/2005	Friday	0.00	2.00	4.50
4103948	09/12/2005	Monday	1.50	0.50	3.00
4103950	09/26/2005	Monday	**	**	**

⁷ Total time includes travel time and time in the office.

Event No.	Date	Day of Week	Underground Time	Surface Time	Total Time ⁷
4113206	11/02/2005	Wednesday	**	**	**
4113206	11/15/2005	Tuesday	2.00***	0.00***	3.00***
4113206	11/17/2005	Thursday	0.00	4.00	8.00
4113206	11/28/2005	Monday	**	**	**
4113206	12/07/2005	Wednesday	0.00	6.00	8.00
4113206	12/09/2005	Friday	*	*	*
4113206	12/20/2005	Tuesday	*	*	*
4113209	01/09/2006	Monday	**	**	**
4113209	01/12/2006	Thursday	**	**	**
4113209	01/13/2006	Friday	0.00	3.00	8.00
Total			14.50	41.50	98.25

* Notes for Section 103(i) inspection at Aracoma Alma Mine #1 and all time charged to another mine

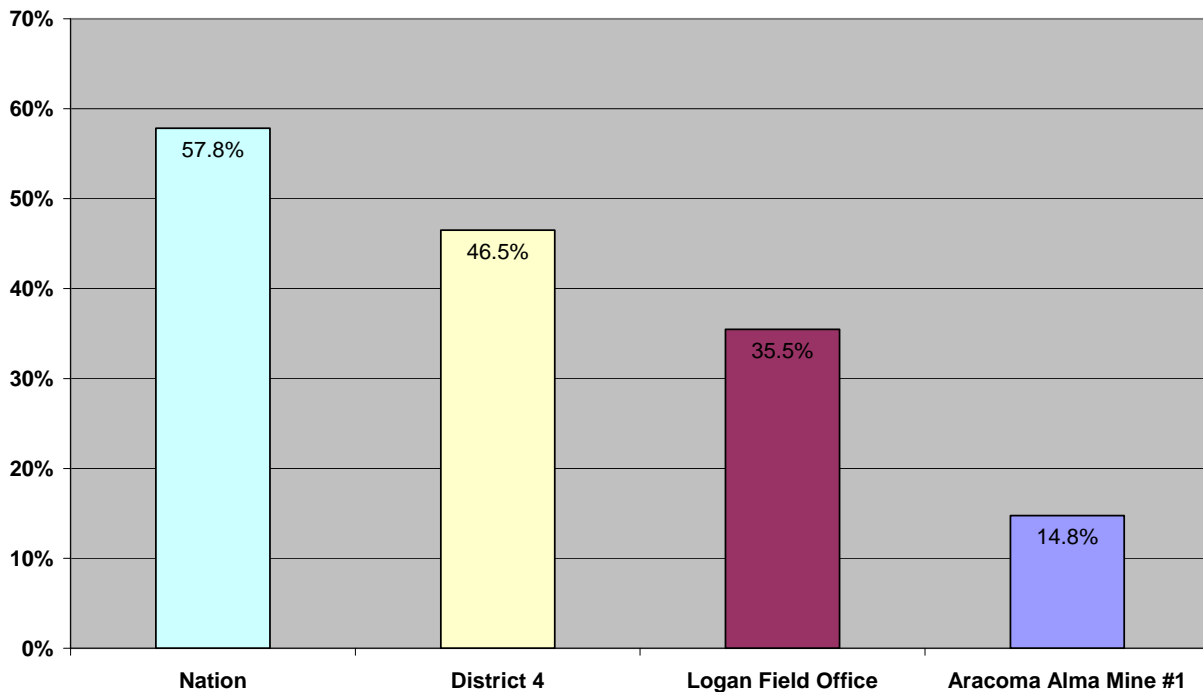
** Notes for Section 103(i) inspection at Aracoma Alma Mine #1 but time charged to regular inspection at Aracoma Alma Mine #1

*** Time charged for Section 103(i) inspection at Aracoma Alma Mine #1 but no notes

As the table indicates, District 4 inspection personnel spent 14.5 hours underground during Section 103(i) spot inspections, when a total of 98.25 hours were dedicated to these events. This equates to about 15 percent of the total time on these inspections actually spent in the underground areas of the mine. The internal review team examined inspection reports and inspector time and activity reports for the 28 Section 103(i) spot inspections documented during the review period. This review disclosed that District 4 inspectors documented traveling underground to working sections and associated outby areas during 8 of the 28 spot inspections. During these eight spot inspections, the inspectors focused their inspections on the ventilation of working faces and outby areas.

During 20 of the 28 spot inspections, the inspection notes indicated that the District 4 inspectors traveled to surface areas of the Aracoma Mine and inspected mine fans and drift openings. During these 20 spot inspections, District 4 personnel examined the Ethel fan 16 times and the Mecca fan 12 times. One inspector conducted 12 of 13 Section 103(i) spot inspections at the mine fans and portals of the Aracoma Mine. During interviews conducted by the internal review team, inspectors gave no rationale for the large number of Section 103(i) spot inspections conducted at the main mine fans and portals, other than solely for convenience. Nationally, inspectors spent approximately 57.8 percent of their total Section 103(i) inspection time in underground areas of mines during calendar year 2005. A chart showing the percent of time inspectors spend underground during Section 103(i) inspections during calendar year 2005 follows.

**Percent of Time Spent Underground
Section 103(i) Inspections**



The internal review team identified the following issues with respect to the 103(i) spot inspections:

- A review of inspection notes and Weekly Time and Activity Data indicated that an inspector spent 8 hours conducting a regular inspection (4103931) at Odell Processing Laurel Loadout on April 26, 2005. A separate inspection report indicated that a spot inspection (4103934) was conducted at Aracoma Alma Mine #1 on April 26, 2005, by the same inspector, but there was no inspection time charged to this event.
- A review of inspection notes and Weekly Time and Activity Data indicated that an inspector spent 8 hours conducting a regular inspection (4108728) at the Aracoma Alma Mine #1 on September 26, 2005. A separate inspection report indicated that a spot inspection (4103950) was conducted at Aracoma Alma Mine #1, by the same inspector, but there was no inspection time charged to this event.
- A review of inspection notes and Weekly Time and Activity Data indicated that an inspector spent 13 hours conducting a regular inspection (4113204) at the Aracoma Alma Mine #1 on November 2, 2005. A separate inspection report indicated that a spot inspection (4113206) was conducted at Aracoma Alma Mine #1, by the same inspector, but there was no inspection time charged to this event.

- A review of inspection notes and Weekly Time and Activity Data indicated that an inspector spent 3 hours inspecting outby areas on a spot inspection (4113206) at Aracoma Alma Mine #1 on November 15, 2005. However, there were no spot inspection notes found for the day.
- A review of inspection notes and Weekly Time and Activity Data indicated that an inspector spent 13 hours conducting a regular inspection (4113204) at the Aracoma Alma Mine #1 on November 28, 2005. A separate inspection report indicated that a spot inspection (4113206) was conducted at Aracoma Alma Mine #1, by the same inspector on the same date, but there was no inspection time charged to this event.
- A review of inspection notes and Weekly Time and Activity Data indicated that an inspector spent 8 hours conducting a regular inspection (4113205) at 8-C Mine on December 9, 2005. A separate inspection report indicated that a spot inspection (4113206) was conducted at Aracoma Alma Mine #1, on December 9, 2005, by the same inspector, but there was no inspection time charged to this event.
- A review of inspection notes and Weekly Time and Activity Data indicated that an inspector spent 8 hours conducting a regular inspection (4113205) at 8-C Mine on December 20, 2005. A separate inspection report indicated that a spot inspection (4113206) was conducted at Aracoma Alma Mine #1, on December 20, 2005, by the same inspector, but there was no inspection time charged to this event.
- A review of inspection notes and Weekly Time and Activity Data indicated that an inspector spent 13 hours conducting a regular inspection (4113207) at the Aracoma Alma Mine on January 9, 2006. A separate inspection report indicated that a spot inspection (4113209) was conducted at Aracoma Alma Mine #1, by the same inspector, but there was no inspection time charged to this event on January 9, 2006.
- A review of inspection notes and Weekly Time and Activity Data indicated that an inspector spent 13 hours conducting a regular inspection (4113207) at the Aracoma Alma Mine on January 12, 2006. A separate inspection report indicated that a spot inspection (4113209) was conducted at Aracoma Alma Mine #1, by the same inspector, but there was no inspection time charged to this event on January 12, 2006.

Inspection notes for the 103(i) spot inspection conducted from November 1, 2005, to December 22, 2005, indicated that proper inspection procedures were not followed. Air

sample bottles collected at the mine were not submitted to the Mount Hope Laboratory for analysis within 5 days. Bottle samples K4436 and K4458 were taken at the Ethel and Mecca fans respectively on November 2, 2005, and then submitted to the lab with bottle samples K4433 and K4434, which were taken on November 17, 2005.

One District 4 inspector conducted seven Section 103(i) spot inspections under one inspection event (4113206) and three under another event (4113209). When asked by the internal review team, this inspector stated that he did not realize that each Section 103(i) spot inspection is required to be tracked under a separate inspection event.

All 24 inspector time and activity reports and 18 of 20 Mine Activity Data inspection cover sheets relating to the Section 103(i) spot inspections at the Aracoma Mine were initialed by a supervisor.

Conclusion: The district manager, assistant district manager, supervisors, and inspectors failed to follow explicit Agency policy regarding Section 103(i) inspections. Inspection activities were not specifically directed to the problems, hazards, or conditions under which the mine was classified as a Section 103(i) mine, even though they had been provided with necessary information, training, and time. The disproportionate amount of time that inspectors spent on the surface defeated the intent of Section 103(i) inspections, evidenced a failure to undertake reasonable efforts to detect mine hazards, and constituted a gross misallocation of inspector resources. Inspectors routinely demonstrated a lack of initiative to appropriately conduct Section 103(i) inspections.

Supervisors failed to take action to correct blatant deficiencies, such as numerous spot inspection days focused exclusively at the main mine fans and surface areas. Supervisors did not hold inspectors accountable for such failures. Managers did not use inspection data to hold supervisors accountable for obvious deficiencies in time allocation by inspectors conducting Section 103(i) inspections, nor were standardized reports and procedures provided to direct district-level management. Supervisors did not provide an effective means to ensure timeliness of 103(i) inspections and failed to identify and hold inspectors accountable for information in inspection notes indicating that spot and other inspection activities were combined. Supervisors did not identify conflicts between data reported on weekly time and activity sheets and inspection reports, such as spot inspections with zero time shown at the mine and inspections with no notes.

Use of Enforcement Authority Provided by the Mine Act

Appropriate Level of Enforcement

This section addresses the use of enforcement tools provided by relevant sections of the Mine Act and describes in detail the authority for issuing citations, orders, and safeguards.

Requirement: Section 103(k) of the Mine Act requires that, in the event of any accident occurring at a coal mine, an inspector may issue such order(s) as deemed appropriate to insure the safety of any person in the mine, and the operator shall obtain approval of MSHA of any plan to recover any person in the mine, or return affected areas of such mine to normal.

Section 104 of the Mine Act provides MSHA inspection personnel with a method of progressively stronger enforcement tools to obtain compliance with mandatory safety and health standards.

Section 104(a) requires an inspector to issue a citation if the inspector believes that an operator has violated the Mine Act, or any mandatory safety or health standard, rule, order, or regulation promulgated pursuant to the Mine Act. Citations should be issued with reasonable promptness, and the inspector is also required to specify a reasonable time for the operator to abate the violation.

Section 104(b) provides that, if upon any follow-up inspection, an inspector finds that a cited violation has not been totally abated within the period of time as originally fixed therein or as subsequently extended, and that the period of time for the abatement should not be further extended, the inspector shall determine the extent of the area affected and shall issue a withdrawal order.

Section 104(d) creates a chain of increasingly severe sanctions that serve as an incentive for operator compliance. Under Section 104(d)(1), if an inspector finds a violation of a mandatory health and safety standard that is significant and substantial (but is not necessarily an imminent danger) and is caused by the mine operator's unwarrantable failure, the inspector must issue a Section 104(d)(1) citation. If, during the same inspection or any subsequent inspection within 90 days after issuance of the predicate Section 104(d)(1) citation, the inspector finds another violation caused by unwarrantable failure to comply with such mandatory standard, the inspector must issue a Section 104(d)(1) order. If, upon any subsequent inspection pursuant to the issuance of a Section 104(d)(1) order, an inspector finds a violation caused by unwarrantable failure, the inspector must issue a Section 104(d)(2) order.

Section 104(b) and 104(d) orders require the operator to cause all persons in the area affected by the violation, except those necessary to correct the condition, to be

withdrawn from and prohibited from entering such area until the inspector determines that the violation has been abated.

Section 104(g) orders require any miner(s) who has not received requisite safety training be immediately withdrawn from the coal mine and be prohibited from entering the mine until the required training has been received.

Section 314(b) of the Mine Act states: "Other safeguards adequate, in the judgment of an authorized representative of the Secretary, to minimize hazards with respect to transportation of men and materials shall be provided."

Statement of Facts: At the beginning of 2001, the Aracoma Alma Mine #1 was under the enforcement jurisdiction of the Logan field office work group 02. A review of enforcement data indicates that on January 9, 2001 the Aracoma Alma Mine #1 received its first Section 104(d)(1) citation. Following this unwarrantable failure citation, the mine subsequently received two Section 104(d)(1) orders during the remainder of the inspection quarter. During the following quarter, the mine received an additional eighteen Section 104(d)(2) orders for unwarrantable failures to comply with the Mine Act.

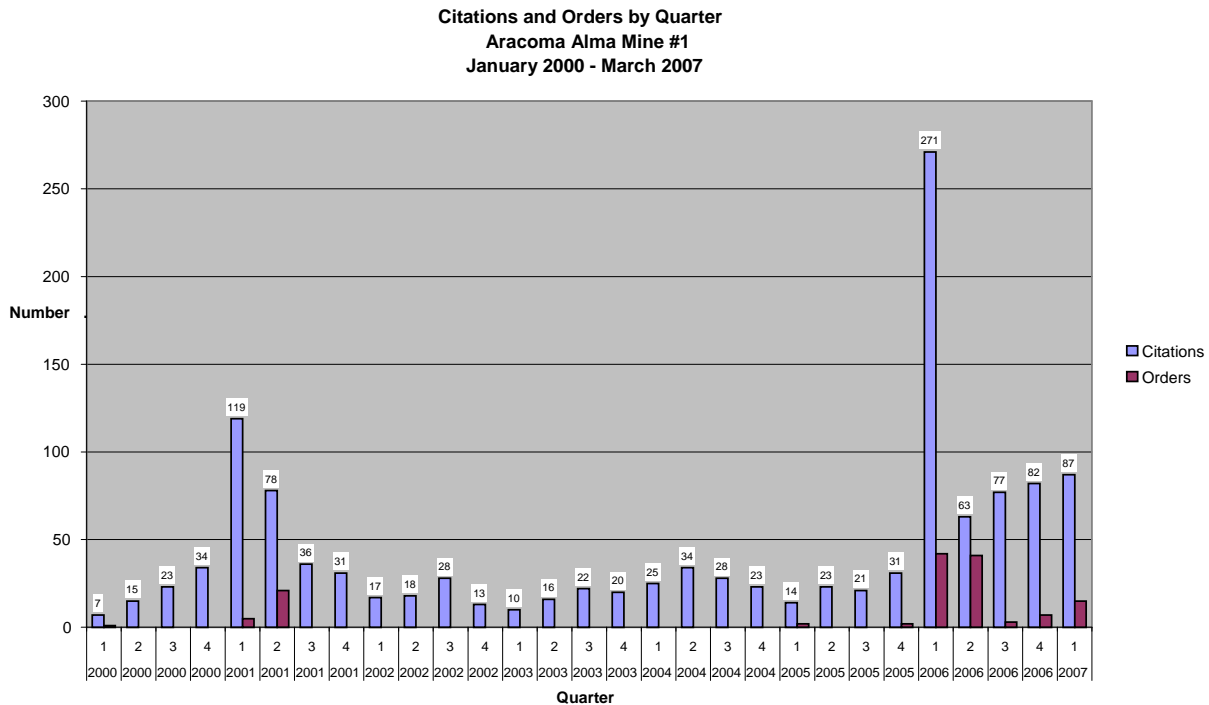
During interviews conducted by the internal review team, the field office supervisor stated that the inspector who was assigned to conduct regular inspections at the mine, raised a concern regarding how some mine management officials at Aracoma Alma Mine #1 conducted themselves during the inspection. He stated that every time a citation was issued, members of mine management would aggressively question the validity of his citations. He believed that they may have been trying to intimidate him. The supervisor stated that he intervened and informed mine management that the inspectors were just doing their jobs and if the inspector found violations, mine management should be investigating the cited conditions and not confronting the inspector.

During interviews, the internal review team learned that at some point during 2001, the MSHA District 4 Manager requested a meeting with Massey officials to discuss the company's violation and injury rates and discuss their future plan of action to reduce violations and injuries at all of their mines in the district. Also present were the MSHA Assistant District Managers and field office supervisors. As a result of the meeting, MSHA and Massey officials agreed to initiate a joint instructional course for mine managers, supervisors, and mine examiners to focus on workplace examinations and other selected mandatory health and safety requirements.

During interviews conducted by the internal review team, a field office supervisor stated that mine management informed the Assistant District Manager that they had difficulty resolving issues and communicating with the assigned field office supervisor.

Subsequently, in July 2001, the Assistant District Manager informed this field office supervisor that the mine would be removed from his jurisdiction and rotated to work group 01. The rationale given was that the Assistant District Manager wanted a fresh perspective at the mine in order to give the foreman and examiner training program a clean start. District 4 management stated that they believed that the training emphasis at Massey was having a positive impact at the Aracoma Alma Mine #1, which resulted in improved conditions at the mine. Given these improvements, the District 4 Managers stated they decided to focus additional resources on several other mines that they believed required more attention.

During the interviews, some inspectors and supervisors stated that MSHA’s compliance assistance efforts impacted the way inspections were performed.⁸ Most inspectors stated that they understood that they were to continue to enforce the regulations. The only thing that they believed changed was that they were encouraged to explain their violations more thoroughly and to tell the operator how to come into and maintain compliance, if they could during the inspection or at the inspection close-out conference. However, a few inspectors stated that they were confused by the new compliance assistance language and believed that, while they were still supposed to issue citations, they should be more cooperative with companies. The following chart shows the number of citations and orders issued at the Aracoma Alma Mine #1.



⁸ 2002 MSHA press release “MSHA needs to be an agency that brings a healthy balance among those activities the Mine Act mandates: enforcement, education and training – which includes compliance assistance – and technical support.”

The internal review team evaluated the 104 enforcement actions taken by MSHA at the Aracoma Alma Mine #1 from January 1, 2005, through January 19, 2006. District 4 inspection personnel issued 101 Section 104(a) citations, 1 Section 104(b) order, 1 Section 104(g)(1) order, and 1 Section 103(k) order. There were no Section 104(d) actions issued at the mine during the review period. This section of the report addresses the manner in which District 4 inspection personnel made enforcement determinations, as well as their determinations regarding the timely abatement of cited violations.

Citing All Violations Observed

In reviewing inspection documentation and through inspector interviews, the team found several instances in which violations of mandatory safety and health standards were not cited for observed violations. Several examples follow.

- On May 23, 2005, an inspector documented in his inspection notes that there were only 23 operating dust sprays on the continuous mining machine due to a broken spray block. The approved ventilation plan (for dust control) required 39 sprays to be operating. No enforcement action was taken.
- An inspector documented that the mean entry air velocity was less than the required 60 feet per minute on several occasions. Mean entry air velocities of 56, 51, and 50 feet per minute were documented in the inspection notes but no enforcement action was taken.
- On November 15, 2005, the inspector documented that there was 42,840 cfm of intake air to the longwall face. The ventilation plan required 45,000 cfm on the intake to the longwall face but no enforcement action was taken.
- An inspector documented that air which had ventilated the belt conveyor entry for 2 Section was used to ventilate the working faces. The approved ventilation plan required this aircourse to be ventilated in an outby direction. The inspector issued a citation for not having the required air velocity of 50 fpm in the belt conveyor entry but did not recognize and cite the fact that the airflow was flowing opposite the direction shown in the approved plan.
- An inspector issued a citation for the fire suppression system not operating on a battery charging station and documented in the body of the citation that the battery charging station was not ventilated to the return. There was no citation issued for a violation of 30 CFR 75.340. The inspector stated that it was common practice in the Logan Field Office not to “double barrel” the mine operator with citations.
- During interviews, an inspector indicated that while inspecting escapeways he found personnel doors which were intended to isolate the escapeways left open

from traveling through the doors and personnel doors with cables running through that could not be completely closed and sealed. The inspector had the operator remove the cables and close all open personnel doors found, but did not issue any citations.

- During interviews, an inspector indicated that he held a meeting with a mine foreman and belt examiners on conducting proper belt conveyor examinations. Based on his observations before the meeting, the inspector stated he could have issued a citation for inadequate examinations, but did not do so.
- In interviews, an inspector stated that the 1200 map that I was exposed to, the certified map in the uniform mine file in the office was August 25, 2005, and how they were actually ventilating underground, none of these matched. The inspector indicated he discussed this with the state inspector and the mine operator. The inspector indicated that he wanted to issue a citation for a violation of 30 CFR 75.1200 but after discussions with a field office supervisor and former ventilation specialist a citation was issued for a violation of 30 CFR 75.370(d) for an unapproved ventilation change. The inspector also had a meeting with a company engineer in which the inspector stated “you’ve got to get these changes in, if we have a mine fire here nobody is going to know what to do.” The inspector did not cite a violation of 30 CFR 75.1200.
- Based on information obtained during interviews, the internal review team determined that an accident occurred at the Aracoma Alma Mine #1 in March 2003 as a direct result of two rail mantrips colliding. Two miners were injured. A District 4 inspector was present at the mine when the accident occurred. The inspector indicated that he assisted in the extrication of one of the injured miners. The accident was also discussed with a field office supervisor. The inspector indicated that MSHA had investigated the accident and the company agreed to install traffic lights on each side of the area where the accident occurred. There was no safeguard issued to assure the traffic lights were installed or maintained in the future. A review of available documentation indicated that MSHA did not conduct a formal investigation, and MSHA took no enforcement action during or following this accident.

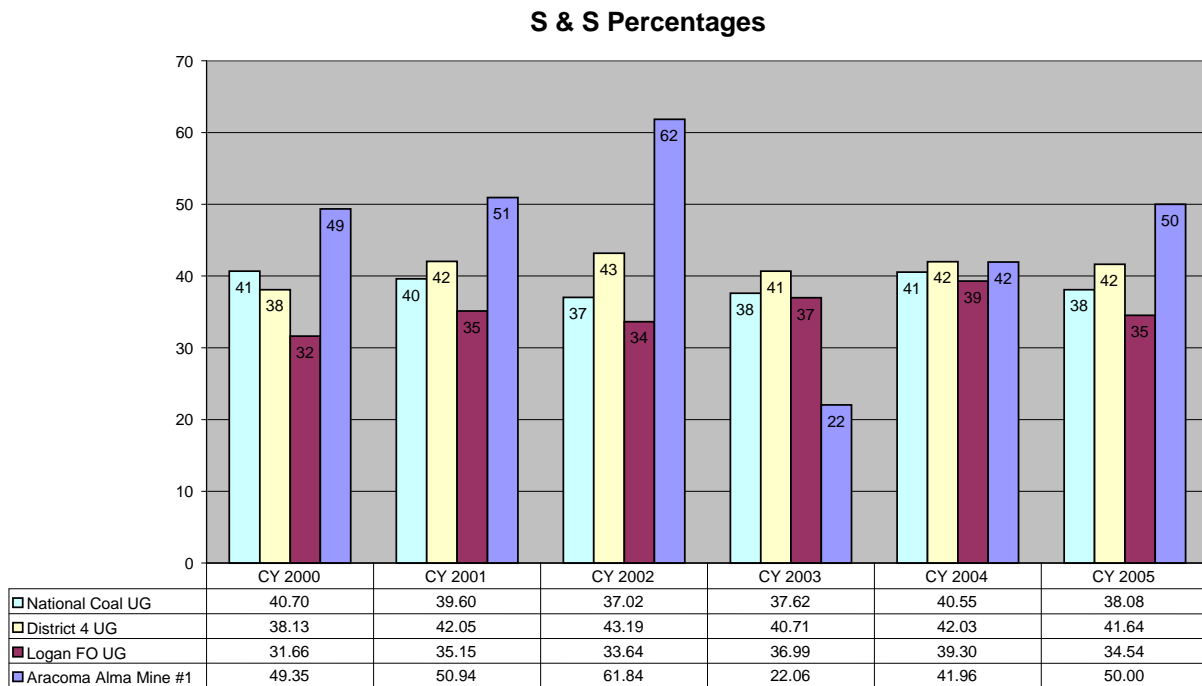
Gravity (S&S and Number of Persons Affected) Determinations

Requirements: Gravity is defined in 30 CFR 100.3(e) as an evaluation of the seriousness of the violation as measured by the likelihood of the occurrence of the event against which a standard is directed, the severity of the illness or injury if the event occurred or were to occur, and the number of persons potentially affected.

MSHA Policies and Procedures: The MSHA *Program Policy Manual* contains guidelines for evaluating whether a violation is significant and substantial (S&S). In determining

whether a violation could “significantly and substantially contribute to the cause and effect of a mine safety or health hazard,” the inspector must first find that an injury or illness would be reasonably likely to occur if the violation were not corrected and, if the injury or illness were to occur, it would be reasonably likely to be reasonably serious in nature. Additional guidance on S&S determinations is provided in the MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1).

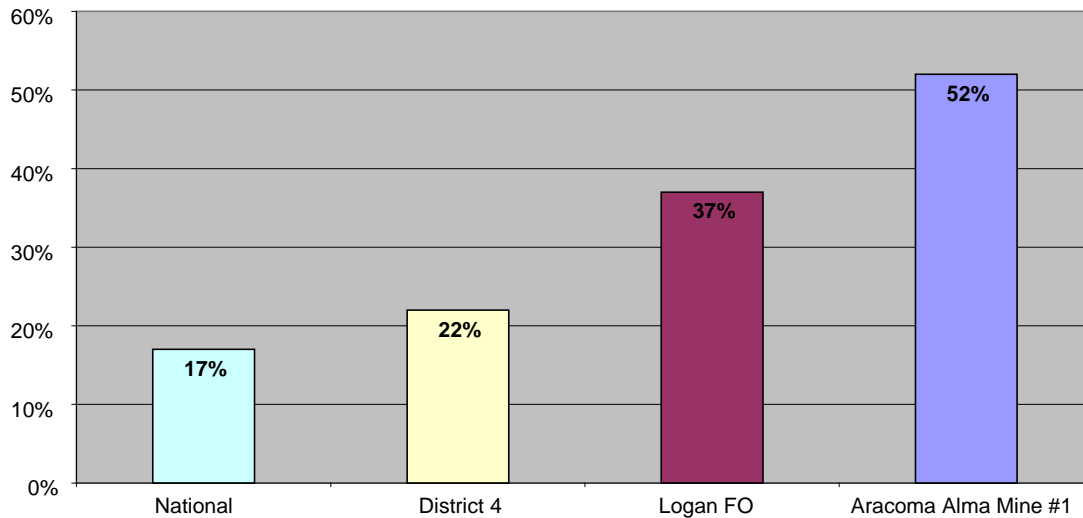
During the review period, District 4 inspection personnel designated 54 (52.9 percent) of the citations and orders at the Aracoma Alma Mine #1 as S&S. All of the citations issued concerning noncompliance with applicable respirable dust standards were designated as S&S. The following graph compares the S&S rates for citations and orders issued at the Aracoma Alma Mine #1 with the S&S rates for all underground coal mines in Logan Field Office, District 4, and the nation from 2000 through 2005.



Counted 104(a), 104(d)(1), 104(d)(2) & 104(g)(1).
Vacated Issuances not counted.

Of the 102 citations and orders requiring evaluations for gravity during the review period, 49 (48 percent) indicated one person or less affected. The following graph compares the number of persons affected for citations and orders issued at the Aracoma Alma Mine #1 with the number of persons affected for all underground coal mines in the Logan Field Office, District 4, and the nation during the review period.

Percent of Citations Designated as Affecting More Than One Person



Negligence Determinations

Negligence, as defined in 30 CFR 100.3(d), is conduct (or a failure to act) which falls below a standard of care established under the Mine Act to protect persons against the risks of harm. Under the Mine Act, a mine operator owes a high degree of care to miners. A mine operator is required to be on the alert for conditions and hazards in the mine that affect the safety or health of the employees and to take the steps necessary to correct or prevent such conditions or practices. MSHA considers actions taken by the operator to prevent or correct conditions or practices that caused or allowed the violation to exist. In determining the operator's diligence in protecting miners in any given hazard situation, due recognition is given to mitigating circumstances which explain the operator's conduct in minimizing or eliminating a hazardous condition. Mitigating circumstances may include, but are not limited to, actions which an operator has taken to prevent, correct, or limit exposure to mine hazards.

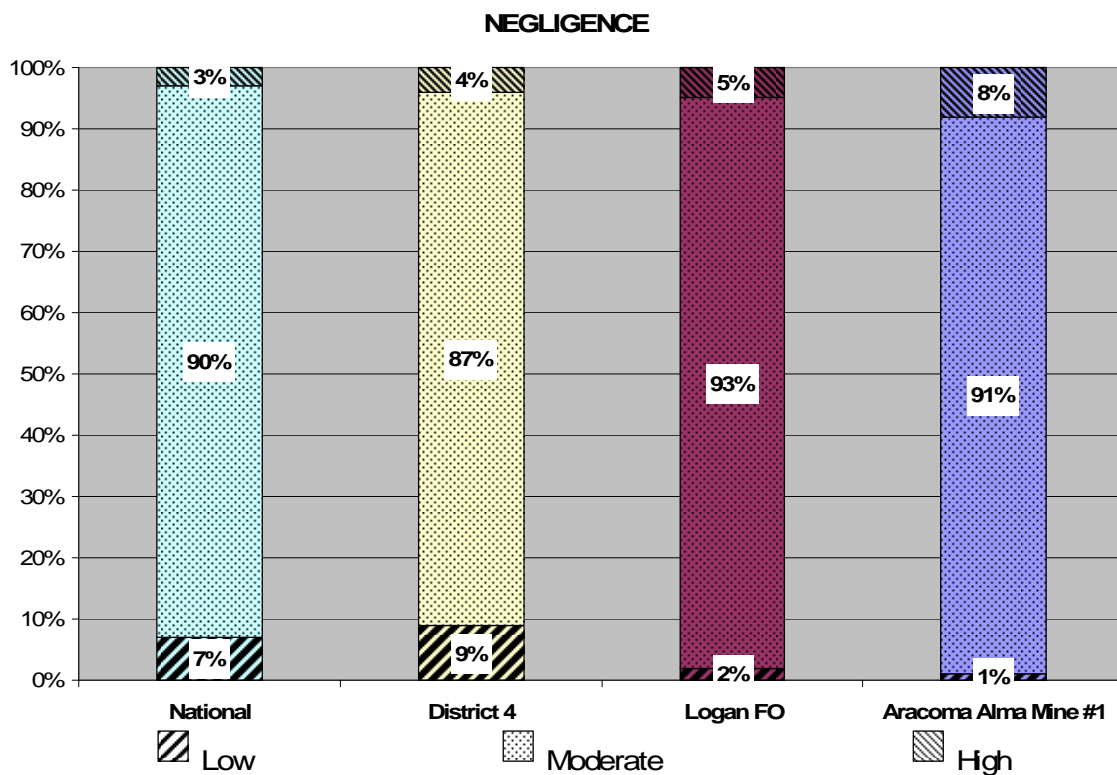
The following are the categories of negligence as defined in 30 CFR 100.3(d):

- No negligence indicates the operator exercised diligence and could not have known of the violative condition or practice.
- Low negligence indicates the operator knew or should have known of the violative condition or practice, but there are considerable mitigating circumstances.
- Moderate negligence indicates the operator knew or should have known of the violative condition or practice, but there are mitigating circumstances.

- High negligence indicates the operator knew or should have known of the violative condition or practice, and there are no mitigating circumstances.
- Reckless disregard indicates the operator displayed conduct which exhibits the absence of the slightest degree of care.

During the review period, District 4 inspection personnel issued 101 citations and one order which required negligence determinations to the Aracoma Alma Mine #1. Of the 102 citations and orders requiring negligence determinations, 93 (91%) were designated “moderate” negligence indicating the operator knew or should have known of the existence of the violative condition, but there were mitigating factors concerning the operator’s failure to correct the condition before it was observed.

The following chart shows a comparison of negligence determinations at the Aracoma Alma Mine #1 with the negligence determinations for all underground mines in the Logan Field Office, District 4, and the nation during the review period.



Determinations of “No Negligence and Reckless Disregard” comprised less than 1 percent of the totals for all four entities.

During the review period, District 4 enforcement personnel issued five citations for violations of 30 CFR 75.400 at the Aracoma Alma Mine #1. Three of these citations were issued for accumulations along the belt lines. The negligence determinations for these citations are shown in the following table.

Date Issued	Violation Number	Belt	Gravity	Injury	Negligence	S&S	Terminate Date
12/14/05	7244815	3, 4 Belt	Reasonably Likely	Fatal	Moderate	Yes	12/22/05
12/16/05	7244816	2,3,4 Belt	Unlikely	Perm. Disabling	Moderate	No	03/21/06
12/20/05	7244822	6 Belt	Reasonably Likely	Perm. Disabling	Moderate	Yes	05/19/06

The negligence on all three of these citations could have been evaluated at a higher level based on the belt conveyor examination books. The examination records showed cleaning of these belt conveyors was needed for multiple shifts prior to the issuance of the citations as summarized in the following table.

Date Citation Issued	Belt	Consecutive Shifts Shown as Needing Cleaning Prior to Citation
12/16/05	No. 2, 6-foot Belt	2
12/14/05	No. 3, 6-foot Belt	30
12/14/05	No. 4, 6-foot Belt	26
12/20/05	No. 6, 6-foot Belt	17

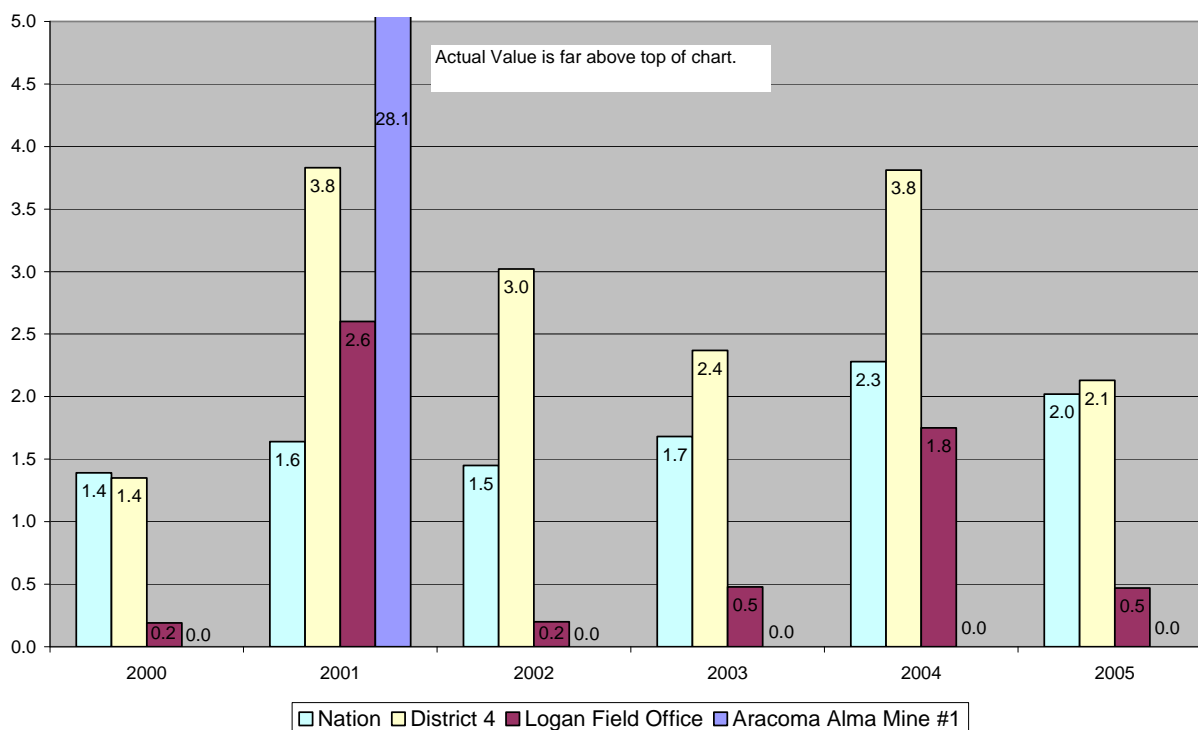
Section 104(d)

During the review period, there were no actions taken by District 4 personnel to increase the level of enforcement at the Aracoma Alma Mine #1 to the unwarrantable level. In fact, there were no Section 104(d) enforcement actions at the mine since 2001. There was no attempt to raise the level of enforcement even though the belt conveyor examination records showed cleaning and/or rock dusting was needed on the majority of shifts that were available for the internal review team to examine. Inspection documentation also indicates that the inspectors were examining these record books before traveling the areas. During interviews, an inspector indicated that he was going to get the belts cleaned up, and he could have written a Section 104(d) citation on the examination books for inadequate examinations, if an ignition source had been present. The inspector indicated he was building a history so a Section 104(d) action could not be disputed.

During interviews with Logan field office inspection personnel, several inspectors stated that they felt that if a higher level of enforcement had been implemented at the mine, the actions would not have been supported by at least one of the field office supervisors. They stated that one supervisor created an atmosphere of lenient enforcement toward mine operators, and as a result, progressively stronger enforcement actions rarely were utilized in the Logan Field Office and never used at the Aracoma Alma Mine #1 in the four years preceding the January 19, 2006 fatal fire.

The following chart reflects that there were no Section 104(d) actions issued at Aracoma Alma Mine #1 since 2001 and compares the rate of issuance to the Logan Field Office, District 4, and the nation.

Section 104(d) Actions per 1,000 On-site Hours



Timely Abatement

Requirements: The Mine Act not only describes the criteria for the issuance of citations, but in Section 104(a) requires the inspector to specify a reasonable time for the operator to abate a violation.

MSHA Policies and Procedures: The MSHA *Program Policy Manual* states the time for abatement should be determined, whenever practical, after a discussion with the mine operator or the operator's agent. The degree of danger to miners is the first consideration in determining a reasonable time for abatement. Upon expiration of the time fixed for abatement, the inspector should review the circumstances, and if circumstances so justify, extend the abatement period. If no extension of time is justified, and the violation is unabated, the inspector shall issue a withdrawal order under Section 104(b). Upon abatement of the violation, the 104(b) withdrawal order will be terminated.

The MSHA *Citation and Order Writing Handbook for Coal Mines and Metal and Nonmetal Mines* (PH02-I-7(2)), states the time fixed for abatement of a violation shall be determined, whenever practical, after a discussion with the mine operator or the operator's agent. This handbook also states that a citation shall fix a reasonable time for the abatement of the violation.

Additionally, this chapter states that when an inspector finds that a violation previously cited has not been abated and that the period of time for abatement should not be further extended, he or she must issue a withdrawal order for the cited equipment or that part of the mine affected by the violation. The operator is required by such an order to remove all persons from the area affected, except those persons necessary to correct the violation as described in Section 104(c), until the violation is abated.

The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) states that the inspector should make every effort to re-inspect the area as soon as the time has expired.

Statement of Facts: The internal review team examined data for citations issued at Aracoma Alma Mine #1 during the review period and terminated before the fatal fire occurred on January 19, 2006. Inspectors set the time for abatement at 1 day or less for 77 percent of the citations. However, enforcement personnel did not follow up on 60 percent of all citations by the termination due dates. Several examples follow.

- On January 5, 2005, an S&S citation (7227846) was issued for not maintaining a continuous mining machine in permissible condition on MMUs 003/004. Abatement of the violation was due the same day. The citation was marked “reasonably likely” to cause “lost workdays or restricted duty” to two persons. The citation was terminated on March 17, 2005, because the continuous mining machine had been restored to permissible condition. An inspector was present on Section 003/004 four times between issuance and termination of the citation (January 6 and 19, February 24, and March 16, 2005).
- On January 19, 2005, an S&S citation (7227853) was issued for accumulations of loose coal and coal dust on MMU 009 from the dumping point to the last open crosscut. Abatement of the violation was due on January 20, 2005. The citation was marked “reasonably likely” to cause “lost workdays or restricted duty” to four persons. The citation was terminated on March 16, 2005, because the combustible materials had been removed. An inspector was present on MMUs 009/010 four times between issuance and termination of the citation (January 20 and 26, and February 3 and 8, 2005).
- On May 31, 2005, a non-S&S citation (7188549) was issued at 16:10 for a violation of 30 CFR 75.1403-6(b)(1) because the No. 7 Brookville personnel carrier was not

provided with a lifting jack and bar. Abatement of the violation was due the same day at 16:15. The citation was terminated on July 28, 2005, because a lifting jack and bar had been provided. There were no inspector notes for July 28, 2005.

- On May 31, 2005, a non-S&S citation (7188550) was issued at 16:20 for a violation of 30 CFR 75.1403-6(b)(1) because the No. 8 Brookville personnel carrier was not provided with a lifting jack and bar. Abatement of the violation was due the same day at 16:30. The citation was terminated on July 28, 2005, because a lifting jack and bar had been provided. There were no inspector notes for July 28, 2005.
- On June 29, 2005, an S&S citation (7188558) was issued for a violation of 30 CFR 75.370. The mine ventilation plan was not being complied with as the continuous mining machine scrubber was discharging improperly on MMUs 009/010. Abatement of the violation was due on the same day. The citation was marked “reasonably likely” to cause “lost workdays or restricted duty” to one person. The citation was terminated on July 28, 2005, because the mine ventilation plan had been complied with. There were no inspector notes for July 28, 2005. An inspector was present on MMUs 009/010 two times between issuance and termination of the citation (July 15 and 19).
- On September 12, 2005, an S&S citation (7188583) was issued for a violation of 30 CFR 75.1722(b) because guarding was not adequate for the No. 2 belt conveyor take-up. Abatement of the violation was due the same day. The citation was marked “reasonably likely” to be “permanently disabling” to one person. The citation was terminated on September 26, 2005, because adequate guarding had been provided.
- On November 28, 2005, an S&S citation (7244803) was issued for a violation of 30 CFR 75.202(a) because the roof was not adequately supported to protect miners near the No. 1, Four Way intersection. Abatement of the violation was due November 29, 2005. The citation was marked “reasonably likely” to be “fatal” to one person. The citation was terminated on December 12, 2005, because the area had been dangered off to prevent persons from traveling through the area. An inspector was present underground five times between issuance and termination of the citation (November 29 and 30; and December 1, 5, and 9).

Appendix I is a list of all enforcement actions during the review period not terminated by the original termination due date.

Citations were reviewed by a Logan Field Office Supervisor when reports were submitted by inspectors. This included certification of the review by the initials of the supervisor on the citations.

When reviewing available information regarding abatement of the foregoing violations, the internal review team discovered there were no inspection notes documenting the observation of the corrective actions on May 20, July 28, and September 1, 2005. Twenty-three citations were terminated on those dates.

Nine citations were outstanding when the fatal fire occurred. Five of these citations were past due when the fire occurred. One citation was seven days overdue, three citations were nine days overdue, and one citation was due shortly before the fire started.

Citation Number	Standard	Gravity	Issue Date	Termination Due Date
7244811	75.370(a)(1)	S&S	12/12/05	2/1/06
7244813	75.370(a)(1)	S&S	12/12/05	2/1/06
7244814	75.370(a)(1)	S&S	12/12/05	1/22/06
7244816	75.400	non-S&S	12/16/05	1/19/06
7244822	75.400	S&S	12/20/05	1/21/06
7244828	75.370(a)(1)	S&S	1/9/06	1/10/06
7244829	75.370(a)(1)	S&S	1/9/06	1/10/06
7244830	75.512	S&S	1/9/06	1/10/06
7244832	75.604(b)	S&S	1/12/06	1/12/06

Civil Penalty Proposals

Requirements: Section 110 of the Mine Act provides that MSHA shall propose a monetary civil penalty whenever a mine operator violates either the Mine Act or a standard or regulation promulgated pursuant to the Mine Act. If a mine operator challenges the proposed penalty, the Federal Mine Safety and Health Review Commission has the authority to assess a civil penalty that is consistent with the statutory factors established in Section 110(i) of the Mine Act.

MSHA’s regulations concerning the proposal of civil penalties are published in Title 30, Part 100 of the Code of Federal Regulations. Pursuant to this part, and unless circumstances warrant a “single penalty assessment” as described in 30 CFR Section 100.4, MSHA considers information relevant to each of the statutory factors identified in Section 110(i) of the Mine Act when proposing an appropriate civil penalty. While the majority of proposed penalties for Mine Act violations are calculated using the “regular assessment” process described in 30 CFR Section 100.3, MSHA also has the authority to propose more significant penalties when the facts associated with a particular violation justify a greater penalty. MSHA proposes more significant penalties in accordance with the “special assessment” process described in 30 CFR Section 100.5 for, among other things: unwarrantable failure to comply with mandatory health and safety standards, violations involving an imminent danger, and violations involving an extraordinarily high degree of negligence or gravity. While MSHA penalties are proposed by the Office of Assessments in the national office, an inspector’s determinations concerning the degree of negligence and the gravity associated with a violation, as well as whether the

operator acted in good faith to immediately abate the violative condition, weigh significantly in MSHA's determination of the appropriate penalty to propose for a violation.

Statement of Facts: During the January 1, 2005 through January 19, 2006 review period; MSHA issued 101 citations and orders at the Aracoma Alma Mine #1 for which penalties ultimately were proposed. For 49 of these citations (48.5 percent), MSHA proposed the minimum \$60.00 penalty. For fourteen (14) of these citations (13.9 percent), MSHA proposed penalties in excess of \$1000.00. The total proposed assessment for all 101 violations was \$53,076.00, yielding an average proposed penalty of \$525.50 per violation. With the exception of two citations issued during the review period that currently are being contested, the Aracoma Coal Company Inc. paid the full assessment for each of the proposed penalties.

Conclusion: District 4 inspection personnel did not effectively exercise their enforcement authority at the Aracoma Alma Mine #1 during the review period. From January 2005 through January 2006, 104 citations and orders were issued at the mine. Following the rescue and recovery efforts associated with the January 19 fatal fire, MSHA resumed the regular inspection that had been initiated on January 3, 2006, and completed the inspection on March 31, 2006. In addition, MSHA conducted an accident investigation to determine the causes of the fatal fire. During the inspection after the fire, in combination with MSHA's accident investigation, 423 citations and orders were issued. Since the mine did not produce coal while the inspection and the investigation were conducted, the conditions cited during these inspection and investigation activities provided a snapshot in time of the condition of the mine on January 19, 2006 when the fatal fire occurred. Based upon our review, the team believes that many of these violations were present during one or more inspections prior to the fatal fire and should have been identified and cited by MSHA inspection personnel.

Inspection personnel did not always appropriately evaluate negligence when enforcement actions were taken. The mine's records of examinations of the belt conveyor entries identified extensive hazards related to accumulations of loose coal, coal dust, and float coal dust throughout the entire mine. These hazards were documented in the mine operator's examination records for extended periods of time. These records should have alerted the operator and MSHA personnel that the hazards were recurring and corrective actions were not effective. It is evident that the operator did not allocate adequate resources to correct these safety problems. District 4 inspection personnel did not utilize this information to appropriately discharge their enforcement responsibility at the mine to gain compliance and prevent recurrence of the hazards.

On several occasions, violations were documented in the inspection notes, but no enforcement action was taken. Violations related to inadequate dust suppression on the

continuous mining machine, insufficient ventilation, airflow reversals, and open personnel doors along the escapeways were documented but these conditions were not cited.

Section 314 of the Mine Act regarding safeguards was not properly utilized in one instance. An accident involving the collision of two personnel carriers occurred while an MSHA inspector was at the mine site. This accident resulted in injuries to the occupants. No enforcement action was taken by the MSHA inspector. After the accident, a system of traffic control was voluntarily instituted by the mine operator. A safeguard should have been issued describing the requirements of the operation and continued maintenance for traffic control system.

The Logan field office supervisors did not have an effective system to ensure follow up on citations issued at the Aracoma Alma Mine #1 by the termination due date stated on the citations. During the review period, inspectors did not follow up on 60 percent of all citations on or before the termination due dates. In many instances, the inspectors returned to an area of the mine previously cited, but did not reexamine the cited condition during that visit. On numerous occasions, citations were terminated with no accompanying inspection notes. On one occasion, a single inspector terminated six citations within a 13-minute period of time, even though the cited conditions were located in different areas of the mine. In addition, there were no supporting notes for these actions. Travel to all areas involved precluded a 13-minute time frame to terminate these citations.

All enforcement actions issued during the review period prior to the fire were initialed by a supervisor indicating supervisory review. Issues concerning the deficient nature and insufficient level of enforcement should have been identified and corrected by the supervisor. Additionally, effective use of enforcement data by District 4 management and supervisors should have identified obvious deficiencies in the timely termination of citations and quality level of enforcement at the Aracoma Alma Mine #1.

The internal review team has concluded that mine inspectors neglected to issue citations in some situations in which citations were justified and that mine inspectors on occasion underestimated the operator's negligence and/or the gravity of the hazardous conditions when violations were cited. In addition, MSHA did not determine whether the operator achieved timely abatement in a number of instances. These shortcomings often resulted in the proposal of a civil penalty lower than that which was appropriate for violations committed by the Aracoma Coal Company Inc. during the review period. The failure to propose more significant civil penalties likely interfered with the deterrent value that civil penalties are designed to have under the Mine Act and, to some extent, may have diminished Aracoma Coal Company Inc.'s impetus to institute policies and practices that prevented or immediately addressed violative conditions at the Aracoma Alma Mine #1.

The internal review team believes that some of the identified deficiencies may have stemmed from the relationship that MSHA developed with Massey Energy Company representatives in early 2001. MSHA personnel worked intensively with Massey representatives to improve conditions at the Aracoma Alma Mine #1 and to develop effective miner training programs; and some of these programs were replicated at other Massey-owned mines. These efforts produced measurable success, as the injury incidence rates plummeted at the Aracoma Alma Mine #1 in 2001 and remained similar to the rates at other mines within District 4 until 2005. However, using enforcement personnel in this manner to assist the Aracoma Coal Company with its compliance efforts may have created a conflict of interest that, over time, may have affected the level of scrutiny MSHA provided at Aracoma Alma Mine #1 during subsequent mine inspections.

Enforcement of Specific Safety Standards (Contributory Violations)

This section addresses the enforcement of mandatory safety standards associated with training of miners, ventilation controls, examinations, atmospheric monitoring systems, escapeways, accumulations of combustible materials, fire fighting equipment, fire suppression, the mine map, emergency evacuations, and the operation and maintenance of machinery and equipment. The MSHA accident investigation team determined that violations of these mandatory safety standards contributed to the cause and severity of the fatal fire.

Enforcement of 30 CFR 48.7(d)

Training of miners assigned to a task in which they have had no previous experience; minimum courses of instruction.

Requirement: Mandatory safety standard 30 CFR 48.7 states in relevant part, “Miners assigned to new work tasks as mobile equipment operators, drilling machine operators, haulage and conveyor systems operators, roof and ground control machine operators, and those in blasting operations shall not perform new work tasks in these categories until training prescribed in this paragraph and paragraph (b) of this section has been completed.” Paragraph (d) states “Any person who controls or directs haulage operations at a mine shall receive and complete training courses in safe haulage procedures related to the haulage system, ventilation system, firefighting procedures, and emergency evacuation procedures in effect at the mine before assignment to such duties.

Mandatory safety standard 30 CFR 75.351(b)(2) requires the mine operator to designate an AMS operator to monitor and promptly respond to all AMS signals.

Mandatory safety standard 30 CFR 75.352(a) requires in part that upon notification of an alert or alarm signal, the AMS operator must promptly notify appropriate personnel. The mandatory safety standard 30 CFR 1501(a) required that for each shift that miners work underground, there shall be in attendance a responsible person designated by the mine operator to take charge during mine emergencies involving a fire, explosion or gas or water inundations.

MSHA Policies and Procedures: The MSHA *Carbon Monoxide Inspection Procedures Handbook* (PH92-V-5) indicates that inspectors should perform the following during their inspections:

- Check the approved training plan to determine if the CO monitoring system alarm response is included;
- Check the map or schematic showing location of CO sensors and observe operation of the system; and
- Part of the observance of the system operation entails determining the duties of the responsible person assigned to monitor the CO system at a surface location. In doing so the inspector should: a) ascertain if the monitoring system activates underground alarms automatically or if action of the responsible person on the surface is necessary to notify the sections. The responsible person must always be located where he or she can manually activate the section alarm and notify those affected if an emergency situation arises; b) determine if the responsible person is aware of the actions that must be taken when an alert or alarm level has been indicated; c) determine if problems with the monitoring system are reported and corrected immediately; and d) determine if the responsible person is notified when activities such as cutting, welding, or calibrating, which may cause alarms, are to be performed.

Statement of Facts: The accident investigation team determined that the person designated by the mine operator as the dispatcher/AMS operator controlled or directed haulage operations at the mine. The dispatcher/AMS operator on duty when the mine fire occurred on January 19, 2006, was not adequately trained by the mine operator in the mine ventilation system, firefighting procedures, and emergency evacuation procedures. The dispatcher/AMS operator had insufficient knowledge of the mine ventilation system and evacuation procedures outlined in the Mine Emergency Evacuation and Firefighting Program of Instruction.

During the initial stages of the fire on January 19, 2006, the dispatcher/AMS operator did not communicate to the appropriate personnel that an alarm signal had been generated by the AMS, nor did he contact the affected sections to initiate withdrawal.

A similar lack of proper response was demonstrated by the dispatcher/AMS operator on duty on December 23, 2005, when a fire occurred at the 9 Headgate Longwall Belt Conveyor take-up storage unit. The dispatcher/AMS operator notified a miner to investigate the source of the alarms but did not notify appropriate personnel to initiate withdrawal of miners from affected areas.

In these two fire events, the dispatcher/AMS operator on duty failed to notify appropriate personnel of alarm signals. This was supported by the fact that miners on affected sections were not withdrawn to a safe location on these dates. The dispatcher/AMS operator's training was not adequate to properly identify appropriate personnel. The mine operator's failure to provide adequate training significantly contributed to the delay of the withdrawal of the miners on 2 Section and 9 Headgate Longwall Section to a safe location on January 19, 2006. This delay endangered miners due to the life-threatening and deteriorating circumstances, and contributed to the inability of the two victims to escape the mine. The accident investigation team issued an S&S citation (7435540) for this contributory violation of 30 CFR 48.7(d).

Additionally, the accident investigation team issued a non-S&S citation (7435111) for a non-contributory violation of 30 CFR 48.3 which revealed the training plan, which was revised on January 4, 2002, did not reflect changes necessary to comply with the final rule which permitted the use of belt air to ventilate working sections. The training plan addressed the petition for air coursed through conveyor belt entries to be utilized for ventilation of working places, dated November 6, 2001, but failed to address the final rule on the use of belt air that was adopted on April 2, 2004.

A review of inspection notes indicated District 4 inspectors documented that the Part 48 training records for the mine were last inspected on November 28, 2005.

During the review period, District 4 personnel issued an order and two citations for violations of 30 CFR Part 48. On January 12, 2005, a non S&S 104(g)(1) order (7227849) was issued for a violation of 30 CFR 48.7 stating that task training was not provided for ten miners working underground. Two non S&S citations (7227850, 7227851) were also issued on the same day for violations of 30 CFR 48.9 stating that task training records could not be provided for a total of 27 mine employees but the employees indicated they had been task trained. The two citations and order were terminated on January 19, 2005.

After the conclusion of rescue and recovery efforts associated with the January 19 fire, MSHA continued the regular inspection started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection there were no citations issued for violations of 30 CFR Part 48.

Conclusion: District 4 personnel assigned to inspect the Aracoma Alma Mine #1 did not determine whether the AMS operator was adequately familiar with his duties and responsibilities, even though this determination was required of and understood by the inspector. The Carbon Monoxide Inspection Procedures Handbook was outdated, which made it difficult for inspection personnel to determine which portions of the directive were still applicable. Since this handbook did not require documentation of these discussions, supervisors could not adequately evaluate inspector performance on this requirement by reviewing the inspection report.

Enforcement of 30 CFR 75.333 *Ventilation Controls*

Requirement: Mandatory safety standard 30 CFR 75.333(c)(2) states that the location of all personnel doors in stoppings along escapeways shall be clearly marked so that the doors may be easily identified by anyone traveling in the escapeway and in the entries on either side of the doors.

Mandatory safety standard 30 CFR 75.333(d)(3) states that doors, other than personnel doors, constructed after November 15, 1992, that are used in lieu of permanent stoppings or to control ventilation within an air course shall be installed in pairs to form an airlock. When an airlock is used, one side of the airlock shall remain closed. When not in use, both sides shall be closed.

MSHA Policies and Procedures: The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) instructs inspectors to inspect escapeways and air courses. General observations of ventilation controls are required to be documented in the inspection notes.

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states that the inspector shall inspect all escapeways and facilities in their entirety to determine compliance with applicable standards, including attention to ventilation controls, personnel door condition and placement, markings showing the route of travel, mine roof conditions, rock dust application, examination certifications, and any equipment being operated in the escapeway or facilities.

Statement of Facts: The MSHA accident investigation team determined that the location of all personnel doors in stoppings along the 2 Section escapeways were not clearly marked so that the doors could be easily identified by anyone traveling in the escapeways. The personnel door used by the 2 Section crew during their escape from the mine was located in North East Mains between SS 3224 and SS 3230 in a stopping that separated the primary and alternate escapeways. The location of this personnel door was not marked.

The failure to clearly mark the location of all personnel doors in stoppings along primary and alternate escapeways so that the doors could be easily identified by anyone traveling in the escapeways contributed to the inability of the victims to successfully evacuate the mine on January 19, 2006. The accident investigation team issued an S&S, Section 104(d)(2) order (7435109) for this contributory violation of 30 CFR 75.333(c)(2).

The accident investigation team determined that reflective personnel door signs were hung from the mine roof in the intake entry adjacent to the North East Mains belt entry. These signs identified locations of some personnel doors in stoppings that separated the primary escapeway in the North East Mains intake air course from the North East Mains belt entry. Not all personnel door locations were marked with the reflective signs.

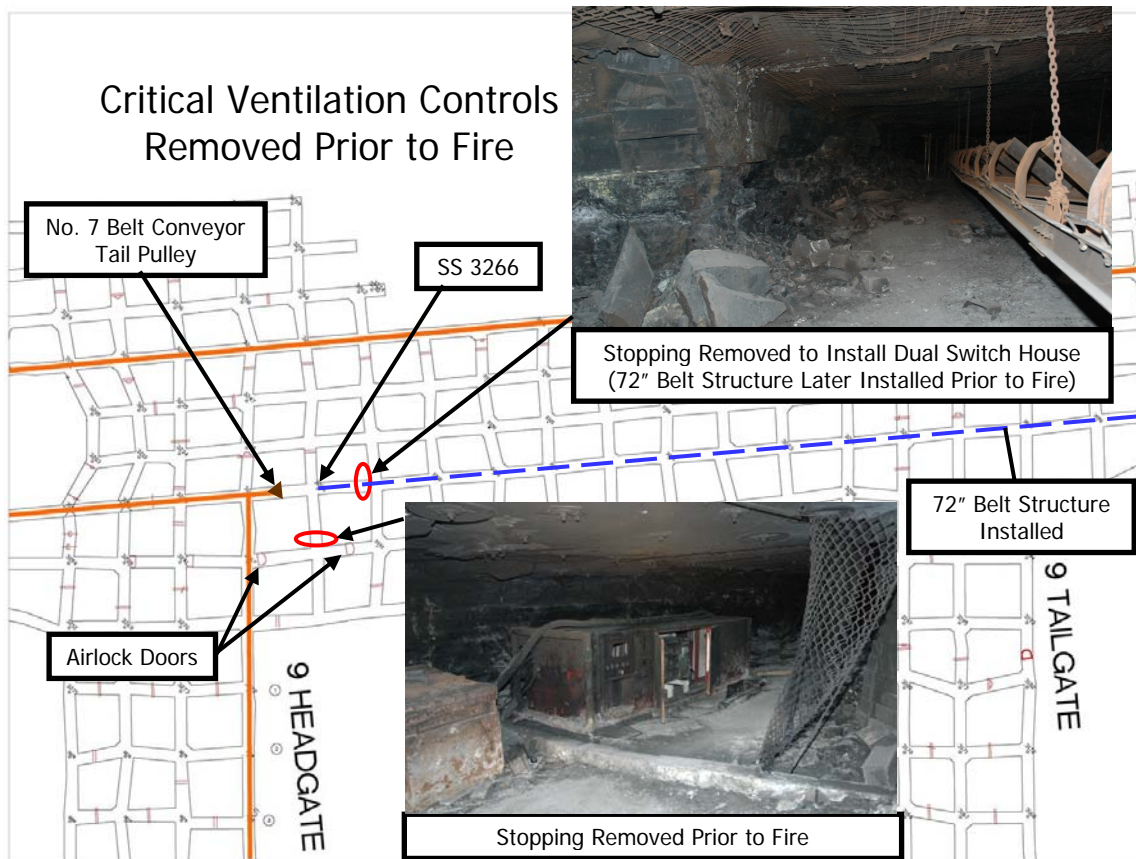
The accident investigation team also issued an S&S, Section 104(d)(2) order (7435115) for a non-contributory violation of 30 CFR 75.333(d)(3) indicating that a proper air-lock was not maintained between SS 3267 and SS 3333 in the North East Mains as required. A permanent stopping, located immediately adjacent to the North East Mains roadway south of SS 3266, in the crosscut where the Panel No. 9 Longwall Belt electrical installations were located, had been removed and not replaced. The stopping was reportedly removed to reduce the accumulation of heat in the crosscut where the electrical power boxes were located. The installation of a single stopping or a series of stoppings located in the North East Mains between 9 Headgate and 9 Tailgate could have formed the remaining separation needed for the airlock. Remnants of the single stopping needed were found in the crosscut on the opposite side of the travel roadway from the power boxes. Remnants of stoppings were also found in North East Mains between 9 Headgate and 9 Tailgate in the locations needed for separation in this area. Although it could not be determined when these stoppings were removed, it was concluded based on physical evidence and mine rescue and recovery logs and maps that the stoppings were not in place on January 19, 2006.

During the internal review, a review of MSHA inspection records indicated the primary escapeway in the Northeast Mains for 2 Section had been inspected most recently on January 12, 2006. During this inspection day, three citations were issued by the MSHA inspector. Two of the citations were issued on 2 Section and one was issued in an outby area on belt guarding. No citations were issued under 30 CFR 75.333. When asked about the condition of the stopping lines in the primary and secondary escapeways going to 2 Section, the inspector stated that “[w]e basically traveled these every day in and out of the coal mines. The air velocity was good so I didn’t see anything that caused me a problem other than airlock doors being left open and damage which I wrote [a citation].” During the October to December inspection, documentation placed the inspector in by the airlock in question on at least eight occasions. The route of daily

travel inby crossed under the longwall belt and through the airlock cited by the accident investigation team (Citation # 7435115).

The removal of the stopping located immediately adjacent to the North East Mains roadway South of SS 3266, in the crosscut where the Panel No. 9 Longwall Belt electrical installations were located, made the electrical installations common with the 2 Section escapeway and adjacent to the daily travel route. There was also a second stopping removed inby in the same entry as the No. 7 belt conveyor which is discussed further in the *Enforcement of 30 CFR 75.380(g)* section of this report. The most recent documentation of the inspection of these electrical installations was September 26, 2005. These installations were not documented as being inspected during the regular inspection conducted from October through December 2005.

The mine records of Weekly Electrical Examinations were documented as being inspected on December 19, 2005. At that time, the operator's last documented weekly examination for the electrical installations associated with the 9 Headgate Longwall Belt was November 25, 2005. The MSHA inspector did not issue a citation for this violation or investigate further to check the area in question. The mine operator's next examination of these electrical installations was documented on December 20, 2005.



During the review period, District 4 personnel issued two citations for violations of 30 CFR 75.333 at the Aracoma Alma Mine #1. Both of these citations were designated as non-S&S. One violation was cited on January 6, 2005, because the airlock doors at the No. 1, 4-way intersection were damaged in the intake escapeway which compromised the airlock. The second violation was cited on August 16, 2005, because the locations of personnel doors were not adequately marked along the Nos. 5 and 6 belt conveyors.

After the conclusion of rescue and recovery efforts associated with the January 19 fire, MSHA continued the regular inspection started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection three additional violations of 30 CFR 75.333(c)(2) were cited because the locations of personnel doors were not clearly marked along the escapeways. Descriptions of the citations follow.

- On February 7, 2006, a non-S&S citation (7250534) was issued stating “Numerous personnel doors located in stoppings along the #3 Section escapeways are not clearly marked so that the doors may be easily identified by anyone traveling in the escapeway and in the entries on either side of the doors as required.”

Inspection records indicated the primary escapeway for 3 Section had been most recently inspected on January 9, 2006. During this inspection day, seven citations were issued by the MSHA inspector. Five of these citations were issued on 3 Section and two were issued in outby areas. The outby citations were issued for failure to preshift an area and failure to mark an area with times, dates, and initials during preshift examinations.

- On March 2, 2006, a non-S&S citation (7252775) was issued stating, “The personnel doors located along the North Mains primary escapeway were not marked on the escapeway side from the No 1 4 way to the 3 Way.”
- On March 27, 2006, a non-S&S citation (7252618) was issued for personnel doors not being clearly marked at six locations along the North East Mains so that the doors may be easily identified by anyone traveling in the escapeway or in the entries on either side of the doors.

Conclusion: Enforcement personnel demonstrated a lack of initiative to identify and cite basic violations of 30 CFR 75.333, even though the unmarked doors and missing stoppings were obvious and easily identifiable. Inspectors traveled through the affected area on several occasions and did not recognize and cite these violations.

Enforcement of 30 CFR 75.333(c)(2) at the Aracoma Alma Mine #1 was ineffective based upon the numerous locations where the personnel doors were not marked in the escapeways. Information obtained during the accident investigation and subsequent

inspections revealed that not all personnel doors were properly marked prior to the fatal fire. MSHA inspectors had not issued any citations since August 16, 2005, for failure to mark locations of personnel doors along the escapeways.

District 4 personnel also did not recognize and cite a violation of 30 CFR 75.333(d)(3) present during one or more inspections prior to the fatal fire. MSHA's accident investigation team determined that key stoppings, which were necessary to form an airlock and isolate the 2 Section escapeway from the 9 Headgate Longwall Belt, were missing along the daily travel route to 2 Section. Although MSHA inspectors issued citations regarding damaged airlock doors prior to the fire, a violation relative to the failure to properly use stoppings to create an airlock was not identified or cited. An adequate MSHA inspection of the airlock or 9 Headgate longwall belt electrical installations would have identified the missing stoppings.

Enforcement of 30 CFR 75.351

Atmospheric monitoring systems

Requirement: Mandatory safety standard 30 CFR 75.350(b) states in pertinent part that air from a belt air course may be used to ventilate a working section or an area where mechanized mining equipment is being installed or removed, provided the belt entry is equipped with an AMS that is installed, operated, examined, and maintained as specified in 30 CFR 75.351.

Mandatory safety standard 30 CFR 75.351(c)(4) states that Atmospheric Monitoring Systems used to comply with 30 CFR 75.350(b) shall automatically provide visual and audible signals at all affected working sections and at all affected areas where mechanized mining equipment is being installed or removed when the carbon monoxide, smoke, or methane concentration at any sensor reaches the alarm level as specified in 30 CFR 75.351(i). These signals must be of sufficient magnitude to be seen or heard by miners working at these locations. Methane signals must be distinguishable from other signals.

Mandatory safety standard 30 CFR 75.351(n)(1) requires that at least once each shift when belts are operated as part of a production shift, sensors used to detect carbon monoxide or smoke in accordance with 30 CFR 75.350(b), and 75.350(d), and alarms installed in accordance with 30 CFR 75.350(b) must be visually examined.

Mandatory safety standard 30 CFR 75.351(k) states that an AMS installed in accordance with 30 CFR 75.323(d)(1)(ii), 75.340(a)(1)(ii), 75.340(a)(2)(ii), 75.350(b), 75.350(d), or 75.362(f) must be installed and maintained by personnel trained in the installation and maintenance of the system. The system must be maintained in proper operating condition.

MSHA Policies and Procedures: The MSHA *Carbon Monoxide (CO) Inspection Procedures Handbook* (PH92-V-5) directs inspectors to verify alarms are located where they can be seen and heard when an alert (warning) or alarm condition exists and to test the section alarms. It also directs inspectors to check the direction of the air currents in relation to the approved ventilation plan or 101(c) petition for modification requirements.

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states that the inspector shall examine AMS system components and observe the operator making a required calibration of system sensors. Data and times obtained during the inspection shall be compared with information recorded by the system on the surface.

Statement of Facts: The MSHA accident investigation team determined that the Atmospheric Monitoring System did not automatically provide visual and audible signals at all affected working sections when the carbon monoxide concentration at CO sensors reached alarm level. No carbon monoxide alarm unit was installed at a location where it could be seen or heard by miners on 2 Section to provide automatic notification of carbon monoxide alarm signals from outby sensor locations. The affected working sections during the fire that occurred on January 19, 2006, included both 2 Section and 9 Headgate Longwall Section. The failure to automatically provide visual and audible signals on 2 Section significantly contributed to the delay in the notification and withdrawal of miners who were working on 2 Section when a belt fire occurred on January 19, 2006. The accident investigation team issued an S&S, Section 104(d)(2) order (7435523) for this contributory violation of 30 CFR 75.351(c)(4).

The MSHA accident investigation team also determined that personnel who were assigned duties by the mine operator to install and maintain the mine wide AMS, were not adequately trained in the installation of the system components. Personnel designated by the mine operator to install and maintain the AMS had not received adequate training in the proper location of section alarm units. There was no AMS alarm installed for the 2 Section miners to receive automatic notification of CO sensor alarm signals. The failure to automatically provide visual and audible signals on 2 Section significantly contributed to the delay in the notification and withdrawal of miners who were working on 2 Section when a belt fire occurred on January 19, 2006. The accident investigation team issued an S&S, Section 104(d)(2) order (7435548) for this contributory violation of 30 CFR 75.351(k).

The MSHA accident investigation team also determined that adequate visual examinations of alarms and sensors used to detect carbon monoxide were not conducted each production shift on 2 Section. An adequate visual examination would have revealed there was no alarm unit installed on 2 Section to automatically provide visual and audible signals that could be seen and heard by miners on the section when carbon monoxide concentrations reached alarm level. The failure to automatically

provide visual and audible signals on 2 Section significantly contributed to the delay in the notification and withdrawal of miners who were working on 2 Section when a belt fire occurred on January 19, 2006. The accident investigation team issued an S&S, Section 104(d)(2) order (7435521) for this contributory violation of 30 CFR 75.351(n)(1).

Additionally, 18 non-contributory citations and orders were issued by the accident investigation team for violations of 30 CFR 75.351. Descriptions of the violations underlying these citations and orders follow.

- There was no automatic notification of affected working sections in the event of an alarm condition by the AMS.
- The audible and visual signals on the surface were not maintained in an operative condition.
- The CO detection sensors were not installed near the center of the entry in the main air stream at several locations.
- The CO detection sensor spacing exceeded 1,000 feet in the North West Mains and North East Mains belt conveyor entries.
- A CO detection sensor was not installed as required within 100 feet down wind of the No. 7 belt conveyor head drive.
- The longwall section CO alarm unit was not installed where it could be easily seen or heard by miners. In addition the internal battery was disconnected.
- CO detection sensors were not being visually examined at least once each shift while belts were being operated.
- Functional tests of the AMS were not conducted at least once every seven days.
- The mine operator failed to ensure proper calibration of CO detection sensors at intervals not to exceed 31 days.
- AMS operators failed to properly record alert, alarm, and malfunction signals.
- The mine operator failed to maintain a record of the AMS malfunctions and the corrective actions taken.
- The mine operator failed to provide records to establish the results of required seven day tests and maintenance of the AMS.
- The mine operator failed to properly maintain calibration records for the AMS.
- The mine operator failed to maintain the AMS in proper condition.
- The mine operator failed to program the AMS to provide alarms to affected areas when two consecutive sensors indicated alert levels of CO.
- The mine operator failed to maintain calibration records for the AMS for a period of one year as required.
- CO Sensor 84, located along the 9 Headgate longwall belt conveyor, was not identified on the AMS schematic diagram indicating the location of the CO Sensors.

- The operational status of CO sensor 84 was not identified at the designated surface location. The schematic on the Atmospheric Monitoring System display did not include this sensor.

After the conclusion of rescue and recovery efforts associated with the January 19 fire, MSHA resumed the regular inspection that had been started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection and a spot inspection conducted by MSHA's accident investigation team, eight additional citations were issued under 30 CFR 75.351 for various violations involving the AMS. A description of these violations follows.

- On February 23, 2006, an S&S citation (7419377) was issued stating, "An up-to-date mine map or schematic of the mine was not provided at a designated location to indicate the intended air flow direction at AMS CO sensor locations in the belt conveyor entries. The mine map provided at the AMS monitoring station was not up-to-date to indicate the belt air flow direction for the main belts and section belts for the No. 2, No. 3, and the Longwall Section."
- On February 23, 2006, an S&S citation (7419378) was issued stating, "Based on information obtained from the witness's interview conducted on February 23, 2006, during an ongoing accident investigation, it was determined that the employee's AMS training was not adequate to respond to carbon monoxide sensor warnings, alarms, fire or emergency situations. Employees are underground performing work."
- On March 23, 2006, a non-S&S citation (7244381) was issued stating, "The CO sensor for the No. 2 six foot tail piece is not located downwind with in 100 feet of the tailpiece."
- On March 24, 2006, a non-S&S citation (7244378) was issued stating, "The operator does not have a CO sensor located not more than 100 feet downwind of the 6 foot No. 6 belt drive unit. The nearest sensor downwind is approximately 600 feet."
- On March 27, 2006, a non-S&S citation (7244382) was issued stating, "The transfer (boom roller assembly) for the No. 7 six foot belt is not provided with a CO sensor downwind with in 100 feet. The nearest CO sensor is approximately 400 feet downwind. The transfer is 3 breaks (approximately 300 feet) inby the drive unit."
- On March 27, 2006, a non-S&S citation (7244383) was issued stating, "The operator does not have 50 fpm of air movement at the 48 inch No. 2 belt drive

unit. When tested with smoke no movement was observed. The CO sensors in this area are spaced on 1000 feet intervals.”

- On March 27, 2006, a non-S&S citation (7244384) was issued stating, “The primary escape way for the 11 head gate panel is not monitor by a co sensor located within 500 feet inby the beginning of the panel.”
- On March 27, 2006, a non-S&S citation (7241399) was issued stating, “The AMS Sensor located to monitor the number 2 belt drive is not located to monitor the take up unit in that the sensor is installed 25 feet out by the take up unit.”

The internal review team determined that CO sensors and sensor lines underground were documented to have been inspected at various locations during two regular inspections conducted from January through June 2005. During the period July through December 2005, inspection notes for November 28, 2005, indicate the inspector checked the AMS records and system components and observed the operator making a required calibration of system sensors along the “No. 1 Main 48 inch belt.” Inspection documentation also shows that the Records of the AMS alarm activations were checked on July 28 and November 22, 2005. During the partial inspection conducted during January 2006, District 4 personnel had not yet inspected the AMS.

During the review period, District 4 personnel issued two non-S&S citations for violations of 30 CFR 75.351(a) at the Aracoma Alma Mine #1. One citation (7244807), issued on November 28, 2005, was based on the CO sensor positioned at the tail piece of the 2 Section belt conveyor not being connected to the AMS. The citation was improperly terminated noting “the required amount of air was moving across the CO sensor.” There were no notes to accompany this citation. The second citation (7244819) was issued on December 20, 2005, for a malfunctioning CO sensor on the No. 6 belt.

The last MSHA presence near 2 Section was on January 12, 2006, when an inspector documented traveling the intake escapeway for 2 Section, took bottle samples in the left and right returns and traveled the left return.

Conclusion: District 4 personnel did not recognize and/or cite several violations of 30 CFR 75.351 present during one or more inspections prior to the fatal fire. MSHA’s accident investigation team determined that an alarm unit for 2 Section had never been installed as required. Although MSHA inspectors issued two citations regarding the AMS prior to the fire, including a citation relative to a CO sensor at the 2 Section tailpiece, the absence of the required section alarm was not identified or cited. Additionally, numerous citations and orders relative to the AMS were issued following the fire. An adequate inspection by MSHA would have identified the deficiencies with the AMS, including the fact that no alarm unit had been installed on 2 Section.

Enforcement of 30 CFR 75.352(a)

Actions in response to AMS malfunction, alert, or alarm signals

Requirement: Mandatory safety standard 30 CFR 75.352(a) requires that when a malfunction, alert, or alarm signal is received at the designated surface location, the sensor(s) that are activated must be identified and the AMS operator must promptly notify appropriate personnel.

MSHA Policies and Procedures: The MSHA *Carbon Monoxide Inspection Procedures Handbook* (PH92-V-5) directs inspectors to determine the duties of the responsible person assigned to monitor the CO system at a surface location and determine if the responsible person is aware of the actions that must be taken when an alert or alarm level has been indicated.

Statement of Facts: The MSHA accident investigation team determined that the AMS operator who was on duty when the mine fire occurred on January 19, 2006, did not promptly notify the appropriate personnel that an alarm signal had been generated.

Similar actions were taken by the AMS operator on duty on December 23, 2005, when a fire occurred at the 9 Headgate Longwall Belt Conveyor take-up storage unit. The AMS operator notified a miner to investigate the source of the alarms, but did not notify appropriate personnel of alarm signals.

In these two fire events, the AMS operator on duty failed to promptly notify appropriate personnel of alarm signals. This was supported by the fact that miners on affected sections were not withdrawn to a safe location on these dates. This lack of prompt notification significantly contributed to the delay of the withdrawal of the miners on 2 Section and 9 Headgate Longwall Section to a safe location on January 19, 2006. This delay endangered miners due to the life-threatening and deteriorating circumstances, and contributed to the inability of the two victims to escape the mine. The accident investigation team issued an S&S, Section 104(d)(2) order (7435529) for this contributory violation of 30 CFR 75.352(a).

The MSHA accident investigation team also issued an S&S, Section 104(d)(2) order (7435558) for a non-contributory violation of 30 CFR 75.352(a) indicating that the mine operator failed to ensure that the dispatcher/AMS operator notify appropriate personnel when a malfunction, alert, or alarm signal is received at the AMS computer station on the surface. Upon notification of an AMS malfunction, alert, or alarm signal, the AMS operator did not always promptly notify appropriate personnel.

During each of the four regular inspections in 2005, District 4 personnel assigned to inspect the Aracoma Alma Mine #1 did not document in their notes that the

atmospheric monitoring system was inspected in its entirety or that evacuation procedures were discussed with the AMS operator.

During interviews conducted by the internal review team, the District 4 inspector assigned to the Aracoma Alma Mine #1 indicated that generally the regular inspector was responsible for inspecting the AMS system. He indicated that he had received no formal training regarding inspection of the AMS system. However, he stated that he had an understanding of the duties of the AMS operator in the event that an alarm was activated.

During the review period, District 4 personnel did not issue any citations for violations of 30 CFR 75.352 at the Aracoma Alma Mine #1. Inspection documentation showed the records of the AMS alarm activations were last inspected on November 22, 2005.

After the conclusion of rescue and recovery efforts associated with the January 19 fire, MSHA continued the regular inspection started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection the mine was inspected in its entirety and there were no additional citations issued under 30 CFR 75.352.

Conclusion: District 4 inspectors assigned to inspect the Aracoma Alma Mine #1 did not document in their inspection notes that evacuation procedures were discussed with the AMS operator. However, during interviews, one MSHA inspector indicated he understood the requirements of 30 CFR 75.352(a), discussed evacuation procedures with the AMS operator, and would have taken appropriate action if a violation of this standard was discovered.

Enforcement of 30 CFR 75.352(c)(2)

Actions in response to AMS malfunction, alert, or alarm signals

Requirement: Mandatory safety standard 30 CFR 75.352(c)(2) requires that if any sensor installed in accordance with 75.340(a)(1)(ii), 75.340(a)(2)(ii), 75.350(b), or 75.350(d) indicates an alarm or if any two consecutive sensors indicate alert at the same time, all personnel in the affected areas, unless assigned other duties under 30 CFR 75.1502, must be withdrawn promptly to a safe location identified in the mine emergency evacuation and firefighting program of instruction.

MSHA Policies and Procedures: The MSHA *Carbon Monoxide Inspection Procedures Handbook* (PH92-V-5) directs inspectors to review the Firefighting and Evacuation Plan for specific reference to the AMS.

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states that discussions shall be conducted with the miners to determine if they are familiar with the map location, the designated escape routes, and evacuation procedures.

Statement of Facts: The MSHA accident investigation team determined that on January 19, 2006, an underground mine fire occurred at the 9 Headgate Longwall Belt Conveyor take-up storage unit. AMS alarm signals were indicated for carbon monoxide sensors 81 and 82. Persons in the affected areas were not notified of these alarms and were not promptly withdrawn to a safe location identified in the mine operator's Emergency Evacuation and Firefighting Program of Instruction. The affected working sections during the fire that occurred on January 19, 2006, included both 2 Section and 9 Headgate Longwall Section.

Two other fires occurred at this mine (December 23, 2005, 104(d)(2) Order No. 6643221, and December 29, 2005, 104(d)(2) Order No. 6643222) during which carbon monoxide sensors activated AMS alarm signals in the dispatcher's office on the surface. In both cases, the miners in the affected areas of the mine were not notified of the alarms and were not withdrawn to a safe location. The mine operator's repeated lack of proper response to the carbon monoxide alarm signals is an indication of an attitude of indifference to the requirements of 30 CFR 75.352(c)(2). The delay in notification and failure to promptly withdraw miners contributed to the inability of the two victims to escape the mine on January 19, 2006. The accident investigation team issued an S&S, Section 104(d)(2) order (7435524) for this contributory violation of 30 CFR 75.352(c)(2).

Additionally, the accident investigation team issued two S&S, Section 104(d)(2) orders for the following non-contributory violations of 30 CFR 75.352(c)(2).

- The MSHA accident investigation team determined that on Friday, December 23, 2005, carbon monoxide concentrations caused activation of sensors No. 81 (Inby No. 7 Belt Conveyor Tail) and No. 82 (In the area of the 9 Headgate belt drive/take-up storage unit) on the AMS. Persons on 2 Section were not notified of these alarms and were not promptly withdrawn to a safe location identified in the mine's Emergency Evacuation and Firefighting Program of Instruction. For the fire that occurred on December 23, 2005, the affected areas included both the 2 Section and the Longwall Section.

Two other fires occurred at this mine (December 29, 2005 and January 19, 2006) which activated the alarms of the AMS. In both cases, the miners in the affected areas were not notified of the alarms and were not promptly withdrawn to a safe location. This behavior and lack of response to the carbon monoxide alarms is evidence of an attitude of indifference to the requirements of 30 CFR 75.352(c)(2).

- The MSHA accident investigation team determined that on Thursday, December 29, 2005, an underground mine fire occurred near the company No. 5 Belt Conveyor tailpiece. AMS alarm activations were indicated for six sensor locations (Nos. 94, 50, 51, 53, 80, and 81). Persons in the affected areas were not notified of these alarms and were not promptly withdrawn to a safe location identified in the mine's Emergency Evacuation and Firefighting Program of Instruction. For the fire that occurred on December 29, 2005, the affected areas included both the 2 Section and the Longwall Section.

Two other fires occurred at this mine (December 23, 2005 and January 19, 2006), which activated the alarms of the AMS. In both cases, the miners in the affected areas were not notified of the alarms and were not promptly withdrawn to a safe location. This behavior and lack of response to the carbon monoxide alarms is evidence of an attitude of indifference to the requirements of 30 CFR 75.352(c)(2).

The approved Mine Emergency Evacuation and Firefighting Program of Instruction, dated January 8, 2003, required in pertinent part that:

- If any fire sensor alarm is activated, all miners in the same air split as the belt flight indicated shall be immediately notified and withdrawn outby the belt flight in question. All persons shall remain at that location, or be withdrawn from the mine, until the reason for the alarm has been determined and action has been taken to correct the condition.
- If it is determined that a fire exists, all persons not required for firefighting activities shall be evacuated from the mine.
- In the event that telephone communications are destroyed or if section foreman cannot be reached, the power will be pulled to alert the foreman.

During interviews conducted by the internal review team, the inspector assigned to inspect the mine at the time of the fatal fire indicated that he understood the requirements of the plan regarding activation of an alert or alarm. During the review period, District 4 personnel did not issue any citations for violations of 30 CFR 75.352 at the Aracoma Alma Mine #1.

After the conclusion of rescue and recovery efforts associated with the January 19 fire, MSHA resumed the regular inspection that had been started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection, the mine was inspected in its entirety and there were no additional citations issued under 30 CFR 75.352.

Conclusion: District 4 inspectors assigned to inspect the Aracoma Alma Mine #1 did not document in their inspection notes that the AMS was inspected in its entirety or that evacuation procedures were discussed with the AMS operator. However, during interviews, one MSHA inspector indicated he understood the requirements of 30 CFR 75.352(c)(2), discussed evacuation procedures with the AMS operator, and would have taken appropriate action if a violation of this standard was discovered.

Enforcement of 30 CFR 75.360(b)(9) and (b)(10)

Preshift examination at fixed intervals

Requirement: Mandatory safety standard 30 CFR 75.360 (a)(1) states that a certified person designated by the operator must make a preshift examination within 3 hours preceding the beginning of any 8-hour interval during which any person is scheduled to work or travel underground. No person other than certified examiners may enter or remain in any underground area unless a preshift examination has been completed for the established 8-hour interval. The operator must establish 8-hour intervals of time subject to the required preshift examinations.

Paragraph (b)(9) states that the person conducting the preshift examination shall examine for hazardous conditions, test for methane and oxygen deficiency, and determine if the air is moving in its proper direction at underground electrical installations referred to in 30 CFR 75.340(a), except those pumps listed in 30 CFR 75.340(b)(2) through (b)(6), and areas where compressors subject to 30 CFR 75.344 are installed if the electrical installation or compressor is or will be energized during the shift.

Paragraph (b)(10) states that the person conducting the preshift examination shall examine for hazardous conditions, test for methane and oxygen deficiency, and determine if the air is moving in its proper direction at other areas where work or travel during the oncoming shift is scheduled prior to the beginning of the preshift examination.

Paragraph (f) states in pertinent part that the results of methane tests shall be recorded as the percentage of methane measured by the examiner and the record shall be made by the certified person who made the examination or by a person designated by the operator. If the record is made by someone other than the examiner, the examiner shall verify the record by initials and date by or at the end of the shift for which the examination was made.

Paragraph (g) states that records shall be retained at a surface location at the mine for at least 1 year and shall be made available for inspection by authorized representatives of the Secretary and the representative of miners.

MSHA Policies and Procedures: The Preamble to the Final Rule for Safety Standards for Underground Coal Mine Ventilation - 03/11/1996; Federal Register 96-5453 [Page 9793] states in relevant part, *Preshift examinations assess the overall safety conditions in the mine; assure that critical areas are properly ventilated; assure that the mine is safe to be entered by miners on the oncoming shift; identify hazards whether violations or not, for the protection of the miners; and through this identification facilitate correction of hazardous conditions.* It also states on Page 9796 in relevant part, *A review of the accident history reveals a number of fires in equipment that, under the final rule, would be subject to preshift examinations. For example, the compressor that MSHA identified as the probable cause of the fire in the Wilberg Mine, which killed 28 miners, would have required a preshift examination under (b)(9) of the final rule. Additionally, MSHA has identified several fires associated with rectifiers and transformer installations in the mining industry. One of these transformer fires was discovered during a preshift examination.*

The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) directs that inspectors evaluate the operator's compliance with requirements for conducting preshift, on-shift, and weekly examinations during every regular inspection by:

- Selectively traveling (at least once) with the person(s) who performs the preshift, on-shift, and weekly examinations to evaluate the thoroughness and completeness of such examinations and to determine if the time expended by the examiner is commensurate with the areas required to be traveled and examined;
- Determining that all areas where persons work or travel are properly examined. Particular emphasis shall be placed on idle workings, worked out areas that are not sealed, and other such areas where persons may be required to work or travel;
- Looking for initials, dates, and times of examinations in all areas where such information is required;
- Determining if the required examinations are conducted by certified examiners; and
- Evaluating the operator's examination records to determine that examination results appear to be authentic.

The Handbook also directs inspectors to examine at least the preshift and on-shift record books before going underground paying particular attention to record book entries of conditions of an area of the mine that may identify a serious or potentially hazardous problem. The inspector should proceed to this area immediately. Record books checked must be listed in the inspection notes.

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states before physically inspecting an area of a mine, the inspector shall examine, where practical, all of the operator's most recent examination records pertinent to the planned inspection activity for that day. More than one record will often apply to an area, such as preshift, on-shift, daily, and weekly examinations. When a record of examination lists a condition that may identify a serious hazard, the inspector should thoroughly document the hazards in the narrative portion of the inspection notes and proceed to this area immediately. If additional areas are inspected (other than those planned at the start of the shift), pertinent examination records shall also be examined prior to leaving the mine property. In all cases, mine records pertinent to the issuance of a citation, order, or safeguard shall be reviewed prior to placing the enforcement action in writing.

The handbook also states that the inspector shall accompany at least one mine examiner during a required pre-shift examination to determine if adequate examinations are being conducted.

Statement of Facts: The MSHA accident investigation team determined that preshift examinations required at the location of the underground electrical installations for the 9 Headgate longwall belt, South of SS 3266, were not adequate. The examinations failed to identify the lack of a properly constructed airlock intended to separate the 2 Section primary escapeway from the No. 7 Belt Conveyor entry. A permanent stopping, located immediately adjacent to the North East Mains roadway South of SS 3266 was removed a significant period of time prior to January 19, 2006, reportedly to reduce heat in the crosscut where the power boxes were installed. The removal of this stopping, in conjunction with the open crosscuts along the North East Mains roadway between 9 Headgate and 9 Tailgate, resulted in a lack of separation between the 2 Section primary escapeway and the No. 7 Belt Conveyor entry. The accident investigation team issued an S&S, Section 104(d)(2) order (7435525) for this contributory violation of 30 CFR 75.360(b)(9).

The MSHA accident investigation team also determined that preshift examinations required at the location where miners were scheduled to install belt structure in by the No. 7 Belt Conveyor tail pulley were inadequate. The stopping between SS 3266 and SS 3332, in North East Mains had been removed to facilitate extension of the No. 7 Belt Conveyor structure. The stopping was necessary to separate the No. 7 Belt Conveyor from the primary escapeway for 2 Section. Corrective actions were not taken for the hazardous condition created by the absence of stoppings necessary to provide separation between the primary escapeway for 2 Section and the No. 7 Belt Conveyor Entry.

This lack of separation between the primary escapeway and the belt conveyor entry allowed thick smoke and carbon monoxide gas to inundate the primary escapeway

used by the miners during the evacuation from 2 Section on January 19, 2006. Due to reduced visibility caused by the thick smoke, two miners were separated from the section crew and unable to escape. The accident investigation team issued an S&S, Section 104(d)(2) order (7435110) for this contributory violation of 30 CFR 75.360(b)(10).

The MSHA accident investigation team also determined that the mine operator failed to conduct an adequate preshift examination of the No. 7 Belt Conveyor for the day shift on January 19, 2006. This examination was also intended to satisfy the requirements of 30 CFR 75.362 (b).

The belt examiner failed to identify, record, and correct that the No. 7 Belt Conveyor was not separated from the primary escapeway for 2 Section. Further, the last record of an examination of the No. 7 Belt Conveyor was not signed or initialed by the examiner. The examination was not complete, and hazardous conditions that were determined to have existed at the time of the examination were not recorded. The examination record indicated air was moving in the right direction with a velocity greater than 50 fpm. However, the belt examiner stated he did not make airflow direction determinations, or air velocity measurements, and was unable to identify the proper airflow direction in the No. 7 Belt Conveyor entry.

The stopping was one of those necessary to provide separation between the 2 Section primary escapeway and the No. 7 Belt Conveyor entry. This lack of separation allowed smoke and carbon monoxide gas to inundate the primary escapeway used by the miners during the evacuation from 2 Section on January 19, 2006. Smoke from the fire adversely impacted the ability of miners from 2 Section to escape, resulting in two fatalities. The accident investigation team issued an S&S, Section 104(d)(2) order (7435108) for this contributory violation of 30 CFR 75.360(b)(10).

The accident investigation team also issued four non-contributory citations and orders regarding inadequate preshift examination records. These citations are described below.

- A non-S&S citation (6643223) for a violation of 30 CFR 75. 360(f) was issued stating, "An inspection subsequent to an ongoing accident investigation revealed the results of preshift mine examinations for the No. 2 Section were not properly recorded. Beginning on December 15, 2005 and extending to January 03, 2006, there are numerous instances (51) during this time period where no methane percentages are recorded as required into the preshift record book for 2 Section."
- A non-S&S citation (6643224) for a violation of 30 CFR 75. 360(f) was issued stating, "An inspection subsequent to an ongoing accident investigation revealed the record of preshift mine examinations for January 19, 2006, travelways, was not completed as required. Two examiners conducted preshift examinations for

the on-coming afternoon shift from the No. 5 Belt Conveyor Head Drive inby to 2 Section, to the Longwall and 3 Sections along the travelways, as specified in the record book. The record of preshift mine examinations for this date was not signed or initialed by the examiner(s) conducting the examinations as required.”

- An S&S, Section 104(d)(2) order (6643225) for a violation of 30 CFR 75.360(a)(1) was issued stating, “An inspection subsequent to an ongoing accident investigation revealed that the mine operator failed to conduct an adequate preshift examination of the 9 Headgate Longwall Belt Conveyor on January 19, 2006. The examination was not complete, and hazardous conditions that were determined to have existed at the time of the examination were not recorded. The examination record indicated air was moving in the right direction with a velocity of greater than 50 fpm. However, the belt examiner stated he did not make airflow direction determinations, or air velocity measurements. The belt examiner failed to identify, record, and correct numerous hazardous conditions as follows:
 1. Damaged and missing trip latch lever posts and damaged drop-off carriage assembly trip latch levers that affected positioning of the drop-off carriage within the 9 Headgate longwall belt take-up storage unit;
 2. Damaged bottom rollers, bottom rollers on the ground with indications they had been rotating in combustible material on the mine floor, and damaged top rollers;
 3. Damaged belt hangers, some partially cut through and others severed from prolonged rubbing from misaligned belt;
 4. Damaged belt take-up storage unit frame components, partially cut through from prolonged rubbing of misaligned belt;
 5. Severed strips of belt on the mine floor and hanging on belt structure;
 6. Lengths of partially severed strips of belt;
 7. Shavings of belt on the mine floor;
 8. Belt cord fibers wrapped around belt roller components; and
 9. Extended lengths of belt with frayed edges.

Based on these conditions, the longwall belt conveyor should have been removed from service by the examiner. These conditions were obvious and located in the areas traveled by mine examiners.”

A non-S&S, Section 104(d)(2) order (6643226) for a violation of 30 CFR 75. 360(g) was issued stating that “[a]n inspection subsequent to an ongoing accident investigation revealed the records of preshift mine examinations relevant to the accident investigation at this mine, were not maintained at a surface location at the mine and made available for inspection by authorized representatives of the Secretary. The records for the period prior to November 09, 2005 were not provided by the mine operator.”

During the review period, District 4 personnel issued four citations for violations of 30 CFR 75.360 at the Aracoma Alma Mine #1. The citations are described below.

- On October 12, 2005, a non-S&S citation (7244778) was issued stating, “Management’s record of the pre-shift examination of the 7 active working places on the #3 Section failed to show the results of CH₄ measurements taken at each face. Management did record a general statement that a CH₄ test was conducted, and no CH₄ was found.” The citation was terminated November 2, 2005.
- On November 1, 2005, a non-S&S citation (7244793) was issued stating, “The second shift preshift examiner and the 3rd shift preshift examiner failed to record their initials, dates and times in the face area of #5 and #2 entries. No DTI’s⁹ were found by the writer during an inspection of this #3 Section.” The citation was terminated November 1, 2005.
- On January 9, 2006, a non-S&S citation (7244825) was issued stating, “Management failed to record initials, dates or times along the #3 Section belts #1, #2 or #3. The record on the surface indicated that the belts had been made, but no DTI’s could be found along the belt system.” The citation was terminated January 10, 2006.
- On January 9, 2006, an S&S citation (7244826) was issued stating, “Management failed to do a pre-shift examination of the roadway from the mouth of #3 Section just inby the air lock doors to the section two breaks out by the section dumping point. No record on the surface could be found of this required examination, no DTI’s with today’s date were found along this roadway no DTI’s were found at electrical installation along this roadway.” The citation was terminated January 9, 2006.

⁹ Date, Time, and Initials of the individual conducting the examination

Travel with a preshift examiner was not documented by District 4 personnel during the two inspection quarters covering the period from January through June 2005. Inspectors documented that they traveled with a preshift examiner on the following dates:

- September 21, 2005 – 2 Section
- September 30, 2005 – 3 Section
- November 1, 2005 – 3 Section aircourse(s)
- November 28, 2005 – 2 Section
- January 9, 2006 – 3 Section

During the review period, an MSHA inspector documented that they last inspected the 9 Headgate longwall belt on December 5, 2005, when an inspector traveled the entire longwall belt conveyor and last inspected the 2 Section primary escapeway on January 12, 2006, from the surface to the section.

District 4 inspectors documented that they inspected the record books maintained by the mine operator for preshift examinations during each regular inspection. District 4 inspectors indicated during interviews conducted by the internal review team that they always checked preshift records prior to going underground. However, inspectors documented examination of the preshift records only 76 percent (55 of 76) of the time prior to going underground during the five regular inspections.

MSHA's accident investigation team provided copies of available preshift examination records from the Aracoma Alma Mine #1 to the internal review team. Preshift examination records for the mine's sections were reviewed for the period September through January 19, 2006. The record books for 2 and 3 Sections revealed that 22 percent of the recorded entries were inaccurate or incomplete.

After the conclusion of rescue and recovery efforts associated with the fatal fire, MSHA resumed the regular inspection that had been started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection two citations and one order were issued for violations of 30 CFR 75.360 due to inadequate examinations. A description of the citations follows.

- On February 22, 2006, an S&S, Section 104(d)(1) order (7243292) was issued stating, "An inadequate preshift examination was performed on the 3 Mains Section on 02/22/2006 at 0400 to 0445 for the day shift crew. The record book for the preshift examination indicated that no hazards were observed. A citation for loose ribs and over hanging brows has been issued on the 3 Mains Section. These conditions were located in numerous locations throughout the entire 3 Mains

Section. These conditions were very obvious and should have been recorded during the preshift examination.”

- On March 9, 2006, an S&S citation (7243317) was issued stating, “The No. 2 (6-foot) belt conveyor entry could not be traveled in its entirety safely as for examination purposes in that water had accumulated at two different locations in excess of 18 inches in depth, and said accumulations did create a stumbling or tripping hazard to a person or persons who are required to travel this belt due to not being able to see the mine floor. (1). Water accumulations at Break 26 and extended to Break 27, (2) water accumulations at Break 31 and extended to Break 33. Said belts are required to be traveled on all shifts due to work being performed on said belts.”
- On March 17, 2006, an S&S citation (7252611) was issued stating, “An adequate pre-shift examination could not and was not being conducted along the track entry at this mine site beginning at the 3-way and extending to the Rum Creek Portal in that said track entry contained several high cavity areas in the mine roof up to 18 feet in height and no means or probe of some type was provided so as to conduct an adequate examination for methane. Said condition did create a hazard due to methane will accumulate in high places and battery powered equipment used said track entry for the transportation of material and personnel.”

Conclusion: MSHA’s evaluations of the mine operator’s preshift examinations and associated records were inadequate. District 4 personnel documented inspections of the preshift records only 76 percent (55 of 76) of the time prior to going underground. The internal review team reviewed preshift records documenting examinations conducted from September 17, 2005 to January 19, 2006 and determined that 22 percent of the recorded entries were inaccurate or incomplete for the 2 and 3 Sections. The MSHA accident investigation also determined that beginning on December 15, 2005, and extending to January 3, 2006, there were 51 instances where methane percentages were not recorded as required in the preshift record book for 2 Section. Additionally, inspection personnel failed to document travel with the examiners to determine if the mine examiners were performing proper preshift examinations during the period of January through June 2005.

Enforcement of 30 CFR 75.362(b)

On-shift examinations

Requirement: Mandatory safety standard 30 CFR 75.362(b) requires that during each shift that coal is produced, a certified person shall examine for hazardous conditions along each belt conveyor haulageway where a belt conveyor is operated. This

examination may be conducted at the same time as the preshift examination of belt conveyors and belt conveyor haulageways, if the examination is conducted within 3 hours before the oncoming shift.

Mandatory safety standard 30 CFR 75.362(g) requires that the person conducting the on-shift examination in belt haulage entries shall certify by initials, date, and time that the examination was made. The certified person shall certify by initials, date, and the time at enough locations to show that the entire area has been examined.

MSHA Policies and Procedures: *CMS&H Memo No. HQ-03-008-A (PRT-43)* dated January 6, 2003, from the CMS&H Administrator to the district managers describes the importance of proper workplace examinations, including examinations required by 30 CFR 75.362. The memorandum states that *[e]xaminations are the primary means of ...detecting hazardous conditions such as ...accumulations of combustible material, including float coal dust. The examinations, along with the record keeping requirements of the examinations, are important tools for ensuring a safe working environment for the miners. It also states that [i]nspection personnel shall also review record books for reported hazards, the length of time the hazard has existed, and the action taken to correct the hazard.*

In the legislative history of the Coal Mine Health and Safety Act of 1969, the Congress expressed its concern with coal-carrying belts and the potential hazards associated with belt lines, noting that *[m]any fires occur along belt conveyors as a result of defective electric wiring, overheated bearings, and friction; and therefore, an examination of belt conveyors is necessary.* Given these potential hazards, Congress deemed it necessary for operators to conduct an inspection of coal-carrying belts during each production shift these belts are in operation.

The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) directs inspectors to evaluate the operator's compliance with requirements for conducting preshift, on-shift, and weekly examinations during every regular inspection by:

- Selectively traveling (at least once) with the person(s) who performs the preshift, on-shift, and weekly examinations to evaluate the thoroughness and completeness of such examinations and to determine if the time expended by the examiner is commensurate with the areas required to be traveled and examined;
- Determining that all areas where persons work or travel are properly examined. Particular emphasis shall be placed on idle workings, worked out areas that are not sealed, and other such areas where persons may be required to work or travel;
- Looking for initials, dates, and times of examinations in all areas where such information is required;

- Determining if the required exams are conducted by certified examiners; and
- Evaluating the operator's examination records to determine that examination results appear to be authentic.

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states before physically inspecting an area of a mine, the inspector shall examine, where practical, all of the operator's most recent examination records pertinent to the planned inspection activity for that day. More than one record will often apply to an area, such as preshift, on-shift, daily, and weekly examinations. When a record of examination lists a condition that may identify a serious hazard, the inspector should thoroughly document the hazards in the narrative portion of the inspection notes and proceed to this area immediately. If additional areas are inspected (other than those planned at the start of the shift), pertinent examination records shall also be examined prior to leaving the mine property. In all cases, mine records pertinent to the issuance of a citation, order, or safeguard shall be reviewed prior to placing the enforcement action in writing.

The handbook also states that the inspector shall accompany at least one mine examiner during a required on-shift examination to determine if adequate examinations are being conducted.

Statement of Facts: MSHA's accident investigation team determined that the mine operator failed to conduct adequate on-shift examinations of the Longwall Belt Conveyor for the day shift on January 19, 2006. The following hazardous conditions were not identified by the mine examiner:

1. Accumulations of combustible material were present in the form of grease, oil, coal dust, coal fines, and loose coal spillage at numerous locations along the approximate 2,000 foot length of the 9 Headgate longwall belt conveyor;
2. Damaged bottom rollers, bottom rollers on the ground with indications they had been rotating in combustible material on the mine floor, and damaged top rollers;
3. Damaged and missing trip latch lever posts and damaged drop-off carriage assembly trip latch levers that affected positioning of the drop-off carriage within the 9 Headgate longwall belt take-up storage unit;
4. No fire suppression system of any type, which would actuate in the event of a rise in temperature, was provided for the belt take-up storage unit and electrical components; and

5. Fire hose outlet valves near the longwall belt conveyor tailpiece were not provided with handles to actuate.

There were also several indications of prolonged operation of the longwall belt conveyor system while the belt was misaligned, including:

1. Damaged belt hangers, some partially cut through and others severed from prolonged rubbing from misaligned belt;
2. Damaged belt take-up storage unit frame components, partially cut through from prolonged rubbing of misaligned belt;
3. Severed strips of belt on the mine floor and hanging on belt structure;
4. Lengths of partially severed strips of belt;
5. Shavings of belt on the mine floor;
6. Belt cord fibers wrapped around belt roller components; and
7. Extended lengths of belt with frayed edges.

Further, the last record of an examination of the 9 Headgate Longwall Belt Conveyor was not signed or initialed by the examiner. The examination was not complete and hazardous conditions that were determined to have existed at the time of the examination were not recorded. Although the examination record indicated air was moving in the right direction with a velocity greater than 50 fpm, the belt examiner stated he did not make airflow direction determinations or air velocity measurements, and was unable to identify the proper airflow direction in the longwall belt entry. Required mine examinations were routinely conducted by certified examiners who were not equipped with an MSHA approved gas detector capable of determining oxygen deficiency and methane concentrations.

Based on these conditions, the longwall belt conveyor should have been removed from service by the examiner. These conditions were obvious and located in the areas traveled by mine examiners. Many of these conditions contributed to the severity and extent of the mine fire on January 19, 2006, which ultimately resulted in the two fatalities. MSHA's accident investigation team issued an S&S, Section 104(d)(2) order (7435526) for this contributory violation of 30 CFR 75.362(b).

The MSHA accident investigation team also issued one S&S, Section 104(d)(2) order (6643227) for a non-contributory violation of 30 CFR 75.362(g) indicating that an adequate on-shift examination of the No. 7 Belt Conveyor was not conducted on

January 19, 2006 in its entirety. Mine management failed to maintain a safe access across the overcast in by the No. 7 Belt Conveyor Head Drive. The overcast was not provided with access steps or other safe means to traverse the overcast to complete the required on-shift belt examination in its entirety.

The belt conveyor system used to transport coal from the working sections to the surface area of the mine consisted of eight 72-inch belt flights and six 48-inch belt flights. The 72-inch belts were routed from the Rum Creek surface area to the headgate area of the longwall section. Both the 2 and 3 advancing continuous mining sections each utilized 48-inch belt flights to transport coal onto the 72-inch belt.

The internal review team examined inspection records for the period January 1, 2005, through January 19, 2006. MSHA inspectors documented that they inspected the belt entries in their entirety during the first three regular inspections of 2005. However, the No. 7 belt was not inspected during the fourth quarter (October - December 2005). Additionally, travel with an on-shift examiner was not documented by MSHA inspectors during the two inspection quarters covering the period of January 2005 through June 2005.

During the review period, no citations were issued under 30 CFR 75.362 relative to the operator's examination of belt conveyor entries in the Aracoma Alma Mine #1. However, one S&S citation (7244834) for a violation of 30 CFR 75.362(a)(2) was issued for an inadequate on-shift examination of the dust control parameters for a continuous mining machine on 3 Section.

During the first two regular inspections from January through June 2005 (Event 4108089 and Event 4103928) inspection notes indicated that the belt entries were inspected in their entirety and no citations were issued. During the regular inspection (Event 4108728) conducted from July 13 through September 30, 2005, inspection notes indicated the belt entries were inspected in their entirety and three citations were issued relative to the condition of these entries. The citations are described below.

- On August 16, 2005, a non-S&S citation (7188569) was issued stating that "500 ft of firefighting hose was not provided for the No. 6 72-inch conveyor beltline." The citation was terminated September 1, 2005.
- On September 12, 2005, a non-S&S citation (7188582) was issued stating that "500 ft of firefighting hose was not provided for the No. 1 Mains conveyor beltline." The citation was terminated September 26, 2005.
- On September 12, 2005, an S&S citation (7188583) was issued stating that "[t]he guard provided for the No. 2 (10 Headgate) conveyor beltline did not extend an adequate distance to prevent persons from entering the belt take up area and

contacting moving parts which may cause injury.”¹⁰ The citation was terminated September 26, 2005.

During the regular inspection (Event 4113204) conducted from October 11 through December 23, 2005, inspection notes indicate the belt entries were inspected in their entirety, with the exception of the No. 7 belt. Eight citations were issued in the belt entries relative to the mine’s atmospheric monitoring system, accumulations of combustible materials, insufficient belt air velocities, and inadequate guarding.

A regular inspection (Event 4113207) was initiated on January 3 and was ongoing on the date of the fatal mine fire on January 19, 2006. Inspection notes indicated the No. 4 (72-inch) belt and the Nos. 1, 2, and 3 belts (48-inch) for 3 Section were inspected. Two citations were issued relative to the condition of the belt entries and are described below.

- On January 9, 2006, a non-S&S citation (7244825) was issued stating that “[m]anagement failed to record initials, dates or times along the No. 3 Section belts Nos. 1, 2, or 3. The record on the surface indicated that the belts had been made, but no DTI’s could be found along the belt system.” This citation was terminated upon exit from the mine.
- On January 12, 2006, an S&S citation (7244833) was issued stating that “[t]he No. 10 Headgate mother drive take-up unit idler roller was not adequately guarded to protect miners from moving machine parts. The belt walk way was directly adjacent to the moving machine parts. Miners working or traveling in this area were exposed to the moving machine parts.” This citation was terminated on the same day.

The internal review team reviewed the mine operator’s records of on-shift examinations of the belt entries. This review indicated that from October 10, 2005, through January 19, 2006, the mine operator documented 3,119 examinations of the belt entries. During 75 percent of these examinations, mine examiners recorded in the record books that the belts needed to be cleaned, dusted, or both. Of all these recorded hazards, 44 percent did not indicate that corrective actions had been implemented. The details of these records are discussed in the section of this report entitled “Enforcement of 30 CFR 75.363.”

Following the fatal mine fire, the belt entries were inspected in their entirety by inspection personnel not assigned to the Logan field office. A total of 86 citations and

¹⁰ *At the time of this citation the #10 Headgate was not in operation. The citation should have referenced the #9 Headgate.*

orders were issued, during this inspection, for violations in the belt entries including inadequate guarding, inadequate fire suppression, condition of fire outlets, accumulations of combustible materials, inadequate fire detection, location and quantity of fire fighting materials, inadequate clearance, and evidence that many of the belt conveyor flights had been operating in an unsafe condition prior to the fatal mine fire. A brief summary of these cited conditions follows.

1st North West Mains Belt Entries

No. 1 Belt (72-inch)

- Inadequate Guarding
- Deteriorated Fire Outlets
- Accumulations of Combustible Materials
- Inadequate Fire Fighting Materials
- Inadequate Clearance
- Inadequate Fire Detection

The most recent MSHA inspection of this area prior to the fatal fire was on December 19, 2005.

No. 2 Belt (72-inch)

- Inadequate Guarding
- Inadequate Fire Suppression
- Deteriorated Fire Outlets
- Inadequate Fire Fighting Materials
- Inadequate Clearance
- Inadequate Guarding
- Inadequate Fire Detection

The most recent MSHA inspection of this area prior to the fatal fire was on December 19, 2005.

No. 3 Belt (72-inch)

- Deteriorated Fire Outlets
- Inadequate Fire Fighting Materials
- Inadequate Clearance

The most recent MSHA inspection of this area prior to the fatal fire was on December 19, 2005.

No. 4 Belt (72-inch)

- Inadequate Fire Suppression
- Deteriorated Fire Outlets
- Inadequate Fire Fighting Materials
- Inadequate Clearance

The most recent MSHA inspection of this area prior to the fatal fire was on January 12, 2006.

No. 5 Belt (72-inch)

- Inadequate Guarding

- Inadequate Fire Suppression
- Inadequate Clearance
- Machinery Operated in an Unsafe Condition
- Accumulations of Combustible Materials
- Deteriorated Fire Outlets
- Inadequate Fire Fighting Materials

The most recent MSHA inspection of this area prior to the fatal fire was on December 16, 2005.

No. 6 Belt (72-inch)

- Inadequate Fire Fighting Materials
- Inadequate Guarding
- Deteriorated Fire Outlets
- Accumulations of Combustible Materials
- Machinery Operated in an Unsafe Condition
- Inadequate Clearance
- Inadequate Fire Suppression
- Inadequate Fire Detection

The most recent MSHA inspection of this area prior to the fatal fire was on December 16, 2005.

No. 7 Belt (72-inch)

- Inadequate Fire Detection
- Inadequate Fire Suppression
- Inadequate Guarding
- Accumulations of Combustible Materials
- Deteriorated Fire Outlets
- Inadequate Clearance

There was no documentation of an MSHA inspection of this area during the most recent inspection (October – December 2005).

9 Headgate Longwall Belt (72-inch)

- Inadequate Fire Fighting Materials
- Deteriorated Fire Outlets
- Accumulations of Combustible Materials
- Machinery Operated in an Unsafe Condition
- Inadequate Fire Suppression
- Improper Ventilation

The most recent MSHA inspection of this area prior to the fatal fire was on December 5, 2005.

3 Section Belt Entries

No. 1 Belt (48-inch)

- Inadequate Fire Suppression

- Inadequate Clearance
- Accumulations of Combustible Materials
- Inadequate Fire fighting

The most recent MSHA inspection of this area prior to the fatal fire was on January 9, 2006.

No. 2 Belt (48-inch)

- Inadequate Fire Suppression
- Inadequate Clearance
- Accumulations of Combustible Materials

The most recent MSHA inspection of this area prior to the fatal fire was on January 9, 2006.

No. 3 Belt (48-inch)

- Inadequate Fire fighting
- Inadequate Guarding
- Accumulations of Combustible Materials
- Inadequate Fire Suppression

The most recent MSHA inspection of this area prior to the fatal fire was on January 9, 2006.

2 Section Belt Entries

No. 1 Belt (48-inch)

- Accumulations of Combustible Materials
- Inadequate Fire Suppression

The most recent MSHA inspection of this area prior to the fatal fire was on December 16, 2005.

No. 2 Belt (48-inch)

- Inadequate Clearance
- Inadequate Fire Suppression
- Accumulations of Combustible Materials

The most recent MSHA inspection of this area prior to the fatal fire was on December 16, 2005.

No. 3 Belt (48-inch) – belt installed shortly before fire

- Accumulations of Combustible Materials
- Deteriorated Fire Outlets
- Inadequate Clearance
- Inadequate Fire Suppression

There was no documentation of an MSHA inspection of this area during the most recent inspection.

Conclusion: MSHA inspections of the belt entries and evaluation of the mine operator’s on-shift examinations were inadequate. Although extensive and repeated accumulations of combustible materials were identified and recorded by the examiners during the majority of the on-shift examinations, numerous other hazards were present

in the belt entries and were not identified by mine examiners or MSHA inspectors prior to the fatal fire. These included belts operating in an unsafe condition, inadequate fire suppression systems, inadequate or deteriorated fire fighting equipment, inadequacies in the fire detection system, and minimum clearance not maintained in the belt entries. Additionally, inspection personnel failed to document travel with the examiners to determine if the mine examiners were performing proper on-shift examinations in the belt entries during the period of January through June 2005.

Enforcement of 30 CFR 75.363

Hazardous conditions; posting, correcting and recording

Requirement: Mandatory safety standard 30 CFR 75.363(a) states that any hazardous condition found by the mine foreman or equivalent mine official, assistant mine foreman or equivalent mine official, or other certified persons designated by the mine operator for the purposes of conducting examinations under this subpart D, shall be posted with a conspicuous danger sign where anyone entering the areas would pass. A hazardous condition shall be corrected immediately or the area shall remain posted until the hazardous condition is corrected. If the condition creates an imminent danger, everyone except those persons referred to in Section 104(c) of the Act shall be withdrawn from the area affected to a safe area until the hazardous condition is corrected. Only persons designated by the operator to correct or evaluate the condition may enter the posted area.

In addition, 30 CFR 75.363(b) requires in pertinent part that a record be made of any hazardous condition found. The record shall be made by the completion of the shift on which the hazardous condition was found and shall include the nature and location of the hazardous condition and the corrective action taken. The records shall be countersigned by the mine foreman or equivalent mine official.

MSHA Policies and Procedures: The preamble to the 1996 final rule for safety standards for underground coal mine ventilation regarding Section 75.363 states in part that ... *[i]t is essential that all hazardous conditions, regardless of when detected or by whom, be adequately addressed. It also states that [a] record of all hazards found, as well as the required corrective action, serves as a history of the types of conditions that can be expected in the mine. When the records are properly reviewed, mine management can use them to determine if the same hazardous conditions are recurring and if the corrective action being taken is effective.*

The final rule also requires the mine foreman or equivalent mine official to countersign the record of hazardous conditions by the end of the mine foreman's next regularly scheduled working shift. The preamble states in part that ... *[i]t is essential for the health and safety of the miners that the mine foreman be fully aware of the information contained in this record so as to be able to allocate resources to correct safety problems as they develop.*

The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) provides that inspectors shall evaluate the operator's compliance with requirements for conducting preshift, on-shift, and weekly examinations during every regular inspection and evaluate the operator's examination records to determine that examination results appear to be authentic. It also instructs inspectors to consider the results of examinations where hazardous conditions were reported when determining the section or area of the mine to be inspected.

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states that the operator's compliance with recording required examinations shall be evaluated by comparing recorded information in the record book with actual conditions in the area inspected. Prior recordings shall be reviewed back to the ending date of the last regular safety and health inspection to determine if the results of all required examinations, including corrective actions, were recorded.

Additional guidance in the form of *CMS&H Memo No. HQ-03-008-A (PRT-43) Importance of Proper Workplace Examinations/Recordkeeping Concerning 30 C.F.R. §75.360, §75.361, §75.362, §75.363, §75.364*, dated January 3, 2003, states in relevant part that *[e]xaminations are the primary means of ... detecting hazardous conditions such as ... accumulations of combustible material, including float dust. The examinations, along with the recordkeeping requirements of the examinations, are important tools for ensuring a safe working environment for the miners. Inspection personnel shall also review record books for reported hazards, the length of time the hazards existed, and the action taken to correct the condition. This review should be compared to actual underground mine conditions to determine if enforcement is appropriate toward recordkeeping.*

Statement of Facts: The MSHA accident investigation team determined that not all hazardous conditions were being posted, corrected, and recorded. Although mine management was aware of hazardous conditions, effective corrective actions were not taken.

The record maintained by the operator for the purpose of recording results of examinations for hazardous conditions indicated that actions were not taken to correct the hazardous conditions listed regarding the 9 Headgate Longwall Belt Conveyor from January 02, 2006 to January 19, 2006. Although hazardous conditions, such as the need for additional cleaning and rock dusting, were noted in the record book, no corrective actions were listed for 38 of the 56 examinations. The corrective actions listed for the remaining 18 examinations were inadequate. Mine record books indicated a history of hazardous conditions, yet mine management failed to properly address the conditions.

Moreover, results of the two examinations on January 19, 2006, prior to the accident indicate the 9 Headgate Longwall Belt Conveyor needed to be cleaned and dusted. No

corrective actions were listed in the record and a physical examination of the 9 Headgate Longwall Belt Conveyor during the accident investigation indicated that appropriate actions had not been taken to correct the conditions.

In addition, corrective actions were not taken for the hazardous condition created by the absence of stoppings necessary to provide separation between the primary escapeway for 2 Section and the No. 7 Belt Conveyor Entry. A permanent stopping, located immediately adjacent to the North East Mains roadway South of SS 3266 was removed a significant period of time prior to January 19, 2006, reportedly to reduce heat in the crosscut where the power boxes were installed. The absence of this stopping resulted in the lack of a properly constructed airlock intended to separate the 2 Section primary escapeway from the No. 7 Belt Conveyor entry.

Another stopping located between SS 3266 and SS 3332 in North East Mains had been removed at the direction of mine management personnel to facilitate extension of the No. 7 Belt Conveyor structure. This stopping was necessary to separate the No. 7 Belt Conveyor entry from the primary escapeway for 2 Section.

These conditions were obvious and located in the areas traveled by mine examiners. These conditions contributed to the severity and extent of the mine fire on January 19, 2006, which ultimately resulted in the two fatalities. The MSHA accident investigation team issued an S&S, 104(d)(2) order (7435527) for this contributory violation of 30 CFR 75.363.

The internal review team examined records of the regular inspection (Event 4113204) conducted from October through December 2005. The inspection notes indicate that the MSHA inspector reviewed the on-shift examination records for the belt entries on November 1, 2005, at the Rum Creek Portal and November 28, 2005, at the Melville bathhouse. The inspector documented review of the records on the subsequent regular inspection (Event 4113207) on January 9, 2006, at the Melville bathhouse. A review of inspection records indicated that no citations were issued for violations of 75.363 from January 1, 2005, through January 19, 2006 at the Aracoma Alma Mine #1.

The accident investigation team provided copies of available on-shift examination records from the Aracoma Alma Mine #1 to the internal review team. On-shift examination records for the mine's entire belt conveyor system were reviewed for the period October 10, 2005, through January 19, 2006. Frequently the mine examiners recorded that the belts needed cleaned, dusted, or both. Corrective actions were not always listed for these conditions as required by 30 CFR 75.363. A summary of the records for each belt flight, including the number of shifts hazards were recorded, number of documented corrective actions and most recent MSHA inspector presence follows.

1st North West Mains Belt Entries

- No. 1 Belt: During 41 of 281 on-shift examinations statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both. On 33 occasions, no corrective actions were listed as required. MSHA inspection documentation shows the belt entry was last inspected in its entirety by MSHA on December 19, 2005.
- No. 2 Belt: During 153 of 280 on-shift examinations statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both. On 65 occasions, no corrective actions were listed as required. MSHA inspection documentation shows the belt entry was last inspected in its entirety by MSHA on December 16 and 19, 2005.
- No. 3 Belt: During 228 of 280 on-shift examinations statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both. On 86 occasions, no corrective actions were listed as required. MSHA inspection documentation shows the belt entry was last inspected in its entirety by MSHA on December 13, 16, and 19, 2005.
- No. 4 Belt: During 215 of 280 on-shift examinations statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both. On 86 occasions, no corrective actions were listed as required. MSHA inspection documentation shows the belt entry was last inspected in its entirety by MSHA on December 13 and 16, 2005, and again on January 12, 2006.
- No. 5 Belt: During 266 of 280 on-shift examinations statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both. On 105 occasions, no corrective actions were listed as required. MSHA inspection documentation shows the belt entry was last inspected in its entirety by MSHA on December 16, 2005.
- No. 6 Belt: During 279 of 281 on-shift examinations statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both. On 125 occasions, no corrective actions were listed as required. MSHA inspection documentation shows the belt entry was last inspected in its entirety by MSHA on December 16, 2005.
- No. 7 Belt: During 253 of 279 on-shift examinations statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both. On 124 occasions, no corrective actions were listed as required. No inspection records were provided to indicate this belt entry was inspected from October 1, 2005, through January 19, 2006.

- 9 Headgate Longwall Belt: During 267 of 273 on-shift examinations, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both. On 122 occasions, no corrective actions were listed as required. MSHA inspection documentation indicates the belt entry was inspected in its entirety by MSHA on November 15 and December 5, 2005.

3 Mains, 3 Section Belt Entries

- No. 1 Belt: During 129 of 200 on-shift examinations, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both. On 61 occasions, no corrective actions were listed as required. MSHA inspection documentation indicates the belt entry was inspected in its entirety by MSHA on November 1, 2005, and again on January 9, 2006.
- No. 2 Belt: During 128 of 200 on-shift examinations, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both. On 60 occasions, no corrective actions were listed as required. MSHA inspection documentation indicates the belt entry was inspected in its entirety by MSHA on November 1, 2005, and again on January 9, 2006.
- No. 3 Belt: During 51 of 111 on-shift examinations, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both. On 17 occasions, no corrective actions were listed as required. MSHA inspection documentation shows the belt entry was last inspected in its entirety by MSHA on January 9, 2006.

North East Mains, 2 Section Belt Entries

- No. 1 Belt: During 170 of 188 on-shift examinations, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both. On 79 occasions, no corrective actions were listed as required. MSHA inspection documentation shows the belt entry was last inspected in its entirety by MSHA on December 16, 2005.
- No. 2 Belt: During 168 of 186 on-shift examinations, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both. On 79 occasions, no corrective actions were listed as required. MSHA inspection documentation shows the belt entry was last inspected in its entirety by MSHA on December 16, 2005.

A review of the mine's examination records indicated that from October 10, 2005, through January 19, 2006, the mine operator documented 3,119 examinations in the belt

entries. During 76 percent of these examinations, examiners recorded in the record books that the belts needed to be cleaned, dusted, or both. Of these recorded hazards, 44 percent indicated that no corrective actions had been implemented. The records were countersigned by the mine foreman or equivalent mine official. During this period, the MSHA inspector documented that he reviewed these records on November 1 and 28, 2005, and again on January 9, 2006. No citations were issued for these deficiencies.

Despite the corrective actions recorded by the mine operator, widespread accumulations of combustible materials were found in the belt entries following the fatal fire. This issue is described in greater detail in the section of this report entitled *Enforcement of 30 CFR 75.400*.

Conclusion: District 4 inspection personnel assigned to inspect the Aracoma Alma Mine #1 failed to effectively enforce the provisions of 30 CFR 75.363. Inspection of the on-shift belt examination records was decidedly inadequate and obvious deficiencies were not identified and/or cited. Mine examiners repeatedly recorded statements in the mine's examination records that the belt entries needed to be cleaned, dusted, or both. Required corrective actions were not always listed for recorded hazards. Corrective actions purportedly implemented by mine management were obviously inadequate to address the recurring problem of accumulations of combustible materials.

The records depicted an extensive history of noncompliance and continued operation of the belts without proactive intervention on the part of mine management. Even though mine management countersigned the records, it is obvious that effective measures to prevent recurring accumulations of combustible materials in the belt entries were not implemented. Additionally, had the records been thoroughly reviewed, a prudent inspector would have promptly directed his or her attention to the underground areas where the hazards were identified. A pattern of continuing noncompliance in the mine's examination records was evident, and MSHA should have used available enforcement tools to more effectively assure that hazardous conditions either would have been prevented or promptly abated.

Enforcement of 30 CFR 75.364

Weekly examination

Requirement: Mandatory safety standard 30 CFR 75.364(b)(1) requires that at least every seven days, an examination for hazardous conditions shall be made by a certified person designated by the operator in at least one entry of each intake air course, in its entirety, so that the entire air course is traveled.

Mandatory safety standard 30 CFR 75.364(b)(5) requires that at least every seven days, an examination for hazardous conditions shall be made by a certified person designated by the operator in each escapeway so that the entire escapeway is traveled.

MSHA Policies and Procedures: The Preamble to the 1996 Final Rule for Safety Standards for Underground Coal Mine Ventilation states in relevant part, *The weekly examination is directed at hazards that develop in the more remote and less frequently visited areas of a mine. These areas include: ... [s]ome main intake and return air courses. Over the course of time, hazards such as methane accumulations and obstructions to ventilation can develop in these areas and can result in an explosion or loss of ventilation if not discovered and corrected. Because of the confined nature of the underground mining environment, loss of life can result in other areas of the mine outside the immediate location of the hazard. The weekly examination assures that these hazards are located and corrected.*

The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) directs inspectors to evaluate the operator's compliance with requirements for conducting preshift, on-shift, and weekly examinations during every regular inspection by:

- Selectively traveling (at least once) with the person(s) who performs the preshift, on-shift, and weekly examinations to evaluate the thoroughness and completeness of such examinations and to determine if the time expended by the examiner is commensurate with the areas required to be traveled and examined;
- Determining that all areas where persons work or travel are properly examined. Particular emphasis shall be placed on idle workings, worked out areas that are not sealed, and other such areas where persons may be required to work or travel;
- Looking for initials, dates, and times of examinations in all areas where such information is required;
- Determining if the required exams are conducted by certified examiners; and
- Evaluating the operator's examination records to determine that examination results appear to be authentic.

The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) directs inspectors to examine all escapeways.

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states that the inspector shall examine, where practical, all of the operator's most recent examination records pertinent to the planned inspection activity for that day. More than one record will often apply to an area, such as preshift, on-shift, daily, and weekly examinations.

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states that the inspector shall accompany at least one mine examiner during a required weekly examination to determine if adequate examinations are being conducted.

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states that all escapeways and facilities shall be inspected in their entirety to determine compliance with applicable standards, including attention to: ventilation controls, man door condition and placement, markings showing the route of travel, mine roof conditions, rock dust application, examination certifications, and any equipment being operated in the escapeway or facilities.

Statement of Facts: The MSHA accident investigation team determined that adequate weekly examinations of the entire No. 7 Belt air course were not conducted from November 1, 2005, to January 19, 2006. The examinations failed to identify the lack of separation between the No. 7 Belt air course and the 2 Section primary escapeway. This condition was determined to have existed prior to November 2005, when a permanent stopping located between SS 3266 and SS 3332 in North East Mains had been removed to facilitate extension of the No. 7 Belt Conveyor structure.

Examination records which specifically identified that the No. 7 Belt air course was examined in its entirety were not provided by the mine operator. By definition, the belt air course includes the entry in which a belt is located and any adjacent entry(ies) not separated from the belt entry by permanent ventilation controls, including any entries in series with the belt entry, terminating at a return regulator, a section loading point, or the surface.

This lack of separation between the 2 Section primary escapeway in the North East Mains and the No. 7 belt air course allowed thick smoke and carbon monoxide gas to inundate the primary escapeway used by the miners during the evacuation from 2 Section on January 19, 2006. Due to reduced visibility caused by the thick smoke, two miners were separated from the section crew and unable to escape. MSHA's accident investigation team issued an S&S, Section 104(d)(2) order (6643276) for this contributory violation of 30 CFR 75.364(b)(1).

The MSHA accident investigation team also determined that weekly examinations of the primary escapeway provided for 2 Section conducted from November 1, 2005 to January 19, 2006, were not adequate. The examinations failed to identify the lack of separation between the 2 Section primary escapeway and the No. 7 Belt Conveyor entry. This condition was determined to have existed prior to November 2005, when a permanent stopping, located south of SS 3266, was removed at the 9 Headgate longwall dual switch house electrical installation. Another stopping located between SS 3266 and SS 3332 in North East Mains had been removed at the direction of mine management

personnel to facilitate extension of the No. 7 Belt Conveyor structure. This stopping was necessary to separate the No. 7 Belt Conveyor entry from the primary escapeway for 2 Section.

The examination also failed to identify the following: the lack of a clearly marked primary escapeway to show the route and direction of travel from 2 Section to the surface; the location of all personnel doors along the primary escapeway so that the doors could be easily identified by anyone traveling in the escapeway; and holes in numerous stoppings located between the 2 Section primary escapeway and the North East Mains No. 1 Belt Conveyor entry that compromised the separation between these entries.

This lack of separation between the primary escapeway and the belt conveyor entry allowed thick smoke and carbon monoxide gas to inundate the primary escapeway used by the miners during the evacuation from 2 Section on January 19, 2006. Due to reduced visibility caused by the thick smoke, two miners were separated from the section crew and unable to escape. MSHA's accident investigation team issued an S&S, Section 104(d)(2) order (7435528) for this contributory violation of 30 CFR 75.364(b)(5).

The accident investigation team also issued an S&S Section 104(d)(2) order (6643228) for the following non-contributory violation of 30 CFR 75.364(b)(5) indicating that adequate weekly examination of the North East Mains alternate escapeway was not conducted during the week of January 15 to January 21, 2006. The following deficiencies were observed during a subsequent investigation of a mine fire that occurred on January 19, 2006:

1. The alternate escapeway from 2 Section to the North West Mains was not clearly marked to show the route and direction of travel to the surface as required;
2. The location of personnel doors in the North East Mains were not clearly marked so that the doors may be easily identified by anyone traveling in the escapeway. The door utilized by the 2 Section crew on January 19, 2006 was not clearly marked as required, and
3. The results of the examinations of the North East Mains alternate escapeway were not recorded in to the Weekly Examinations for Methane and Hazardous Conditions mine record book as required. A review of the mine records revealed from the week ending November 5, 2005 to the week ending January 21, 2006, no alternate escapeway examinations were recorded.

During the review period, District 4 personnel did not issue any citations for violations of 30 CFR 75.364 at the Aracoma Alma Mine #1. District 4 inspectors stated in interviews that they understood the requirements for weekly examinations and

understood that inspectors are required to travel with the mine examiners conducting weekly examinations. However, travel with a weekly examiner was not documented by District 4 personnel during the two inspection quarters covering the period of January through June 2005. Inspectors documented that they traveled with the weekly examiners on the following dates:

- July 27, 2005 – 3 Section intake aircourse
- September 26, 2005 – 2 Section return aircourse
- September 28, 2005 – longwall return aircourse
- September 30, 2005 - 3 Section return aircourse
- November 1, 2005 – 3 Section aircourse(s)

After the conclusion of rescue and recovery efforts associated with the fatal fire, MSHA resumed the regular inspection started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection four citations were issued for violations of 30 CFR 75.364 due to inadequate examinations. Two examples follow.

- On February 27, 2006, a Non S&S citation (7252762) was issued stating that “[t]he entire left return aircourse for the No. 3 Section was not being traveled weekly. At the mouth of the section there are three overcasts 6 foot 3 inches in height that are not provided with ladders, steps, or any other means to cross the overcasts.” On March 3, 2006, the citation was extended stating that “[d]ue to the extensive amount of work required to terminate this citation the operator is requesting additional time.” On March 4, 2006, the citation was terminated stating that “[a]ll three overcasts at the mouth of the 3 mains section return aircourse are now provided with metal steps on each side of each overcast so as now said return aircourse can be traveled in its entirety.”

Inspection records indicated that, prior to the fatal fire; a District 4 inspector traveled with the weekly examiner on November 1, 2005, and inspected the 3 Section left return aircourse, right return aircourse, belt conveyor entry, and the primary intake escapeway. The three overcasts were in place during this inspection, which would have prevented further travel of the entire left return aircourse. No citations were issued during the inspection of these air courses.

- On March 7, 2006, an S&S Section 104(d)(1) order (7243303) was issued stating that “[t]he travelway or walkway area of the 1st North West Mains return and the No's 11, 12, 13, 14, and 15 EP's could not be traveled in their entirety safely. In that beginning in by the No. 8 headgate area and extending out by the No. 5 tailgate area and the entries going to all the above EP's contained gob, crib blocks and other stumbling and tripping hazards, mine roof which has sloughed out from the roof area. Said area is to be traveled weekly by a certified person, said condition did create a hazard to this person. Also water had accumulated at two

different locations with water in excess of 18 inches in depth. Two overcasts at the No. 7 headgate area contained no steps in which to get over so as to travel return in its entirety.”

Inspection records indicated that prior to the fatal fire, District 4 inspectors traveled in this area on September 27 and again on December 12, 2005, and examined EP Nos. 11, 12, and 13. Even though there was no means to cross the overcasts located near 7 Headgate (preventing travel of the entire return air course), no citation was issued for an inadequate weekly examination.

Inspection records indicated that the 9 Headgate longwall section alternate escapeway was inspected from the surface to the longwall section on November 15, 2005. However, the accident investigation team determined that near SS 3275 in the alternate escapeway, a completed permanent stopping was dry-stacked across the entry, which would have prohibited further travel.

District 4 inspectors documented that they inspected the record books maintained by the mine operator for weekly examinations during each quarterly regular inspection. The accident investigation team also issued seven non-contributory citations regarding inadequate weekly examination records. These violations are described below.

- Intake belt air splits were not being recorded as required.
- Dates were not indicated in the mine record books for each aircourse examination. It could not be determined from the mine record books whether or not the examinations were conducted in aircourses and at the evaluation points every 7 days as required.
- The results of the weekly examination of the 2 Section primary escapeway were not recorded in to the Weekly Examinations for Methane and Hazardous Conditions mine record book as required. A review of the mine records revealed from the week ending November 5, 2005, to the week ending January 21, 2006, no primary escapeway examinations were recorded.
- The results of the weekly examination of the 9 Headgate Longwall Section primary escapeway were not recorded in to the Weekly Examinations for Methane and Hazardous Conditions mine record book as required. A review of the mine records revealed from the week ending November 5, 2005, to the week ending January 21, 2006, no primary escapeway examinations were recorded.
- The results of the weekly examination of the 9 Headgate Longwall Section alternate escapeway were not recorded in to the Weekly Examinations for Methane and Hazardous Conditions mine record book as required. A review of the mine records revealed from the week ending November 5, 2005, to the week ending January 21, 2006, no alternate escapeway examinations were recorded.
- The results of the weekly examination of the 3 Section primary escapeway were not recorded in to the Weekly Examinations for Methane and Hazardous

Conditions mine record book as required. A review of the mine records revealed from the week ending November 5, 2005, to the week ending January 21, 2006, no primary escapeway examinations were recorded.

- The results of the weekly examination of the 3 Section alternate escapeway were not recorded in to the Weekly Examinations for Methane and Hazardous Conditions mine record book as required. A review of the mine records revealed that no alternate escapeway examinations were recorded from the week ending November 5, 2005, to the week ending January 21, 2006.

The internal review team identified substantial variations in air quantity readings taken during weekly examinations and recorded in the record book. Several examples follow.

November 19, 2005

- 3 Section intake - 42,868 cfm lower than previous examination
- 3 Section right return - 35,200 cfm lower than previous examination
- EP No. 1 - 36,173 cfm increase from previous examination

December 3, 2005

- 3 Section intake - 29,881 cfm increase from previous record

December 10, 2005

- 3 Section intake - 22,869 cfm less than previous record

December 17, 2005

- EP No. 1 - air reading increased 192,095 cfm from previous record
- EP No. 7 - air reading reduced 174,491 cfm from previous record
- EP No. 11 - air reading reduced 50,950 cfm from previous record
- 3 Section intake - air reading reduced 22,067 cfm from previous record

December 24, 2005

- EP No. 10 - recorded 132 cfm
- EP No. 20 - air reading increased 16,590 cfm from previous record

December 31, 2005

- EP No. 1 - air reading increased 92,645 cfm from previous record
- EP No. 11 - air reading reduced 32,892 cfm from previous record
- EP No. 20 - air reading reduced 17,674 cfm from previous record
- Main Intake - air reading reduced 64,780 cfm from previous record

January 7, 2006

- EP No. 1 - air reading reduced 122,323 cfm from previous record
- EP No. 11 - air reading reduced 51,241 from record dated 12-24-2005

- EP No. 20 - air reading increased 22,179 from previous record

January 14, 2006

- EP No. 11 - air reading increased 46,807 from previous record

Conclusion: District 4 personnel assigned to inspect the Aracoma Alma Mine #1 failed to recognize and take appropriate enforcement action for several violations of 30 CFR 75.364. During interviews, the inspectors indicated that they understood the requirements concerning the weekly examinations of air courses. However, they did not ensure that all air courses were traveled in their entirety during weekly examinations. District 4 personnel failed to adequately inspect the 2 Section primary escapeway in its entirety which was also required to be examined weekly by certified mine examiners. MSHA inspection personnel failed to detect the operator's failure to separate the primary escapeway from the belt conveyor entry at several locations.

Following the fatal fire, several citations were issued for inadequate weekly examinations. Two of these citations included airways that could not be traveled in their entirety because no means was provided to cross the overcasts in the areas of 3 Section and 7 Headgate. These conditions indicated that violations were present during one or more MSHA inspections prior to the fire.

Enforcement of 30 CFR 75.380

Escapeways; bituminous and lignite mines

Requirement: Mandatory safety standard 30 CFR 75.380(g) requires that except where separation of belt and trolley haulage entries from designated escapeways did not exist before November 15, 1992, and except as provided in 75.350(c), the primary escapeway must be separated from belt and trolley haulage entries for its entire length, to and including the first connecting crosscut outby each loading point except when a greater or lesser distance for this separation is specified and approved in the mine ventilation plan and does not pose a hazard to miners.

Mandatory safety standard 30 CFR 75.380(d)(2) requires that each escapeway shall be clearly marked to show the route and direction of travel to the surface.

Mandatory safety standard 30 CFR 75.380(h) requires that one escapeway shall be designated as the alternate escapeway. The alternate escapeway shall be separated from the primary escapeway for its entire length, except that the alternate and primary escapeways may be ventilated from a common intake air shaft or slope opening.

MSHA Policies and Procedures: The MSHA *Program Policy Manual* for 30 CFR 75.380 states in pertinent part that the construction of ventilation controls such as stoppings,

overcasts, and undercasts, or installation of an escape facility, may be required to provide the most safe, direct, and practical escapeway.

The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) provides that inspectors shall inspect escapeways.

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states that all escapeways and facilities shall be inspected in their entirety to determine compliance with applicable standards, including attention to: ventilation controls, man door condition and placement, markings showing the route of travel, mine roof conditions, rock dust application, examination certifications, and any equipment being operated in the escapeway or facilities.

Statement of Facts: The MSHA accident investigation team determined that the primary escapeway provided for the 2 Section was not separated from the No. 7 Belt Conveyor entry in the North East Mains in by the No. 7 Belt Conveyor tail pulley. This condition was created prior to November 2005, when one or more permanent stoppings that provided separation between the No. 7 Belt Conveyor entry and the primary escapeway in the North East Mains were removed.

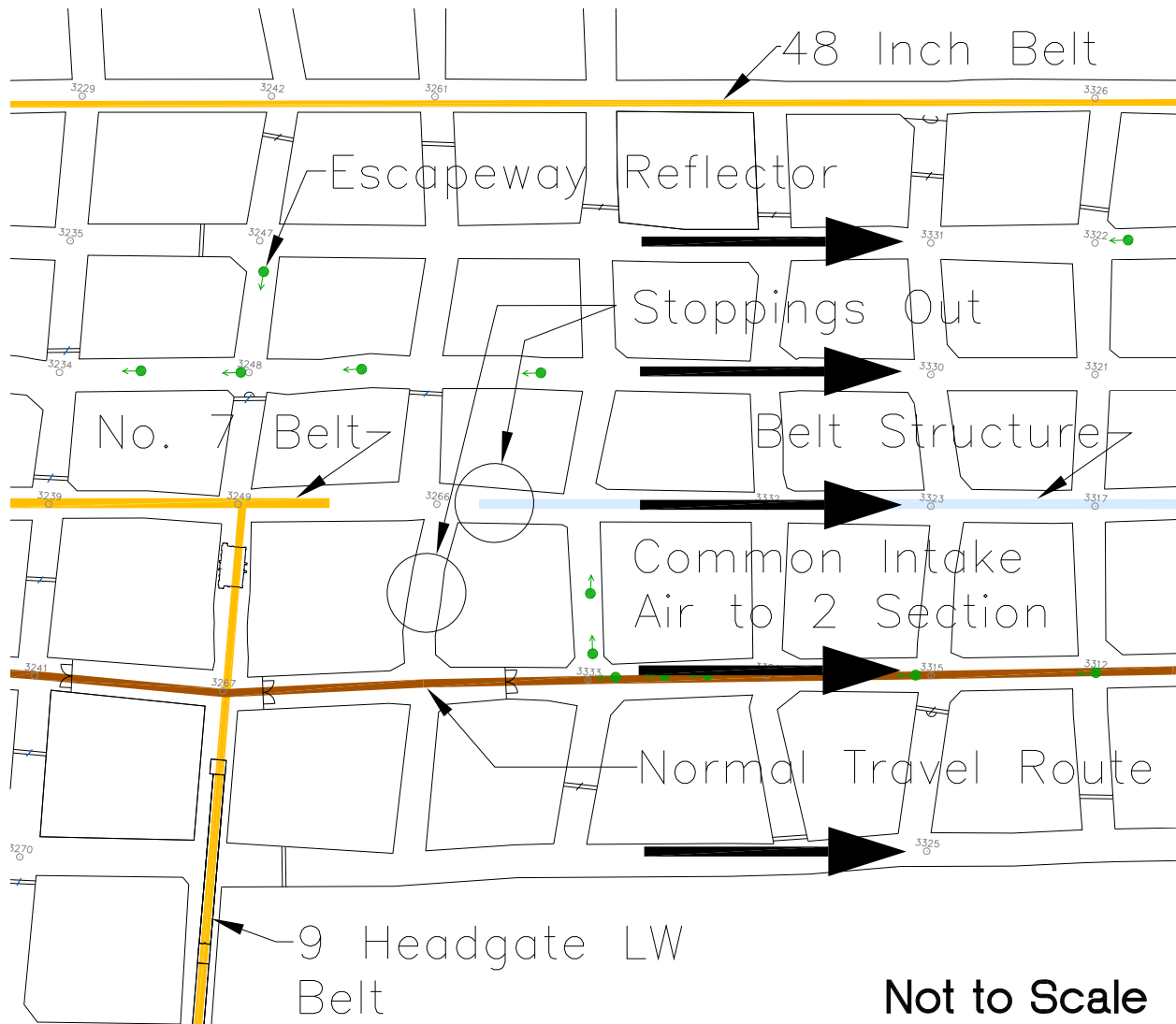
This lack of separation between the primary escapeway and the belt conveyor entry allowed smoke and carbon monoxide gas to inundate the primary escapeway used by the miners during the evacuation from 2 Section on January 19, 2006. Smoke from the fire adversely impacted the ability of miners from 2 Section to escape, resulting in two fatalities. The accident investigation team issued an S&S, Section 104(d)(2) order (7435530) for this contributory violation of 30 CFR 75.380(g).

The accident investigation team also issued an S&S Section 104(d)(2) order (6643239) for a non-contributory violation of 30 CFR 75.380(d)(2) indicating that mine management failed to ensure proper marking of the primary escapeway in the North East Mains. The primary escapeway from 2 Section was not clearly marked throughout the North East Mains. Green reflective tags, used to mark the primary escapeway route, were located in multiple parallel mine entries between 2 Section and the North West Mains. In addition, not all changes in direction of travel in the escapeway were clearly marked so that miners in an emergency situation could easily traverse the escapeway.

The accident investigation team also issued an S&S Section 104(d)(2) order (6643240) for a non-contributory violation of 30 CFR 75.380(h) indicating that mine management failed to ensure an alternate escapeway was provided for the 9 Headgate Longwall Section. The 9 Headgate Longwall Section was not provided with an alternate escapeway that was separated from the primary escapeway for its entire length.

The last MSHA presence documented in the No. 7 belt conveyor entry was on January 12, 2006, when a citation was issued for a violation of 30 CFR 75.1725(a) due to inadequate guarding on the longwall belt take-up drive and on December 5, 2005, when an inspector traveled the longwall belt from the “face area ... stage loader” to the “mother drive” for the 9 Headgate longwall belt where it dumps onto the No. 7 belt. The mother drive was within one and one-half crosscuts of two permanent stoppings that were removed which caused the 2 Section primary escapeway to be common with the No. 7 belt. One stopping was located in the same entry as the No. 7 belt conveyor and the other was located in the first crosscut to the right past the No. 7 belt conveyor tail pulley. Removal of either of these permanent ventilation controls would breach the separation between the belt conveyor entry and the primary escapeway. During his interview with the review team, an inspector stated the speed reducer and drive unit were very close to the right rib because it (the longwall belt) was not centered in the area of the mother drive. When he looked toward the No. 7 tail area to check the ventilation control he saw what he thought was a stopping but it could have been a “muddy curtain.” He “assumed [the stopping] was there because it should have been there.” The 9 Headgate longwall belt was also documented as being inspected on November 15, 2005.

The last MSHA presence in 2 Section primary escapeway was on January 12, 2006, when an inspector documented inspection of the primary intake escapeway from the “box cut” to “2 Section.” During interviews, the District 4 inspector stated that he traveled the escapeway in a common entry and checked the stoppings along the 48-inch belt for 2 Section because he had already been to No. 7 belt and “...was assured that that stopping line was in.” When asked about the condition of the stopping lines in the primary and secondary escapeways going to 2 Section, the inspector stated that “[w]e basically traveled these every day in and out of the coal mines. The air velocity was good so I didn’t see anything that caused me a problem other than airlock doors being left open and damage which I wrote [a citation].” However, the daily route of travel in and out of the mine on the mantrip did not follow the primary escapeway for 2 Section for the entire length. The route of daily travel actually departed from the 2 Section primary escapeway and crossed the longwall belt entry as shown on the following map.



During the review period, District 4 personnel did not issue any citations for violations of 30 CFR 75.380 at the Aracoma Alma Mine #1.

After the conclusion of rescue and recovery efforts associated with the January 19 fire, MSHA continued the regular inspection that started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection all escapeways were inspected in their entirety and two citations and one order were issued for violations of 30 CFR 75.380 for obstructions that could impede travel in the escapeways.

Conclusion: Inspections of the escapeways in the Aracoma Alma Mine #1 by District 4 personnel were inadequate. Numerous issues related to escapeways were identified by MSHA’s accident investigation team. The accident investigation team identified a lack of isolation between the No. 7 belt conveyor and 2 Section primary escapeway which existed from before November 2005 to the time of the fatal fire. Adequate inspections of the No. 7 belt conveyor and the 2 Section primary escapeway should have revealed that

the integrity of the primary escapeway was not maintained. During inspections, MSHA personnel traveled the roadway from the portal to 2 Section and documented this activity as an inspection of the primary escapeway. However, this route of travel exited the primary escapeway, crossed the 9 Headgate longwall belt in by the belt drive, and re-entered the primary escapeway. It should have been obvious to the inspector that this route of travel did not constitute an inspection of the escapeway in its entirety. If the escapeway had been inspected in its entirety, it is likely that the lack of separation between the belt conveyor and the primary escapeway would have been identified by MSHA.

The primary escapeway from 2 Section was not clearly marked throughout the North East Mains as green reflective tags, used to mark the primary escapeway route, were located in multiple parallel mine entries between 2 Section and the North West Mains. The alternate escapeways for both 2 Section and 9 Headgate longwall section were not clearly marked as required as only one marker was installed in the alternate escapeway for 2 Section in North East Mains. Additionally, an alternate escapeway for the longwall section was indicated on the mine map, but no markers were installed underground to designate the route of travel which would have been impeded by permanent ventilation controls installed in the entries.

These deficiencies should have been obvious during one or more inspections prior to the fatal fire but were not identified and/or cited by MSHA personnel.

Enforcement of 30 CFR 75.383

Escapeway maps and drills

Requirement: Mandatory safety standard 30 CFR 75.383(a) stated in pertinent part that, "... [a] map shall be posted or readily accessible to all miners on each working section... The map shall show the designated escapeways from the working section to the location where miners must travel to satisfy the escapeway drill specified in paragraph (b)(1) of this section. A map showing the main escapeways shall be posted at a surface location of the mine where miners congregate, such as at the mine bulletin board, bathhouse, or waiting room. All maps shall be kept up to date, and any changes in route of travel, locations of doors, or directions of airflow shall be shown on the maps by the end of the shift on which the changes are made, and the affected miners shall be informed of the changes before entering the underground areas of the mine."

Paragraph (b)(1) stated in relevant part that "[a]t least once every 90 days, each miner, including miners with working stations located between working sections and main escapeways, shall participate in a practice escapeway drill. During this drill, each miner shall travel the primary or alternate escapeway from the miner's working section or area where mechanized mining equipment is being installed or removed, to the area

where the split of air ventilating the working section intersects a main air course, or 2,000 feet outby the section loading point, whichever distance is greater. Other miners shall participate in the escapeway drill by traveling in the primary or alternate escapeway for a distance of 2,000 feet from their working station toward the nearest escape facility or drift opening. An escapeway drill shall not be conducted in the same escapeway as the immediately preceding drill.”

Paragraph (b)(2) stated in pertinent part that “[a]t least once every 6 weeks and for each shift, at least two miners on each coal producing working section who work on that section, accompanied by the section supervisor, shall participate in a practice escape drill and shall travel the primary or alternate escapeway from the location specified in paragraph (b)(1) of this section, to the surface.... [S]ystematic rotation of section personnel shall be used so that all miners participate in this drill. An escapeway drill shall not be conducted in the same escapeway as the immediately preceding drill.”

Paragraph (b)(4) stated in relevant part that “[b]efore or during practice escapeway drills, miners shall be informed of the locations of fire doors, check curtains, changes in the routes of travel, and plans for diverting smoke from escapeways.”

Paragraph (c) stated in pertinent part that “[t]he practice escapeway drills may be used to satisfy the evacuation specifications of the fire drills required by 75.1502.

Mandatory safety standard 30 CFR 75.1502(c) states in relevant part that “[e]ach operator of an underground mine shall require all miners to participate in mine emergency evacuation drills, which shall be held at periods of time so as to ensure that all miners participate in such evacuations at intervals of not more than 90 days.” The operator is also required to certify by signature and date that the drills were held in accordance with this section including the approved mine emergency evacuation and firefighting program of instruction required under 30 CFR 75.1502(a).

MSHA Policies and Procedures: The preamble to the 1996 final rule for 30 CFR 75.383 recognizes that *...[d]uring a mine fire, passageways, even those designated as escapeways, can become smoke filled and the ability to see can be drastically reduced. Therefore, it is vitally important that miners know the route of travel through the escapeway.*

The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) states that the inspector shall inspect escapeways and thoroughly examine all of the record books required by the Mine Act and regulations.

The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) concerning inspection note keeping regarding maps, plans, and postings provides that a statement that all maps, plans and postings were examined will suffice.

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states that the inspector shall review records of mine evacuation drills required by 30 CFR 75.1502(c)(2) and poll miners to determine if all miners on all shifts have participated at intervals of not more than 90 days. The effectiveness of the program shall be evaluated by polling miners on their familiarity with the program. It also provides that the inspector shall determine if an up-to-date escapeway map is maintained on each working section. Discussions shall be conducted with the miners to determine if they are familiar with the map location, the designated escape routes, and evacuation procedures.

Statement of Facts: The MSHA accident investigation team determined that adequate escapeway drills were not conducted as required. The frequency of the escapeway drills did not always meet the 90-day period requirement during the 12 months prior to January 19, 2006. In addition, the 90-day practice escapeway drills that had been conducted during the 12 months prior to January 19, 2006, were not always rotated between the primary and alternate escapeways. Mine records indicate that not all miners working on 2 Section on January 19, 2006, participated in a practice escapeway drill in the 90 days preceding the accident.

Moreover, the practice escapeway drills that were conducted were inadequate for the following reasons:

1. Contrary to mine records, miners from 2 Section did not travel the primary escapeway in its entirety to the surface during required 6-week escapeway drills. The required 6-week escapeway drills conducted in the primary escapeway consisted of traveling in a rubber-tired diesel mantrip from the section in the North East Mains roadway, through the equipment doors at the 9 Headgate Longwall Belt Drive area, rather than the designated route over the intake overcast at Survey Station 3221.
2. Miners traveled through areas not clearly marked as escapeways during escapeway drills. The escapeways from 2 Section were not clearly marked throughout the North East Mains. The amber reflective tags used to mark the alternate escapeway route did not clearly show the route and direction of travel from the section to the surface. Green reflective tags, used to mark the primary escapeway route, were located in multiple parallel mine entries between 2 Section and the North West Mains. In addition, not all changes in direction of travel in the escapeways were clearly marked.
3. Miners were not afforded the opportunity to become familiar with the location of all personnel doors in stoppings along the 2 Section escapeways during escapeway drills. The personnel door used by the 2 Section crew during their escape from the mine was located in North East Mains between SS 3224 and SS

3230 in the stopping that separated the primary and alternate escapeways. The location of this personnel door was not marked so it could be easily identified by anyone traveling in the escapeway.

4. The escapeway maps kept on 2 Section and the Longwall working sections and the escapeway map posted at the surface location where miners congregate were not accurate nor kept up-to-date. The mine workings shown on the maps were not up-to-date to show the current location of 2 Section and the designations of the respective escapeways on the maps did not accurately depict the marked underground routes of travel.

The failure to conduct adequate escapeway drills as required contributed to the inability of the victims to successfully evacuate the mine on January 19, 2006. The accident investigation team issued an S&S, Section 104(d)(2) order (7435531) for this contributory violation of 30 CFR 75.383.

The accident investigation team also issued an S&S Section 104(d)(2) order (6643241) for a non-contributory violation of 30 CFR 75.383(b)(2) indicating that mine management failed to ensure the six-week practice escapeway drills were being conducted as required so that a systematic rotation of section personnel allowed for all miners to participate in the drill. A review of the records revealed not all of the miners who were working on 2 Section on January 19, 2006, participated in the required drills during the 12-month period prior to January 19, 2006. The records also indicated the six-week practice escapeway drills were not always being rotated between the primary and alternate escapeways during the 12-month period prior to January 19, 2006.

The mine emergency evacuation and fire fighting program of instruction, in effect at the time of the fatal fire, was approved by the District 4 Manager on February 12, 2003. It requires in part that “[r]ecords are being kept at the mine as required.” These records documented the escapeway drills required under both 30 CFR 75.383 and 30 CFR 75.1502.

During the review period, no documentation was available to indicate the records of fire drills were inspected as required during two regular inspections from January through June 2005. District 4 inspectors documented that they inspected the records for fire drills on July 27, November 1, and November 28, 2005. During interviews, one inspector stated he did not observe the fire drills and that he only checked the record books. However, another inspector stated that he had observed the fire drills, checked the record book, and discussed the drills with the miners.

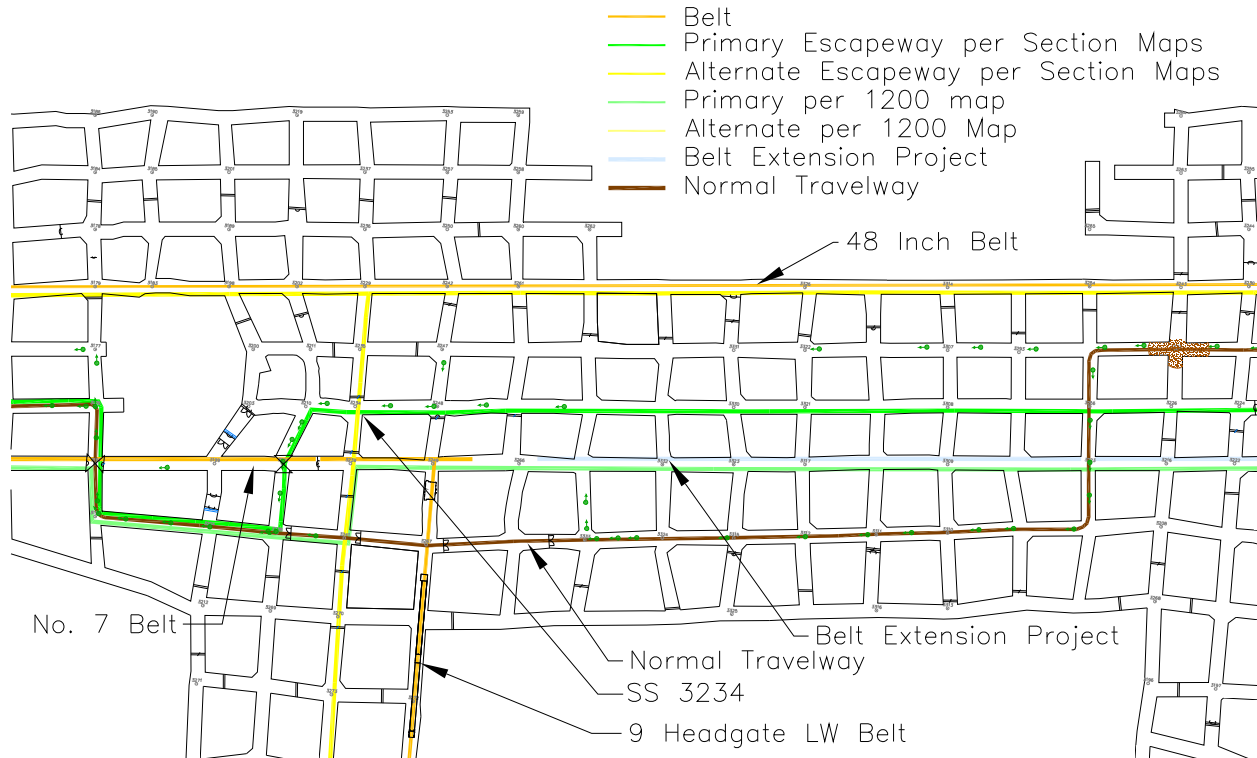
The record books indicated that escapeway drills and fire drills were conducted on an inconsistent basis with not all members of the 2 Section crew participating in these drills within the required time frames. The 90-day drill was always conducted in the primary

escapeway during the period of January 2005 to January 2006. The 6-week practice escapeway drill was conducted only three times during January through August 2005 exclusively in the alternate escapeway and four times during October 2005 through January 2006 exclusively in the primary escapeway.

During the review period, District 4 personnel issued one non-S&S citation (7241418) for a violation of 30 CFR 75.383 at the Aracoma Alma Mine #1. The citation, issued on July 19, 2005, stated that “[a]n up-to-date map of the mine escapeway route was not being provided to the miners working in the 009-0 and 010-0 MMU No.2 working sections.” The citation was terminated on July 20, 2005, stating, “An up to date map with route of travel into the intake escapeway was provided for the No. 2 working Section.”

During the most recent complete regular inspection prior to the fatal fire, the inspector documented inspecting the escapeway map posted on the surface on November 2, 2005. He also documented inspecting the escapeway map located for 2 Section and the Longwall Section on November 28, 2005 and November 15, 2005, respectively. The section escapeway maps collected by the accident investigation team, after the fatal fire, indicated these maps were last updated on November 30, 2005 and September 26, 2005 for the 2 Section and Longwall Section, respectively. There were no citations issued for the escapeway maps during the last complete regular inspection.

The last MSHA presence in 2 Section escapeway prior to the fatal fire was on January 12, 2006, when an inspector documented traveling the intake escapeway for the 2 Section and inspected outby areas near 2 Section. During interviews, one inspector stated that the primary escapeways were marked with green reflectors and the secondary escapeways were marked with red or yellow reflectors. A second inspector stated that he rode the diesel mantrip to inspect the 2 Section primary escapeway and did not remember the condition of the escapeway markers. However, the daily route of travel in and out of the mine on the mantrip did not follow the primary escapeway for 2 Section for the entire length. The route of daily travel actually departed from the 2 Section primary escapeway and crossed the longwall belt entry. This was the same route taken during escapeway drills by the crews on 2 Section. The following map indicates the primary and alternate escape routes from 2 Section and the Longwall Section as it was depicted on the 30 CFR 75.1200 map and the section escapeway map.



After the conclusion of rescue and recovery efforts associated with the January 19 fire, MSHA continued the regular inspection started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection the mine was inspected in its entirety and no violations of 30 CFR 75.383 were found.

Conclusion: District 4 personnel assigned to inspect the Aracoma Alma Mine #1 did not always enforce the provisions of 30 CFR 75.383. The inspection documentation and enforcement actions indicate that District 4 personnel had a clear understanding of 30 CFR 75.383 and in one instance cited the 2 Section escapeway map for not being up-to-date. However, numerous other violations of this standard, which had existed during one or more regular inspections prior to the fatal fire, were found by the accident investigation team.

The escapeway maps kept on 2 Section and the Longwall Section and the escapeway map posted at the surface location where miners congregate were not accurate or up-to-date at the time of the fatal fire. The map posted on the surface was not up-to-date during one or more previous MSHA inspections. The section escapeway map located on the 9 Headgate Longwall Section was not accurate since the route of travel for the alternate escapeway would have been impeded by permanent ventilation controls installed in the entries.

Inspection personnel did not identify and cite several deficiencies in the records of escapeway drills. The frequency of the escapeway drills did not always meet the 90-day

requirement, the escapeway drills were not always rotated between the primary and alternate escapeways, and not all miners on 2 Section participated in the drills.

The escapeway drills and MSHA inspections of the 2 Section primary escapeway did not follow the escapeway in its entirety. The escapeway drills in 2 Section primary escapeway followed the normal route of travel of the daily mantrip and exited the 2 Section primary escapeway for a short distance to cross the longwall belt. This was the same route used by inspection personnel to document that the primary escapeway had been inspected in its entirety. Neither escapeway from 2 Section was clearly marked to show the route of travel and this was not identified during MSHA inspections of these escapeways.

Enforcement of 30 CFR 75.400

Accumulation of combustible materials

Requirement: Mandatory safety standard 30 CFR 75.400 states that coal dust, including float coal dust deposited on rock dusted surfaces, loose coal, and other combustible materials, shall be cleaned up and not be permitted to accumulate in active workings, or on diesel-powered and electric equipment therein.

MSHA Policies and Procedures: The MSHA *Program Policy Manual* states in pertinent part that:

[a]ccumulations of coal dust can contribute greatly to the propagation and severity of mine explosions. Such accumulations are also potential fire hazards since they are more readily ignitable and, once ignited, are more difficult to control and extinguish.

Coal dust or coal and loose coal accumulations present a fire as well as an explosion hazard. The broken coal has considerably more surface area per unit mass than solid coal. For example, should an electric cable fail and cause an arc, the probability of igniting accumulations is greater than igniting solid coal. Also, when broken coal is ignited, fire propagates faster than in solid coal. As another example, if hydraulic oil is spilled into broken coal, the broken coal would ignite more easily and propagate flame faster than a similar spill on the smooth floor or against the coal rib.

Accumulations of coal dust, loose coal, or the combination of the two offer serious fire and explosion hazards and must be removed from the

mine if, in the judgment of the inspector, they would lead to an intensification or spreading of a fire or an explosion. In evaluating whether the coal dust and loose coal would lead to an intensification or spreading of a fire or an explosion, the inspector should consider all the facts concerning the deposit. For example, float coal dust, loose coal and/or coal dust deposited near working faces and in active haulage entries, where sources of ignition are likely to be, are more hazardous than similar deposits in back entries. However, the remoteness of back entries is not necessarily a safeguard.

In citing a violation, the inspector should describe fully the conditions and practices, such as the location, dimensions, etc. Imminent danger conditions normally can be considered to exist when accumulations of coal dust, float coal dust, loose coal, and other combustible materials are exposed to probable explosion and fire ignition sources, and the conditions observed could reasonably be expected to cause death or serious physical harm to a miner if normal mining operations were permitted to proceed in the area before the dangerous conditions are eliminated. There may be times when the inspector's interpretation of what is an accumulation of float coal dust, loose coal and coal dust and/or other combustible materials will differ with the opinion of others. However, the inspector should base his decision upon the facts surrounding each occurrence, and document such facts as the dimensions, type, specific location, and all other related factors. The inspector's decision as to what is an accumulation must be an objective one based on the facts or circumstances surrounding each occurrence.

In considering contested violations of 30 CFR 75.400, the Federal Mine Safety and Health Review Commission (FMSHRC) considers "accumulations" to be "those masses of combustible materials which could cause or propagate a fire or explosion." *Old Ben Coal Co.*, 2 FMSHRC 2806, 2808 (October 1980). The FMSHRC has stated that "[t]he standard [75.400 is] directed at preventing accumulations in the first instance, not at cleaning up the materials within a reasonable period of time after they have accumulated." *Utah Power & Light Co.*, 12 FMSHRC 965, 968 (May 1990), quoting *Old Ben Coal Co.*, 1 FMSHRC 1954, 1957 (December 1979). The FMSHRC also has recognized that ignitions and explosions associated with accumulations of coal and coal dust are "major causes of death and injury to miners." *Black Diamond Coal Mining Co.*, 7 FMSHRC 1117, 1120 (August 1985).

Statement of Facts: MSHA's accident investigation team determined that accumulations of combustible material were present in the form of grease, oil, coal dust,

float coal dust, coal fines, and loose coal spillage at numerous locations along the approximate 2,000 foot length of the 9 Headgate longwall belt conveyor.

These easily ignited accumulations quickly grew into the strong flaming fire needed to ignite the flame-resistant belt. Once ignited, this belt quickly grew into an intense fire that resulted in generation of copious quantities of hot, dense, toxic smoke.

These conditions were obvious, extensive, and located in the areas traveled by the mine examiners. The accumulations served as readily ignitable fuel that further contributed to the ignition of the belt and to the severity and extent of the mine fire on January 19, 2006, which ultimately resulted in the two fatalities. MSHA's investigators issued an S&S, Section 104(d)(2) order (7435532) for this contributory violation of 30 CFR 75.400.

The internal review team inspected the mine's preshift/on-shift examination records obtained by MSHA accident investigation team following the fatal fire. These records indicated numerous instances in which hazards were recorded by company examiners, including accumulations of combustible materials, with no corrective actions taken. During the regular inspection from October-December 2005, the MSHA inspector documented that he inspected these records on November 1, 2005, and again on November 28, 2005.

A review of the records, dating back to October 10, 2005, indicated that examiners documented numerous hazardous conditions related to accumulations of combustible materials throughout the mine's belt entries prior to the fatal fire. A summary of the information relative to each belt flight in the mine, including examiner's records from October 10, 2005, through January 19, 2006, and inspection and enforcement activity during the inspection quarter preceding the fatal mine fire follows.

- On the No. 1 belt, a total of 281 on-shift examinations were recorded. On 41 occasions, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both.
- On the No. 2 belt, a total of 280 on-shift examinations were recorded. On 153 occasions, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both.
- On the No. 3 belt, a total of 280 on-shift examinations were recorded. On 228 occasions, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both.
- On the No. 4 belt, a total of 280 on-shift examinations were recorded. On 215 occasions, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both.

- On the No. 5 belt, a total of 280 on-shift examinations were recorded. On 266 occasions, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both.
- On the No. 6 belt, a total of 281 on-shift examinations were recorded. On 279 occasions, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both.
- On the No. 7 belt, a total of 279 on-shift examinations were recorded. On 253 occasions, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both.
- On the 9 Headgate Longwall belt, a total of 273 on-shift examinations were recorded. On 267 occasions, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both.
- On the 3 Section No. 1 belt, a total of 200 on-shift examinations were recorded. On 129 occasions, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both.
- On the 3 Section No. 2 belt, a total of 200 on-shift examinations were recorded. On 128 occasions, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both.
- On the 3 Section No. 3 belt, a total of 111 on-shift examinations were recorded. On 51 occasions, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both.
- On the 2 Section No. 1 belt, a total of 188 on-shift examinations were recorded. On 170 occasions, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both.
- On the 2 Section No. 2 belt, a total of 186 on-shift examinations were recorded. On 168 occasions, statements were entered into the mine record book indicating that this belt needed to be cleaned, dusted, or both.

In three entire inspection quarters prior to the fatal fire (January-March, April-June, and July-September, 2005), no citations were issued by MSHA inspectors pursuant to 30 CFR 75.400 for accumulations of combustible materials in the belt entries of the Aracoma Alma Mine #1.

During the last complete regular inspection prior to the fatal fire on January 19, 2006, five citations were issued for accumulations of combustible materials – two for accumulations on working sections and three for accumulations in the belt entries. Details on the three citations for accumulations in the belt entries follow.

- On December 14, 2005, an S&S citation (7244815) was issued because “[t]he #4 belt drive and 4 breaks of belt line inby the head has coal dust, coal float dust, loose coal and other combustible materials which have been allowed to accumulate. These accumulations also extend down the #3 belt line for a distance of 4 breaks.”

The citation was designated as “moderate” negligence. However, mine examiners recorded that this belt needed cleaning and/or dusting for 26 consecutive shifts prior to the issuance of the citation. The inspector subsequently terminated the citation on December 22, 2005, stating that “[t]he accumulations have been removed from the mine.” However, examiners continued to record in the mine record book that the belt needed to be cleaned and/or dusted for every examination following the issuance date of the citation until January 18, 2006.

- On December 16, 2005, a non-S&S citation (7244816) was issued because the inspector “observed the accumulations of coal dust, including float coal dust, loose wet coal and other combustible materials along the #4 belt line (starting at the 3 way) and continuing along the entire length of the #3 belt line and the #2 belt. These accumulations range in depth [from] 1” to 2.5 feet at various locations along the belt lines. These areas are wet and damp.” The termination due date was set for January 1, 2006.

During an interview with the review team, the inspector stated the MSHA field office supervisor instructed him to include all three belt flights on one citation. The citation was designated as “moderate” negligence. However, mine examiners recorded that at least one of these three belt flights needed cleaned and/or dusted for 36 consecutive shifts prior to the issuance of the citation. On January 12, 2006, the inspector subsequently extended the citation termination due date to January 19, 2006, stating that “[m]anagement has cleaned the No. 4 belt line and due to the muddy condition of the area and the fact that 11 miners have been employed to complete the work along the Nos. 2 and 3 belts, more time will be granted.” However, mine examiners continued to record in the mine record book that these belts needed to be cleaned and/or dusted for 85 shifts following the issuance date of the citation, including 18 shifts following the extension of the citation. Contrary to the inspector’s extension on January 12, 2006, stating that the No. 4 belt line had been cleaned, mine examination records continued to indicate that the No. 4 belt line needed cleaning on the day that the

extension was granted and thereafter for 19 consecutive shifts up to the day of the fatal fire. This citation was still outstanding at the time of the fatal fire.

In contrast, on February 14, 2006, during the inspection following the fire, another inspector cited the No. 2 belt for accumulations. This inspector's description is significantly more thorough in describing hazardous conditions and provides details not included in the description of conditions associated with the citation issued prior to the fire. The post-accident citation (7243252) stated that "[c]ombustible materials float coal dust, loose coal was present and compacted (dry) underneath the No. 2 belt conveyor take up roller assembly up to 18 inches in depth, also underneath the discharge roller from 36 inches to 42 inches in depth. Said belt was hooved due to build up and sliding on compacted material also there was float coal dust and grease and oil build-up on the motors which power the belts also the remainder of the belt contained build-up of combustible materials from 8 to 14 inches around bottom rollers which were gobbled out thus creating heat from friction. Also up to 12 inches in depth underneath and along both sides of said belt, also numerous bottom rollers contained belt string wrapped around said rollers and did contribute to a fire hazard. Belt entry was dry."

- On December 20, 2005, an S&S citation (7244822) was issued because "[t]he #6, 6-foot belt line has float coal dust, loose coal and other combustible materials along the entire length of the belt. These accumulations range in depth from 1 inch to 2 feet at various locations along the belt."

The citation was designated as "moderate" negligence. However, the examiners recorded that this belt needed cleaning and/or dusting for 60 consecutive shifts prior to the issuance of the citation. The termination was due on January 21, 2006, and the citation was outstanding at the time of the fatal fire. The examiner continued to record that the No. 6 belt needed cleaning and/or dusting for 75 consecutive shifts following the issuance date of the citation through the date of the fatal fire.

After the conclusion of rescue and recovery efforts associated with the January 19 fire, MSHA continued the regular inspection started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection (which occurred after the fatal fire and before coal production resumed in 3 Section on March 29, 2006), 13 citations and orders were issued for accumulations of loose coal, coal dust, and/or float coal dust throughout the belt entries. Descriptions of the citations and orders follow.

No. 1 Belt (72-inch) 1st North West Mains

- On the No. 1 belt, an S&S citation (7243251) was issued on February 14, 2006, which stated that “[c]ombustible materials, float coal dust, and loose coal w[ere] observed at numerous locations along the entire length of the No.1 belt conveyor entry, said combustibles ranged in depth from 8 to 28 inches in depth underneath and on both sides of said belt, also several bottom rollers contained belt string where belt rubbed against frame thus creating a heating source to said rollers which could in turn ignite loose coal in these areas.” Records of mine examiners indicated that this belt needed cleaned, dusted, or both during 41 of 281 examinations. This citation was designated as moderate negligence.

Nos. 2, 3, and 4 Belts (72-inch) 1st North West Mains

- All three belts, Nos. 2, 3, and 4 were cited for violations of 30 CFR 75.400 on December 16, 2005, for accumulations of combustible materials. These conditions were erroneously listed on one citation for all three belt flights. These belts were inspected again following the fatal fire, but no additional citations were issued because the original citation was still outstanding at the time of the accident.

No. 5 Belt (72-inch) 1st North West Mains

- On February 15, 2006, an S&S citation (7246660) was issued because “[a]ccumulation of combustible material, loose coal, and coal dust, up to 18 inches in depth was present at numerous locations under and along both sides of the No. 5 (72-inch) conveyor belt starting at the discharge roller and extending inby to the tailpiece, a distance of 5,450 feet. These combustible materials have accumulated up to and over the turning bottom rollers in numerous locations. Float coal dust, dark gray to black in color, has accumulated on the mine floor and coal ribs the entire length of the belt including connecting crosscuts left and right.” Records of examinations indicated that this belt needed cleaned, dusted, or both during 266 of 280 examinations. This citation was issued as moderate negligence.

No. 6 Belt (72-inch) 1st North West Mains

- On February 14, 2006, a non-S&S citation (7246636) was issued because “[a]ccumulations of combustible material, fine coal and coal dust, from 1-inch to 60 inches in depth w[ere] present in the old 8 headgate belt entry starting at the No. 6 72-inch conveyor belt at survey spad 2874 and extending inby two crosscuts to the overcast.”

- On February 14, 2006, a non-S&S citation (7246637) was issued because “[a]ccumulations of combustible material, fine coal and coal dust, from 1-inch to 16 inches in depth w[ere] present in the old 7 Headgate belt entry starting at the 72-inch No. 6 belt at survey spad 2482 and extending inby one crosscut.”
- On February 14, 2006, an S&S citation (7246644) was issued because “[a]ccumulations of combustible material, oil, and coal dust w[ere] present on and around the belt take-up unit for the No. 6 (72-inch) conveyor belt take-up. Oil and dust w[ere] present on the frame, on the oil tank, and on the electric motor. In the crosscut behind the take-up unit about 50 oil cans, wood and wood pallets, paper, and trash had accumulated.”

No. 7 Belt (72-inch) North East Mains

- On March 28, 2006, an S&S, Section 104(d)(1) order (7252851) was issued because “[a]ccumulations of combustible material, loose coal and coal dust, up to 22 inches in depth w[ere] present under and along side of the No. 7 (72-inch) conveyor belt starting at the belt drive and extending inby to No. 9 crosscut. At the take up unit the belt and rollers were running in the combustible material. Float coal dust, dark gray to black in color, has accumulated on the mine floor and coal ribs in the same area.”

9 Headgate Longwall Belt (72-inch)

- On March 29, 2007, MSHA’s accident investigation team issued an S&S, Section 104(d)(2) order (7435532) stating in part that “... accumulations of combustible material were present in the form of grease, oil, coal dust, float coal dust, coal fines, and loose coal spillage at numerous locations along the approximate 2,000 foot length of the 9 Headgate longwall belt conveyor. These easily ignited accumulations quickly grew into the strong flaming fire needed to ignite the flame-resistant belt. Once ignited, this belt quickly grew into an intense fire that resulted in generation of copious quantities of hot, dense, toxic smoke. These conditions were obvious, extensive, and located in the areas traveled by the mine examiners. The accumulations served as readily ignitable fuel that further contributed to the ignition of the belt and to the severity and extent of the mine fire on January 19, 2006, which ultimately resulted in the two fatalities.”

3 Mains No.1 Belt (48-inch) 3 Section

- On February 16, 2006, an S&S citation (7243280) was issued because “[f]loat coal dust ranging from dark gray to black in appearance was present on the rock dusted surfaces of the No. 3 Section, No. 1 belt conveyor entry, in that said float coal dust was present alongside and underneath also in the crosscuts left and

right of said belt haulage entry.” Records of mine examiners indicated that this belt needed cleaned, dusted, or both for 129 of 200 examinations. This citation was issued as moderate negligence.

3 Mains No. 2 Belt (48-inch) 3 Section

- On February 16, 2006, an S&S citation (7243271) was issued because “[f]loat coal dust ranging from dark gray to black in appearance was present on the rock dusted surfaces of the No. 3 Section, No. 2 belt conveyor haulage entry, in that said float coal dust was present alongside and underneath also in the crosscuts left and right of said belt haulage entry.” Records of mine examiners indicated that this belt needed cleaned, dusted, or both for 128 of 200 examinations. This citation was issued as moderate negligence.

3 Mains No. 3 Belt (48-inch) 3 Section

- On February 16, 2006, an S&S citation (7243269) was issued because “[f]loat coal dust ranging from dark gray to black was present on the rock dusted surfaces of the No. 3 Section, No. 3 belt conveyor entry, in that said float coal dust was present alongside and underneath also in the crosscuts left and right of said belt haulage entry...” Records of mine examiners indicated that this belt needed cleaned, dusted, or both for 51 of 111 examinations. This citation was issued as moderate negligence.

North East Mains No. 1 Belt (48-inch) 2 Section

- On March 25, 2006, an S&S Section 104(d)(1) order (7252837) was issued stating that “[a]ccumulations of combustible material, loose coal and coal dust, up to 18 inches in depth was present under and along side of the No. 1, 48-inch conveyor belt starting at the belt drive and extending inby to the tailpiece. The bottom rollers and the bottom belt had been running in the combustible at numerous locations.” Records of mine examiners indicated that this belt needed cleaned, dusted, or both for 170 of 188 examinations. This order was issued as high negligence.

North East Mains No. 2 Belt (48-inch) 2 Section

- On March 25, 2006, a non-S&S citation (7252834) was issued because “[a]ccumulations of combustible material, loose coal and coal dust, up to ten inches in depth w[ere] present at the No. 2 48-inch conveyor belt take up unit and at intermittent locations along the No. 2 conveyor belt from the take up unit to the tailpiece.” Records of mine examiners indicated that this belt needed

cleaned, dusted, or both for 168 of 186 examinations. This citation was issued as moderate negligence.

North East Mains No. 3 Belt (48-inch) 2 Section

- On March 24, 2006, an S&S Section 104(d)(1) order (7252823) was issued because “[a]ccumulation of combustible material, loose coal and coal dust, up to 30 inches was present under, along both sides and behind the No. 2 Section tailpiece. The bottom belt and tail roller were running in the combustible material creating a fire hazard. This tailpiece is located in an area where pre-shift examinations are conducted for the section and on-shift examinations for the conveyor belt. The accumulations were obvious.”

Conclusion: The widespread existence of accumulations of loose coal and coal dust on every belt flight throughout the entire mine was indicative of indifference on the part of the mine operator to prevent such hazards coupled with ineffective use of MSHA’s enforcement authority. District 4 personnel responsible for inspecting the Aracoma Alma Mine #1 did not recognize or cite numerous violations of 30 CFR 75.400. Although this standard is the most frequently cited violation in coal mines, when reviewing inspection reports, supervisors failed to recognize and investigate an unusual lack of such enforcement actions for a mine of this size. Only five citations were issued for accumulations of combustible materials for the entire review period from January 2005 through January 2006. Managers also failed to recognize data indicating the low number of 30 CFR 75.400 enforcement actions and follow-up with field office supervisors.

Inspectors did not evaluate on-shift examination records to use such information to evaluate negligence, even though they had been provided with necessary information, and training. In the three instances where the inspector cited accumulations of combustible materials in the belt conveyor entries, evidence existed in the operator’s on-shift examination records to support higher negligence determinations. Supervisors failed to evaluate the few citations and notes issued for violations of this standard to determine if negligence was being properly evaluated and hold inspectors accountable for failure to justify negligence determinations. Supervisors also did not visit the mine during the review period to determine if enforcement actions were appropriate for actual conditions in the mine.

During 76 percent of these examinations, examiners recorded in the record books that the belts needed to be cleaned, dusted, or both. Of these recorded hazards, 44 percent indicated that no corrective actions had been implemented. A prudent inspector reviewing such records should have promptly directed his or her attention to the underground areas where the hazards were identified, as required by inspection procedures. This should have resulted in more enforcement actions for violations of

30 CFR 75.400, which would have justified Section 104(d) enforcement actions for excessive accumulations.

Enforcement of 30 CFR 75.1100-1(a)

Type and quality of firefighting equipment

Requirement: Mandatory safety standard 30 CFR 75.1100-1(a) states that waterlines shall be capable of delivering 50 gallons of water a minute at a nozzle pressure of 50 pounds per square inch.

MSHA Policies and Procedures: Volume V, Section 75.1100-1 of the MSHA *Program Policy Manual* states that waterlines, with hoses attached, shall be of sufficient size to deliver 50 gallons of water per minute at a nozzle pressure of 50 psig. With this water flow and nozzle pressure, an effective solid stream can be projected about 60 feet in a 6-foot high entry. Water flow through the nozzle can be measured by a Pitot tube instrument if the diameter of the nozzle orifice is known. For adjustable nozzles, the rate of flow decreases as the water flow pattern changes from a solid stream to a spray or fog. The minimum rate of 50 gpm shall be available at the most distant point in the mine. The type and method of installation of waterlines are options of the operator, provided they meet the requirements of 30 CFR Subpart L.

The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) directs inspectors to inspect fire protection during each regular inspection.

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states that each belt flight, skip shaft, or bunker and all associated equipment shall be inspected to determine if hazardous or potentially hazardous conditions exist, with attention to: safe access, guards, fire detection systems, combustible materials, fire protection, condition of electric cables and wiring, power source capacity, and general operating condition.

Statement of Facts: The MSHA accident investigation team determined that the 2-inch diameter water supply line installed parallel to the 9 Headgate Longwall Belt Conveyor pursuant to 30 CFR 75.1100-2(b) was not capable of delivering 50 gallons of water per minute at a nozzle pressure of 50 pounds per square inch. An eye witness statement indicated while attempting to fight the fire, the fire hose outlet valve located near the belt conveyor take-up storage unit was opened and no water was produced.

The absence of water to fight the fire directly impacted the ability to control and extinguish the fire on January 19, 2006. The condition contributed to the severity, extent, and magnitude of the mine fire, which ultimately resulted in the two fatalities. The accident investigation team issued an S&S Section 104(d)(2) order (7435533) for this contributory violation of 30 CFR 75.1100-1(a).

MSHA's accident investigation team determined that the 4-inch butterfly valve where it connected to the 2-inch waterline which extended into 9 Headgate was in the closed position. A valve located in the 4-inch waterline near the No. 7 belt drive was also in a partially closed position which may have impacted flow of water toward the mouth of 9 Headgate. MSHA's accident investigation team could not determine when, or by whom, the valves had been closed.

During interviews conducted by the internal review team, District 4 inspectors assigned to inspect the Aracoma Alma Mine #1 stated that they did not have a gauge to check the pressure in the water lines and would just open a fire outlet valve to see if there was pressure. One inspector stated that, "if you've water on your feeder and water on your miner, it has to come through that (water) line, so you crack a valve as you go down through there," and "when you get to the tail if you've got a good flow (of water) it has to be coming down the line". However, the 9 Headgate longwall section water supply line was in a separate entry and not connected to the 2-inch waterline installed along the 9 Headgate longwall belt. Accordingly, checking the water supply at the longwall face did not provide evidence that water pressure existed in the waterline along the longwall belt.

Inspection documentation indicated the last MSHA presence in both the 9 Headgate longwall and No. 7 belt entries was December 5, 2005, when an inspector traveled the longwall belt from the "face area...stage loader" to the "mother drive." The 9 Headgate longwall belt was also inspected on November 15, 2005. During interviews conducted by the review team, District 4 inspectors stated that they would open some fire outlet valves to assure there was water in the lines but they did not have any way to verify if the proper pressure and flow rate were available. During the review period, District 4 personnel did not cite any violations of 30 CFR 75.1100-1 at the Aracoma Alma Mine #1.

Inspection documentation shows the belt conveyor entry was last inspected in its entirety by MSHA on December 5, 2005, when an inspector traveled the belt from the "face area...stage loader" to the "mother drive." The 9 Headgate longwall belt was also documented as being inspected on November 15, 2005. An MSHA inspector was also present near the 9 Headgate longwall belt drive on January 12, 2006, when he issued a citation because the take-up unit idler roller was not guarded. During interviews conducted by the internal review team, the inspector indicated he had observed a miner washing down the mother drive, at that time, with more than sufficient water pressure. It was determined by the accident investigation team that this hose used to clean the area of the 9 Headgate longwall belt drive was connected to the 4-inch water line supplying water to the No. 7 conveyor belt and not the 2-inch water line supplying water to the 9 Headgate Longwall conveyor belt.

After the conclusion of rescue and recovery efforts associated with the January 19 fire, MSHA continued the regular inspection started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection all conveyor belts were inspected in their entirety and no citations were issued under 30 CFR 75.1100-1.

MSHA employees from District 3, Technical Support, and the Mine Health and Safety Academy collaborated to design and build a device for testing waterlines for the "50/50" requirement. In October 2004, the employee from the Mine Health and Safety Academy made a presentation at a meeting of the CMS&H district managers. He demonstrated the device and offered to provide training to inspectors in any district. The training was not required to be conducted in all districts but was made available to all. By July 2005, a report was sent to the Administrator for CMS&H outlining the training conducted on the device. Districts 1, 3, 6, 7, and 10 requested and received training for their inspectors on using the devices. District 4 scheduled the training for July 2005 but had to cancel it due to a full schedule and did not reschedule. The remaining districts (2, 5, 8, 9, and 11) did not schedule training sessions in 2005.

Conclusion: The internal review team could not conclusively determine whether water was available in the waterline installed in the 9 Longwall Headgate belt entry during the last MSHA inspection of this area. Two separate water lines had been installed to the 9 Headgate longwall section. The first water line originated in the North West Mains and supplied water to the longwall section and provided fire protection along the most inby portion of the longwall belt in the area of the monorail. The second waterline, which was not pressurized at the time of the fire, provided fire protection for the remainder of the longwall belt. This waterline originated at the mouth of 9 Headgate in the longwall belt entry and extended inby toward the face. Thus, although inspectors stated they observed that water was available to equipment operating on the working section, this was not necessarily indicative of an adequate water supply in the line used for firefighting purposes in the belt entries.

The inspectors were not provided with the proper equipment to effectively determine whether the minimum water pressure requirements were being met under the provisions of 30 CFR 75.1100-1(a) at the Aracoma Alma Mine #1. However, this should not have prevented inspectors from determining the presence of water in the waterline installed in the 9 Headgate longwall belt entry.

Enforcement of 30 CFR 75.1100-2(b)

Quantity and location of firefighting equipment

Requirement: Mandatory safety standard 30 CFR 75.1100-2(b) states that waterlines shall be installed parallel to the entire length of belt conveyors and shall be equipped with fire hose outlets with valves at 300-foot intervals along each belt conveyor and at

tailpieces. At least 500 feet of fire hose with fittings suitable for connection with each belt conveyor waterline system shall be stored at strategic locations along the belt conveyor. Waterlines may be installed in entries adjacent to the conveyor entry belt as long as the outlets project into the belt conveyor entry.

MSHA Policies and Procedures: Volume V, Section 75.1100-2 of the *MSHA Program Policy Manual* states that the waterline required by paragraph (b) of this section can be located in an adjacent entry, but outlets with valves must project into the belt entry every 300 feet. Fire hose connected to a waterline and projected into the belt entry will not be considered adequate since the valve must be located in the belt entry.

The Policy Manual also states that 500 feet of fire hose, at strategic locations, shall be provided for each belt conveyor which is independently driven. However, where the length of the belt conveyor is less than 500 feet, only a length of fire hose sufficient to reach the length of such belt conveyor need be provided.

The Policy Manual further states that the direction of the air current along the belt, amount of fire hose, height of coal seam, and availability of transportation for miners and materials must be considered to determine strategic locations for storing fire hose along belt conveyors. Ideally, the fire hose should be stored on intake air near the belt conveyor drive, but conditions may dictate that another location is suitable, or that a separation of the hose into two or more sections is necessary. Any tools or accessories required to join hose pieces or connect fire hose to the waterline shall be stored with the fire hose and shall be easily accessible.

The *MSHA Coal General Inspection Procedures Handbook* (PH95-V-1) directs inspectors to inspect fire protection during each regular inspection.

The *MSHA General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states that each belt flight, skip shaft, or bunker and all associated equipment shall be inspected to determine if hazardous or potentially hazardous conditions exist, with attention to: safe access, guards, fire detection systems, combustible materials, fire protection, condition of electric cables and wiring, power source capacity, and general operating condition.

Statement of Facts: The MSHA accident investigation team determined that adequate fire fighting equipment was not provided for the 9 Headgate Longwall Belt Conveyor. The threads of the female coupling of the fire hose were not compatible with the threads of the male pipe of the fire hose outlet valve.

The lack of compatible fire fighting equipment resulted in the failure to extinguish the fire on January 19, 2006. This contributed to the severity, extent, and magnitude of the mine fire, which ultimately resulted in the two fatalities.

In addition, valuable time was lost during the initial effort to connect incompatible firefighting hoses to fire hose outlet valves. This further delayed the evacuation of the miners from 2 Section. The accident investigation team issued an S&S, Section 104(d)(2) order (7435534) for this contributory violation of 30 CFR 75.1100-2(b).

The accident investigation team also issued an S&S Section 104(d)(2) order (6643258) for a non-contributory violation of 30 CFR 75.1100-2(b) indicating that mine management failed to maintain fire hose outlets with valves along the 9 Headgate Longwall Belt Conveyor system in an operative usable condition, and properly spaced as required. The spacing of fire hose outlets with valves was measured by utilizing a 50-foot tape, and proper spacing was not being maintained at intervals of 300 feet along the 9 Headgate Longwall Belt Conveyor system. There were only three fire hose outlets with valves provided in by the 9 Headgate Belt Conveyor Take-up Storage Unit in the two-inch water line installed parallel to the belt. The three fire hose outlets with valves that were provided in the 2-inch plastic water supply line in by the 9 Headgate Longwall Belt Drive were not maintained functional due to extreme rusting on the nipples of the valves. Three fire hose outlets with valves were provided on the mono-rail system beyond the termination of the 2-inch plastic water supply line. These three valves were not provided with handles so that they could be easily utilized in the event of a fire. The length of the 9 Headgate Longwall belt conveyor was approximately 2,000 feet.

Inspection documentation shows the 9 Headgate Longwall belt conveyor entry was last inspected in its entirety by MSHA on December 5, 2005, when an inspector traveled the belt from the "face area...stage loader" to the "mother drive." The 9 Headgate longwall belt was also documented as being inspected on November 15, 2005. An MSHA inspector was also present near the 9 Headgate longwall belt drive on January 12, 2006, when he issued a citation because the take-up unit idler roller was not guarded. During interviews conducted by the internal review team, the inspector indicated he had observed a miner washing down the mother drive, at that time, with more than sufficient water pressure.

During the review period, District 4 personnel issued one citation for a violation of 30 CFR 75.1100-2(b) at the Aracoma Alma Mine #1. On August 16, 2005, a non-S&S citation (7188569) was issued stating that "500 feet of firefighting hose was not provided for the No. 6 (6 ft) conveyor" (1st North West Mains No. 6 belt conveyor). The citation was terminated on September 1, 2005. A non-S&S citation (7188582) was also issued on September 12, 2005 stating that "500 ft of firefighting hose was not provided for the No.1 Mains conveyor beltline". This citation was incorrectly cited under 30 CFR 75.1100-2(a)(2).

After the conclusion of rescue and recovery efforts associated with the January 19 fire, MSHA continued the regular inspection started on January 3, 2006, and completed the

inspection on March 31, 2006. During this inspection all belt entries were inspected in their entirety and 12 citations and orders were issued for violations of 30 CFR 75.1100-2(b). The condition of each belt as it relates to 30 CFR 75.1100-2(b) follows:

1st North West Mains No. 1 Belt (72-inch)

On February 14, 2006, an S&S citation (7243250) was issued for a violation of 30 CFR 75.1100-2(b) because "Fire hose outlet valves located along the No.1 belt conveyor haulage entry were not being maintained in a proper working condition, in that only one outlet valve for a distance of 2,650 feet was found to be in working condition, said valves are located every 300 feet. Outlet valves contained a threaded nipple and the fire hose would not or could not be coupled to said fire outlet for fire fighting purposes." Inspection documentation shows this belt entry was last inspected on December 19, 2005.

1st North West Mains No. 2 Belt (72-inch)

On February 14, 2006, an S&S citation (7243254) was issued for a violation of 30 CFR 75.1100-2(b) because "Fire hose outlet valves located along the No. 2 belt conveyor haulage entry were not being maintained in a proper working condition, in that only two outlet valves for a total distance of 4,490 feet were found to be in a working condition. Said valves are located every 300 feet and also no fire hose outlet valve was observed at or near the tailpiece assembly, said nipples on outlet valves were rusted and deteriorated so as the fire hose would not couple to said outlet, said condition did create a hazard due to not having proper fire protection on said belt conveyor. Should a fire occur there was no way of combating said fire." Inspection documentation shows this belt entry was last inspected on December 19, 2005.

1st North West Mains No. 3 Belt (72-inch)

On February 15, 2006, an S&S citation (7243263) was issued for a violation of 30 CFR 75.1100-2(b) because "[t]he No. 3 belt conveyor haulage entry contained nine fire hose outlet valves which were not being maintained in a proper working condition as for fire fighting activities in that the valves were rusted an or would not let fire hose be connected to said nipple of valve." Inspection documentation shows this belt entry was last inspected on December 19, 2005.

1st North West Mains No. 4 Belt (72-inch)

On February 15, 2006, an S&S citation (7243265) was issued for a violation of 30 CFR 75.1100-2(b) because "[t]he No. 4 belt conveyor haulage entry contained seven fire hose outlet valves which were not being maintained in a proper working condition as for fire fighting activities. The fire hose outlets were rusted and or deteriorated or being used for something other than fire fighting activities." Inspection documentation shows this belt entry was last inspected on January 12, 2006.

1st North West Mains No. 5 Belt (72-inch)

On February 15, 2006, an S&S Section 104(d)(1) order (7246661) was issued for a violation of 30 CFR 75.1100-2(b) because “[t]he fire hose outlets along the No. 5 (72-inch) conveyor belt were not being maintained at 300 foot intervals at all locations. Most or all of the fire outlets along the conveyor belt were not being maintained. The threads were rusted, not provided with the proper fittings, or had other hoses coupled to them and frozen. These conditions make it difficult or impossible to couple a fire hose to the outlets.”

On February 15, 2006, an S&S Section 104(d)(1) order (7246663) was issued for a violation of 30 CFR 75.1100-2(b) because “500 feet of fire hose along with suitable fittings was not being stored along the No. 5 (72-inch) conveyor belt. Only 400 feet was stored at the belt drive and this did not include a fire nozzle.” Inspection documentation shows this belt entry was last inspected on December 16, 2005.

1st North West Mains No. 6 Belt (72-inch)

On February 14, 2006, a Non S&S citation (7246634) was issued for a violation of 30 CFR 75.1100-2(b) because “[a] fire hose outlet was not installed at the No. 6 72-inch conveyor belt tailpiece.”

On February 14, 2006, an S&S citation (7246649) was issued for a violation of 30 CFR 75.1100-2(b) because “[a]ll of the fire hose outlets along the No 6 72 inch conveyor belt were not being maintained. The threads on the outlets were rusted making it difficult to couple the fire hose to the outlets.” Inspection documentation shows this belt entry was last inspected on December 16, 2005.

North East Mains No. 7 Belt (72-inch)

On March 28, 2006, an S&S Section 104(d)(1) order (7252852) was issued for a violation of 30 CFR 75.1100-2(b) because “[t]he fire hose outlets along the No. 7 (72-inch) conveyor belt were not being maintained starting at the belt drive and extending inby to the No. 9 crosscut. One outlet had the control handle broken off, one had the nipple missing; one was blocked with area guarding for the take up unit. The nipples on the outlets were rusted making it difficult or impossible to connect a fire hose.” Inspection documentation shows the conveyor belt entry was not traveled in its entirety by MSHA prior to the fatal fire. The record books available for MSHA review during this investigation show the No. 7 belt conveyor was in operation from for the period of October 10, 2005, until January 19, 2006. The No. 9 Headgate longwall panel began mining in September 2005.

No. 1 (48-inch) Belt, 2 Section

Inspection documentation shows this belt entry was last inspected on December 16, 2005.

No. 2 (48-inch) Belt, 2 Section

Inspection documentation shows this belt entry was last inspected on December 16, 2005.

No. 3 (48-inch) Belt, 2 Section

On March 24, 2006, an S&S Section 104(d)(1) order (7252824) was issued for a violation of 30 CFR 75.1100-2(b) because “[a] fire hose outlet was not provided at the No 3 48 inch conveyor belt tailpiece. This fire hose outlet is also used for fire fighting requirements on the MMU 009-0 010-0 No 2 Section. On shift examinations are conducted on this conveyor belt each shift. A separate order was issued for combustible material accumulations at this tailpiece.” Inspection documentation shows the conveyor belt entry was not traveled in its entirety by MSHA prior to the fatal fire. At the time of the fatal fire, this belt conveyor was only three or four breaks long and was only recently installed.

No. 1 (48-inch) Belt, 3 Section

On February 16, 2006, an S&S citation (7243279) was issued for a violation of 30 CFR 75.1100-2(b) because “[a]t least 500 feet of fire hose with fittings suitable for connections with each belt conveyor water line system shall be stored at strategic locations along the belt conveyor. The No. 3 Section, No. 1 belt conveyor contained no fire hose which is to be used for fire fighting purposes should a fire occur on said belt entry.” Inspection documentation shows this belt entry was last inspected on January 9, 2006.

No. 2 (48-inch) Belt, 3 Section

Inspection documentation shows this belt entry was last inspected on January 9, 2006.

No. 3 (48-inch) Belt, 3 Section

On February 16, 2006, a citation (7243267) was issued for a violation of 30 CFR 75.1100-2(b) because “[t]he fire valve located at the tailpiece assembly of the No. 3 Section, No. 3 belt conveyor was not being maintained in a proper working condition in that said valve had no lever or device so as to turn on said water to fire hose.” Inspection documentation shows this belt entry was last inspected on January 9, 2006.

During interviews conducted by the internal review team, District 4 inspectors assigned to inspect the Aracoma Alma Mine #1 stated that they did not physically determine if the threads on the fire hoses were compatible with the fire outlets. One inspector stated that he had observed miners using “fire hose” to clean coal spillage around belt drives. This inspector also said that he assumed the company would order fire hoses with threads that were compatible with the existing threads on the fire outlets.

Conclusion: District 4 inspection personnel did not effectively enforce the provisions of 30 CFR 75.1100-2(b) at the Aracoma Alma Mine #1. Inspections conducted during the entire review period identified two violations of this mandatory safety standard.

During the inspection and accident investigation following the fatal fire, 14 citations and orders were issued for violations of 30 CFR 75.1100-2(b) on 11 of the 14 belts in the mine. These violations involved numerous locations where the fire hose outlets were not maintained in usable condition or the threads were not compatible with the fire hose stored underground. Descriptions of the cited conditions indicated that these violations were present during one or more MSHA inspections prior to the fire.

Enforcement of 30 CFR 75.1101-8(a)

Water sprinkler systems; arrangement of sprinklers

Requirement: Mandatory safety standard 30 CFR 75.1101-6 states that water sprinkler systems may be installed to protect main and secondary belt-conveyor drives; however, where such systems are employed, they shall be installed and maintained in accordance with 30 CFR 75.1101-7 through 30 CFR 75.1101-11.

Mandatory safety standard 30 CFR 75.1101-8(a) states that at least one sprinkler shall be installed above each belt drive, belt take-up, electric control, and gear-reducing unit, and individual sprinklers shall be installed at intervals of no more than 8 feet along all conveyor branch lines.

Mandatory safety standard 30 CFR 75.1101-8(b) states that two or more branch lines, at least one of which shall be above the top belt and one between the top and bottom belt, shall be installed in each sprinkler system to provide a uniform discharge of water to the belt surface.

MSHA Policies and Procedures: On September 30, 2004, the CMS&H Administrator issued Program Policy Letter P04-V-5 to clarify the requirements of 30 CFR 75.1101-7 and 75.1101-8 concerning the installation requirements for water sprinkler systems and arrangement of sprinklers on underground belt conveyors and belt take-up storage units. This program policy letter also clarifies the intent of the MSHA *Program Policy Manual* Volume V, Section 75.1101-8 regarding arrangement of sprinklers. MSHA has determined that some belt take-up storage units do not have adequate fire protection because belt conveyor take-up storage units are not provided with sufficient protection and the wide belts may shield the sprinkler from suppressing a belt fire.

The policy letter informed the mining industry that MSHA would be inspecting all belt take-up storage units to assure that adequate fire protection is afforded. This letter was intended to answer questions, eliminate inconsistencies, and provide guidance to enforcement personnel and the mining industry.

The policy letter addressed the key elements for compliance with the requirements for water sprinkler systems and arrangements of sprinklers for underground belt conveyors and belt take-up storage units. Pertinent portions of the policy letter follow.

- Two or more branch lines, at least one of which shall be above the top belt and one between the top and bottom belt, shall be installed in each sprinkler system to provide a uniform discharge of water to the belt. Wider belt conveyor installations may require more than one branch line directly over the top belt and between the top and bottom belts in order to provide a uniform discharge of water to the entire width of the belt surface.
- The water discharged from the sprinklers shall be directed at both the upper and bottom surfaces of the top belt and to the entire upper surface of the bottom belt. The water discharge rate from the sprinkler system shall be a minimum of 0.25 gallons per minute per square foot of the top belt surface.
- Each sprinkler system shall provide protection for the motor drive belt take-up storage unit, electric controls, gear reduction unit, and the 50 feet of fire resistant belt, or 150 feet of nonfire-resistant belt adjacent to the belt drive.

The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) instructs inspectors to inspect fire protection during each regular inspection.

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states that each belt flight, skip shaft, or bunker and all associated equipment shall be inspected to determine if hazardous or potentially hazardous conditions exist, with attention to: safe access, guards, fire detection systems, combustible materials, fire protection, condition of electric cables and wiring, power source capacity, and general operating condition.

Statement of Facts: The MSHA accident investigation team determined that the mine operator failed to install the water sprinkler system in accordance with 30 CFR 75.1101-8(a). The water sprinkler system did not provide coverage over the electrical motors, belt take-up storage unit, gear reducing unit, and the electrical controls at the 9 Headgate Longwall Belt Conveyor take-up storage unit. The fire initiated in the belt take-up storage unit.

The absence of an adequate and complete water sprinkler system resulted in the failure to extinguish the fire on January 19, 2006. The condition contributed to the severity, extent, and magnitude of the mine fire, which resulted in the two fatalities. The

accident investigation team issued an S&S, Section 104(d)(2) order (7435535) for this contributory violation of 30 CFR 75.1101-8(a).

An S&S, Section 104(d)(2) order (6643262) was also issued by the accident investigation team for a non-contributory violation of 30 CFR 75.1101-8(b). Mine management failed to properly install and maintain the water sprinkler system which was being used at the 9 Headgate Belt Conveyor Head drive for fire suppression purposes. Two or more branch lines, at least one of which shall be above the top belt and one between the top and bottom belt, shall be installed in each sprinkler system to provide a uniform discharge of water to the belt surface are required, but only one branch line was provided for fire suppression purposes at the 9 Headgate Belt Conveyor Head drive belt installation.

During interviews conducted by the internal review team, District 4 inspectors assigned to inspect the Aracoma Alma Mine #1 stated that they checked the fire suppression at belt drives by visual examinations and functional tests. One inspector stated that the only training he received on sprinkler systems was given by District 4 electrical personnel and that he was not aware of Program Policy Letter P04-V-5.

The last time an inspector traveled the 9 Headgate longwall belt conveyor entry was on December 5, 2005, when an inspector traveled the conveyor belt from the "face area ... stage loader" to the "mother drive." The 9 Headgate longwall belt conveyor was also documented as being inspected on November 15, 2005. During the review period, District 4 personnel did not issue any citations for a violation of 30 CFR 75.1100-8(a) at the Aracoma Alma Mine #1.

After the conclusion of rescue and recovery efforts associated with the January 19 fire, MSHA resumed the regular inspection that had been started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection all 14 conveyor belts were inspected in their entirety and 12 citations were issued for inadequate water sprinkler systems as follows.

1st North West Mains No. 2 Belt (72-inch)

On February 14, 2006, an S&S citation (7243257) was issued stating, "The water sprinkler system provided for the No. 2 belt conveyor drive and take-up assembly was not installed properly so as to provide full coverage of the top belt and or the bottom belt in that the sprinklers were positioned at an angle that would not fully spray on the intended portion of belt should heat arises or a fire occurring, also no sprinkler system provided for the starter control box or drive motors of said belt. Belt is traveled on all shifts by a certified foreman." Inspection documentation shows the conveyor belt entry was last inspected in its entirety by an MSHA inspector on December 19, 2005.

1st North West Mains No. 4 Belt (72-inch)

On February 15, 2006, an S&S citation (7243264) was issued stating, "The water sprinkler branch line provided for the No. 4 belt conveyor drive and take-up roller assemblies was not provided with adequate coverage in that the bottom branch line or system due to location would not spray water underneath the top belt nor over the top portion of the bottom belt should a fire occur on said drive. Belt is traveled on all shifts be a certified person." Inspection documentation shows the conveyor belt entry was last inspected in its entirety by an MSHA inspector on January 12, 2006.

1st North West Mains No. 5 Belt (72-inch)

On February 15, 2006, an S&S citation (7246665) was issued stating, "The water sprinkler system for the No. 5, 72 inch belt conveyor drive was not installed to meet the requirements of 75.1101-7 through 75.1101-11. The water sprinklers were not installed with the recommendations of FPA code No. 13. A sprinkler was not installed above the electric controls and above the gear reducing units. The system was not provided with two branch lines, the bottom and top belt was supplied by the same supply line." Inspection documentation shows this belt entry was last inspected on December 16, 2005.

1st North West Mains No. 6 Belt (72-inch)

On February 15, 2006, an S&S citation (7246650) was issued stating, "The water sprinkler system for the No. 6, 72 inch belt conveyor drive was not installed to meet the requirements of 75.1101-7 through 75.1101-11. The water sprinklers were not installed with the recommendations of FPA code No 13. A sprinkler was not installed above the discharge roller, above the electric controls, and above the gear reducing units. The system was not provided with two branch lines, the bottom and top belt was supplied by the same supply line." Inspection documentation shows this belt entry was last inspected on December 16, 2005.

North East Mains No. 7 Belt (72-inch)

On March 28, 2006, an S&S citation (7252846) was issued stating, "The water sprinkler system for the Co No 7, 72 inch conveyor belt drive was not installed and maintained in accordance with 75.1107-7 through 75.1101-11. A sprinkler was not installed at the electric controls, motors, and gear reducing units. Only one branch line was installed. The sprinklers were not positioned to provide coverage for the top and bottom belt." Inspection documentation shows the conveyor belt entry was not inspected in its entirety by MSHA prior to the fatal fire. The record books available for MSHA review during this internal review show the No. 7 belt conveyor was in operation from October 10, 2005, until January 19, 2006. The 9 Headgate longwall panel began mining in September 2005.

No. 1 (48-inch) Belt, 2 Section

On March 27, 2006, an S&S citation (7252841) was issued stating, "The water sprinkler system for the No. 1 48 inch conveyor belt drive was not installed and maintained in accordance with 75.1101-7 through 75.1101-11. A sprinkler was not installed at the electric controls, motors, and gear reducing units. Only one branch line was installed. The sprinklers were not positioned to provide coverage for the top and bottom belt." Inspection documentation shows this belt entry was last inspected on December 16, 2005.

No. 2 (48-inch) Belt, 2 Section

On March 25, 2006, an S&S citation (7252835) was issued stating, "The water sprinkler system for the Co No 2 48 inch conveyor belt drive was not installed and maintained in accordance with 75.1101-7 through 75.1101-11. A sprinkler was not installed at the electric controls, motors, and gear reducing units. Only one branch line was installed. The sprinklers were not positioned to provide coverage for the top and bottom belt." Inspection documentation shows this belt entry was last inspected by an MSHA inspector on December 16, 2005.

No. 3 (48-inch) Belt, 2 Section

On March 25, 2006, an S&S citation (7252829) was issued stating, "The water sprinkler system for the Co No 3 48 inch conveyor belt drive was not installed and maintained in accordance with 75.1101-7 through 75.1101-11. A sprinkler was not installed at the electric controls, motors, and gear reducing units. Only one branch line was installed. The sprinklers were not positioned to provide converge for the top and bottom belt." Inspection documentation shows the conveyor belt entry was not traveled in its entirety by an MSHA inspector prior to the fatal fire. At the time of the fatal fire, this belt conveyor was only three or four breaks long and had only recently been installed.

No. 1 (48-inch) Belt, 3 Section

On February 16, 2006, an S&S citation (7243276) was issued stating, "The fire suppression system (water sprinkler) system provided for the No. 3 Section No. 1 belt conveyor drive and take up assembly was not installed correctly in that said system contained only one branch line and said sprinklers were not installed correctly so as to cover said belt also no sprinklers were provided for the electric control, motors, and gear boxes." Inspection documentation shows the conveyor belt entry was last inspected in its entirety by an MSHA inspector on January 9, 2006.

No. 2 (48-inch) Belt, 3 Section

On February 16, 2006, an S&S citation (7243274) was issued stating, "The fire suppression system (water sprinkler) system provided for the No. 3 Section No. 2 belt conveyor drive and take up assembly was not installed correctly in that no bottom branch line was provided also the spray assemblies on the top line would not spray where needed also there were no sprinklers for the motors, gear boxes, and electric

controls.” Inspection documentation shows the conveyor belt entry was last inspected in its entirety by an MSHA inspector on January 9, 2006.

No. 3 (48-inch) Belt, 3 Section

On February 16, 2006, an S&S citation (7243270) was issued stating, “The fire suppression (water sprinkler) system provided for the No. 3 Section No. 3 belt conveyor drive and take up assembly was not installed correctly in that the top branch line was not connected to water source also the spray assemblies would not spray where needed also the motors and starter box were not provided with sprinklers.” Inspection documentation shows this belt entry was last inspected on January 9, 2006.

Conclusion: District 4 inspection personnel did not effectively enforce the requirements for water sprinkler systems at the Aracoma Alma Mine #1. No citations were issued during the review period for violations of this mandatory safety standard. During the inspection and investigation following the fatal fire, 12 citations and orders were issued for violations involving inadequate water sprinkler systems on 12 of the 14 belts in the mine. Descriptions of the cited conditions indicated that these violations were present during one or more MSHA inspections prior to the fatal mine fire.

Enforcement of 30 CFR 75.1101-11

Inspection of water sprinkler systems

Requirement: Mandatory safety standard 30 CFR 75.1101-11 states that each water sprinkler system shall be examined weekly and a functional test of the complete system shall be conducted at least once each year.

MSHA Policies and Procedures: The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) directs inspectors to inspect fire protection during each regular inspection.

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states that each belt flight, skip shaft, or bunker and all associated equipment shall be inspected to determine if hazardous or potentially hazardous conditions exist, with attention to: safe access, guards, fire detection systems, combustible materials, fire protection, condition of electrical cables and wiring, power source capacity, and general operating condition.

Statement of Facts: The MSHA accident investigation team determined that the mine operator failed to conduct adequate weekly examinations of the water sprinkler system for the 9 Headgate Longwall Belt Conveyor belt drive, take-up storage unit, electrical controls, and gear-reducing unit.

The electrical components and belt take-up storage unit were not provided with a fire suppression system which would activate in the event a rise in temperature occurred at

this location. These hazardous conditions were not identified and recorded at the time of the examination. Corrective action was not taken to address the condition.

Proper examinations would have revealed the absence of an adequate and complete water sprinkler system. This resulted in the failure to extinguish the fire on January 19, 2006. The condition contributed to the severity, extent, and magnitude of the mine fire, which resulted in the two fatalities. The accident investigation team issued a Section 104(d)(2) S&S Order (7435536) for this contributory violation of 30 CFR 75.1101-11.

A review of inspection documentation by the internal review team shows that District 4 personnel last examined the operator's records for weekly inspection of fire suppression devices and underground electric equipment on December 5 and 19, 2005 respectively. During the review period, MSHA inspectors did not issue any citations for a violation of 30 CFR 75.1101-11 at the Aracoma Alma Mine #1. The operator's electrical examinations recorded in January 2006, indicated that the fire suppression systems from all belts were examined and listed as "working" in the record book. The records also indicated that the fire suppression system for the longwall conveyor belt drive was examined by the company on January 18, 2006, the day before the fatal fire, and shown to be "ok at exam time."

During interviews conducted by the internal review team, District 4 inspectors assigned to inspect the Aracoma Alma Mine #1 stated that they did not observe the operator conducting weekly examinations of fire suppression devices underground. However, their inspection notes indicated that the records of these examinations were inspected during the regular inspections.

After the conclusion of rescue and recovery efforts associated with the January 19 fire, MSHA resumed the regular inspection that had been started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection all conveyor belts were inspected in their entirety and no citations were issued under 30 CFR 75.1101-11.

Conclusion: The inspection of the record books, when compared to the actual condition of the fire fighting equipment underground, should have revealed that the operator's inspection and maintenance of the firefighting equipment was inadequate. The internal review team concluded that the weekly examination records were inadequately inspected by MSHA, as they did not accurately represent the actual conditions underground.

Enforcement of 30 CFR 75.1103-11

Tests of fire hydrants and fire hose; record of tests

Requirement: Mandatory safety standard 30 CFR 75.1103-11 states that each fire hydrant shall be tested by opening to insure that it is in operating condition, and each fire hose shall be tested, at intervals not exceeding 1 year. A record of these tests shall be maintained at an appropriate location.

MSHA Policies and Procedures: The MSHA *Program Policy Manual* states that fire hose shall be tested annually to ensure that the hose and couplings are serviceable. The test shall include unreeling and reloading all of the fire hose at each depot and flowing water through hose with a nozzle attached. The nozzle, if adjustable, shall be opened and closed quickly to introduce shock to the system. When the fire hose is made up of sections, at least one section shall be so tested each year, and a record kept of the date, the pressure used, and the fire hose section tested. A different section of hose shall be tested each year. However, if the fire hose consists of more than five sections, then all of the sections shall be tested at least once during the 5-year period. In addition, if any water leakage occurs during a test, then all of the hose at the depot shall be tested, and all leaking hose and/or couplings replaced immediately. It shall not be necessary to dry the hose following a test. The outer surface of the hose shall be kept reasonably clean. In no instance shall a fire hose be tested with compressed air.

The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) states that the inspector shall thoroughly examine all the record books required by the Act and regulations.

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states that the operator's compliance with recording required examinations (Fire Hydrants And Fire Hose Tests) shall be evaluated by comparing recorded information in the record book with actual conditions in the area inspected. Prior recordings shall be reviewed back to the ending date of the last regular safety and health inspection to determine if the results of all required examinations were recorded.

Statement of Facts: The MSHA accident investigation team determined that records were not produced by the mine operator to document required annual functional tests of fire hydrants and fire hoses in the mine. Adequate functional tests would have revealed the threads of the female coupling of the fire hose were not compatible with the threads of the male pipe of the fire hose outlet valve.

Valuable time was lost during the initial effort to connect incompatible firefighting hoses to fire hose outlet valves. This further delayed the evacuation of the miners from 2 Section.

The lack of compatible fire fighting equipment resulted in the failure to extinguish the fire on January 19, 2006. This condition contributed to the severity, extent, and magnitude of the mine fire, which ultimately resulted in the two fatalities. This same condition existed at the same location during a fire on December 23, 2005. The accident investigation team issued a Section 104(d)(2), S&S Order (7435522) for this contributory violation of 30 CFR 75.1103-11.

On January 31, 2006, as part of the accident investigation, MSHA team leader Kenneth A. Murray issued a formal request to the mine operator for all records of examinations at the Aracoma Alma Mine #1, including the “[t]he most recent annual functional test of all underground fire hydrants and fire hoses maintained pursuant to 30 CFR 75.1103-11.” On March 3, 2006, a response from counsel for Aracoma Coal Company stated, “While the mine continues to look, we do not have any records in this category.”

District 4 inspectors documented that they purportedly inspected records of functional tests on March 30, June 22, and September 30, 2005. However, the inspector who conducted the regular inspection from October through December 2005 did not document that he inspected the records. During the review period, District 4 personnel did not issue a citation for a violation of 30 CFR 75.1103-11 at the Aracoma Alma Mine #1.

During interviews conducted by the internal review team, District 4 inspectors assigned to inspect the mine stated that they could not specifically recall where the records of the functional tests for the fire hoses and fire outlets were maintained. However, their inspection notes indicated that these records had been inspected during three of the four completed regular inspections prior to the January 19, 2006, fire.

After the conclusion of rescue and recovery efforts associated with the January 19 fire, MSHA continued the regular inspection started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection, all belt entries were inspected in their entirety and the following citation was issued for a violation of 30 CFR 75.1103-11.

- On March 28, 2006, a 30 CFR 75.1103-11 non-S&S citation (7252619) was issued stating that, “No record book could be provided for this mine to show the yearly functional tests of all fire hoses being provided or used at said mine for fire fighting purposes. A record book is required showing said functional tests.” The citation was terminated on March 29, 2006, stating that, “A record book on fire hoses and fire valves now has been started.”

Conclusion: The information gathered by both the investigation and internal review teams suggests that required functional tests were not conducted at the Aracoma Alma Mine #1, and no record of these functional tests was provided by the mine operator following repeated requests by the accident investigation team. If such required

functional tests had been conducted by the operator on firefighting equipment in the 9 Headgate longwall area, it would have been readily apparent that the threads of the female coupling of the fire hose were not compatible with the threads of the male pipe of the fire hose outlet valve.

District 4 inspection personnel documented in their inspection notes that the operator's records concerning tests of fire hydrants and fire hose were inspected during their regular quarterly inspections. However, no such records were produced by the mine operator despite repeated requests by MSHA's accident investigation team.

Enforcement of 30 CFR 75.1202-1

Temporary notations, revisions, and supplements

Requirement: Mandatory safety standard 30 CFR 75.1200 states that the operator of a coal mine shall have, in a fireproof repository located in an area on the surface of the mine chosen by the mine operator to minimize the danger of destruction by fire or other hazard, an accurate and up-to-date map of such mine drawn on scale. Such map shall show entries and air courses with the direction of airflow indicated by arrows, escapeways, and adjacent mine workings within 1,000 feet.

Mandatory safety standard 30 CFR 75.1202 states that such map shall be kept up-to-date by temporary notations and such map shall be revised and supplemented at intervals prescribed by the Secretary on the basis of a survey made or certified by such engineer or surveyor.

Mandatory safety standard 30 CFR 75.1202-1 requires that the operator keep mine maps up-to-date by use of temporary notations. Temporary notations shall include the location of each working face of each working place; pillars mined or other such second mining; permanent ventilation controls constructed or removed, such as seals, overcasts, undercasts, regulators, and permanent stoppings, and the direction of air currents indicated; and escapeways designated by means of symbols.

MSHA Policies and Procedures: The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) directs the inspector to determine that mine maps are kept up-to-date as required and each working place is accurately shown.

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) directs the inspector to review the up-to-date mine map required by 30 CFR 75.1200 for consistency with approved mining methods and give special attention concerning ventilation controls, air-flow direction and required temporary notations to determine its accuracy.

Statement of Facts: The MSHA Accident Investigation Team determined that the mine operator did not keep the map required pursuant to 30 CFR 75.1200 up-to-date by temporary notations to depict the permanent ventilation controls constructed and/or removed in the North East Mains. The map does not accurately depict the location of permanent ventilation controls in the area of the No. 7 Belt tail pulley necessary to separate the primary escapeway for 2 Section from the No. 7 Belt conveyor entry. The designations of escapeways were not properly marked on the map by means of symbols to accurately depict the underground escapeways.

The mine map was posted on the wall in the Superintendent's Office where it could be clearly seen and easily accessed by mine management. Although there were indications the map was updated to track production-related activities such as the rate of retreat of the Longwall Section and the development of the 2 Section, the temporary notations to indicate construction or removal of permanent ventilation controls were not kept up-to-date.

An up-to-date mine map would have alerted mine management and miners of the lack of separation between the primary escapeway and the No. 7 Belt Conveyor entry. The inaccurate map resulted in the mine operator not correcting the lack of separation between the primary escapeway and the belt entry. This lack of separation between the primary escapeway and the belt conveyor entry allowed smoke and carbon monoxide gas to inundate the primary escapeway used by the miners during the evacuation from 2 Section on January 19, 2006. Smoke from the fire adversely impacted the ability of miners from 2 Section to escape, resulting in two fatalities. The accident investigation team issued a Section 104(d)(2) S&S order (7435537) for this contributory violation of 30 CFR 75.1202-1.

The accident investigation team issued a Section 104(d)(2) S&S order (6643267) for a non-contributory violation of 30 CFR 75.1202-1(b)(4). The mine map required pursuant to 30 CFR 75.1200 was not maintained as required. The mine map was posted on the wall in the Superintendent's Office where it could be clearly seen and easily accessed by mine management. Although there were indications the map was updated to track production-related activities such as the rate of retreat of the Longwall Section and the development of the 2 Section, the following deficiencies relevant to the mine map and escapeway depictions are as follows:

1. The designation of the primary escapeway from the 2 Section was not accurately depicted;
2. The designation of the alternate escapeway from the 2 Section was not accurately depicted;

3. The designation of the primary escapeway from the Longwall Section was not accurately depicted;
4. The designation of the alternate escapeway from the Longwall Section was not accurately depicted;
5. The designation of the alternate escapeway from the 3 Section was not accurately depicted. The alternate escapeway designation terminated at crosscut No. 14 in 3 Mains, and does not continue inby to the working section;
6. The direction of airflow was not indicated by arrows as required in the Nos. 1, 2, and 4 entries of 10 Headgate. The direction of the airflow in the North East Mains was depicted in the wrong direction;
7. Elevations of all main and cross and side entries were not depicted on the mine map;
8. The mine map posted did not show the entire extent of adjacent mine workings as required;
9. The symbol for the surface permanent base line points appears in the map legend, but are not discernable on the mine map;
10. Elevations were not discernable in at least one entry of each working section, main and cross entries on the mine map;
11. The mine map was not certified by a registered engineer or registered surveyor of the State of West Virginia as required, and
12. All permanent ventilation controls, constructed or removed, directions of air currents and escapeways designated by means of symbols in the North East Mains are not accurately shown on the mine map.

The internal review team examined a copy of the 30 CFR 75.1200 map that was posted on the mine office wall. It was scaled 400 feet to the inch, dated August 31, 2005, and titled "6-Month Map." The map was used as a production and progress chart, as well as to satisfy the requirements of 30 CFR 75.1200. The escapeways were hand-drawn on the map and documented in a legend.

During the review period, District 4 personnel issued two non-S&S citations for violations of 30 CFR 75.1200 at the Aracoma Alma Mine #1. Descriptions of the citations follow.

- The first citation (7227912), dated July 18, 2005, was issued as a result of an unplanned inundation of water on November 5, 2004, into the Aracoma Alma Mine #1. The citation stated that “[t]he certified mine map was inaccurate in that the Chafin Jones Heatherman Coal Co. workings were not accurately depicted on the mine map. The abandoned workings were approximately 1000' closer to the active mine than depicted.” Handwritten notes indicate that the citation was terminated because a certified map depicting the correct location of the mine-through and remainder of the Chafin Jones Heatherman Coal Co. mine was provided. However, the 30 CFR 75.1200 map posted at the time of the fatal fire did not show the entire extent of the adjacent mine workings as required.
- A second citation (7241420), dated July 22, 2005, stated that “[m]ine management failed to submit to MSHA for approval changes made in the ventilation system of the mine prior to making changes. The No. 1 entry main return starting at the overcast located adjacent to mouth of the old 3 headgate extending inby to the mouth of the old 5 tailgate panel was reversed and changed into an intake air course.” This citation was terminated stating that “[t]he operator has submitted a supplemental ventilation plan and approval has been granted.” This violation should have been cited under 30 CFR 75.370(d).

Computer Inspection Tacking System (CITS) documentation indicates the last inspection of the subject mine map was on November 2, 2005. During interviews conducted by the internal review team, the inspector indicated that he had discussed the inaccurate mine map with the field office supervisor and was instructed to confer with a former ventilation specialist. Following these discussions, the inspector issued an S&S citation (7244823) on December 20, 2005, under 30 CFR 75.370(d). The citation stated “Management implemented a ventilation change to the air course on the #2 Section. The #2 Section drives the head gate entries for the longwall section. This change was made prior to getting approval from the District Manager. This change in the air current could materially affect the safety and health of the miners.” The citation was terminated based on the following justification, “Management has corrected the ventilation change. The air across the single seal #1, is now ventilated into a established return and to the surface.” However, this citation was terminated even though no written approval was ever given by the District 4 Manager for this ventilation change.

During interviews conducted by the internal review team, the inspector stated that the intent of citation 7244823 was to correct deficiencies with the mine map. However, after this citation was terminated, the inspector requested a “meeting with Massey engineers in order to correct the maps to reflect what was actually being done underground.”

During interviews conducted by MSHA's accident investigation team, the inspector assigned to the mine at the time of the accident indicated that, prior to the fire, he notified mine management that the subject map was not indicative of the conditions underground. He also informed mine management that the overall picture (mine map) of the ventilation system at the mine was far from being adequate; eight and nine headgates did not have established evaluation points, no stoppings had been put in to isolate the gob from the rest of the mine, and belt air on 2 Section was shown flowing outby in the belt entry, when it was actually flowing inby.

The inspector indicated that he informed the day shift mine foreman that the map was not accurate. Subsequently, the inspector met with Massey engineers and discussed ventilation controls, airflow directions, and informed them that in the event there was ever an explosion or a mine fire, they had to have an accurate 75.1200 map to give to mine rescue teams. Following their discussions, mine management informed the inspector that they would have the map corrected. Although additional deficiencies were identified in the mine map, no citation was issued for a violation of 30 CFR 75.1200.

When the fatal fire occurred on January 19, 2006, this inspector responded to the disaster and was onsite during rescue and recovery efforts. He indicated that he attempted to alert mine management, while recovery efforts were underway, that their maps were wrong and the flow of air shown on the maps was not accurate, but to no avail.

After the conclusion of rescue and recovery efforts associated with the January 19 fire, MSHA continued the regular inspection started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection, one additional citation was issued under 30 CFR 75.1200. The Section 104(d)(1) non-S&S order (7252617), dated March 27, 2006, stated that "The operator's mine map is not being maintained up-to-date, and is not showing the following information:

1. The primary escapeway is shown in the wrong entry at survey station 2236.
2. Personnel doors are not shown on the map in the overcast located at survey station 3191.
3. The double doors located outby survey station 3333 have been torn out.
4. The stopping located between survey station 3241 and survey station 3239 is not shown on the map.
5. The stopping located between survey station 3216 and survey station 3226 is not shown on the map.
6. The stopping located at survey station 3222 has a personnel door installed and is not shown on the map.

7. Survey station 2236 in the number 2 entry, just outby the gas well, is shown incorrectly. The correct survey station is 3176.
8. Survey station 2156 in the number 3 entry, one break outby the gas well, is shown incorrectly. The correct survey station is 3156.

This is the third attempt for the company to submit a correct and up-to-date mine map since the date of 01-19-2006.”

Conclusion: The internal review team determined that enforcement of 30 CFR 75.1200 was inadequate. During the review period, an inspector cited an unapproved ventilation change as a violation of 30 CFR 75.1200(h) that should have been cited as a violation of 30 CFR 75.370(d). One inspector indicated he recognized numerous deficiencies related to the mine map and indicated to the internal review team that enforcement action was taken. However, the citation was actually issued for an unapproved ventilation change and not related to deficiencies in the mine map. He also indicated these deficiencies were discussed with mine management and the MSHA field office supervisor. The inspector should have taken appropriate enforcement action when the deficiencies were first identified and required the operator to make prompt corrections to the map. It is not acceptable to delay enforcement actions while reviewing deficiencies with mine management, the engineering department, and MSHA supervision.

Supervisory support in the Logan field office was inadequate because an inspector consulted both a former ventilation specialist and the field office supervisor for additional guidance regarding this issue; yet, it was recommended that the incorrect standard be cited regarding the inaccurate mine map. In addition, the citations were reviewed by MSHA supervisors and the deficiencies were not identified or corrected. Two citations issued prior to the fatal fire were incorrectly cited and terminated. These enforcement actions would have been identified and corrected by appropriate supervisory oversight.

Enforcement of 30 CFR 75.1501(b)

Emergency evacuations

Requirement: Mandatory safety standard 30 CFR 75.1501 states in pertinent part that:

- (a) For each shift that miners work underground, there shall be in attendance a responsible person designated by the mine operator to take charge during mine emergencies involving a fire, explosion or gas or water inundations. The responsible person shall have current knowledge of the assigned location and expected movements of miners underground, the operation of the mine ventilation system, the location of the mine

escapeways, the mine communications system, any mine monitoring system if used, and the mine emergency evacuation and firefighting program of instruction.

(b) The responsible person shall initiate and conduct an immediate mine evacuation when there is a mine emergency which presents an imminent danger to miners due to fire or explosion or gas or water inundation. Only properly trained and equipped persons essential to respond to the mine emergency may remain underground.

Statement of Facts: The MSHA accident investigation team determined that mine management failed to initiate and conduct an immediate evacuation of the miners working on 2 Section and the Longwall Section when the conditions at the 9 Headgate Longwall Belt take-up storage unit presented an imminent danger to the miners.

Mine management personnel were aware of a fire at the 9 Headgate Longwall Belt take-up storage unit. The responsible person, designated by the operator for that shift, was made aware of the fire by the belt examiner immediately upon discovery, and failed to initiate and conduct an immediate mine evacuation.

The delay in conducting an immediate mine evacuation contributed to the inability of the two victims to escape the mine on January 19, 2006. The accident investigation team issued an S&S Section 104(d)(2) Order (7435538) for this contributory violation of 30 CFR 75.1501(b).

The MSHA accident investigation team also issued two orders for non-contributory violations of 30 CFR 75.1501(b). A description of these violations follows.

- The MSHA accident investigation team determined that mine management failed to initiate and conduct an immediate evacuation of the miners working on 2 Section and the Longwall when the conditions at the 9 Headgate Longwall Belt take-up storage unit presented an imminent danger to the miners during a mine fire on December 23, 2005. Management personnel were aware of a fire at the 9 Headgate Longwall Belt take-up storage unit. The responsible person, designated by the operator for that shift, was made aware of the fire by the belt examiner immediately upon discovery, and failed to initiate and conduct an immediate mine evacuation. The accident investigation team issued an S&S Section 104(d)(2), order (6643271) for this violation of 30 CFR 75.1501(b).
- The MSHA accident investigation team determined that mine management failed to initiate and conduct an immediate evacuation of the miners working on the longwall section when the conditions at the No. 5 Belt Tailpiece presented an imminent danger to the miners during a mine fire on December 29, 2005.

Management personnel were aware of a fire at the No. 5 belt tailpiece. The responsible person, designated by the operator for that shift, was made aware of the fire by the belt examiner immediately upon discovery, and failed to initiate and conduct an immediate mine evacuation. The accident investigation team issued an S&S Section 104(d)(2), order (6643272) for this violation of 30 CFR 75.1501(b).

During interviews conducted by the internal review team, the District 4 inspector assigned to the Aracoma Alma Mine #1 indicated he had an understanding of the requirements of the duties of the AMS operator in the event that an alarm was activated.

During the review period, District 4 personnel did not issue any citations for violations of 30 CFR 75.1501 at the Aracoma Alma Mine #1. Inspection documentation shows that the District 4 inspector reviewed the Mine Emergency Evacuation and Firefighting Program on November 2, 2005, and “discussed these issues with section foreman, miners, firebosses and shift foremans.”

After the conclusion of rescue and recovery efforts associated with the January 19 fire, MSHA continued the regular inspection started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection the mine was inspected in its entirety and there were no additional citations issued under 30 CFR 75.1501.

Conclusion: MSHA inspectors indicated they understood the requirements of 30 CFR 75.1501 and would have taken appropriate action if a violation of this standard was discovered.

Enforcement of 30 CFR 75.1725(a)

Machinery and equipment; operation and maintenance

Requirement: Mandatory safety standard 30 CFR 75.1725(a) states that mobile and stationary machinery and equipment shall be maintained in safe operating condition and machinery or equipment in unsafe condition shall be removed from service immediately.

MSHA Policies and Procedures: The MSHA *Program Policy Manual* states in pertinent part that the presence of defects, such as frozen or damaged idler rollers, could indicate that such machinery and equipment is not maintained in safe operating condition. Therefore, a violation of this section would exist if such defects render the equipment or machinery unsafe to operate. When an inspector finds a violation as described above, he or she shall issue a citation requiring the condition to be corrected in a reasonable period of time.

The Federal Mine Safety and Health Review Commission has upheld a citation alleging a violation of 30 CFR 75.1725 where an isolated portion of the conveyor belt was inadequately supported, because the top rollers of the conveyor belt slid together, and the belt was misaligned due to missing bottom rollers, causing it to rub against its structure and fray. In addition, the flammable belt fibers had become entangled in the rollers and created a friction point. *Jim Walter Resources*, 19 FMSHRC 480 (March 17, 1997).

In another case, the Commission held that "[t]he danger posed in underground coal mining by a friction source that will lead to a heat buildup in an area where coal accumulations could occur is obvious. Where such dangers are present due to defects in the operating condition of equipment, that equipment cannot be considered in safe operating condition." *Alabama By-Products Corp.*, 4 FMSHRC 2128, 2131 (December 9, 1982).

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states that each belt flight, skip shaft, or bunker and all associated equipment shall be inspected to determine if hazardous or potentially hazardous conditions exist, with attention to: safe access, guards, fire detection systems, combustible materials, fire protection, condition of electrical cables and wiring, power source capacity, and general operating condition.

Statement of Facts: MSHA's accident investigation team determined that the mine operator failed to maintain the 9 Headgate Longwall Belt Conveyor in a safe operating condition. Sworn statements taken from an eye witness indicated that a carriage unit had become misaligned in the belt take-up storage unit which caused a misalignment of the Longwall Belt Conveyor. This misalignment created frictional heating within the belt take-up storage unit.

In addition, the following conditions, some of which were indicative of prolonged operation of the longwall belt conveyor system while the belt was misaligned, were observed along the 9 Headgate Longwall Belt Conveyor, and would have existed at the time of the belt conveyor examination:

1. Damaged and missing trip latch lever posts and damaged drop-off carriage assembly trip latch levers that affected positioning of the drop-off carriage within the 9 Headgate longwall belt take-up storage unit;
2. Damaged bottom rollers, bottom rollers on the ground with indications they had been rotating in combustible material on the mine floor, and damaged top rollers;

3. Damaged belt hangers, some partially cut through and others severed from prolonged rubbing against misaligned belt;
4. Damaged belt take-up storage unit frame components, partially cut through from prolonged rubbing of misaligned belt;
5. Severed strips of belt on the mine floor and hanging on belt structure;
6. Lengths of partially severed strips of belt;
7. Shavings of belt on the mine floor;
8. Belt cord fibers wrapped around belt roller components; and
9. Extended lengths of belt with frayed edges.

These conditions were obvious and located in the areas traveled by mine examiners. These unsafe conditions warranted the immediate removal of the belt conveyor system from service. Belt misalignment within the storage unit initiated the frictional heating causing the mine fire on January 19, 2006, which ultimately resulted in the two fatalities. The accident investigation team issued an S&S Section 104(d)(2) Order (7435539) for this contributory violation of 30 CFR 75.1725(a).

The internal review team reviewed all MSHA enforcement actions from January 1, 2005, through January 19, 2006, at the Aracoma Alma Mine #1. From January through December 2005, MSHA inspectors did not issue any citations for violations of 75.1725(a) in the mine's belt entries. In the inspection notes, the MSHA inspector documented that he last inspected the 9 Headgate Longwall belt, in its entirety, on December 5, 2005, and the Nos. 5 and 6 belts on December 16, 2005. No citations were issued for any of these three belts being operated in an unsafe condition.

During the regular inspection that was ongoing at the time of the fatal fire, one 30 CFR 75.1725(a) citation was issued in the belt entries. This citation which was issued on January 12, 2006, as an S&S citation (7244833), stated that "[t]he #10 head gate mother drive take-up unit idler roller was not guarded to protect miners from moving machine parts.¹¹ The belt walk way was directly adjacent to the moving machine parts. Miners working or traveling in this area were exposed to the moving machine parts." However, based upon the narrative in the citation, the applicable standard is 30 CFR 75.1722, which addresses mechanical equipment guards. Therefore, during the

¹¹ *At the time of this citation the #10 Headgate was not in operation. The citation should have referenced the #9 Headgate.*

entire review period (January 1, 2005, through January 19, 2006), no citations were issued for any of the belts themselves being operated in an unsafe condition.

After the conclusion of rescue and recovery efforts associated with the January 19 fire, MSHA resumed the regular inspection that had been started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection, the belt conveyor system was inspected in its entirety, and two additional citations were issued for violations of 30 CFR 75.1725 based on evidence that the Nos. 5 and 6 belts had been operated in an unsafe condition prior to the fire.

1st North West Mains No. 6 Belt (72-inch)

On February 14, 2006, an S&S citation (7246639) was issued after inspectors determined that the No. 6 conveyor belt was not maintained in a safe operating condition. The citation stated, "The No. 6 (72-inch) conveyor belt was not being maintained in safe operating condition. Numerous bottom rollers were frozen and the belt was rubbing against them creating a fire hazard. Many of the frozen rollers were worn flat and some of the rollers were worn half way in two. The frozen rollers are located from survey spad 2462 to the tailpiece."

Inspection records indicated the No. 6 belt had been inspected most recently on December 16, 2005. During this inspection day, the inspector issued three citations associated with the No. 6 belt. The citations included: a malfunctioning carbon monoxide sensor at the belt tailpiece; inadequate guarding at the belt tailpiece; and accumulations of float coal dust, loose coal, and other combustible materials along the entire length of the belt, ranging in depth from one inch to two feet at various locations along the belt. The inspector did not cite a violation of 30 CFR 75.1725(a).

1st North West Mains No. 5 Belt (72-inch)

On February 15, 2006, an S&S citation (7246659) was issued after inspectors determined that the No. 5 conveyor belt was not maintained in a safe operating condition. The citation stated, "The No. 5 (72-inch) conveyor belt was not being maintained in safe operating condition. Numerous bottom rollers and at least one top roller were frozen and the belt was rubbing against them creating a fire hazard. Many of the frozen rollers were worn flat. The frozen rollers were located at various locations along the conveyor belt." Accumulations of combustible material were found where the frozen rollers were located.

Inspection records indicated that this belt was previously inspected on December 16, 2005, and no citations were issued.

During interviews, inspectors stated that they understood the requirement that equipment be maintained in a safe operating condition. They also stated that they understood the correct application of 30 CFR 75.1725(a) and that they would have taken appropriate enforcement action, if the condition warranted.

Conclusion: Based upon physical observations during the accident investigation and subsequent inspections, evidence present along three belt flights prior to the fatal fire indicated that the belts had been operating in an unsafe condition. However, the internal review team could not determine conclusively that the violations of 30 CFR 75.1725(a) existed when MSHA personnel inspected the Nos. 5 and 6 belts on December 16, 2005, and the 9 Headgate longwall belt on December 5, 2005.

Enforcement of Specific Safety Standards (Non-contributory Violations)

This section of the report addresses other enforcement issues examined by the internal review team. These issues are not related to MSHA enforcement of the specific safety standards that were cited by the accident investigation team as contributing to or causing the January 19, 2006, fatal fire, but are germane to the activities of MSHA at the Aracoma Alma Mine #1 prior to the accident.

Enforcement of 30 CFR Part 50, Subpart B

Immediate Notification, Investigation, Preservation of Evidence

Requirement: MSHA regulation 30 CFR 50.10 states that if an accident occurs, an operator shall immediately contact the MSHA District Office having jurisdiction over its mine. If an operator cannot contact the appropriate MSHA District Office, it shall immediately contact the MSHA Headquarters Office in Arlington, Virginia by telephone.

MSHA regulation 30 CFR 50.2(h)(6) defines the term *accident* to include an unplanned mine fire not extinguished within 30 minutes of discovery.

MSHA regulation 30 CFR 50.11(b) states that each operator of a mine shall investigate each accident and each occupational injury at the mine. Each operator of a mine shall develop a report of each investigation. No operator may use Form 7000-1 as a report, except that an operator of a mine at which fewer than twenty miners are employed may, with respect to that mine, use Form 7000-1 as an investigation report respecting an occupational injury not related to an accident. No operator may use an investigation or an investigation report conducted or prepared by MSHA to comply with this paragraph. An operator shall submit a copy of any investigation report to MSHA at its

request. Standard 30 CFR 50.11(b) also establishes the required contents of the operator's investigation report.

Each report prepared by an operator shall include:

- The date and hour of occurrence;
- The date the investigation began;
- The names of individuals participating in the investigation;
- A description of the site;
- An explanation of the accident or injury, including a description of any equipment involved and relevant events before and after the occurrence, and any explanation of the cause of any injury, the cause of any accident or cause of any event which caused an injury;
- The name, occupation, and experience of any miner involved;
- A sketch, where pertinent, including dimensions depicting the occurrence;
- A description of the steps taken to prevent a similar occurrence in the future; and
- Identification of any report submitted under 30 CFR 50.20 of this part.

MSHA regulation 30 CFR 50.12 states that unless granted permission by a district manager, no operator may alter an accident site or an accident related area until completion of all investigations pertaining to the accident except to the extent necessary to rescue or recover an individual, prevent or eliminate an imminent danger, or prevent destruction of mining equipment.

MSHA Policies and Procedures: The importance of the investigation and report required by 30 CFR 50.10 was addressed by the Commission in *Steele Branch Mining*, 15 FMSHRC 597 (1993). The Commission noted that 30 CFR 50.11 "requires operators to investigate all accidents and to 'develop a report' of each investigation." *Id.* at p. 601. The Commission took note of "the purpose of the regulation which is to ensure that operators are in fact investigating accidents and injuries and are engaged in constant upgrading of health and safety practices." 42 Fed. Reg 65534 (December 30, 1977)." *Id.* at p. 602.

Procedure Instruction Letter No. I03-I-02 (PIL) dated May 12, 2003, identified the types of accidents that the MSHA District office with jurisdiction over the mine must report to MSHA headquarters and specified reporting procedures. This PIL clarified and augmented the instructions contained in the *Accident Investigations Procedures Handbook*, No. PH00-I-5, dated November 2000. This procedural letter stated in part that "mine fires that last more than 30 minutes but are extinguished without significant injuries to a miner or property damage" shall be reported to MSHA Headquarters but immediate telephone reporting is not required.

Program Information Bulletin No. P04-07 dated February 11, 2004, clarified the basic requirements for mine operators to immediately notify MSHA about certain mine accidents, and also to report in writing using MSHA Form 7000-1 those accidents as

well as occupational injuries and illnesses. This bulletin also states that the operator notifies the Agency by “immediately contacting” such as by telephone, the local MSHA district or field office, or failing that, MSHA’s headquarters office in Arlington, Virginia. This notification alerts MSHA to mine occurrences deserving urgent attention.

Statement of Facts: MSHA’s accident investigation team determined that on January 19, 2006, a fire occurred at the 9 Headgate longwall belt conveyor take-up storage unit. The fire was not extinguished within 30 minutes of discovery.

The mine operator did not immediately contact the MSHA District Office having jurisdiction over this mine as required, nor did the mine operator contact the MSHA Headquarters Office in Arlington, Virginia.

At 7:55 p.m., the mine operator notified MSHA of the fire. Although 30 CFR 50.10 and MSHA’s Internet Website provided a toll-free number for immediate notification purposes, this was the first time the mine operator notified MSHA of the fire. This call was made approximately two and one half hours after the mine operator became aware of the mine fire. MSHA’s accident investigation team issued a non-S&S citation (6643280) for this non-contributory violation of 30 CFR 50.10.

MSHA’s accident investigation team also determined on December 29, 2005, a fire occurred near the No. 5 Belt Conveyor tailpiece. After the Atmospheric Monitoring System detected warning and alarm levels of carbon monoxide, miners were called by the dispatcher/AMS operator to investigate the source of the alarm signals. Upon arrival, miners discovered smoke and flames and burning combustible accumulations along the belt were the cause of the alert and alarm signals. The length of time alert or alarms levels of carbon monoxide existed at the CO sensor nearest the fire exceeded 90 minutes. The fire was not extinguished within 30 minutes of discovery. The mine operator did not report the accident to MSHA.

This failure to report the accident denied MSHA the opportunity to conduct an investigation into the conditions and circumstances surrounding the fire that occurred on December 29, 2005, as well as identify steps to prevent a similar occurrence in the future. MSHA’s accident investigation team issued a non-S&S citation (7435112) for this non-contributory violation of 30 CFR 50.10.

The MSHA accident investigation team also determined that on December 29, 2005, a fire occurred near the No. 5 Belt Conveyor tailpiece. After the Atmospheric Monitoring System detected warning and alarm levels of carbon monoxide, miners were called by the dispatcher to investigate the source of the alarm signals. Upon arrival, miners discovered smoke and flames and burning combustible accumulations along the belt were the cause of the alert and alarm signals. The length of time alert or alarms levels of carbon monoxide existed at the CO sensor nearest the fire exceeded 90 minutes. The

fire was not extinguished within 30 minutes of discovery. The mine operator did not conduct an investigation of the fire and the relevant events surrounding the fire fighting efforts.

This failure to investigate the mine fire accident that occurred on December 29, 2005, resulted in the mine operator not identifying the steps necessary to prevent a similar occurrence in the future. MSHA's accident investigation team issued an S&S citation (7435113) for this non-contributory violation of 30 CFR 50.11(b).

The MSHA accident investigation team also determined that critical information in the Pyott-Boone Mine Wide Monitoring system (AMS) computer was deleted. An attempt was made on March 02, 2006, by a representative of Pyott-Boone, to retrieve the event log stored in the memory of the Pyott-Boone fire detection system computer. An examination of the data storage system by the representative determined the data had been deleted. MSHA's accident investigation team issued a non-S&S citation (7435114) for this non-contributory violation of 30 CFR 50.12.

The internal review team examined inspection records during the time period of both underground fires. The inspection records indicated that the regular inspection (Event 4113204) for the period of October through December 2005 was concluded with a post-inspection conference at the mine site on December 22, 2005. A fire occurred on December 29, 2005, in the area of the No. 5 belt conveyor tailpiece. The last MSHA presence in this area was on December 16, 2005, when an inspector traveled the entire length of the belt conveyor. The regular inspection (4113207) for the period of January through March 2006 began by a review of the Uniform Mine File in the MSHA Logan Field Office on January 3, 2006. The first mine site visit for this inspection was conducted on January 9, 2006. During the review period, District 4 personnel did not issue any citations for violations related to the mine fire, or any other citations related to 30 CFR Part 50 at the Aracoma Alma Mine #1.

After the conclusion of rescue and recovery efforts associated with the January 19 fire, MSHA resumed the regular inspection that had been started on January 3, 2006, and completed the inspection on March 31, 2006. During this inspection there were no citations issued for violations of 30 CFR Part 50. Additionally, in August 2006 a Part 50 audit was conducted at the mine for the period 2003-2005. No citations were issued during this audit.

Conclusion: At least one fire lasting more than 30 minutes occurred prior to the fatal fire on January 19, 2006. An underground fire occurred on December 29, 2005, and was not extinguished within 30 minutes of discovery. The operator did not immediately notify MSHA of the occurrences and did not submit the required MSHA Form 7000-1.

An MSHA inspector was present at the mine, on December 16, 2005, when he traveled the No. 5 belt conveyor. He was also at the mine site on December 22, 2005, and January 9 and 12, 2006. Based on available information, the internal review team concluded that MSHA personnel were not made aware of these fires through the required notification process described in 30 CFR Part 50 or during inspection activities at the mine.

Enforcement of 30 CFR 75.370

Mine Ventilation Plan

This section evaluates MSHA's enforcement actions related to 30 CFR 75.370 at the Aracoma Alma Mine #1. The internal review team's evaluation of the approved ventilation plan for the mine is detailed in the section of this report entitled "Plan Approvals – Mine Ventilation Plan."

Requirement: Mandatory safety standard 30 CFR 75.370(a)(1) requires that each operator develop and follow a ventilation plan approved by the district manager. The plan shall be designed to control methane and respirable dust and shall be suitable to the conditions and mining system at the mine. The ventilation plan shall consist of two parts which are the plan content, as prescribed in 30 CFR 75.371, and the ventilation map with information, as prescribed in 30 CFR 75.372. Only that portion of the map that contains information required pursuant to 30 CFR 75.371 will be subject to approval by the district manager.

Paragraph (a)(2) of 30 CFR 75.370 requires that the proposed ventilation plan and any revision to the plan be submitted in writing to the district manager.

Paragraph (d) of 30 CFR 75.370 requires that no proposed ventilation plan be implemented before it is approved by the district manager. Any intentional change to the ventilation system that alters the main air current or any split of the main air current in a manner that could materially affect the safety and health of the miners, or any change to the information required in 30 CFR 75.371, shall be submitted to and approved by the district manager before implementation.

Statement of Facts: An inspection subsequent to an ongoing accident investigation revealed the approved mine ventilation plan, approved May 06, 2005, was not complied with on December 23, 2005, relative to the air direction of the ventilating air current along the 9 Headgate Longwall Belt Conveyor. The approved ventilation plan required the belt air current to be coursed in the inby direction from the longwall belt drive to the longwall face. At the time of the fire on December 23, 2005, the air at the 9 Headgate Longwall Belt Conveyor take-up storage unit and drive area was not flowing in the direction required by the approved ventilation plan. MSHA's accident investigation

team issued an S&S citation (6643236) for this non-contributory violation of 30 CFR 75.370(a)(1).

The inspection also revealed the approved mine ventilation plan, approved May 06, 2005, was not complied with on December 29, 2005, relative to the air direction of the ventilating air current along the 9 Headgate Longwall Belt Conveyor. The approved ventilation plan required the belt air current to be coursed in the inby direction from the longwall belt drive to the longwall face. At the time of the fire on December 29, 2005, the air at the 9 Headgate Longwall Belt Conveyor take-up storage unit and drive area was not flowing in the direction required by the approved ventilation plan. MSHA's accident investigation team issued an S&S citation (6643237) for this non-contributory violation of 30 CFR 75.370(a)(1).

The same inspection revealed the approved mine ventilation plan, approved May 06, 2005, was not complied with on January 18, 2006, relative to the air direction of the ventilating air current along the 9 Headgate Longwall working section. The approved ventilation plan required the air current to be coursed in the inby direction from the longwall headgate to the longwall tailgate. During a subsequent accident investigation, it was determined the air was traveling in a reverse direction on the longwall section on January 18, 2006, and was not flowing in the direction required by the approved ventilation plan. MSHA's accident investigation team issued an S&S citation (6643238) for this non-contributory violation of 30 CFR 75.370(a)(1).

The inspection also revealed the approved mine ventilation plan, approved May 06, 2005, was not complied with on January 19, 2006, relative to the air direction of the ventilating air current along the North East Mains No. 1 and No. 2 belt conveyors and 2 Section Belt Conveyor. The approved ventilation plan required the air current to be coursed in the outby direction in the North East Mains and 2 Section belt entries. During a subsequent accident investigation, it was determined the air was traveling in a reverse direction on these belt conveyors, and was not flowing in the direction required by the approved ventilation plan. MSHA's accident investigation team issued an S&S Section 104(d)(2) (6643265) for this non-contributory violation of 30 CFR 75.370(a)(1).

The same inspection revealed that the mine operator had conducted and implemented five ventilation changes without approval of the MSHA District 4 District Manager that could have materially affected the safety and health of the miners as follows:

- Air that ventilated a belt air course was used to ventilate the working 2 Section. There was no revision of the ventilation plan to allow the use of air that ventilated a belt air course to ventilate the working 2 Section.

- The No. 1 entry of 10 Headgate was changed from a section return to a main return and the direction of airflow in that entry reversed to course air from the North East Mains to 4 Right.
- The Nos. 6 and 7 entries of North East Mains between 9 Tailgate and 10 headgate were changed from a return aircourse to an intake aircourse and the direction of airflow reversed.
- A separate split of air was established to ventilate the seal located across from 9 Tailgate in North East Mains. Several stoppings and a regulator were constructed to establish that split of air during the weeks prior to the accident. Material for the construction of the stoppings was supplied to the necessary locations using a scoop by repeatedly removing a large portion of a permanent stopping that separated the left return of 2 Section from the North East Mains belt air course. A check curtain was reportedly installed each time the stopping was breached. Although concrete blocks were re-stacked in the stopping following each breach, the blocks were not coated with sealant until the project was completed. A coal production crew was reportedly working in 2 Section during shifts on which the work was conducted. The ventilation change was completed by January 12, 2006.
- On the midnight shift preceding the day shift of January 18, 2006, a planned ventilation change was conducted in the 9 Tailgate - 4 Right area to ventilate the 10 Headgate set-up face with intake air from 10 Headgate in preparation for set-up activities. Interview statements indicated the ventilation change was coordinated by the assistant superintendent/longwall manager. The foreman supervising the ventilation change contacted by telephone a foreman on the longwall section to confirm the ventilation change had no effect on the ventilation of the longwall.

MSHA accident investigation team issued an S&S Section 104(d)(2) Order (6643263) for this non-contributory violation of 30 CFR 75.370(d).

It was also revealed that several stoppings and sets of equipment doors were needed to maintain separation between the No. 7 Belt air course and the adjacent intake aircourse in North East Mains. The primary escapeway for 2 Section was within that intake aircourse. The absence of one or more of those stoppings resulted in a lack of separation between those aircourses on January 19. The absence of necessary stoppings affected ventilation in the area in two ways: air ventilating the No. 7 Belt aircourse could have flowed into the adjacent intake aircourse and the direction of air flow in the longwall belt air course could have reversed.

The internal review team determined that in October 2004, the ventilation specialist in the Logan field office, as well as other specialists located in remote field offices were permanently reassigned to inspection work groups and given specific mine assignments. These reassignments were instituted by the District 4 Manager in an effort to focus on the completion of mandated inspection activities within the jurisdiction of the district. During interviews, inspectors stated that the loss of available technical expertise in the Logan field office had a negative impact on their ability to solve complex issues and enforcement of the approved ventilation plan.

The internal review team determined that during the review period 12 citations were issued for violations of 30 CFR 75.370(a)(1). The narrative of several citations indicated that inspectors did not have a complete understanding of the requirements of the approved ventilation plan. Two examples follow.

- On November 28, 2005, a citation (7244808) was issued for a violation of 30 CFR 75.370(a)(1) stating "...the CO monitoring petition approved for this operation requires that the minimum belt air velocity be not less than 50 feet per minute (fpm). The writer observed less than 50 fpm on the No. 2 belt line of the 2 Section, this air is used to ventilate the working faces." The inspector measured "...30 fpm with little or no direction visible." The petition (M-2000-010-C) referenced in this citation was superseded by regulations promulgated in June 2004, and no plan had been submitted to or approved by the District 4 Manager to permit belt air to be used to ventilate the working faces of 2 Section. This belt conveyor was required to be ventilated in an outby direction according to the approved plan. The citation was terminated on December 12, 2005, because "...management had established the belt air to 50 fpm as required along the #2 belt line." The inspector did not recognize and cite the fact that the airflow was reversed in the 2 Section belt entry.
- On December 20, 2005, a citation (7244820) was issued for a violation of 30 CFR 75.370(a)(1) because the belt air velocity on the No. 2, 48-inch belt serving 2 Section was not maintained at a minimum of 50 feet per minute (fpm) as required. The inspector indicated that belt air was used to ventilate the faces of 2 Section. The belt air measured 25 fpm. No plan had been approved by the District 4 Manager to permit belt air to be used to ventilate the working faces of 2 Section. This belt conveyor was required to be ventilated in an outby direction according to the approved plan. The citation was terminated on December 22, 2005, stating, "Belt air was measured at 50' plus. Air is moving in the correct direction." The inspector did not recognize and cite the fact that the airflow was reversed in the 2 Section belt entry.

Several citations were issued and designated as violations of 30 CFR 75.370(a)(1), but more directly concerned the condition of ventilation controls required by 30 CFR 75.333. Two examples follow.

- On July 27, 2005, a citation (7188561) was issued because the approved ventilation, methane, and dust control plan was not being complied with. One set of airlock doors located at the Melville Box cut drift were damaged.
- On November 15, 2005, a citation (7244802) was issued stating that management had failed to insure that the airlock doors at the box cut were in the closed position. Both doors were in the open position.

MSHA's accident investigation team determined that at least five ventilation changes were made by the operator prior to the fatal fire without required district manager approval. During the review period, District 4 personnel issued one citation for an intentional change to the mine's ventilation system without prior approval from the District 4 Manager.

- On December 20, 2005, a citation (7244823) was issued for a violation of 30 CFR 75.370(d) because mine management implemented a ventilation change to the air course outby 2 Section. The change was made prior to getting approval from the District Manager and could materially affect the safety and health of the miners. However, this citation was terminated on the basis "that mine management had corrected the condition. The air across seal #1 was rerouted into an established return aircourse. No plan supplement to reflect this ventilation change was submitted by the mine operator and approved by the District 4 Manager prior to termination of the citation on January 12, 2006.

The aforementioned citations were reviewed by MSHA supervisors in the Logan field office and the deficiencies were not identified or corrected.

MSHA's accident investigation team identified numerous deficiencies on the mine map related to ventilation controls and direction of airflow. During interviews conducted by the internal review team, the inspector assigned to inspect the mine at the time of the fatal fire indicated that he identified and cited some of these deficiencies prior to the fatal fire. He indicated that he had several discussions with mine management and informed the mine operator that an updated ventilation map should be submitted to the District Manager for approval. However, the internal review team determined that the subject citation referred to in the interviews was in actuality a citation (7244823) he issued on December 20, 2005, for a violation of 30 CFR 75.370(d) concerning an unapproved ventilation change outby 2 Section.

On January 19, 2006, several hours prior to the fatal fire, a mine representative from Massey Energy met with District 4 ventilation specialists in Mt. Hope, WV. The representative stated that he was submitting a revision to the ventilation plan which was "under citation," because changes had been made in the mine's ventilation system without prior approval by the District Manager. The ventilation specialists and supervisor identified several issues with the proposed maps, including discrepancies with the escapeway symbols and ventilation controls, lack of separation of air courses, and air directions which were indicated to be reversed from that required in the approved plan. The ventilation supervisor returned the maps to the representative the same day because the representative could not answer questions related to the discrepancies. The ventilation supervisor then telephoned the mine superintendent and informed him of the reasons that the maps were being returned, and voiced his concerns about changes made to the mine's ventilation system without prior approval from MSHA. The superintendent replied that he had been away from work for some time, but he would meet with other mine management and "get on top of it."

The ventilation supervisor relayed his concerns to the Assistant District Manager for the Technical Division, and they collectively decided to request an up-to-date map from the mine operator. This meeting concluded at approximately 4:45 p.m., on January 19, 2006, and plans were made to meet again internally the following day and discuss a plan of action. This meeting was never held due to the fire later that evening.

Conclusion: Violations of 30 CFR 75.370 were not always identified and cited by inspection personnel and citations issued under this standard were often incorrectly issued. The reassignment of the specialists, the immense burden in the District 4 Ventilation Department, and the remote location of the field office resulted in deficiencies related to the understanding and enforcement of specific provisions of approved plans in the Logan field office.

District 4 personnel assigned to inspect the Aracoma Alma Mine #1 did not demonstrate a thorough understanding of the approved ventilation plan. Their ability to effectively enforce mine ventilation provisions may have been compromised by the absence of a ventilation specialist in the Logan field office. A petition for modification had been previously granted to permit belt air to be used to ventilate the active working faces. However, in June 2004, the petition was superseded by MSHA regulations. Under the approved ventilation plan in effect at the time of the fatal fire, airflow in the belt entry air for 2 Section was required to be coursed in an outby direction away from the working section. However, during several inspections prior to the fatal fire, air was coursed through the belt entries and ventilated the working faces on 2 Section. This condition was not properly identified or cited by inspection personnel. The belt air for the longwall section was required to be coursed inby toward the face, but was traveling in an outby direction, and this condition was not identified or cited.

During the course of this review, it was revealed that at least five intentional ventilation changes were made by the operator from January 2005 through January 2006 without prior approval of the District 4 Manager. These unapproved ventilation changes were not always recognized by MSHA inspection personnel during onsite inspections, and as a result, appropriate enforcement action was not taken. During a meeting on January 19, 2006, between the District 4 ventilation department and the representative of the Aracoma Alma Mine #1, several ventilation concerns were identified by MSHA. Plans were made to evaluate the ventilation system at the mine, but were abruptly halted when the fire occurred later that evening.

Supervisory oversight in the Logan field office was inadequate. Citations were reviewed by MSHA supervisors and the deficiencies were not identified or corrected. Several citations issued prior to the fatal fire for violations of the approved ventilation plan were incorrectly cited or terminated, and these inconsistencies in the enforcement actions would have been identified and corrected by appropriate supervisory oversight.

Miscellaneous

Mine Ventilation Plan

Submission and approval

Requirement: Mandatory safety standard 30 CFR 75.370(a) requires that each operator develop and follow a ventilation plan approved by the district manager. The plan shall be designed to control methane and respirable dust and shall be suitable to the conditions and mining system at the mine. The ventilation plan shall consist of two parts -- the plan content, as prescribed in 30 CFR 75.371, and the ventilation map with information, as prescribed in 30 CFR 75.372. Only that portion of the map that contains information required pursuant to 30 CFR 75.371 will be subject to approval by the district manager.

Paragraph (a)(2) requires that the proposed ventilation plan and any revision to the plan shall be submitted in writing to the district manager.

Paragraph (d) specifies that no proposed ventilation plan shall be implemented before it is approved by the district manager. Any intentional change to the ventilation system that alters the main air current or any split of the main air current in a manner that could materially affect the safety and health of the miners, or any change to the information required in 30 CFR 75.371, shall be submitted to and approved by the district manager before implementation.

Paragraph (g) requires that the ventilation plan for each mine shall be reviewed every 6 months by an authorized representative of the Secretary to assure that it is suitable to current conditions in the mine.

Mandatory safety standard 30 CFR 75.371 lists the contents required to be included in the ventilation plan submitted by the operator. Specific requirements relevant to this review are described below.

- Paragraph (f) requires that section and face ventilation systems -- including drawings illustrating how each system is used, and a description of each different dust suppression system used on equipment on working sections -- be included in the mine ventilation plan.
- Paragraph (t) requires that the locations where samples for "designated areas" will be collected -- including the specific location of each sampling device, and the respirable dust control measures used at the dust generating sources for these locations -- be included in the mine ventilation plan.
- Paragraph (x) requires a description of the bleeder system to be used, including a requirement that its design be included in the mine ventilation plan.
- Paragraph (y) requires that the plan contain the means for determining the effectiveness of bleeder systems (see 30 CFR 75.334(c)(2)). The measurements required to evaluate the effectiveness are defined in 30 CFR 75.364 (a)(2)(i), (ii), (iii), and (iv).
- Paragraph (z) requires that the ventilation plan detail the locations where measurements of methane and oxygen concentrations and air quantities and tests to determine whether the air is moving in the proper direction be made to evaluate the ventilation of non-pillared worked-out areas and the effectiveness of bleeder systems.

Mandatory safety standard 30 CFR 75.372 lists the information required to be shown on the mine ventilation map. Specific requirements relevant to this review are described below.

- Paragraph (b)(3) requires that all known mine workings that are located in the same coal bed within 1,000 feet of existing or projected workings be included on the approved mine ventilation map. These workings may be shown on a mine map with a scale other than that required by paragraph (a) of this section, if the scale does not exceed 2,000 feet to the inch and is specified on the map.

- Paragraph (b)(11) requires that the location of all escapeways be included on the approved mine ventilation map.

MSHA Policies and Procedures: The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) states that, during every regular inspection at an underground coal mine, the inspector shall determine that all approved plans are being followed, are up-to-date, and are appropriate. Also, the inspector shall determine that mine maps are kept up-to-date as required and each working place is accurately shown.

The handbook also provides that the inspector shall review the operator's currently approved mine ventilation plan and determine if it was suitable to conditions observed in the mine during the inspection. This evaluation shall include information obtained from the miners installing the ventilation controls, equipment operators in the area, and the mine operator. The results of this evaluation shall be recorded on MSHA Form 2000-204 and submitted with the completed inspection report.

The MSHA *Mine Ventilation Plan Approval Procedures* (PH92-V-6) indicates that specific information may be shown on the map to satisfy the requirements of 30 CFR 75.371, such as bleeder system evaluation details, and shall be treated as plan requirements. The review process should identify and reference the 30 CFR 75.371 items which are shown on the map. Such information is subject to approval, and no proposed revision to these plan requirements will be implemented before it is approved by the district manager.

The MSHA *Mine Ventilation Plan Approval Procedures* (PH92-V-6) indicates that the required 6-month ventilation plan review should result in correspondence to the operator, which identifies the material that constitutes the complete approved plan. A copy of the letter, identifying all material constituting the complete plan, should be used to check the contents of the Uniform Mine File for accuracy and completeness.

The MSHA *Mine Ventilation Plan Approval Procedures* (PH92-V-6) requires that Plan Review Form 2000-204 be submitted to document the completion of a 6-month ventilation plan review conducted by regular inspectors and to permit comment by the inspectors on the adequacy of the plan. On the form, the reviewer should record the names of mine officials and miners' representatives who participated in the review discussion.

Statement of Facts: In October 2004, four ventilation specialists located in remote field offices were permanently reassigned to inspection work groups and given specific mine assignments. Concurrently, eleven other specialists in the roof control, electrical, and health departments were also given similar reassignments. These reassignments were instituted by the District 4 Manager in an effort to focus on the completion of mandated inspection activities within the jurisdiction of the district.

Following the reassignments, the District 4 ventilation department consisted of one supervisor, two ventilation specialists, and one secretary. A review of MSHA data indicated that during 2005, the District 4 ventilation department conducted reviews of 308 ventilation related submittals from mine operators including ventilation plans, maps, and related addenda.

CMS&H District	Ventilation Plans and Addenda processed in 2005
1	20
2	46
3	78
4	308
5	190
6	224
7	134
8	83
9	51
10	61
11	4

Additionally, this department also processed plans submitted by mine operators for alternative borehole patterns described in 30 CFR 75.388(g), slope and shaft sinking plans described in 30 CFR 77.1900, gas and oil well permits and petitions described in 30 CFR 75.1700, and plans related to reopening abandoned mines as described in 30 CFR 75.1721. The department secretary also processed all Freedom of Information (FOIA) requests related to ventilation. A review of MSHA data indicated that these plans required an additional 159 reviews and subsequent correspondence to mine operators, in addition to all ventilation correspondence completed by this department in 2005.

On February 15, 2005, the District 4 Manager issued a letter to the operator acknowledging receipt of the annual ventilation map for the Aracoma Alma Mine #1 dated December 17, 2004, noting there were deficiencies relating to 30 CFR 75.372, and required the operator to submit a revised map within 10 days. This letter also requested that the operator submit a revised base ventilation plan within the same time frame, incorporating all previous plan revisions. MSHA received the new consolidated base plan on March 22, 2005. The District Manager approved the revised plan on May 6, 2005.

Two supplements to the ventilation plan were submitted by the operator after May 6 and subsequently denied. The District 4 Manager issued a letter on July 8, 2005,

denying the operator's request to eliminate dust control sprays on the longwall shields and issued a second letter on August 24, 2005, denying a proposed bleeder system for the current and previous longwall panels.

Four supplements to the ventilation plan were submitted by the operator and subsequently approved. The District 4 Manager issued a letter on July 13, 2005, approving the longwall recovery of Panel 8, the set-up of Panel 9, and a second letter issued on July 25, 2005, approving the relocation of 3 Section. The District Manager also issued letters on August 30, 2005, and on November 4, 2005, approving a longwall bleeder system and an addition to the diesel equipment list, respectively.

The District 4 *Standard Operating Procedure* for Ventilation Plans states that "[r]eviews of Methane and Dust Control Plans (as a portion of the approved Ventilation Plan) will be completed quarterly by an authorized representative of the Secretary to assure that the plans are suitable to current conditions in the mine." Due to the amount of plans processed daily in the District 4 ventilation department, field reviews of ventilation plans were conducted by coal mine inspectors during regular inspection activities. These quarterly reviews are described below.

- A ventilation plan review was documented by the regular inspector on March 31, 2005. The MSHA Form 2000-204 stated that "[t]he approved ventilation, methane, and dust control plan appears to be adequate during this AAA inspection."
- A ventilation plan review was documented by the regular inspector on June 30, 2005. The completed MSHA Form 2000-204 stated that "[t]he approved ventilation, methane, and dust control plan appears to be adequate during this inspection. Discussed the plan with miners and management."
- A ventilation plan review was documented by the regular inspector on September 30, 2005. The completed MSHA Form 2000-204 stated that "[t]he approved ventilation, methane, and dust control plan appears to be adequate during this inspection."
- A ventilation plan review was documented by the regular inspector on December 22, 2005. The completed MSHA Form 2000-204 stated that the "[p]lan was cited due to conditions found in the mine. The 1200 map at the mine site, and the certified mine map in the UMF does not match the ventilation system being used underground. These issues were discussed with Joe Dooley, Bill Ross, ventilation persons in Mount Hope." (However, no citation for a violation of 30 CFR 75.372 or 30 CFR 75.1200 had been issued as indicated on the MSHA Form 2000-204. A citation had been issued for a violation of 30 CFR 75.370(d) for an unapproved ventilation change.) This form was signed by a field office

supervisor on February 7, 2006. It was date-stamped as received in the District 4 office on February 9, 2006. On February 9, 2006, the District 4 Manager requested an accurate and up-to-date mine ventilation map from the operator prior to resuming production following the fatal fire. On February 16, 2006, the District Manager issued a written response to the Logan field office supervisor concerning actions to be taken as a result of the subject MSHA Form 2000-204. It stated that a ventilation survey would be conducted as part of the accident investigation and would confirm the locations of ventilation controls and any need for ventilation changes.

Following the required 6-month reviews during 2005, no correspondence was sent from District 4 to the mine operator identifying the material that constituted the complete approved plan, as outlined by MSHA procedures.

The internal review team examined the approved ventilation plan in effect at the time of the fatal fire. A discussion of specific sections of the approved ventilation plan for the Aracoma Alma Mine #1 follows.

Compliance with 75.371(f):

Not all required dust control parameters were included as part of the base mine ventilation plan. The continuous mining machines were radio remote control with machine mounted dust collectors (scrubbers). The plan required 100 percent of the water sprays to be operating, but did not provide the orientation of the water sprays for the continuous mining machines and longwall shearer. For continuous mining sections, the maximum cut depth was not shown, and there was no method listed to determine the cut depth during mining operations. There was also no method listed to check the capacity of the scrubber.

Compliance with 75.371(t):

The Designated Area Sampling Plan and the map identifying all current sampling points were not updated since the District 4 Manager approved a revised designated area sampling plan on June 4, 2004.

Compliance with 75.371(x):

The base ventilation plan references the "enclosed mine ventilation map" to show the location and air readings of the current evaluation points for the mine bleeder system. However, the District Manager's approval letter stated "there are no items included on the map to be approved under Section 75.371." The base ventilation plan contained a narrative which referenced the "longwall bleeder plan for Panel No. 6, 7, & 8" but referred to a "previously approved" mine ventilation map submitted under 30 CFR 75.372. However, all ventilation maps previously approved were superseded when the new base plan was approved on May 6, 2005.

Compliance with 75.371(y):

There was no means to independently determine the effectiveness of each bleeder system for longwall panels 1 and 2; and panels 5, 6, 7, and 8. Measurements of air direction, quantity, and quality were not made independently at the back end of each system. A single air reading was taken at an evaluation point (EP) designated as EP-1 to evaluate both bleeder systems on the surface at the Mecca Fan.

Compliance with 75.371(z):

The base ventilation plan approved May 6, 2005, identified evaluation and measurement points EP-1, EP-2, EP-3, EP-4, EP-5, EP-6, MP-A, and MP-B. There were no additional evaluation points defined in the base ventilation plan. Although the approval letter stated there were no items on the map approved under Section 75.371, evaluation points were identified on the mine map. These included EP-7, EP-8, EP-9, EP-10, EP-11, EP-12, and EP-13.

On August 30, 2005, the District 4 Manager approved a bleeder system plan addendum for longwall panels 5, 6, 7, 8, and 9. This addendum located the following evaluation points on the map: EP-9, EP-10, EP-11, EP-12, EP-13, EP-14, and EP-15. The addendum also showed three proposed evaluation points; EP-19, EP-20, and EP-21. EP-7 and EP-8 were never approved as evaluation points.

Compliance with 75.372(b)(3):

The mine had unintentionally cut into the workings of an adjacent mine in September 2004 while developing the Northeast Mains area. An inundation of water occurred and Seal #1 was built to separate the two mines. The approved mine ventilation map was not updated to show the extent of the adjacent mine to the point where the mines intersected.

Compliance with 75.372(b)(11):

The mine map dated August 11, 2005, and received by MSHA on August 25, 2005, indicated that the primary escapeway routed from 2 Section intersected the alternate escapeway routed from the 9 Headgate Longwall Section at Survey Station 3234. Since the primary escapeways for 2 Section and the longwall section joined and became common at an outby location, the required separation for the primary and alternate escapeways from the longwall section was compromised. Therefore, if smoke were to contaminate the 2 Section primary escapeway where it was common with the 9 Headgate Section primary escapeway, the smoke would eventually migrate inby and then both 9 Headgate Section escapeways would be contaminated.

Conclusion: The approved ventilation plan in effect at the time of the fatal fire was not in compliance with several requirements described in 30 CFR 75.371 and 75.372. The internal review team determined that ventilation plan correspondence concerning the approval and disapproval of plans was effectively transmitted to the mine operator in

accordance with the District 4 SOP. However, the requirements of 30 CFR 75.370(g) and other procedures related to ventilation plan reviews were not always followed. During all four inspection quarters in which MSHA Form 2000-204's were completed, the reviewers failed to record the names of mine officials and miners' representatives who participated in the review discussion. In addition, no correspondence was sent to the mine operator following the required 6-month reviews. This correspondence, which was required to be maintained in the Uniform Mine File, should have identified the material which constituted the complete approved plan.

In October 2004, ventilation specialists as well as other specialists located in remote field offices were permanently reassigned to inspection work groups and given specific mine assignments. These reassignments were necessary to complete inspection activities mandated by the Mine Act. However, the reduction in the available technical resources had a detrimental affect on the ability of the department to process the immense number of maps, plans, and addenda received in District 4.

Mine Emergency Evacuation and Firefighting Program of Instruction

Requirement: Mandatory safety standard 30 CFR 75.1502(a) required that each operator of an underground coal mine shall adopt and follow a mine emergency evacuation and firefighting program that instructs all miners in the proper evacuation procedures they must follow if a mine emergency occurs, location and use of firefighting equipment, and location of escapeways, exits, and routes of travel to the surface. Such program of instruction shall be approved by the district manager of the Coal Mine Safety and Health district in which the mine is located. Before implementing any approved revision to the program of instruction, the operator shall instruct persons affected by the revision in any new provisions. The approved program of instruction shall include a specific plan designed to acquaint miners on all shifts with procedures for:

- (1) Mine emergency evacuation for mine emergencies that present an imminent danger to miners due to fire, explosion, or gas or water inundation;
- (2) Evacuation of all miners not required for a mine emergency response;
- (3) Rapid assembly and transportation of necessary miners, fire suppression equipment, and rescue apparatus to the scene of the mine emergency; and,
- (4) Operation of the fire suppression equipment available in the mine.

Paragraph (c) required that each operator of an underground coal mine shall require all miners to participate in mine emergency evacuation drills, which shall be held at periods of time so as to ensure that all miners participate in such evacuations at intervals of not more than 90 days. Paragraph (c)(1) requires the operator to certify by

signature and date that the mine emergency evacuation drills were held in accordance with the requirements of this section.

MSHA Policies and Procedures: The MSHA *Program Policy Manual* states the mine operator's program of instruction, required by 30 CFR 75.1502, must include all miners on all shifts. The training program should emphasize the location of the proper routes of travel and the importance of prompt evacuation when such an order is given. The program should incorporate provisions to advise miners of changes to the escapeways, such as rerouting, designation of other entries, and any changes in escape facilities. It should also emphasize proper Self-Contained-Self-Rescuer (SCSR) donning procedures. Specific situations such as encountering smoke dictate donning the SCSR immediately, while others may permit partial or complete evacuation without donning the unit. As evacuation through some smoke may be necessary, the program should include precautions to take when smoke is encountered, as well as instruction and drills in communication techniques emphasizing not to remove the SCSR mouthpiece to talk in contaminated air. All aspects of mine emergency evacuation drills required by paragraph (c) of this Section need not be held underground. For example, portions of the drill, such as demonstrations of fire fighting equipment, may be conducted on the surface. The evacuation portion of the drill need not be held at the same time as the firefighting portion of the drill.

The MSHA *Coal General Inspection Procedures Handbook* (PH95-V-1) states that during every regular inspection at an underground coal mine, the inspector shall determine that all approved plans are being followed, are up-to-date, and are appropriate.

The MSHA *General Coal Mine Inspection Procedures Handbook* (PH06-V-1) states that the inspector shall review records of mine evacuation drills required by 30 CFR 75.1502(c)(2) and poll miners to determine if all miners on all shifts have participated at intervals of not more than 90 days. The effectiveness of the program shall be evaluated by polling miners on their familiarity with the program.

CMS&H Memo No. HQ-03-021-A (SUB-L75) dated March 5, 2003, states that the ability for a miner to properly react to a mine emergency is greatly dependent on his or her preparedness and training. The miners' participation in fire drills at intervals of not more than 90 days is a critical element of being prepared to respond to an emergency situation. This memorandum directs inspection personnel to determine whether fire drills were being conducted as required and through discussions with the miners determine whether all miners participated in fire drills, the operator properly documented the drills, and the drills consisted of a simulation of actions required by the approved plan. This memorandum also directs the inspector to schedule inspection activities to observe simulated fire drills when possible, and document observations and discussions with miners in the inspection notes. It also directs inspectors to examine the records of fire drills to ensure compliance with the standard.

Statement of Facts: The MSHA accident investigation team issued four non-contributory orders for violations of 30 CFR 75.1502. A description of these violations follows.

MSHA's investigators determined that the mine operator failed to comply with the mine emergency evacuation and firefighting program of instruction on January 19, 2006. The dispatcher's logs obtained by MSHA indicated the work locations and anticipated movements of all underground miners were not tracked as specified in the approved plan. The accident investigation team issued a non-S&S citation (6643268) for this non-contributory violation of 30 CFR 75.1502(a).

MSHA's accident investigation team determined that the mine emergency evacuation and firefighting program of instruction was not being complied with. The maps provided to MSHA did not accurately depict escapeways and routes of travel to the surface as required. The accident investigation team issued a non-S&S citation (6643269) for this non-contributory violation of 30 CFR 1502(a).

MSHA's investigators determined that the mine operator failed to comply with the mine emergency evacuation and firefighting program of instruction, which specifies in item 12, mine rescue personnel, will be contacted by mine management and expedited to the scene in the event of a mine emergency. Mine management was actively engaged in fire fighting activities at the 9 Headgate Longwall belt conveyor take-up storage unit on January 19, 2006, and failed to contact mine rescue personnel in a timely manner when a mine emergency occurred. The mine rescue team(s) was not contacted until approximately 45 minutes after the discovery that two miners were missing in smoke-filled entries. The accident investigation team issued an S&S 104(d)(2) order (6643279) for this non-contributory violation of 30 CFR 1502(a).

MSHA's accident investigation team determined that 6-week escapeway drills were conducted in the primary escapeway from 2 Section to the surface on January 7, 2006. The records maintained in the Escapeway and Fire Drill Record Book revealed the section supervisor and at least two miners traveled the primary escapeway in its entirety from 2 Section to the surface. The operator was required to certify by signature and date that the drills were held in accordance with the requirements of 30 CFR 75.1502. The certifications were inaccurate in that the primary escapeway was not traveled in its entirety as certified. The accident investigation team issued an S&S Section 104(d)(2) order (6643270) for this non-contributory violation of 30 CFR 75.1502(c)(1).

Aracoma Coal Company submitted a revised Mine Emergency Evacuation and Firefighting Program of Instruction on January 8, 2003, and the program was approved by the District 4 Manager on February 12, 2003. The program identified the responsible

persons who would take charge on all shifts during mine emergencies and the method for tracking the underground miners and their work locations would be accomplished during the shift. The program listed the travel routes to be used during an evacuation, and stated that up-to-date maps would be provided to the responsible person. The program described actions to be taken if alerts or alarms were activated by the atmospheric monitoring system.

Conclusion: The Mine Emergency Evacuation and Firefighting Program of Instruction approved on February 12, 2003, by the District 4 Manager complied with the requirements of 30 CFR 75.1502. However, specific provisions in the plan were not followed in all respects during the fatal fire which occurred on January 19, 2006.

Management Issues

Accountability Program

MSHA Policies and Procedures: The MSHA *Administrative Policy and Procedures Manual* addresses MSHA's Accountability Program. The purpose of the program is to provide reasonable assurance that policy and procedures are being followed consistently throughout the Agency. Coal Mine Safety and Health and Metal and Nonmetal Mine Safety and Health managers are instructed to implement and maintain an accountability program consisting of internal reviews, identification and resolution of issues, and documentation of findings. The Accountability Program consists of District Peer Reviews and Headquarters Reviews.

District Peer Reviews

The MSHA *Accountability Program Handbook* (AH04-III-10) released in March 2004 provides Administrators and district managers with policy and guidance for implementing an Accountability Program to evaluate the quality of enforcement activities. The Handbook requires reviews of district activities to provide reasonable assurance that policies and procedures are being followed consistently throughout Coal Mine Safety and Health and Metal and Nonmetal Mine Safety and Health.

The Handbook requires that each district conduct Peer Reviews of selected field offices annually. The Handbook also requires that each district manager appoint a District Peer Review Coordinator to schedule, document, and maintain records of reviews. The Coordinator also serves as the liaison with Headquarters for the purposes of preparing for and facilitating Headquarters Reviews.

The Handbook specifies that the Peer Review team members consist of the District Peer Review Coordinator and at least two supervisors. The Handbook directs the team to

review the mine file, mine map(s), inspection notes, citations and orders issued, and time and activity data for all inspections to ensure that a complete inspection was conducted. The review team also shall determine compliance with Agency policies and procedures relative, but not limited to, the following:

- Required examinations
- Enforcement actions
- Proper level of enforcement relative to the conditions observed
- Appropriate termination due times relative to the severity of cited conditions
- Citations/orders terminated in a timely manner
- Face areas inspected for imminent dangers when conducting inspection activities on the working section
- Examination of all required records and record books
- Review of approved plans to determine adequacy

Following the review, the team members are required to provide documentation of the review through a summary report and discuss in detail the findings with the district manager and assistant district manager(s).

The Handbook directs the district manager to develop and implement a plan of corrective actions to address the findings of the Peer Review. The action plan must include steps to correct the root causes of the deficiencies identified during the review, a method to measure the effectiveness of the corrective action(s), and a timeline for implementation and completion.

The Handbook also requires that the effectiveness of action plans be evaluated during future Peer Reviews, and monitored by the district manager on an ongoing basis. If corrective actions have not been effective, the district manager and District Peer Review Coordinator will identify and implement additional steps to assure that the recurring deficiencies are resolved.

The district manager is required to submit summary reports to the National Accountability Coordinator on January 31 and July 31 of each year.

Headquarters Reviews

The MSHA *Accountability Program Handbook* (AH04-III-10) requires that Headquarters reviews of districts be conducted. The reviews must be comprehensive and must include an in-depth review of the enforcement activities for a selected mining operation. The Handbook identifies the following enforcement activities for review: Inspection activities; mine plans; special investigations; safety and health hazardous conditions

complaints; Alternative Case Resolution Initiative (ACRI); and Mine-Site Observations at the Selected Operation(s).

Statement of Facts: In January 2003, MSHA released the internal review report of MSHA's actions at the Jim Walter Resources (JWR) No. 5 mine after two separate explosions claimed the lives of 13 miners. As a result of this internal review, MSHA revised its accountability program to better identify root causes of issues and develop permanent system corrections. In 2004, MSHA developed the new accountability handbook to address weaknesses in our management oversight and accountability program at the district level and national level. Although this program designated both District and National coordinators, these coordinators had numerous other duties in addition to accountability.

The Aracoma Alma Mine #1 internal review team found a number of the same issues found during the internal review of JWR No. 5 Mine. The team found that the root causes of deficiencies were not determined and that follow-up to evaluate the effectiveness of the corrective actions was not adequate or not performed as evidenced by the fact that similar deficiencies were repeatedly found during District peer reviews and were found during our internal review.

The internal review team obtained and reviewed documentation for the Peer Reviews conducted in District 4 during calendar year 2005. There was not a headquarters accountability review conducted in District 4 during calendar year 2005.

District 4 Peer Reviews

The District 4 Manager submitted summary accountability review reports to the National Accountability Coordinator on February 18, 2005, September 12, 2005, and February 24, 2006. The reports covered the following three review periods: January 1, through February 14, 2005; February 14 through May 26, 2005; and October 1 through December 31, 2005. During the three review periods, District 4 management staff conducted 14 Peer Reviews and identified 41 issues. The Peer Reviews covered each of the District's seven field offices, several of which were reviewed more than once, and evaluated regular inspections at 14 mines. District 4 did not conduct a Peer Review of an inspection at the Aracoma Alma Mine #1 during calendar year 2005.

The following table summarizes the District 4 Peer Review activity during calendar year 2005.

District 4 Calendar Year 2005 Peer Reviews			
Review Period	Field Office	Reviews	Total Issues
01/01 - 02/14/2005	Mt. Hope	1	4
01/01 - 02/14/2005	Pineville	2	4
02/14 - 05/26/2005	Mt. Hope	1	5
02/14 - 05/26/2005	Mt. Carbon	1	4
02/14 - 05/26/2005	Summersville	1	2
02/14 - 05/26/2005	Princeton	1	2
02/14 - 05/26/2005	Madison	2	6
02/14 - 05/26/2005	Logan	2	5
10/01 - 12/31/2005	Mt. Hope	2	6
10/01 - 12/31/2005	Pineville	1	3
Total		14	41

The three Peer Reviews conducted during the first review period identified eight issues. The issues involved inadequate documentation of complete inspections, inadequate supervisory oversight, inspector notes containing contradicting gravity and negligence determinations for violations, and inconsistencies with the inspector's time sheet. The District 4 Manager developed corrective actions to address the eight issues identified. The principal corrective actions involved District 4 management holding meetings with field office inspectors and supervisors. The Inspection Division Assistant District Managers met with all field office supervisors to advise them of their oversight and review responsibilities concerning inspection procedures. Additionally, the District Manager and all the Assistant District Managers held a meeting in each field office to apprise inspectors and supervisors of the requirements of the Coal General Inspection Procedures Handbook relevant to the identified issues. The Peer Review Report to the National Coordinator indicated that District 4 initiated the corrective actions on February 7, 2005, and completed them on February 10, 2005. The Peer Review reports for the first review period did not identify root causes of the issues but indicated that "Follow-up reviews" would be used to measure the effectiveness of the corrective actions.

The eight Peer Reviews conducted during the second review period identified 24 issues. The issues involved inadequate documentation of complete inspections, inadequate supervisory oversight, an inaccurate and outdated roof control plan, inconsistencies with the inspector's time sheet, and several deficiencies with the uniform mine file. The District 4 Manager developed corrective actions to address the 24 issues identified. The

principal corrective actions again involved District 4 management holding meetings with field office inspectors and supervisors. District 4 management also provided inspectors with printed copies of a pilot program Computer Inspection Tracking System to aid them in documenting complete inspections. The use of this Computer Inspection Tracking System was optional for the inspectors. The Peer Review report to the National Coordinator indicated that the corrective actions were implemented in May 2005 and were to be completed in January 2006. The reports for the second review period identified the root cause of each issue as “Incentive” and identified “Follow-up reviews” as the method to measure the effectiveness of the corrective actions.

The three Peer Reviews conducted during the third review period identified nine issues. The issues involved inadequate documentation of complete inspections, incomplete inspection notes, inconsistencies with an inspector’s time sheet, and several deficiencies with the uniform mine file. The District 4 Manager developed corrective actions to address the nine issues identified. The corrective actions were more specific than the two previous review periods. To correct one issue involving documentation of an inspection, District 4 implemented a trial version of the Inspection Tracking System during the 4th quarter of 2005. Additionally, the review results were discussed with the field office supervisor and the inspector to adequately communicate expectations. The field office supervisor was provided with a written checklist to use in report reviews. Inspectors and supervisors were instructed in the requirements for proper review of Uniform Mine Files. The District 4 Manager’s summary report to the National Coordinator for this review period acknowledged that some of the issues identified in the three Peer Reviews were repetitive in nature. The summary report also states that, “... the accountability review team has indicated that the work product being generated has continued to show significant improvement.” The Peer Review reports indicated that District 4 implemented corrective actions between the 4th quarter of 2005 and February 22, 2006, but did not identify the root causes of the issues or a means to measure the effectiveness of the corrective actions.

During this internal review, the team identified some of the same issues identified during District 4 Peer Reviews. For example, the internal review team identified the following issues:

- The inspection reports did not contain sufficient documentation to indicate the entire mine was inspected for each of the four regular inspections of the Aracoma Alma Mine #1 during calendar year 2005.
- The Weekly Time and Activity Data sheet (MSHA Form 2000-60) used to document inspector activities was not always consistent with the inspector’s notes and citations issued. There were several instances where the Weekly Time and Activity Data Sheet indicated the inspector was at one mine, but there were inspection notes and citations to indicate the inspector was at a different mine. This issue is discussed further in “Section 103(a) Inspections” in this report.

- Supervisory oversight of inspectors' work products failed to identify and correct the foregoing deficiencies.

There was not any information provided to the internal review team to indicate that the Coal National Accountability Coordinator responded to the District 4 Manager concerning the Peer Review reports.

Headquarters Reviews

Headquarters had established that all national accountability reviews would be completed on a two-year cycle beginning in 2005. Six of the 11 coal districts were reviewed in 2005 and the remaining five districts were scheduled to be completed in 2006. As part of a two-year cycle for completion of all CMS&H accountability reviews, the headquarters accountability review of Districts 3 and 4 were scheduled for 2006. However, due to the fatalities in January 2006, more in-depth internal reviews were initiated at the direction of the Acting Assistant Secretary for MSHA. The nine remaining districts were all reviewed by Headquarters within the two-year cycle. All required accountability reviews were scheduled to be completed by the end of 2006. The following table shows the date when the Headquarters Peer Reviews were conducted in each district for 2005 and 2006.

District	Date of Review
1	10/16/2006
2	12/04/2006
3	Internal Review
4	Internal Review
5	04/25/2005
6	07/11/2005
7	11/28/2005
8	10/31/2005
9	11/27/2006
10	08/22/2005
11	06/20/2005

Final reports detailing the headquarters' accountability reviews were prepared and sent to each individual district as they were completed. These reports detailed positive findings, issues and deficiencies found, along with recommendations for corrective actions. Action plans were then developed by the districts and submitted to headquarters to correct these deficiencies.

Conclusion: The accountability program is essentially a four-step program. First, the review team analyzes the reports and files and identifies deficiencies. Second, they

must analyze their findings and determine the underlying root causes. Third, they develop corrective measures to address the root causes so that they do not reoccur. Fourth, follow-up evaluations are performed to measure the effectiveness of the corrective actions. All of these steps make up the district peer review team's action plan to improve the quality of the inspections in the district. The 2005 peer review reports for District 4 essentially omitted part of the second step. The review teams did not identify the root causes for the deficiencies found. Instead, they instituted corrective actions for the deficiencies without determining what caused them. As a result, subsequent peer reviews and the internal review team found similar deficiencies. Effective corrective actions must recognize and correct the underlying root cause of any deficiency, in order to prevent recurrence.

The District 4 Peer Review Program was effective for identification of issues and deficiencies. The 14 District 4 Peer Reviews conducted during calendar year 2005 effectively identified 41 issues; however, they did not identify the root causes of the issues and subsequent follow-up on the issues was ineffective. Moreover, this internal review identified similar issues. The Peer Review report for the third review period did not include a method to measure the effectiveness of the corrective actions.

District 4 did not provide an effective action plan to correct the identified deficiencies. Despite the implementation of corrective actions within District 4, subsequent district peer reviews repeatedly found issues involving documentation of complete inspections and supervisory oversight. The record showed that the inspectors and supervisors were repeatedly trained regarding these two deficiencies. Therefore, effective corrective actions must address the reasons why District 4 enforcement personnel repeatedly failed to follow inspection rules and procedures. Remedial actions could include new forms, spreadsheets and checklists for supervisors to help them evaluate inspection reports or could involve an evaluation of the documentation requirements with recommendations for the removal of unnecessary information.

The three summary reports submitted to the National Accountability Coordinator were at 18, 42, and 24 days past the established due dates in the Accountability Handbook. In addition, headquarters did not adequately address deficiencies that could have been identified based on a review of District 4 summary reports submitted in 2005.

The Headquarters' accountability program was effective for identification of issues and deficiencies. However, the program does not ensure that recommendations or action plans implemented by the districts are effective in correcting the identified issues and deficiencies. There is not a formal process in place to share the positive and negative findings relating to each individual district with all districts.

Supervisory and Second-Level Reviews

MSHA Policies and Procedures: The *Coal Mine Safety and Health Supervisor's Handbook* (AH97-III-6) establishes procedures supervisors must follow to review the work performed by their inspectors and specialists to ensure that inspections and investigations are conducted according to Agency policies and procedures. The purpose of the reviews is to evaluate the quality of enforcement, plan approval, and education and training activities; determine whether the level of enforcement is appropriate for the compliance behavior of the operator; and determine whether the activities are conducted and documented in accordance with the applicable provisions of the Mine Act and MSHA regulations, policies, and procedures. This is accomplished by Field Activity Reviews (FAR), Accompanied Activities (AA), rotation of inspectors, and oversight of supervisory level reviews.

Field Activity Reviews

The Supervisor's Handbook requires the supervisor to conduct a Field Activity Review of a completed major inspection assignment for each inspector and specialist each 6 months. The review must include the following components:

- A review of all work products related to the completed assigned major field activity.
- A review of a representative number of inspection or investigation reports, citations and orders, and appropriate notes from other events shall also be reviewed.
- When appropriate, the supervisor may debrief the inspector or specialist on activities or work products being reviewed.
- A review the Uniform Mine File for the mine where the Field Activity Review was conducted.
- A determination of whether the enforcement tools available to the inspector or specialist were properly used and whether the level of enforcement is appropriate for the compliance behavior of the operator.
- A determination of whether the specific samples or tests required for each event reviewed were taken and properly documented.
- Identification of any extraordinary efforts or accomplishments of the inspector or specialist.

The Handbook requires the supervisor to meet with the inspector or specialist to discuss the findings of the supervisor's review. Appropriate corrective actions must be taken when necessary. Any deficiencies identified during the review and the corrective action taken must be documented. Records of the reviews are required to be maintained by the supervisor for at least 3 years.

In addition to work products reviewed for each Field Activity Review, the supervisor is required to review a representative number of inspection or investigation reports, citations and orders, and appropriate notes from other inspection events. Dating and initialing the work products reviewed by the supervisor is acceptable documentation of reviews conducted.

Accompanied Activities

The Handbook requires first-line supervisors to accompany each inspector and specialist at least 2 days during each 6-month period on one or more assigned major field activities. The purpose of accompanied activities is as follows:

- Determine whether inspectors and specialists are properly enforcing the provisions of the Mine Act and the implementing regulations.
- Determine whether inspectors and specialists are properly enforcing the provisions of approved plans, variances, and petitions for modification.
- Determine whether inspectors and specialists are conducting their activities in accordance with the applicable provisions of the Mine Act and MSHA regulations, policies, and procedures.
- Determine whether inspectors and specialists are clearly communicating their findings to mine operators and miners' representatives.
- Give the supervisor a first-hand look at the condition of the mines.
- Identify any extraordinary efforts or accomplishments of the inspector or specialist.
- Correct any weaknesses identified in the performance of inspectors and specialists.

Rotation of Inspectors

The Supervisor's Handbook also requires inspection supervisors to rotate mine assignments among inspectors within a field office on a periodic basis. Mine assignments must be rotated at least annually, if permitted by the number of inspection personnel assigned to the office.

Oversight of Supervisory Level Reviews

The Supervisor's Handbook requires second-level managers (assistant district managers) to oversee supervisory level reviews and accompanied activities conducted by their first-line supervisors. Each second-level manager shall review at least one Field Activity Review conducted by each supervisor and one accompanied activity by each supervisor every 6 months. The purposes of these reviews are as follows:

- Determine whether their first-line supervisors are properly conducting and documenting reviews of inspector and specialist activities;
- Determine whether the review is consistent with the inspection report;
- Determine if the first-line supervisors are identifying any extraordinary efforts and accomplishments of their inspectors and specialists;
- Determine whether their first-line supervisors are taking appropriate corrective actions for deficiencies they identify in their reviews;
- Identify any trends or deficiencies that the second-level manager should address on a broader scale; and
- Correct any weaknesses identified in the performance of their first-line supervisors in conducting and documenting reviews.

Second-level managers are required to review appropriate notes, inspection or investigation reports, citations and orders, and any other work product that reflects the thoroughness and completeness of activities being reviewed. Upon completing the review, the second-level manager shall determine whether the supervisor properly conducted and documented both the Field Activity Review and the accompanied activity. If the supervisor did not properly conduct or document the review and accompanied activity, the second-level manager shall take the necessary corrective action. Second-level managers are required to document their reviews of supervisory level Field Activity Reviews and accompanied activities.

The Handbook requires district managers to hold their second-level managers accountable under the performance management system for: properly reviewing required supervisory reviews; properly documenting the extraordinary efforts and accomplishments of the inspectors and specialists; and taking appropriate corrective actions when these reviews identify deficiencies.

Statement of Facts: It is standard practice within the Coal Mine Safety and Health Administration to conduct Field Activity Reviews and Accompanied Activities concurrently. The internal review team examined documentation for Field Activity Reviews and Accompanied Activities conducted in the Logan Field Office. This office has two workgroups with a supervisor for each workgroup. Although seven reviews were required, the supervisor of workgroup 01 documented only one FAR/AA review between January 1 and June 30, 2005. There were no FARs documented for workgroup

01 for the period of July 1, 2005 through December 31, 2005. The supervisor for workgroup 02 documented FAR/AA reviews of seven employees in workgroup 02 between January 1 and June 30, 2005 and two employees between July 1, 2005 and December 31, 2005.

The internal review team examined documentation for the combined FAR/AA review completed on June 30, 2005, conducted during a regular inspection (Event No. 4103928) at the Aracoma Alma Mine #1. As part of the review, the supervisor documented accompanying the inspector to 3 Section and 2 Section on June 10 and June 29, 2005 respectively.

The workgroup 02 supervisor's Field Activity Review documentation identified 20 inspection days charged during the regular inspection. Field notes were accounted for each day. Equipment inspected was documented in the field notes. The facts (eight items) required to be documented for each violation relative to the conditions and practices cited and information specific to the operator's negligence and violation gravity determinations were documented in the notes. During the inspection, 22 citations were issued. Two were returned for modification and correction. Citation No. 7188543 was modified to show the correct section of the regulation. Citation No. 7188558 was modified to include additional information for justification of the action. There were several repeat violations of the same standard issued during the inspection. The mandatory safety standards of 30 CFR 75.904, 75.1403-6(b)(1), and 75.340(a) were cited several times and the negligence did not change. The supervisor's report indicates that he discussed these actions with the inspector and encouraged the inspector to raise the level of enforcement after the second repeat violation.

In addition to the FAR/AA for the inspection of the Aracoma Alma Mine #1, the field office supervisor reviewed the inspection reports for the other three regular inspections of the Mine during calendar year 2005. The supervisor initialed and dated every page of the inspection reports. The internal review team's examination of these inspection reports identified the following issues:

- The supervisor's signature appeared on an otherwise blank dust sampling form.
- The total number of air samples entered on the Mine Activity Data Sheet (MSHA Form 2000-22) did not equal the total number of air samples that were collected during the regular inspections.
- The Weekly Time and Activity Data sheet (MSHA Form 2000-60) used to document inspector activities was not always consistent with the inspector's notes and citations issued. There were several instances where the time sheet indicated the inspector was at Aracoma Alma Mine #1, but inspection notes and citations indicated the inspector was at a different mine.

- Inspection notes did not document all measurements needed to properly calculate air readings.
- Inspection notes often lacked adequate descriptions of violations and the surrounding conditions. The notes did not record all material facts relative to the condition or practice cited or information specific to the mine relative to the negligence and gravity determinations.
- Inspection notes typically did not provide sufficient justifications for extensions or terminations of citations.

The internal review team's examination of mine assignment sheets for the Logan Field Office revealed that the workgroup supervisors rotated inspector mine assignments annually.

The Assistant District Manager who had oversight responsibility for the Logan Field Office did not document that he conducted any second level reviews during calendar year 2005. The internal review team was not able to locate any documentation to indicate that the district manager held the assistant district manager accountable under the performance management system for reviewing required supervisory reviews.

Conclusion: Many of the deficiencies identified by the internal review team during this internal review should have been identified through adequate oversight by the District 4 Manager, Assistant District Manager and Logan field office supervisors. The required supervisory and second level reviews for all inspection activities for the Logan field office were incomplete, and the reviews conducted at the Aracoma Alma Mine #1 were not adequate. Logan field office supervisors did not document the required number of supervisory level reviews between January 1 and December 31, 2005. Only one of 14 required FAR/AA reviews were documented in workgroup 01. The workgroup 02 supervisor documented only 9 of 16 required FAR/AA reviews.

The supervisory FAR/AA review conducted at the Aracoma Alma Mine #1 was inadequate because the review did not identify several deficiencies identified by the internal review team.

The Assistant District Manager with oversight responsibility for the Logan Field office did not document that any second level reviews were conducted during calendar year 2005. As a result, the failure of Logan Field Office supervisors to conduct required FAR/AA reviews went undetected and uncorrected. Additionally, the District 4 Manager did not hold the Assistant District Manager accountable for conducting required second level reviews during calendar year 2005.

Financial Disclosure and Former Mine Employment

MSHA Policies and Procedures: The MSHA *Administrative Policy and Procedures Manual* states in pertinent part that the annual financial disclosure mandated under the Ethics in Government Act requires officials to report receipt of certain gifts, reimbursements, travel and other accommodations received from private parties, whether or not received in connection with official duties. Therefore, officials should keep accurate records of such matters. All other MSHA employees, whether or not they file DL 1-263s, should report all gifts to an Ethics Counselor in order to determine what action, if any, should be taken.

The *Coal General Inspection Procedures Handbook* states that all personnel must have at least 2 years current employment with MSHA prior to conducting assignments at mines where they were formerly employed.

Statement of Facts: Information provided by the MSHA Deputy Ethics Counselor revealed that these employees had filed employment and financial interest statements. The two field office supervisors and two inspectors were long-time MSHA employees. Therefore, the two-year prohibition on inspection activities did not apply to these employees.

Conclusion: Relevant personnel complied with MSHA policies regarding the filing of financial disclosure forms and former employment.

Root Cause Analysis

Any successful effort to reduce or eliminate deficiencies related to MSHA inspection activities hinges upon our ability to understand and influence the factors that cause them to exist. A root cause analysis was conducted for the identified deficiencies related to inspections conducted at the Aracoma Alma Mine #1. This process was conducted to remove the layers of symptoms and eventually identify and eliminate the root cause of the deficiency and prevent its recurrence. During this analysis, there were numerous deficiencies identified which resulted from the same root cause.

The findings of this internal review should be communicated to all Coal Mine Safety and Health personnel nationwide.

1. **Deficiency:** Inspectors did not conduct thorough and complete inspections of the Aracoma Alma Mine #1. They did not document that the mine was inspected in its entirety during any of the four regular inspections conducted in 2005. No documentation was available to indicate that the following items or areas were inspected in their entirety: mine examination records; surface areas; air courses and evaluation points; and numerous areas and equipment on working sections (including the longwall and continuous mining machine sections). They also did not investigate the cause of large fluctuations in air measurements at the main mine fans; collect sufficient air samples to accurately determine total methane liberation; accurately record results of air quality tests; collect rock dust samples; recheck areas previously identified at "too wet to sample"; submit all required information on Respirable Dust Sampling and Monitoring Data Sheets; conduct follow-up inspections after receiving high concentration respirable dust sample results; or obtain scrubber air flow measurements.

Inspectors did not always document the following: travel with mine examiners; correct number of air samples collected; accurate references to the mine map in relation to areas inspected; time and activity reports consistent with notes and citations issued; proper calculations of air measurements; advising miners of Section 103(f) rights; reviewing the mine map; observing personnel carriers in and out of the mine; and methane concentrations with air samples collected. Also, ATF Inspection Forms, Mine Atmosphere Sampling Cards, Plan Review Forms for Roof Control and Ventilation Plans, and Diesel Equipment Inventory Forms were not properly completed.

- 1.1. **Cause:** Inspectors and specialists did not always follow established procedures for conducting inspections and investigations. Inspectors lacked the proper attitude and personal initiative to perform thorough and complete inspections. Inspectors failed to conduct inspections in a manner that reliably detected violations and assured the prompt correction of hazardous conditions.

- 1.1.1. **Recommendation:** Supervisors should use the Performance Management System to hold inspectors accountable for following established inspection policies and procedures and for fulfilling mandated requirements of the Mine Act and 30 CFR.
- 1.1.2. **Recommendation:** Supervisors should closely review individual inspection reports to immediately identify and correct procedural deficiencies, such as lapses in properly inspecting and documenting all items and areas required to be inspected during a regular inspection. Deficient work products should be immediately returned to the inspector for prompt correction.
- 1.1.3. **Recommendation:** Supervisors should use accompanied activities and field activity reviews to determine if inspection activities are thorough and consistent with conditions in the mines.
- 1.1.4. **Recommendation:** Supervisors should visit each mine annually during an ongoing regular inspection to determine if inspection activity is effective and consistent with conditions in the mines.
- 1.1.5. **Recommendation:** The District 4 Manager should take appropriate action with respect to individuals when issues of misconduct are identified.
- 1.2. **Cause:** Inspectors did not use an effective tracking system to ensure that their inspections were thorough and complete.
 - 1.2.1. **Recommendation:** CMS&H should develop a checklist or tracking system of required inspection items. The checklist or tracking system should be completed by the inspector during each regular inspection, reviewed by the field office supervisor, and evaluated for accuracy at least quarterly by district management.
- 1.3. **Cause:** Supervisors and managers did not adequately engage in oversight activities, many of which were established in existing Agency policies and were necessary to quickly detect and correct the identifiable deficiencies associated with inspections of the mine. Supervisors lacked the proper attitude and personal initiative to ensure that thorough and complete inspections were conducted.
 - 1.3.1. **Recommendation:** Assistant district managers should use the Performance Management System to hold supervisors accountable for effective oversight of their subordinates.
 - 1.3.2. **Recommendation:** Assistant district managers should hold supervisors accountable for conducting effective accompanied activities and field

activity reviews. Assistant district managers should ensure supervisors annually visit each mine in their work group.

- 1.3.3. **Recommendation:** Managers should review inspection history, violation trends, and accident/injury rates to select appropriate mines for visits. Managers should visit a mine at least monthly.
 - 1.3.4. **Recommendation:** Managers should be periodically provided with reports, from time and activity data, indicating which mines have been visited by each supervisor.
 - 1.3.5. **Recommendation:** Assistant district managers should hold supervisors accountable for returning all substandard work products to inspection personnel for corrective action. Gross or repeated failures should be documented and appropriate disciplinary action taken.
 - 1.3.6. **Recommendation:** District Management should use Peer Reviews and thorough Second Level Reviews to determine if supervisors are providing effective oversight of their subordinates.
 - 1.3.7. **Recommendation:** The District 4 Manager should use the Performance Management System to hold assistant district managers accountable for effective oversight of their subordinates.
 - 1.3.8. **Recommendation:** The Administrator should use Accountability Reviews and the Performance Management System to hold district managers accountable for deficiencies in their districts.
2. **Deficiency:** District 4 personnel failed to follow explicit Agency policy regarding Section 103(i) inspections. Inspection activities were not specifically directed to the problems, hazards, or conditions that caused the mine to be classified as a Section 103(i) mine. The disproportionate amount of time that inspectors spent on the surface defeated the intent of Section 103(i) inspections. Additionally, Section 103(i) spot inspection activities were not always timely and were combined with other inspection activities. Only eight of the 28 Section 103(i) spot inspections were conducted in underground areas of the mine, where hazards associated with methane are most likely to be found. Three spot inspections were not conducted within the required 15-day blocks of time. In one instance, 36 days elapsed between consecutive Section 103(i) spot inspections. Further, numerous inconsistencies were found between Weekly Time and Activity Data forms completed by inspectors and Section 103(i) spot inspection notes, including inspections with time reported, but no inspection notes filed, and inspection notes filed, but no inspection time charged to the event. One inspector conducted seven Section 103(i) spot inspections on the same event.

- 2.1. **Cause:** Inspectors lacked the proper attitude and personal initiative to perform adequate Section 103(i) spot inspections that met the intent of the Mine Act, and did not face consequences for blatant deficiencies such as numerous spot inspection days focused exclusively at the main mine fans and surface areas.
 - 2.1.1. **Recommendation:** Supervisors should use the Performance Management System to hold inspectors accountable for following established inspection policies and procedures and for fulfilling mandated requirements of Section 103(i) of the Mine Act.
 - 2.1.2. **Recommendation:** Supervisors should closely review individual inspection reports to identify and correct procedural deficiencies and ensure that Section 103(i) inspections meet the intent of the Mine Act.
 - 2.1.3. **Recommendation:** The District 4 Manager should take appropriate action with respect to individuals when issues of misconduct are identified.
- 2.2. **Cause:** Field office supervisors and inspectors did not maintain and use an effective 103(i) spot inspection tracking system to ensure that spot inspections were conducted within required time frames.
 - 2.2.1. **Recommendation:** Managers should ensure that established procedures for timeliness of 103(i) inspections are followed, including the use of tools for generating calendars. Calendars highlighting each block of spot inspection days should be posted in each field office and kept up-to-date with a notation of the inspector and location of the spot inspection on the day it was conducted.
 - 2.2.2. **Recommendation:** Standardized reports should be provided to managers and supervisors to track timely completion of 103(i) inspections and hold supervisors accountable for deficiencies.
- 2.3. **Cause:** Supervisors failed to identify and hold inspectors accountable for information in inspection notes indicating that spot and other inspection activities were combined.
 - 2.3.1. **Recommendation:** Procedures should require all inspection time be dedicated to spot inspections on days when conducted.
 - 2.3.2. **Recommendation:** Supervisors and managers should be provided with periodic reports indicating if inspectors conduct spot and other inspection activities on the same day.

- 2.4. **Cause:** Supervisors did not identify conflicts between data reported on Weekly Activity Data Reports and inspection reports, such as spot inspections with no time shown at the mine and inspections with no notes.
- 2.4.1. **Recommendation:** After supervisory review, office assistants should compare completed Section 103(i) spot inspection reports with corresponding time and activity data in MSIS. Inspection reports should be held in pending files until Weekly Activity Data Reports are uploaded and determined to be consistent with inspection activity.
- 2.5. **Cause:** Supervisors did not provide appropriate guidance and oversight, nor did they adequately review inspection reports to ensure compliance with Section 103(i) spot inspection procedures and the intent of the Mine Act. Supervisors failed to take action to correct blatant deficiencies, such as numerous spot inspection days focused exclusively at the main mine fans and surface areas. Supervisors did not hold inspectors accountable for such failures.
- 2.5.1. **Recommendation:** Supervisors should promptly review spot inspection reports to identify procedural deficiencies and ensure that inspection activities are focused on the factors that caused Section 103(i) inspections to be initiated at the mine. Supervisors should inform inspectors of deficiencies identified and immediately require them to conduct an additional spot inspection to correct such deficiencies.
- 2.5.2. **Recommendation:** Supervisors should review Weekly Activity Data forms to ensure that time and activity is focused on areas of the mine commensurate with the intent of Section 103(i).
- 2.5.3. **Recommendation:** Managers should routinely review standardized reports indicating utilization of inspector resources relevant to Section 103(i) spot inspections. Reports should indicate inspection time on the surface and underground, as well as the period of time that elapsed between inspections.
- 2.5.4. **Recommendation:** Assistant district managers should use the Performance Management System to hold supervisors accountable for ensuring that their subordinates follow established policies and procedures for conducting Section 103(i) spot inspections.
- 2.6. **Cause:** The Administrator and District 4 management did not adequately engage in oversight activities that were necessary to detect an inordinate amount of time on the surface for Section 103(i) spot inspections.
- 2.6.1. **Recommendation:** The Administrator should use standard reports detailing Section 103(i) inspection time and activity and hold managers

accountable for their subordinates' compliance with relevant policy and procedures.

3. **Deficiency:** Inspectors failed to exercise their authority in a manner that demonstrated an appreciation for the importance of strict enforcement of the Mine Act and its direct effect on the health and safety of miners. During the remaining portion of the inspection quarter following the January 2006 fire, 423 citations and orders were issued, which was more than four times the 104 enforcement actions issued during the entire previous year. Immediately prior to the fire, inspectors did not take appropriate enforcement actions and require the operator to correct numerous violations for hazardous conditions that contributed to the fatal mine fire accident. These violations were related to ventilation controls, identification of personnel doors, atmospheric monitoring systems, inadequate examinations, identification and isolation of escapeways, extensive accumulations of combustible materials, inadequate fire protection and fire fighting equipment, inaccurate mine maps, and machinery operating in an unsafe condition. In several instances, violations were described in inspection notes, but were not cited.

When citations were issued, the evaluations of gravity, negligence, and the type of enforcement action were not always appropriate. For example, the mine's records of examinations of the belt conveyor entries identified extensive hazards related to accumulations of loose coal, coal dust, and float coal dust throughout the entire mine for extended periods of time. However, examination violations were not cited and negligence was evaluated as moderate in the few instances where violations of 30 CFR 75.400 were cited. In several instances, citations were improperly terminated, or not terminated in a timely manner. During the review period, inspectors did not follow up on 60 percent of all citations on or before the termination due dates. In many instances, the inspectors returned to an area of the mine previously cited, but did not reexamine the cited condition during that visit.

- 3.1. **Cause:** Inspectors lacked the proper attitude and personal initiative to effectively utilize their enforcement authority and communicate to the mine operator the importance of strict compliance with the Mine Act.
 - 3.1.1. **Recommendation:** Supervisors should use the Performance Management System to hold inspectors accountable for strictly adhering to established procedures, properly evaluating enforcement actions, and issuing and terminating citations and orders.
 - 3.1.2. **Recommendation:** The District 4 Manager should take appropriate action with respect to individuals when issues of misconduct are identified.

- 3.1.3. **Recommendation:** Supervisors should closely review citations, orders and inspection notes to determine if inspectors are making appropriate evaluations of gravity, negligence, and level of enforcement. Supervisors should ensure that mine record books are used when evaluating negligence. Supervisors should be accountable for returning all substandard work products to inspection personnel for corrective action. Gross or repeated failures should be documented by the supervisor and appropriate disciplinary action taken.
- 3.1.4. **Recommendation:** Supervisors should visit each mine annually during an ongoing regular inspection to determine if inspection activity is effective and consistent with conditions in the mines.
- 3.1.5. **Recommendation:** Supervisors and managers should routinely review standard reports to ensure timely termination of citations.
- 3.2. **Cause:** Supervisors did not provide adequate oversight of inspection activities and failed to promote the importance of strict enforcement of the Mine Act. Supervisors and managers did not effectively monitor citations, orders and inspection notes to determine compliance with MSHA policies and procedures. The supervisors did not monitor content of violations and notes for hazards, such as those cited under 30 CFR 75.400, to determine whether examination or other corresponding standards were being properly enforced. Inadequate supervision contributed greatly to the failure of inspection personnel to provide an adequate level of enforcement at the mine. Management did not adequately engage in oversight activities that were necessary to quickly detect trends that reflect undesired changes in compliance or enforcement activities.
- 3.2.1. **Recommendation:** Assistant district managers should hold supervisors accountable for effectively reviewing citations, orders, and inspection notes for compliance with the Mine Act, 30 CFR, MSHA policies and procedures, and controlling case law. Supervisors should be accountable for returning all substandard work products to inspection personnel for corrective action. Gross or repeated failures should be documented by the supervisor and appropriate disciplinary action taken.
- 3.2.2. **Recommendation:** Supervisors should review each citation for potential additional violations, such as inadequate examinations, and require additional enforcement action, where appropriate.

- 3.2.3. **Recommendation:** District management should use Peer Reviews and thorough Second Level Reviews to determine if supervisors and inspectors are following procedures for correctly evaluating citations and orders.
- 3.2.4. **Recommendation:** Assistant district managers should hold supervisors accountable for visiting each underground mine, annually, to determine if the level and nature of enforcement activity is appropriate in light of conditions and practices at the mine.
- 3.2.5. **Recommendation:** Assistant District Managers should visit a mine site at least monthly to ensure enforcement activity is consistent with conditions and practices observed at the mine.
- 3.2.6. **Recommendation:** Assistant district managers should use the Performance Management System to hold supervisors accountable for effective oversight of their subordinates.
- 3.2.7. **Recommendation:** The district manager should use the Performance Management System to hold assistant district managers accountable for effective oversight of their subordinates.
- 3.2.8. **Recommendation:** The Administrator should use Accountability Review and the Performance Management System to hold district managers accountable for deficiencies in their program areas.
- 3.2.9. **Recommendation:** Managers should routinely review standardized reports showing trends in mine enforcement activity and accidents.
- 3.3. **Cause:** Managers and supervisors did not effectively communicate that inspectors would have full agency support for appropriately utilizing their enforcement authority of the Mine Act necessary to address the conditions and practices at the mine.
 - 3.3.1. **Recommendation:** District managers should ensure that assistant district managers and supervisors support and assist inspectors in taking appropriate enforcement actions.
4. **Deficiency:** Inspectors did not recognize and/or cite several violations associated with the atmospheric monitoring system (AMS) during one or more inspections. An alarm unit for 2 Section had never been installed as required. The absence of the required section alarm was not identified or cited. Numerous citations and orders relative to the AMS were issued following the fire.

- 4.1. **Cause:** The *Carbon Monoxide Inspection Procedures Handbook* is outdated, and has not kept up with developments in computer-based atmospheric monitoring systems and applicable laws.
 - 4.1.1. **Recommendation:** The *Carbon Monoxide Inspection Procedures Handbook* should be updated to reflect current atmospheric monitoring systems and recent changes to applicable laws.
- 4.2. **Cause:** Inspectors did not follow the *Carbon Monoxide Inspection Procedures Handbook*, which requires them to determine if the responsible person assigned to monitor the CO System is aware of the actions that must be taken when an alert or alarm level has been indicated. This procedure is not required to be documented in inspection notes for supervisory oversight.
 - 4.2.1. **Recommendation:** Inspectors should be required to document their assessment of the AMS operators' familiarity with his or her responsibilities.
- 4.3. **Cause:** Inspectors did not have sufficient knowledge of atmospheric monitoring systems and applicable laws. Inspectors lacked sufficient familiarity and failed to comply with MSHA policies and procedures that, if followed, would have significantly improved the scope, quality, and effectiveness of AMS inspections.
 - 4.3.1. **Recommendation:** Inspectors should be provided with training on systematic evaluation of atmospheric monitoring systems.
5. **Deficiency:** District 4 inspection personnel did not effectively enforce the requirements for water sprinkler systems. No citations were issued during the review period for violations of 30 CFR 75.1101-8. However, during the inspection and investigation following the fatal fire, 12 citations and orders were issued for violations involving inadequate water sprinkler systems on 12 of the 14 belts in the mine. Descriptions of the cited conditions indicated that these violations were present during one or more MSHA inspections prior to the fatal mine fire.
 - 5.1. **Cause:** Inspectors assumed that standard fire suppression systems for drives were sufficient for entire transfer installations, including take-up assemblies.
 - 5.1.1. **Recommendation:** Training should be provided for all CMS&H personnel regarding the requirements for fire suppression on belt drives.
 - 5.1.2. **Recommendation:** The Administrator for CMS&H should take necessary actions to evaluate these installations at coal mines, nationally, to determine whether similar systems are in compliance with this standard.

5.1.3. **Recommendation:** Peer reviews and supervisory reviews should include an inspection of belt conveyor entries.

6. **Deficiency:** District 4 personnel assigned to inspect the Aracoma Alma Mine #1 did not demonstrate a thorough understanding of the approved ventilation plan. Violations of 30 CFR 75.370 were not always identified and cited by inspection personnel and citations issued under this standard were often incorrectly issued. Under the approved ventilation plan in effect at the time of the fatal fire, airflow in the belt entry air for 2 Section was required to be coursed in an outby direction away from the working section. However, during several inspections prior to the fatal fire, air was coursed through the belt entries and ventilated the working faces on 2 Section. This condition was not properly identified or cited by inspection personnel. The belt air for the longwall section was required to be coursed inby toward the face, but was traveling in an outby direction, and this condition was not identified or cited. During the course of this review, it was revealed that the operator made at least five intentional ventilation changes from January 2005 through January 2006 without prior approval of the District 4 Manager. These unapproved ventilation changes were not always recognized by MSHA inspection personnel during onsite inspections, and as a result, appropriate enforcement action was not taken.

6.1. **Cause:** Inspectors' ability to effectively enforce mine ventilation provisions was compromised by the absence of a ventilation specialist in the Logan field office. The reassignment of the specialists, the workload in the District 4 Ventilation Department, and the remote location of the field office resulted in deficiencies related to the understanding and enforcement of specific provisions of approved plans in the Logan field office.

6.1.1. **Recommendation:** District managers should ensure that specialist staffing is adequate to provide technical expertise where specialized knowledge of complex mining systems are required for ensuring quality inspections.

6.1.2. **Recommendation:** When specialists are needed to complete mandated inspections, every effort should be made by district management and supervisors to focus specialist's assignments on regular inspections to tasks where their expertise is most beneficial to the overall quality of the inspection.

6.2. **Cause:** Supervisors did not identify or require corrective actions regarding deficiencies when reviewing citations for violations of 30 CFR 75.370. Several citations issued prior to the fatal fire for violations of the approved ventilation plan were incorrectly cited or terminated.

- 6.2.1. **Recommendation:** Supervisors should ensure that violations are appropriately cited and consult with district specialists when technical guidance is needed.
7. **Deficiency:** The requirements of 30 CFR 75.370(g) and other procedures related to ventilation plan reviews were not always followed. During all four inspection quarters in which MSHA Form 2000-204's were completed, the reviewers failed to record the names of mine officials and miners' representatives who participated in the review discussion. In addition, no correspondence was sent to the mine operator following the required 6-month reviews. This correspondence, which was required to be maintained in the Uniform Mine File, should have identified the material which constituted the complete approved plan.
- 7.1. **Cause:** The assistant district manager did not implement established MSHA procedures relevant to 30 CFR 75.370(g).
- 7.1.1. **Recommendation:** District 4 should revise, implement, and follow standard operating procedures for 6-month mine ventilation plan reviews to comply with the MSHA *Mine Ventilation Plan Approval Procedures* handbook.
8. **Deficiency:** The District 4 Peer Review Program was not conducted in accordance with established procedures, and corrective actions were not effective to prevent the recurrence of identified issues. Despite the implementation of corrective actions within District 4, subsequent District 4 peer reviews repeatedly found similar issues concerning inadequate inspection documentation and inadequate supervisory oversight. The three summary reports submitted to the National Accountability Coordinator were submitted 18, 42, and 24 days past the established due dates. In addition, headquarters did not adequately review the District 4 summary reports submitted in 2004 or 2005.
- 8.1. **Cause:** The root causes of deficiencies were not identified as a basis for corrective actions. District 4 management did not make a reasonable effort to develop effective long-term action plans to prevent recurrence of issues. Instead, inspectors and supervisors were repeatedly trained on procedures regarding documentation and complete inspections. District 4 management and supervisors did not effectively monitor employees for compliance with corrective actions, nor were there immediate consequences for employees who failed to follow established procedures outlined in the corrective actions.
- 8.1.1. **Recommendation:** Managers should ensure that deficiencies identified in Peer Reviews are analyzed for root causes. Effective corrective actions must address the root causes that policies or procedures were not followed.

- 8.1.2. **Recommendation:** Managers should track the progress of corrective actions and ensure that they are fully implemented. Managers should subsequently evaluate the effectiveness of such actions. Tracking and evaluation of corrective actions should be documented in Peer Review records.
- 8.1.3. **Recommendation:** The Administrator should hold the District 4 Manager accountable for identifying root causes of deficiencies and implementing effective action plans to address those deficiencies.
- 8.2. **Cause:** Headquarters oversight of District 4 Peer Reviews did not recognize that training repeatedly was given as a corrective action for recurring issues.
- 8.2.1. **Recommendation:** The Administrator should examine methods to improve the effectiveness of headquarters' reviews of district Peer Review reports. An effective method of identifying and eliminating repetitive issues should be implemented.
- 8.3. **Cause:** CMS&H had not conducted a Headquarters Accountability Review of District 4 for several years. A review was scheduled for 2006 but was postponed pending the outcome of this internal review.
- 8.3.1. **Recommendation:** CMS&H Headquarters should conduct Accountability reviews in District 4 during 2008 and 2009. The reviews should evaluate the District's progress in addressing issues identified by this internal review and ensure that District 4 is effectively identifying root causes, implementing their action plan, correcting issues, and preventing recurrences.
9. **Deficiency:** The required supervisory and second-level reviews for all inspection activities for the Logan field office were incomplete, and the reviews conducted at the Aracoma Alma Mine #1 were not adequate. Documentation of accompanied activities and field activity reviews was not adequate and complete. Logan field office supervisors did not conduct the required number of supervisory level reviews between January 1 and December 31, 2005. Only 1 out of 18 required FAR/AA reviews were documented in workgroup 01. The workgroup 02 supervisor documented only 9 out of 18 required FAR/AA reviews. The assistant district manager did not document any required second-level reviews.
- 9.1. **Cause:** Field office supervisors did not put forth a diligent effort to perform thorough field activity reviews and did not follow established policy and procedures for conducting and documenting supervisory reviews for employees under their supervision.

- 9.1.1. **Recommendation:** District 4 managers should use the Performance Management System to hold supervisors accountable for following established procedures.
- 9.1.2. **Recommendation:** The District 4 Manager should take appropriate action with respect to individuals when issues of misconduct are identified.
- 9.1.3. **Recommendation:** The assistant district manager should provide oversight to ensure the requirements of the *Coal Mine Safety and Health Supervisor's Handbook* are followed.
- 9.2. **Cause:** The assistant district manager did not require documentation to ensure that supervisors conducted all required field activity reviews.
 - 9.2.1. **Recommendation:** The district manager should provide oversight to ensure the requirements of the *Coal Mine Safety and Health Supervisor's Handbook* are followed.
- 9.3. **Cause:** The assistant district manager with oversight responsibility for the Logan Field office did not document that any second level reviews were conducted during calendar year 2005.
 - 9.3.1. **Recommendation:** The District 4 Manager should provide oversight to ensure the requirements of the *Coal Mine Safety and Health Supervisor's Handbook* are followed.
 - 9.3.2. **Recommendation:** The District 4 Manager should use the Performance Management System to hold assistant district managers accountable for conducting and documenting second-level reviews..
- 9.4. **Cause:** The district manager did not hold the assistant district manager accountable for conducting required second-level reviews during calendar year 2005. The district manager did not require documentation to ensure that assistant district managers conducted all required second-level reviews.
 - 9.4.1. **Recommendation:** The Administrator should instruct district managers to require documentation that second level reviews are conducted and ensure the requirements of the *Coal Mine Safety and Health Supervisor's Handbook* are followed.
- 10. **Deficiency:** MSHA data was not adequately used by supervisors and managers to monitor, identify, and correct lapses. An analysis of available data would have identified: discrepancies in time and activity related to notes and citations issued; the absence of rock dust samples collected; incomplete inspection activities; the

lack of supervisory mine visits; the location, duration, and frequency of Section 103(i) spot inspections; the level of enforcement; standards cited in relation to those most frequently cited nationally.

10.1. **Cause:** Standardized reports are not available or effectively distributed for all potential indicators of performance deficiencies.

10.1.1. **Recommendation:** The Administrator and Director of PEIR should develop and systematically distribute standardized reports for all critical data to be used by managers and supervisors relevant to inspections and investigations.

10.2. **Cause:** National standard operating procedures (SOPs) are not available to ensure effective use of data and reports.

10.2.1. **Recommendation:** SOPs should be developed for effective use of each report and to identify responsibilities for managers and supervisors. The SOPs should provide clear guidance as to the intended use of the report, acceptable parameters, review frequency, responsibilities, and any required actions for discrepancies identified.

10.2.2. **Recommendation:** The administrator should mandate the use of national SOPs and require documentation of report reviews.

Conclusions

Since the Federal Mine Safety and Health Act was signed into law on November 9, 1977, the Mine Safety and Health Administration has worked diligently with miners, mine operators, miners' representatives, state mining officials, and other interested parties to improve working conditions in the Nation's mines. Years of dedicated effort have produced immeasurable benefit, as conditions in the Nation's mines have improved dramatically, and fatality rates and injury rates have declined significantly. MSHA is proud of the role that it has played in furthering health and safety in the mining industry, and the Agency recognizes the tremendous efforts that so many MSHA employees have made in order to help assure the health and safety of the Nation's miners.

MSHA has played, and will continue to play, a vital role in protecting the health and safety of miners by effectively enforcing the provisions of the Mine Act. However, we recognize that there have been aberrations from the generally high quality of MSHA inspections over the last three decades – discrete situations like that at the Aracoma Alma Mine # 1 in which MSHA failed to effectively exercise its authority to provide miners with the level of protection afforded by the Mine Act.

It is the internal review team's conclusion that, in the year before the January 19, 2006, fatal fire at the Alma Mine # 1, MSHA did not conduct inspections in a manner that permitted us to effectively identify hazardous conditions at the mine, and did not utilize the Mine Act to effectively enforce health and safety standards promulgated to provide miners with the protections afforded by the statute. The Aracoma Coal Company's indifference to health and safety conditions at the Alma Mine #1 and MSHA's failure to more effectively enforce the Mine Act allowed significant hazards, many of which otherwise might have been identified and addressed, to continue in existence prior to the fatal fire. The Agency's culpability rests with all persons who directly or indirectly were responsible for administering the Mine Act at the Alma Mine #1, from the inspectors who conducted the mine inspections through the headquarters office personnel who ultimately were responsible for overseeing MSHA activities throughout the Nation.

While the internal review team believes that the Agency's record at the Alma Mine # 1 during the year before the fatal fire stands in stark contrast to the manner in which MSHA normally conducts inspections, the team is firm in its conviction that actions must be taken to assure that similar shortcomings will not be repeated. In addition, the internal review team recognizes that MSHA must continually improve its program in order to most effectively work with miners, mine operators, miner representatives, state mining officials, and other interested parties to effectuate the Mine Act's goal assuring the health and safety of the Nation's miners.

In this report, the review team has evaluated the Agency's actions prior to the fatal fire at the Alma Mine # 1 and has detailed a number of significant actions that MSHA already has taken to address shortcomings associated with the Agency's performance at

the mine. The Agency has taken appropriate action, and will continue to take appropriate action as information is reviewed and provided, with respect to individuals who were not performing their duties in accordance with Agency guidelines and procedures. In addition, MSHA has acted on the authority recently accorded under the MINER Act to hire and train additional inspectors and to revise the manner in which it proposes civil penalties for Mine Act violations, so that the penalties more reliably encourage compliance with Mine Act provisions.

In addition to detailing actions that MSHA has taken since the fatal fire to improve the effectiveness of its inspections and to better assure that all of its enforcement efforts meet the high standard that the Agency has established, the internal review team has identified issues at the inspector, field office, district office, and national office levels that should be addressed in order to allow MSHA to more reliably achieve the goals established in the Mine Act. With respect to field and district office supervisory officials, the internal review team has recommended, among other things, actions designed to better assure that inspection activities are regularly and effectively monitored, as well as review procedures designed to insure that inspectors are exercising their inspection authority in a manner that effectuates the purposes of the Mine Act. These and other recommendations contained in the report will further the already high quality of most MSHA inspections and help to assure that deviations from the inspection quality that the Agency demands, and that miners deserve, are quickly detected and immediately corrected.

The internal review team recognizes and respects the critically important role that state and federal mine inspectors play in conjunction with miners, mine operators, and other interested parties in providing safe and healthful working environments. The internal review team also appreciates the tremendous contributions that many people in both the public and private sectors make on a regular basis to furthering health and safety throughout the mining industry. It is our fervent hope that this work will support those efforts and honor the memories of Don Bragg and Ellery Hatfield by providing a basis for making continual improvements in the quality of MSHA inspections and, in that way, will permit MSHA to play an even more effective role in identifying and addressing mining hazards.

This report is submitted in response to your request that the Directorate of Program Evaluation and Information Resources conduct an internal review of MSHA's actions at the Aracoma Coal Company, Inc. Aracoma Alma Mine #1.

Respectfully submitted,

SIGNATURE ON FILE

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Assistant District Manager
CMS&H District 5

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George M. Fesak
Director, Program Evaluation
and Information Resources

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Kevin R. Burns
Manager, Small Mine Office
Education, Policy and Development

Approved By:

SIGNATURE ON FILE

Richard E. Stickler
Assistant Secretary of Labor
Mine Safety and Health Administration
United States Department of Labor

Appendix A - Persons Interviewed or Providing Information

District 4 Personnel

Jon Braenovich.....Supervisory CMS&H (Roof Control)
John Brown CMS&H Inspector
Clark Blackburn.....Supervisory CMS&H Inspector
Jesse Cole.....District Manager
Larry CookSupervisory CMS&H Inspector (Electrical)
Gary Frampton CMS&H Inspector
Bill GillenwaterSupervisory CMS&H Inspector
Dennis Holbrook..... CMS&H Inspector
Minness Justice CMS&H Inspector
Richard Kline Assistant District Manager
Joseph Mackowiac Staff Assistant
Luther Marris Assistant District Manager
David Morris..... CMS&H Inspector (Ventilation)
Vicki Mullins CMS&H Inspector
Otis Osborne CMS&H Inspector
Edward Paynter..... CMS&H Inspector
Dick Pennington..... CMS&H Inspector
Terry Price.....Supervisory CMS&H Inspector
Bill RossSupervisory CMS&H Inspector(Ventilation)
Lincoln Selfe..... Assistant District Manager
Tyrone Stepp..... CMS&H Inspector
Dave Thompson..... CMS&H Inspector
David Trent..... CMS&H Inspector
Curtiss Vance..... CMS&H Inspector

Appendix A (continued)

Headquarters Personnel

Kevin G. Stricklin Acting Administrator for CMS&H
Melinda Pon..... Acting Deputy Administrator for CMS&H
Terry Bentley Chief, Division of Safety for CMS&H
Marcus Smith..... Coal Mine Safety and Health Specialist

District 6 Personnel

Kenneth A. Murray District Manager
Robert G. Hardman Assistant District Manager
Anthony Burke CMS&H Inspector
Arlie A. Webb Staff Assistant

District 8 Personnel

Ronald Stahlhut..... Electrical Supervisor

National Mine Health and Safety Academy

Edwin P. Brady Superintendent
Richard McDorman Training Instructor
James E. Beha Lead Accident Investigation Instructor

Technical Support

Dennis A. Beiter..... Supervisory Mining Engineer
William J. Francart Mining Engineer
Derrick M. Tjernlund..... Senior Fire Protection Engineer
Jeffrey N. Waggett..... Civil Engineer

Appendix B - Coal Mine Safety and Health Administrator's Response

June 27, 2007

CMS&H Memo No. HQ-07-071-A (SEC-103)

MEMORANDUM FOR RICHARD E. STICKLER

Assistant Secretary for
Mine Safety and Health

THROUGH:

Signature on File
ROBERT M. FRIEND
Deputy Assistant Secretary for
Mine Safety and Health

FROM:

Signature on File
KEVIN G. STRICKLIN
Administrator for
Coal Mine Safety and Health

SUBJECT:

Coal Mine Safety and Health Response to Internal Reviews of
MSHA's Actions at the Wolf Run Mining Company, Sago Mine;
Aracoma Coal Company, Inc., Aracoma Alma Mine No. 1; and
Kentucky Darby LLC, Darby Mine No. 1

You requested that Coal Mine Safety and Health (CMS&H) respond to the recommendations in the internal review reports concerning MSHA's actions at the Wolf Run Mining Company, Sago Mine; Aracoma Coal Company, Inc., Aracoma Alma Mine No. 1; and Kentucky Darby LLC, Darby Mine No. 1. You also requested that CMS&H provide a consolidated corrective action plan to address all the issues and recommendations raised in the three reviews. The following is our response and a discussion of the actions planned by CMS&H. The reports of internal review will also be shared with Metal and Nonmetal Mine Safety and Health.

I have attached a spreadsheet that specifically describes, for each recommendation, CMS&H's corrective action plan and due date. The spreadsheet compares the reports and shows the similarities and differences of the deficiencies, causes, and recommendations. The corresponding paragraph numbers from each report have also been included. CMS&H will track its implementation progress and work closely with other MSHA program areas to fully address each recommendation with an effective policy and/or program that achieves both short- and long-term results.

Several recommendations have already been implemented. The MINER Act and the Emergency Temporary Standards for Emergency Mine Evacuation, Criteria and Procedures for Proposed Assessment of Civil Penalties, and Sealing of Abandoned Areas have codified several recommendations. Therefore, implementation and enforcement of these new regulations and standards will serve as the corrective actions for these recommendations. Several other recommendations were addressed when CMS&H revised the Coal General Inspection Procedures Handbook.

I have scheduled a meeting at the National Mine Health and Safety Academy on July 11 and 12 with all CMS&H managers, supervisors, and Conference Litigation Representatives. At this meeting, I will discuss each report's findings, as well as CMS&H's corrective actions and measurement strategies. I look forward to your attendance and participation at this meeting.

Attachment

Corrective Action Plan: Sago, Aracoma, and Darby Internal Reviews

Deficiency	Cause	RS	RA	RD	Recommendation	Corrective Action	Due Date
Incomplete & inadequate inspections & documentation (A: also 103(i) insp inadequate)	Not following procedures, (A,D: also lacked proper attitude)	1.1.1	1.1.1 2.1.1	1.1.1	Supv should use performance management system to hold inspectors accountable	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008
		1.1.2			Inspectors should use an Inspection Checklist to ensure complete inspections	Included in latest revision of Coal Inspection Handbook - Rollout on 7/1/2007	7/15/2007
		1.1.3	1.1.2 2.1.2		Supervisors scrutinize inspection reports and take corrective action immediately	Perform additional accompanied activities to enhance interaction between managers, supvs, and insp during mine visits Update and clarify the Supv handbook and conduct training	1/1/2008
		1.1.4			Supv should use an inspection checklist to evaluate whether inspections are complete	Included in latest revision of Coal Inspection Handbook - Rollout on 7/1/2007	7/15/2007
		1.1.5	1.1.4	1.1.2	Supervisors should annually visit each producing mine to assess inspection quality	Memo to DMs requiring a supervisory visit to each mine Perform additional accompanied activities to enhance interaction between managers, supvs, and insp during every UG mine visit annually Update and clarify the Supv Handbook and conduct training	1/1/2008
			1.1.3		Use accompanied activities and field reviews to evaluate whether inspections are complete	Perform additional accompanied activities to enhance interaction between managers, supvs, and insp during every UG mine visit annually Update and clarify the Supv Handbook and conduct training	1/1/2008
			1.1.5 2.1.3		Take appropriate action with respect to individuals when issues of misconduct are identified	Update and clarify the Supv Handbook and conduct training	1/1/2008
Field office memo on working hours misinterpreted resulting in no preshift travel.		1.2.1			Rescind memo and reinstruct on preshift travel during regular inspections	Rescind memos that conflict with Natl policy	9/1/2007
Inadequate oversight of inspection activity, no annual UMF review as per procedure.		1.3.1	1.3.1 3.2.6	1.2.1	ADMs should use Performance Management System to hold supervisors accountable for subordinates (S: also UMF reviews)	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008

Deficiency	Cause	RS	RA	RD	Recommendation	Corrective Action	Due Date
		1.3.2	1.3.2 3.2.4		ADMs should hold supervisors accountable for accompanied activity and annual mine visits	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook	1/1/2008
		1.3.3	1.3.6		District management should use Peer Reviews and Second Level Review to assess supervisor's performance	Supervisors will be held accountable for repetitive issues that are not addressed ADM will conduct second level reviews and travel with supervisors to determine if repetitive issues exists Update and clarify the Supv Handbook and conduct training	1/1/2008
		1.3.4	1.3.7 3.2.7	1.2.3 1.3.1	DM should use Performance Management System to hold ADMs accountable for their oversight of subordinates	ADM will be held accountable for repetitive issues that are not addressed Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook	1/1/2008
		1.3.5	1.3.8 3.2.8		Administrator should use Performance Management System to hold DMs accountable for district deficiencies	DM will be held accountable for repetitive issues that are not addressed Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008
			1.3.3		Managers should visit a mine with poor compliance at least monthly	Memo from the Administrator to the DM's requiring monthly visits	9/1/2007
			1.3.4		Managers should get periodic report of mines visited by each supervisor	Issue memos to DMs requiring monthly reports summarizing all supv and management mine visits	9/1/2007
			1.3.5	1.2.2	ADM should hold Supv accountable for returning poor work to inspectors to be corrected Gross or repeated failures should be documented and appropriate disciplinary action taken	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook	1/1/2008
	No effective tools to ensure thorough complete inspections.	1.4.1	1.2.1		Create checklist or tracking system for each regular inspection with supervisor review, management review quarterly	Included in latest revision of Coal Insp Handbook - rollout on 7/1/2007	7/15/2007

Deficiency	Cause	RS	RA	RD	Recommendation	Corrective Action	Due Date
		1.4.2			Create database to track inspection of SCSRs, integrate with new SCSR inventory system	Enhance SCSR inventory database to identify active units prior to an inspection and record inspection results	7/1/2008
	No effective system to assure "too wet" areas were revisited for subsequent rock dust sample collections.	1.5.1			MSHA should develop a tracking system to ensure that areas that were "too wet" to take rock dust samples are revisited and sampled	Created MSHA Form 2000-210 Rock Dust Survey Wet Locations Tracking to ensure tracking and revisiting of "too wet" rock dust sampling areas	Completed 1/1/2006
		1.5.2			Revise Coal Gen Insp Procedures Handbook to require inspection reports to include a completed 2000-210 form	Included in latest revision of Coal Insp Handbook - Rollout on 7/1/2007	7/15/2007
	Rock dust surveys were not conducted in several areas or mapped			1.5.1	Require inspectors to incorporate tracking maps in conjunction with survey stations to ensure all areas of the mine have been surveyed	Use tracking maps from the previous inspection to the ongoing inspection to determine what areas need to have rock dust samples collected	10/1/2007
	Directives overlap on emergency evacuation, drills, SCSRs, and AMS handbook is outdated.	1.6.1		1.7.1	Consolidate and update evacuation, SCSR donning and use, fire and escapeway drills, and AMS systems into one instruction	Update and consolidate directives, issue final document, train on updates	1/1/2008
	Enforcement guidance for 30 CFR 75.320(a) and 75.1501 is lacking.	1.7.1			Provide guidance for 30 CFR 75320(a) and 751501 enforcement	Issue instruction by memos to DMs	10/1/2008
	Regular inspectors have insufficient electrical expertise.	1.8.1			The District 3 Manager should provide training to regular inspectors to help them identify electrical violations	Additional electrical retraining was provided to all District 3 inspectors	Completed 8/1/2006
		1.8.2			Inspectors should request assistance from electrical specialists as needed	Issue instruction by memos to DMs	9/1/2007
		1.8.3			Need for additional electrical inspectors should be evaluated in District 3	Additional electrical inspectors have been hired in District 3	10/1/2007
	Supv and Insp did not maintain and use an effective 103(i) spot inspection tracking system to ensure required time frames were met.		2.2.1		Ensure timeliness of 103(i) inspections are followed, including the use of highlighted calendars with inspector names	FO supervisors should set up the calendar for the respective mines on a 103(i) spot	9/1/2007

Deficiency	Cause	RS	RA	RD	Recommendation	Corrective Action	Due Date
			2.2.2		Provide reports to track timely completion of 103(i) inspections and hold supervisors accountable for deficiencies	FO supervisors should set up the calendar for the respective mines on a 103(i) spot	9/1/2007
	Supv failed to identify and hold Insp accountable for info in notes stating spot and other inspection activities were combined.		2.3.1		Procedures should require all inspection time be dedicated to spot inspections on days when conducted	Issue instruction by memos to DMs	9/1/2007
			2.3.2		Supv and managers should be provided with periodic reports indicating if inspectors conduct spot and other inspection activities on the same day	Issue instructions by memos to DMs; Develop additional standardized reports to be used within the districts	1/1/2008
	Supv did not identify conflicts standard reports, such as spot inspections with no time shown at the mine and inspections with no notes.		2.4.1		After Supv, staff assistants should compare completed standard reports to double check accuracy of inspection activity	Issue instruction by memos to DMs Supv and office staff will assure accuracy with oversight by ADM	10/1/2007
	Supv failed to take action to correct blatant 103(i) errors: many spot inspections only at main mine fans and surface areas.		2.5.1		Quickly review 103(i) reports for adequacy, inform insp of deficiencies and require an additional spot inspection to correct such deficiencies	Better review of inspection notes and closer evaluation of inspector's time and attendance reports Perform additional accompanied activities to enhance interaction between managers, supvs, and insp during mine visits	10/1/2007
			2.5.2		Supv should review time and activity to ensure inspected areas are commensurate with the intent of Section 103(i)	Better review of inspection notes and closer evaluation of inspector's time and attendance reports Perform additional accompanied activities to enhance interaction between managers, supvs, and insp during mine visits	1/1/2008
			2.5.3		Managers should review reports indicating inspector resources relevant to 103(i) spot inspections	District management will monitor resource availability to complete inspections	1/1/2008

Deficiency	Cause	RS	RA	RD	Recommendation	Corrective Action	Due Date
			2.5.4		ADM should use the Performance Management System to hold Supv accountable for ensuring that subordinates follow policies 103(i) inspections	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008
	Administrator and District 4 management did not adequately oversee surface time spent for 103(i) spot inspections.		2.6.1		Use reports detailing 103(i) inspection time and activity and hold managers accountable for their subordinates' compliance	Develop computerized report that compares T&As with IPAL to allow effective oversight of 103(i) inspections	1/1/2008
	No vent. specialist in field office. Reassignment of specialists, workload of D4 Vent Dept, and the remote location of the field office		6.1.1		Ensure that specialist staffing is adequate to provide technical expertise where specialized knowledge of complex mining systems are required for ensuring quality inspections	Districts have been staffed with specialists as part of the supplemental hiring	10/1/2007
			6.1.2		When specialists are needed for mandated inspections, every effort should be made by to focus their assignments on inspections areas of their expertise	Issue a memo to the DMs indicating that specialist work should be assignend at the beginning of the quarter (when needed for mandated inspections) that will coincide with their area of expertise when possible	9/1/2007
	Supv did not identify errors when they reviewed violations of 30 CFR 75.370.		6.2.1		Supv should ensure that violations are appropriately cited and consult with district specialists when technical guidance is needed	Issue instruction by memos to DMs	9/1/2007
	ADM did not implement established MSHA procedures relevant to 30 CFR 75.370(g).		7.1.1		Revise, implement, and follow SOP for 6-month mine vent plan reviews to comply with the MSHA Mine Vent Plan Approval Procedures hdbk	Issue memo from Administrator to the DMs reiterating 6 month review	9/1/2007
	Although the Coal General Insp Hdbk requires inspection of exam records, no time period is mentioned.			1.6.1	Revise handbook to require the inspector to thoroughly examine and document the inspected records extending back to the previous inspection	Included in latest revision of Coal Insp Handbook - Rollout on 7/1/2007	7/15/2007
	The operator is not required to maintain a record of calibration, no instructions in the Coal Insp Hdbk for checking or documenting this procedure.			2.1.1	The Coal Insp Handbook should be updated to include instructions for Insp to document the calibration checks in their notes	Coal Insp Handbook will require an insp note that the insp observed or determined that gas calibrations are being performed on schedule Issue instruction by memos to DMs	10/1/2007
Improper evals on citations, no notes for vacated citation, delayed safeguards, some terminations not timely (A,D:Insp failed to cite several violations)(D:some abatement times excessive)	Mine Act, 30 CFR, MSHA policies and procedures, and controlling case law not consistently followed (A,D:also lacked proper attitude)	2.1.1	3.1.1	3.1.5	Supervisors should use performance management system to hold inspectors accountable	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008

Deficiency	Cause	RS	RA	RD	Recommendation	Corrective Action	Due Date
		2.1.2	3.1.3 3.2.2	3.1.3	Supervisors should closely review enforcement actions	Perform additional accompanied activities to enhance interaction between managers, supvs, and insp during mine visits Update and clarify the Supv Handbook and conduct training	1/1/2008
		2.1.3	3.1.4	3.1.1	Supervisors should annually visit each producing mine to assess level of enforcement	Memo to the DM's requiring a supervisory visit at each mine in their district at least one time per year	10/1/2007
		2.1.4	3.1.5	3.1.4	Supervisors should routinely review standard reports to ensure effective enforcement and follow-up	Update and clarify the Supv Handbook and conduct training	1/1/2008
	Improper conference actions influenced inspectors to make lower evaluations of gravity, negligence, and # of persons affected	2.2.1			DM should closely monitor ACRI program and use Performance Management System to ensure that conference officers follow established law, policies, and controlling case law	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008
	District safeguard issuance policies conflicted with national policy	2.3.1			DM should revise safeguard policies to comply with national policy	Issue memos to DM requiring any policies contrary to national policy be revoked and personnel be reinstructed	9/1/2007
	District management did not effectively monitor enforcement actions and associated notes	2.4.1	3.2.1	4.4.1	ADMs should hold supervisors accountable for reviewing enforcement actions	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008
		2.4.2			ADMs should hold supervisors accountable for notes regarding vacated citations	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008
		2.4.3	3.2.3	3.3.2	District management should use Peer Reviews and Second Level Review to assess supervisor's reviews of enforcement actions	Update and clarify the Supv Handbook and conduct training Perform additional accompanied activities to enhance interaction between managers, supvs, and insp during mine visits	1/1/2008
			3.1.2		DM should take appropriate action with respect to individuals when issues of misconduct are identified	Update and clarify the Supv Handbook and conduct training	1/1/2008

Deficiency	Cause	RS	RA	RD	Recommendation	Corrective Action	Due Date
			3.2.5		ADM should visit a mine site at least monthly to ensure enforcement activity is consistent with conditions at the mine	ADM-Enforcement to travel with each inspector in his or her workgroup at least 1 time every 2 months ADM-Technical to travel with different specialist and make at least 2 visits per month Update and clarify the Supv Handbook and conduct training	1/1/2008
			3.2.9	3.3.3	Managers should routinely review standardized reports showing trends in mine enforcement activity and accidents	Develop key indicators report; Update and clarify the Supv Handbook and conduct training	1/1/2008
	Performance Management System for managers and supervisors does not include provisions to evaluate the quality of enforcement actions.	2.4.4 2.4.5		4.6.1	Performance Management System for managers and supervisors should include provisions to evaluate the quality of enforcement actions	Update Performance Management System to include provisions to evaluate the quality of enforcement actions	1/1/2008
	Management did not communicate to inspectors that they would have full support when issuing citations and orders		3.3.1		District managers should ensure that assistant district managers and supervisors support and assist inspectors in taking appropriate enforcement actions	Perform additional accompanied activities to enhance interaction between managers, supvs, and insp during mine visits Update and clarify the Supv Handbook and conduct training	1/1/2008
	The Carbon Monoxide Hdbk is outdated, and has not kept up with current systems		4.1.1		The CO Handbook should be updated to reflect current atmospheric monitoring systems and recent changes to applicable laws	Review and update the CO Insp Handbook as necessary to address new technology and standards	1/1/2008
	Insp did not follow the Carbon Monoxide Hdbk		4.2.1		Insp should be required to document their assessment of the AMS operators' familiarity with his or her responsibilities	Required in new Inspection Procedures Handbook, Rollout 7/1/2007	7/15/2007
	Some Insp did not follow Citation and Order Hdbk guidance on setting abatement times			4.3.1	The Supv should hold the insp accountable for establishing reasonable times for termination of citations	Issue instruction by memos to DMs	9/1/2007

Deficiency	Cause	RS	RA	RD	Recommendation	Corrective Action	Due Date
	Insp did not have sufficient knowledge of atmospheric monitoring systems and applicable laws.		4.3.1		Insp should be provided with training on systematic evaluation of atmospheric monitoring systems	Provide short term instruction via net meeting and augment with revisions to Natl MHS Academy's training program as necessary	1/1/2008
	Insp assumed that standard fire suppression systems for drives were sufficient for entire transfer installations, including take-up assemblies.		5.1.1		Training should be provided for all CMS&H personnel regarding the requirements for fire suppression on belt drives	Provide short term instruction via net meeting and augment with revisions to Natl MHS Academy's training program as necessary	1/1/2008
			5.1.2		Evaluate fire suppression installations at coal mines belt drives, nationally, to determine whether similar systems are in compliance with this standard	Provide short term instruction via net meeting and augment with revisions to Natl MHS Academy's training program as necessary	1/1/2008
			5.1.3		Peer reviews and supervisory reviews should include an inspection of belt conveyor entries	Issue instruction by memos to DMs	9/1/2007
Inspectors and district management improperly performed possible knowing willful (PKW) reviews	Inspectors were given inappropriate guidance on when to conclude a PKW existed	3.1.1			The DM should ensure enforcement personnel follow established guidance	Reenforce existing requirements and instructions through memos to DMs	9/1/2007
	Reviews by District management improperly supported the inspector's determinations	3.2.1			Administrator should ensure D3 SI program follows SI Handbook	Issue instruction by memos to DMs	9/1/2007

Deficiency	Cause	RS	RA	RD	Recommendation	Corrective Action	Due Date
		3.2.2			The Administrator should use the Performance Management System to ensure DM follows SI Handbook	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008
	Supv SI discouraged PKW cases because of perceived resource limitations	3.3.1			The DM should use the Performance Management System to hold Supv SI accountable for properly evaluating cases	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008
	The SI Handbook doesn't provide adequate guidance, discrepancy in time frame between SI handbook and the PPM	3.4.1			Revise the SI handbook to provide better guidance	Revise SI handoobk to provide additional guidance on how to determine that a PKW exists	1/1/2008
		3.4.2			Resolve time-frame discrepancies between SI handbook and PPM	Revise SI handoobk and revise PPM as necessary	1/1/2008
	CMSH didn't use data to address low # of 110 cases	3.5.1			Use available data to provide proper oversight of SI program	Issue memos to DMs requiring them to use data to determine effectiveness of SI program	9/1/2007
MSHA has issued 2 pattern of violation (POV) notifications and no POV orders	The criteria for determining a POV was ineffective	4.1.1			Revise criteria to determine a POV	Revised POV criteria developed and implemented	Completed 6/14/2007
A CLR made improper conference decisions, some ACRI program deficiencies found by Jim Walters Resources Inc (JWR) internal review not corrected.	A CLR acted with autonomy and did not follow policies or properly value enforcement personnel statements (D:Didn't use violation history for neg evals)	5.1.1		4.2.1 5.1.1 5.2.1	The DM should use the Performance Management System to hold CLR accountable for making proper decisions	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union Issue instruction by memo to DMs	1/1/2008
		5.1.2		5.1.2 5.2.2	Develop new worksheet to circulate proposed CLR decisions and inspector positions through management chain	Study alternatives and develop program revisions to circulate proposed CLR decisions and inspector positions through management chain	1/1/2008
		5.1.3		5.3.1	Administrator should use Performance Management System to hold DMs accountable for holding CLR's accountable	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008
	Coal HQ oversight of ACRI program is ineffective, focuses on procedures not decisions, audit team doesn't always have member with enforcement experience	5.2.1		5.4.3 5.5.3	Coal HQ audits should focus on CLR decisions (D: include recommendations for negligence evals)	Review ACRI handbook and complete revisions as necessary to assure appropriate focus on decisions including neg evaluations	1/1/2008

Deficiency	Cause	RS	RA	RD	Recommendation	Corrective Action	Due Date
		5.2.2			Coal HQ audits should include discussions with inspectors	Review ACRI handbook and complete revisions as necessary to assure adequate communication with inspectors	1/1/2008
		5.2.3			Coal HQ audit teams should include a team member with enforcement experience	Ensure each HQ audit team has a member with enforcement experience	1/1/2008
		5.2.4		5.4.1	The Administrator should use HQ audits and the Performance Management System to ensure DM holds CLR accountable	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008
				5.4.2	The Deputy Assistant Secretary should use the Performance Management System to hold the administrator accountable for identifying and correcting deficiencies in the ACRI program	Revise performance standards to more directly apply to individual responsibilities	1/1/2008
	ACRI Handbook guidance is inadequate, focuses on administrative not substantive issues	5.3.1		5.3.2	Revise ACRI Handbook to give CLRs guidance on making decisions	Revise ACRI handbook and training to provide additional guidance	1/1/2008
		5.3.2		5.1.3 5.3.2	Revise ACRI Handbook to include a conference worksheet	Study alternatives and develop program revisions to circulate proposed CLR decisions and inspector positions through management chain	1/1/2008
				5.5.2	Revise ACRI Handbook to require use of at least 2 years for negligence evals	Revise ACRI handbook and training to provide additional guidance	1/1/2008
Enforcement personnel marked lower gravity, neg, and persons affected even though notes indicated higher levels and numbers	Inspectors were "conference conditioned"	6.1.1			Reinstruct inspectors to properly evaluate enforcement actions	Request ACRI personnel to attend district training sessions where inspection personnel will be reinstructed on enforcement actions	9/1/2007
				4.2.1	The DM should use the Performance Management System to hold CLR accountable	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008
	Guidance in PPM and Cit.&Order Hdbk does not give clear guidance for determining gravity, neg, # of persons affected.			4.1.1	Supv should use material including the citation and order writing handbook, PPM and controlling case law when reviewing citations and orders	Update and clarify the Supv Handbook and conduct training	1/1/2008

Deficiency	Cause	RS	RA	RD	Recommendation	Corrective Action	Due Date
				4.1.2	Work through Academy to develop training and resource material to aid insp to properly determining gravity, negligence, and # of persons affected	Compare current training with Cit & Order Handbook for consistency Update and enhance where necessary Request EPD to conduct refresher training in coal districts	1/1/2008
				4.1.3	Revise PPM and Citation and Order Handbook to provide more guidance on evaluating gravity, neg, and # persons affected	Review PPM and Cit and Order Handbook for any necessary revisions Provide short term instruction via net meeting and augment with revisions to Natl MHS Academy's training program as necessary	1/1/2008
Poor pre and post conference communication	A CLR did not always follow MSHA handbooks	7.1.1		4.2.1 5.2.1 5.5.1	The DM should use the Performance Management System to hold CLR accountable	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008
		7.1.2			Each CLR should develop a monthly report, given to all inspectors, briefly describing each decision	Review ACRI handbook and complete revisions as necessary to provide for the monthly summary reports Issue instruction by memos to DMs	1/1/2008
Many unsubstantial conference requests tied up district resources	DM did not use discretion in granting conferences	8.1.1			DM should use more discretion in granting conferences	DM sent memo on March 1, 2007 requiring operators to explain rationale behind request	Completed 3/1/2007
20 psi horizontal pressure standard for seals is inadequate 75.335(a)(2)	MSHA relied on 1971 US Bureau of Mines report & never identified a need for seals to withstand higher pressures	9.1.1			MSHA should re-evaluate and require a prudent level of protection	Emergency Temporary Standard requiring higher pressure seals published May 22, 2007	Completed 5/22/2007
		9.1.2			Promulgate standards requiring a registered engineer to prepare seal designs	ETS published May 22, 2007	Completed 5/22/2007
		9.1.3			Work with NIOSH, industry, and manufacturers to test new seal designs at higher pressures	Technical Support will continue to work with manufacturers and NIOSH to develop, test, and disseminate information on new seal technology	Ongoing
	The 1992 rule committee relied on a BoM report for 20 psi standard; different engineering expertise should have been applied.	9.2.1			Ensure future rule making committees have necessary expertise	Top staff will ensure that rule making committees have appropriate expertise	9/1/2007

Deficiency	Cause	RS	RA	RD	Recommendation	Corrective Action	Due Date
Differences between Sago seals, approved plan, and Lake Lynn tests (D: The alternative seal construction provisions in the approved vent plan did not address roof straps entry size that could adversely affect the quality of seal construction.)	Construction specs for alternative seals not comprehensive or mine specific	10.1.1		6.1.1	Require alternative seal construction plans to be: prepared by a reg PE; specific to mine; and reviewed by MSHA	ETS published May 22, 2007	Completed 5/22/2007
Seal defects not always seen by MSHA, faulty construction practices used on seals, approved plan not followed	Construction defects can't be seen after seal is completely constructed	11.1.1			Promulgate standards requiring a registered engineer to prepare seal designs	ETS published May 22, 2007	Completed 5/22/2007
		11.1.2		7.1.2	Require operators to certify that seals are constructed in accordance with the approved seal plan	ETS published May 22, 2007	Completed 5/22/2007
		11.1.3		7.1.5	Require inspectors to have a copy of seal construction specs while inspecting seals	Issue memos to DMs requiring them to ensure inspectors understand approved seal requirements and have copy with them when inspecting seals	9/1/2007
		11.1.4		7.1.3	Require operators to remove portion of sealant so joints can be inspected when questions arise	Proper instruction provided to inspectors	Completed 7/1/2006
	Inspectors & specialists were not given training on specific critical seal construction provisions	11.2.1		7.2.1	Train inspectors/specialists on specific critical seal construction provisions	Critical seal design construction will be posted on the www.msha.gov website	1/1/2008
	MSHA is not always aware of new seal construction	11.3.1		7.1.1	Require operators to notify MSHA in advance	ETS published May 22, 2007	Completed 5/22/2007
		11.3.2		7.1.4	Instruct enforcement personnel to inspect new seal construction	Issue memos to DMs requiring inspectors to inspect new seal construction	9/1/2007
				8.1.2	Instruct vent spc or supv to make as many of the six-month ventilation plan reviews as feasible and incorporate inspections of seals during that review	Issue memos to DMs requiring inspectors to inspect new seal construction	9/1/2007
Alternative seal construction requirements were not compiled and provided to inspectors	11.4.1		7.3.1	Provide existing 20 psi seal guide to inspectors	Technical Support provided seal construction catalog to districts	9/1/2007	
MSHA didn't heed seal lightning explosion failures to act on lightning as an ignition source	Lightning as ignition source was considered to be isolated occurrence. Horizontal lightning ignition source never recognized.	12.1.1			Require insulated conductors with the potential to become an ignition source to be removed from areas to be sealed	ETS published May 22, 2007	Completed 5/22/2007
MSHA did not learn from faulty seal construction causing past failures	No system to evaluate seal accidents	13.1.1			Systematically evaluate seal explosion information	ETS published May 22, 2007	Completed 5/22/2007

Deficiency	Cause	RS	RA	RD	Recommendation	Corrective Action	Due Date
	No one responsible for analyzing seal accidents	13.2.1		9.1.1	Assign responsibility for systematically evaluating seal explosion information	ETS published May 22, 2007	Completed 5/22/2007
	Info on seal failures not widely known in MSHA and industry	13.3.1		9.1.2	Distribute seal accident reports to districts	HQ and districts will each apprise the other of seal accidents HQ will ensure distribution of seal reports	9/1/2007
After bottom mining, no rock dust was applied	Not following procedures	14.1.1			Direct enforcement personnel to require rock dusting in uncaved abandoned areas	Issue instruction by memos to DMs	10/1/2007
		14.1.2			Ensure mine operators are familiar with availability and use of rock dusting equip	Distribute information on new or existing rock dusting equip	10/1/2007
MSHA did not promulgate standards to implement refuge chambers.	MSHA didn't believe that emergency shelters were technically feasible	15.1.1			MINER Act requires NIOSH to conduct research concerning refuge chambers	Testing of refuge chambers with NIOSH is ongoing	1/1/2008
Plan reviews and inspections were inadequate for Part 48 training.	Specialists and inspectors did not perform adequately plan reviews.	16.1.1			Conduct thorough reviews of all plans DM ensure training plans are corrected	Memo to the DMs stressing the importance of adequate training plans	9/1/2007
		16.1.2			Supv should use Performance Management System to hold inspectors and specialists accountable	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008
	Supv did not conduct adequate reviews or provide effective oversight	16.2.1			ADMs should use Performance Management System to hold supervisors accountable for proper oversight	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook	1/1/2008
	EFS staff did not adequately review training plan	16.3.1			ADM should provide technical oversight of EFS	ADM will work with EFS supervisory personnel when issues arise	9/1/2007
		16.3.2			EFS supv should hold EFS personnel accountable	Use performance standards to more effectively assess performance and hold accountable	1/1/2008
First MSHA employee arrived 4 hours after explosion	ICG didn't notify MSHA 84 minutes after explosion	17.1.1			MSHA should revise 30 CFR 5010 to define immediate reporting of accidents	30 CFR 5010 revised	Completed 12/8/2006
	Explosion occurred on Federal Holiday - MSHA traveled from homes to office to mine	17.2.1			Explore methods to decrease response time	Immediate notification within 15 minutes from mine operator to MSHA call center is now required with increased penalties for not complying	9/1/2007
Command Center took 10 hours to determine if fire existed UG	Gas detectors to measure high CO were not available in district	18.1.1		11.1.1	Provide districts with advanced gas detecting equipment that is capable of measuring elevated levels of methane and carbon monoxide	Gas detectors to measure high CO have been provided in each district	Completed 6/1/2007

Deficiency	Cause	RS	RA	RD	Recommendation	Corrective Action	Due Date
	MSHA's gas analysis van and one primary gas chromatograph were in use at a mine fire in Colorado.	18.2.1			MSHA should procure additional portable gas chromatographs and make them available at strategic locations	Review options for additional portable gas chromatographs and make them available at strategic locations Use newly available high limit gas detectors whenever possible	10/1/2007
Miscommunication between mine rescue teams and the command center	Exploration of 2nd Left Parallel exceeded capabilities of communication equipment. Five communication relays ensued.	19.1.1			The Director of Technical Support should explore the availability of advanced communication equipment	Research and test current technology options for use by mine rescue teams	6/1/2008
Families received misinformation about status of miners	Info transmitted from UG was not secure due to open pager phones and easily accessible Command Center	20.1.1			Establish guidelines for command center control and security and secure communications with mine rescue teams	Issue instruction by memos to DMs Update mine rescue training manual or issue separate instructions	10/1/2007
Briefing and debriefing of MEU did not take place on regular basis	Command center did not follow mine rescue protocol	21.1.1			Ensure that Mine Emergency Unit rescue team members are briefed and debriefed during rescue and recovery operations	Issue instruction by memos to DMs	9/1/2007
Misinformation about seismic location system may have affected Sago miner's decision to barricade	The approved Firefighting program of Instruction indicates that seismic location equipment would be used to locate trapped miners.	22.1.1			Ensure that the Firefighting Programs of Instruction contain the proper instructions and limitations of location systems	Review existing FFE plans to assure correct instructions and add locating system limitations, such as seismic systems	1/1/2008
	After the advent of SCSRs, MSHA did not modify the instructions on hard hat stickers.	22.2.1			Create new mine evacuation instructions	The Agency has created and distributed a new sticker that gives correct instructions on barricading	Completed 8/1/2006
Supv & second-level reviews & documentation of accompanied/field activities not done, incomplete or not adequate, Hdbk not followed	No supv diligent effort to perform thorough field activity reviews, & did not follow established policy for supervisory reviews (D: also accompanied activities)	23.1.1	9.1.3	3.1.2	Provide oversight to ensure the requirements of the CMS&H Supervisor's Handbook are followed	Update and clarify the Supv Handbook and conduct training Perform additional accompanied activities to enhance interaction between managers, supvs, and insp during mine visits	1/1/2008
		23.1.2	9.1.1	3.1.2 3.3.1 8.1.1 16.1.1	Use Performance Management System to hold Supv accountable for conducting thorough field activity reviews in accordance with CMS&H Supervisor's Handbook (D:also accompanied activities, inspect seals during accompanied activities when applicable)	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008
		23.1.3		16.1.2	District generated worksheets should be revised to include all information required including detailed notes	Revise district generated worksheet	1/1/2008
			9.1.2		Take appropriate action with respect to individuals when issues of misconduct are identified	Update and clarify the Supv Handbook and conduct training	1/1/2008

Deficiency	Cause	RS	RA	RD	Recommendation	Corrective Action	Due Date
	ADM for did not provide adequate oversight. (A: also DM did not hold ADM accountable)	23.2.1	9.3.2	3.4.1 16.2.1 16.3.1	Use Performance Management System to hold ADM accountable for properly reviewing and documenting second-level reviews and for taking corrective actions	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008
		23.2.2	9.2.1 9.3.1 9.4.1	16.4.3	Administrator should use Performance Management System to hold the DM accountable for ensuring that his subordinates comply with Handbooks	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook	1/1/2008
Inadequate Peer reviews, corrective action plans deficient, not submitted, or uncorrected. Significant issues identified as insignificant	Not following procedures	24.1.1			Use Performance Management System to hold staff accountable for following the Accountability Program Handbook and for conducting thorough and effective Peer Reviews	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008
		24.1.2			Do not characterize issues as "significant" or "insignificant"	Make necessary revisions to Accountability Hdbk to eliminate the practice of identifying issues as "insignificant"	1/1/2008
	District Peer Reviews did not identify root causes of deficiencies, current process not effective	24.2.1	8.1.1 8.1.2		Ensure that deficiencies identified in Peer Reviews are analyzed for root causes Corrective actions must address root causes	Issue instruction by memos to DMs	10/1/2007
		24.2.2	8.1.3	16.4.1 16.4.3 17.2.1 17.3.3 17.3.2	Use Performance Management System to hold the DM accountable for identifying root causes of deficiencies and implementing effective action plans (D:also track progress of corrective actions) (DM&ADM)	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook	1/1/2008
				1.4.1 4.5.1 17.3.1	Redesign the Peer review process to incorporate root cause analyses	Make necessary revisions to Accountability Handbook to incorporate root cause analyses of peer reviews	1/1/2008
	No HQ reviews for several years.	24.3.1	8.3.1	17.2.2	Conduct reviews during next 2 years Evaluate progress in addressing internal review issues & identifying and correcting root causes Recommend changes to the action plan when appropriate	Review results of district peer reviews to ensure that internal review issues are addressed and deficiencies not recurring	12/31/2009
		24.3.2	8.2.1	3.5.1 16.4.2	Examine methods to improve HQ reviews of district Peer Review reports Implement method for identifying and eliminating repetitive issues and root causes	Reviews will be conducted by CMSH Use Performance Management System to address recurring root causes	1/1/2008

Deficiency	Cause	RS	RA	RD	Recommendation	Corrective Action	Due Date
	HQ oversight of Peer Reviews did not recognize or resolve deficiencies.		8.2.1		Examine methods to improve the effectiveness of HQ reviews of district Peer Review reports including eliminating repetitive issues	Reviews will be conducted by CSMH Use Performance Management System to address recurring root causes	1/1/2008
	The Harlan field office supervisor failed to utilize the checklist provided by the assistant district manager in January 2006.			17.1.1	Use Performance Management System to hold the Supv responsible for implementing corrective actions resulting from Peer and Accountability reviews	Revise performance standards to more directly apply to individual responsibilities Conduct training on effective use of Performance Management System Develop a Performance Management System computer tracking system Update Supv Handbook Inform Union	1/1/2008
MSHA data was not adequately used by Supv and managers to monitor, identify, and correct lapses in required activities	Standardized reports are not available or effectively distributed for all potential indicators of performance deficiencies.		10.1.1		Develop and distribute standardized reports for all critical data to be used by managers and supervisors relevant to inspections and investigations	Develop additional standardized reports to be used throughout HQ and districts	1/1/2008
	National SOPs are not available to ensure effective use of data and reports.		10.2.1		SOPs should be developed for effective use of each report and to identify responsibilities for managers and supervisors	Update and clarify the Supv Handbook and conduct training	1/1/2008
			10.2.2		The administrator should mandate the use of national SOPs and require documentation of report reviews	Issue instruction by memos to DMs	1/1/2008
103(k) order did not address safety of persons engaged in rescue & recovery operation, no mods to the order involving the rescue and recovery.	District 7 personnel did not follow established procedures as outlined in section 103k of the Mine Act and Coal General Inspection Procedures Handbook.			10.1.1	A section 103(k) order should be issued to ensure the safety of all persons involved in rescue and recovery This order should be issued to the operator in writing as soon as possible	Issue instruction by memos to DMs	9/1/2007
				10.1.2	All rescue and recovery plans should be reviewed and approved by the senior authorized representative at the mine site prior to implementation	Issue instruction by memos to DMs Update mine rescue training manual or issue separate instructions	9/1/2007
MSHA did not coordinate rescue & recovery ops before & during command center, people & mine rescue teams entered mine & violated many critical well established safety measures.	Person in charge at mine did not follow mine rescue & recovery procedures, in D7 MERP, Coal Insp Hdbk. MSHA did not assume oversight obligations required in the Mine Act			12.1.1	The District 7 MERP should be modified to provide clear and concise direction in authority and delegation of duties of MSHA personnel onsite at rescue and recovery operations	Issue instruction by memos to DMs Update District MERPs, mine rescue training manual or issue separate instructions	9/1/2007
				12.2.2	D7 personnel should be reinstructed to follow the procedures for mine rescue and recovery operations in District MERP and the Coal Insp Handbook	District 7 personnel will have a training session to review the District MERP	9/1/2007

Deficiency	Cause	RS	RA	RD	Recommendation	Corrective Action	Due Date
Critical info, not relayed, compromised the ability to direct a safe rescue and recovery operation, when advancing the fresh air base, ventilation changes were made into unexplored areas.	Mine rescue teams did not follow established mine rescue protocol. The command center did not ensure communication with the fresh air base and mine rescue teams during the mine rescue and recovery.			13.1.1	The MSHA official in charge of the command center should ensure the safety of all persons involved in rescue and recovery through the use of the section 103(k) order	Issue instruction by memos to DMs Update mine rescue training manual or issue separate instructions	9/1/2007
				13.1.2	Inform each team entering mine of the mine status, locations of teams, fresh air base, back-up teams, and communication requirements, proper apparatus, constant communications, and proper back-up personnel	Issue instruction by memos to DMs Update mine rescue training manual or issue separate instructions	9/1/2007
				13.1.3	Ensure that established guidelines in coal insp handbook and in the mine emergency response plan are followed	Issue instruction by memos to DMs Update mine rescue training manual or issue separate instructions	9/1/2007
The response time in deploying the MEU unit resulted in a delay to outfit and equip onsite MSHA MEU members.	The MEU unit was not notified for 2 hours following the explosion.			14.1.1	Notify MEU immediately following any explosion, entrapment or reportable mine fire, members should get their equipment ready and remain ready for deployment	Included in revised HQ MERP	9/1/2007
	The Mobile Command Center is not situated close enough to District 7 to provide effective and timely support.			14.2.1	Perform a feasibility study, determine need for MEU units located throughout country to reduce response times to emergencies	Review options for improved MEU deployment of personnel and equipment	1/1/2008
MSHA did not conduct an analysis of rescue and recovery operations following the Darby Mine explosion.	There are currently no procedures in place to review and analyze MSHA's rescue and recovery efforts.			15.1.1	Form an ad hoc review committee for the purpose of evaluating MSHA's response to each mine emergency that involves rescue and recovery	Natl MERC and appropriate personnel will perform a review following each mine rescue and recovery op	1/1/2008

KEY	
Alternative Case Resolution Initiative	ACRI
Assistant District Manager	ADM
Atmospheric Monitoring System	AMS
Cause Aracoma	CA
Cause Darby	CD
Conference Litigation Representative	CLR
Cause Sago	CS
Deficiency Aracoma	DA
Deficiency Darby	DD
District Manager	DM
Deficiency Sago	DS
Mine Emergency Evacuation and Fire Fighting Program of Instruction	FFE
Inspector's Portable Application for Laptops	IPAL
Mine Emergency Response Coordinator	MERC
Mine Emergency Response Plan	MERP
Mine Emergency Unit	MEU
Pattern of Violations	POV
Recommendation Aracoma	RA
Recommendation Darby	RD
Recommendation Sago	RS
Time and Activity	T&A
Underground	UG
Uniform Mine File	UMF

**Appendix C – Inspections and Investigations at the Aracoma Alma Mine #1:
1/1/2005 through 1/19/2006**

Event Number	Type Inspection or Investigation	Beginning Date	Ending Date
4108088	103(i) 15-day Spot Inspection	01/03/2005	01/04/2005
4108089	Regular Safety and Health Inspection	01/03/2005	03/31/2005
5914653	Noise Technical Investigation	01/06/2005	01/07/2005
4108093	103(g) Hazard Complaint Inspection	01/10/2005	01/27/2005
4108094	103(g) Hazard Complaint Inspection	01/11/2005	01/27/2005
4108095	103(i) 15-day Spot Inspection	01/20/2005	01/20/2005
4103924	103(i) 15-day Spot Inspection	02/04/2005	02/04/2005
4103925	103(i) 15-day Spot Inspection	02/22/2005	02/22/2005
5914655	103(i) 15-day Spot Inspection	03/04/2005	03/04/2005
5914654	103(i) 15-day Spot Inspection	03/18/2005	03/18/2005
9832606	Office Generated Violation Activity	04/01/2005	
4103930	103(i) 15-day Spot Inspection	04/11/2005	04/11/2005
4103928	Regular Safety and Health Inspection	04/11/2005	06/30/2005
4103934	103(i) 15-day Spot Inspection	04/26/2005	04/26/2005
4103935	103(g) Hazard Complaint Inspection	04/28/2005	05/05/2005
4103938	Petition for Modification Investigation	05/06/2005	06/22/2005
4109423	103(i) 15-day Spot Inspection	05/12/2005	05/12/2005
4103940	103(i) 15-day Spot Inspection	05/25/2005	05/25/2005
4103941	103(i) 15-day Spot Inspection	06/07/2005	06/07/2005
4103942	103(i) 15-day Spot Inspection	06/22/2005	06/22/2005
4111554	103(i) 15-day Spot Inspection	07/12/2005	07/12/2005
4108728	Regular Safety and Health Inspection	07/13/2005	09/30/2005
4111556	Non-Injury Accident Investigation	07/18/2005	08/10/2005
4108729	103(i) 15-day Spot Inspection	07/22/2005	07/22/2005
4103944	103(i) 15-day Spot Inspection	08/10/2005	08/10/2005
4103946	103(i) 15-day Spot Inspection	08/26/2005	08/26/2005
4103948	103(i) 15-day Spot Inspection	09/12/2005	09/13/2005
4103950	103(i) 15-day Spot Inspection	09/26/2005	09/26/2005
4113204	Regular Safety and Health Inspection	10/11/2005	12/23/2005
4113206	103(i) 15-day Spot Inspection	11/01/2005	12/22/2005
4112375	Health Technical Investigation	12/05/2005	12/12/2005
4113209	103(i) 15-day Spot Inspection	01/03/2006	01/18/2006
4113207	Regular Safety and Health Inspection	01/03/2006	03/31/2006

Appendix D - Enforcement Actions at the Aracoma Alma Mine #1: 1/1/2005 - 1/19/2006

Date	C/O No.	Type Issuance	S&S	30 CFR Subpart Description	30 CFR Std.
01/05/2005	7227845	104(a) Citation	No	Combustible Materials and Rock Dusting	75.400
01/05/2005	7227846	104(a) Citation	Yes	Electrical Equipment - General	75.503
01/06/2005	7227847	104(a) Citation	No	Ventilation	75.333(h)
01/06/2005	7227848	104(a) Citation	Yes	Electrical Equipment - General	75.503
01/12/2005	7227849	104(g)(1) Order	No	Training and Retraining of Underground Miners	48.7
01/12/2005	7227850	104(a) Citation	No	Training and Retraining of Underground Miners	48.9
01/12/2005	7227851	104(a) Citation	No	Training and Retraining of Underground Miners	48.9
01/19/2005	7227852	104(a) Citation	Yes	Ventilation	75.325(b)
01/19/2005	7227853	104(a) Citation	Yes	Combustible Materials and Rock Dusting	75.400
01/19/2005	7227854	104(a) Citation	Yes	Ventilation	75.370(a)(1)
01/20/2005	7227855	104(b) Order		Electrical Equipment - General	75.503
01/25/2005	7227856	104(a) Citation	Yes	Electrical Equipment - General	75.503
02/02/2005	7188515	104(a) Citation	Yes	Ground Control	77.1004(b)
02/02/2005	7188516	104(a) Citation	Yes	Respirable Dust Standards	70.100(a)
02/08/2005	7188518	104(a) Citation	No	Ventilation	75.360(f)
03/29/2005	7188525	104(a) Citation	Yes	Respirable Dust Standards	70.101
05/16/2005	7188539	104(a) Citation	Yes	Electrical Equipment - General	75.515
05/16/2005	7188538	104(a) Citation	No	Fire Protection	75.1107-4(a)(2)(i)
05/17/2005	7188541	104(a) Citation	Yes	Low- and Medium-Voltage AC Circuits	75.904
05/17/2005	7188540	104(a) Citation	Yes	Low- and Medium-Voltage AC Circuits	75.904
05/23/2005	7188543	104(a) Citation	Yes	Fire Protection	75.1100-3
05/23/2005	7188544	104(a) Citation	Yes	Fire Protection	75.1106-3(a)(2)
05/23/2005	7229874	104(a) Citation	No	Surface Electrical Equipment - General	77.502
05/24/2005	7188546	104(a) Citation	Yes	Low- and Medium-Voltage AC Circuits	75.904
05/24/2005	7188545	104(a) Citation	Yes	Low- and Medium-Voltage AC Circuits	75.904
05/31/2005	7188552	104(a) Citation	No	Fire Protection	75.1100-2(d)
05/31/2005	7188548	104(a) Citation	No	Fire Protection	75.1100-2(d)
05/31/2005	7188549	104(a) Citation	No	Hoisting and Mantrips	75.1403-6(b)(1)
05/31/2005	7188550	104(a) Citation	No	Hoisting and Mantrips	75.1403-6(b)(1)
05/31/2005	7188547	104(a) Citation	No	Hoisting and Mantrips	75.1403-6(b)(1)
05/31/2005	7188551	104(a) Citation	No	Hoisting and Mantrips	75.1403-6(b)(1)
06/06/2005	9967504	104(a) Citation	Yes	Respirable Dust Standards	70.101
06/06/2005	7188555	104(a) Citation	No	Ventilation	75.340(a)
06/06/2005	7188553	104(a) Citation	No	Ventilation	75.340(a)
06/06/2005	7188554	104(a) Citation	No	Ventilation	75.340(a)
06/16/2005	9967506	104(a) Citation	Yes	Respirable Dust Standards	70.101
06/29/2005	7188557	104(a) Citation	No	Electrical Equipment - General	75.516-2(a)
06/29/2005	7188556	104(a) Citation	No	Electrical Equipment - General	75.516
06/29/2005	7188560	104(a) Citation	Yes	Trailing Cables	75.604
06/29/2005	7188559	104(a) Citation	Yes	Underground High-Voltage Distribution	75.807
06/29/2005	7188558	104(a) Citation	Yes	Ventilation	75.370
07/18/2005	7227912	104(a) Citation	No	Maps	75.1200(h)
07/18/2005	7241417	104(a) Citation	No	Miscellaneous	75.1702
07/19/2005	7241419	104(a) Citation	No	Miscellaneous	75.1713-7(c)

Date	C/O No.	Type Issuance	S&S	30 CFR Subpart Description	30 CFR Std.
07/19/2005	7241418	104(a) Citation	No	Ventilation	75.383(a)
07/22/2005	7241420	104(a) Citation	No	Maps	75.1200-1
07/27/2005	7188564	104(a) Citation	No	Electrical Equipment - General	75.523
07/27/2005	7188563	104(a) Citation	No	Fire Protection	75.1107-1(a)(3)(ii)
07/27/2005	7188562	104(a) Citation	Yes	Fire Protection	75.1106-3(c)
07/27/2005	7188561	104(a) Citation	No	Ventilation	75.370(a)
08/12/2005	7168137	104(a) Citation	Yes	Ventilation	75.370(a)(1)
08/16/2005	7188568	104(a) Citation	No	Fire Protection	75.1100-2(e)(2)
08/16/2005	7188567	104(a) Citation	No	Fire Protection	75.1100-2(d)
08/16/2005	7188569	104(a) Citation	No	Fire Protection	75.1100-2(b)
08/16/2005	7188566	104(a) Citation	No	Fire Protection	75.1100-2(e)(1)
08/16/2005	7188570	104(a) Citation	No	Ventilation	75.333(c)(2)
08/31/2005	7188578	104(a) Citation	Yes	Fire Protection	75.1106-2(a)(1)
09/12/2005	7188582	104(a) Citation	No	Fire Protection	75.1100-2(a)(2)
09/12/2005	7188580	104(a) Citation	Yes	Fire Protection	75.1106-3(a)(2)
09/12/2005	7188581	104(a) Citation	No	Low- and Medium-Voltage AC Circuits	75.903
09/12/2005	7188583	104(a) Citation	Yes	Miscellaneous	75.1722(b)
09/14/2005	9967551	104(a) Citation	Yes	Respirable Dust Standards	70.101
09/15/2005	9967570	104(a) Citation	No	Sampling Procedures	70.207(a)
09/28/2005	7188565	104(a) Citation	Yes	Respirable Dust Standards	70.101
10/12/2005	7244778	104(a) Citation	No	Ventilation	75.360(f)
11/01/2005	7244797	104(a) Citation	No	Electrical Equipment - General	75.512
11/01/2005	7244794	104(a) Citation	Yes	Trailing Cables	75.604(b)
11/01/2005	7244795	104(a) Citation	Yes	Trailing Cables	75.604(b)
11/01/2005	7244793	104(a) Citation	No	Ventilation	75.360(e)
11/01/2005	7244796	104(a) Citation	No	Ventilation	75.370(a)(1)
11/02/2005	7244800	104(a) Citation	No	Electrical Equipment - General	75.512
11/08/2005	9967596	104(a) Citation	Yes	Respirable Dust Standards	70.101
11/15/2005	7244802	104(a) Citation	Yes	Ventilation	75.370(a)(1)
11/28/2005	7244806	104(a) Citation	Yes	Fire Protection	75.1100-3
11/28/2005	7244809	104(a) Citation	Yes	Roof Support	75.220(a)(1)
11/28/2005	7244803	104(a) Citation	Yes	Roof Support	75.202(a)
11/28/2005	7244804	104(a) Citation	No	Underground High-Voltage Distribution	75.807
11/28/2005	7244807	104(a) Citation	No	Ventilation	75.351(a)
11/28/2005	7244805	104(a) Citation	Yes	Ventilation	75.325(b)
11/28/2005	7244808	104(a) Citation	Yes	Ventilation	75.370(a)(1)
11/29/2005	7244810	103(k) Order			
12/12/2005	7244812	104(a) Citation	No	Ventilation	75.340(a)(1)(i)
12/12/2005	7244813	104(a) Citation	Yes	Ventilation	75.370(a)(1)
12/12/2005	7244811	104(a) Citation	Yes	Ventilation	75.370(a)(1)
12/12/2005	7244814	104(a) Citation	Yes	Ventilation	75.370(a)(1)
12/14/2005	7244815	104(a) Citation	Yes	Combustible Materials and Rock Dusting	75.400
12/16/2005	7244816	104(a) Citation	No	Combustible Materials and Rock Dusting	75.400
12/20/2005	7244818	104(a) Citation	Yes	Health Standards for Coal Mines - Miscellaneous	72.630(b)
12/20/2005	7244822	104(a) Citation	Yes	Combustible Materials and Rock Dusting	75.400
12/20/2005	7244817	104(a) Citation	Yes	Electrical Equipment - General	75.503
12/20/2005	7244821	104(a) Citation	No	Miscellaneous	75.1722(c)
12/20/2005	7244820	104(a) Citation	Yes	Ventilation	75.370(a)(1)

Date	C/O No.	Type Issuance	S&S	30 CFR Subpart Description	30 CFR Std.
12/20/2005	7244819	104(a) Citation	No	Ventilation	75.351(a)
12/20/2005	7244823	104(a) Citation	Yes	Ventilation	75.370(d)
01/09/2006	7244830	104(a) Citation	Yes	Electrical Equipment - General	75.512
01/09/2006	7244831	104(a) Citation	No	Miscellaneous	75.1725(a)
01/09/2006	7244827	104(a) Citation	Yes	Trailing Cables	75.604(b)
01/09/2006	7244828	104(a) Citation	Yes	Ventilation	75.370(a)(1)
01/09/2006	7244826	104(a) Citation	Yes	Ventilation	75.360(a)
01/09/2006	7244829	104(a) Citation	Yes	Ventilation	75.370(a)(1)
01/09/2006	7244825	104(a) Citation	No	Ventilation	75.360(f)
01/12/2006	7244833	104(a) Citation	Yes	Miscellaneous	75.1725(a)
01/12/2006	7244832	104(a) Citation	Yes	Trailing Cables	75.604(b)
01/12/2006	7244834	104(a) Citation	Yes	Ventilation	75.362(a)(2)

Appendix E - Regular Inspection, January - March 2005 (Event No. 4108089)

The following items were not documented during this regular inspection:

Mine examination record books	Hazardous conditions postings and corrections, Fire door records, Fire drills (90 days), Search for smokers articles (program), Record of atmospheric monitoring system alarm activations, Methane monitor calibration test, Monthly test of underground low and medium voltage circuit breakers, Monthly test of underground high voltage circuit breakers, High voltage longwall equipment, Required hoist rope test (Non-destructive), Recorded measurements for initial rope stretch on hoisting equipment, Emergency medical assistance review, First aid training supervisory employees, Part 50 records (7000-1), Part 50 records (7000-2) (quarterly employment & production), All required noise exposure records, X-ray plan, Clean up program, Petitions for modifications (posted), Roof control plan (available), Electrical map (reviewed), Roof bolt manufacturer's certification (available), Automated temporary roof support certification (available), Cabs and canopies certification, Records of certified and qualified persons (underground), Ventilation plan (posted), Respirable dust control plan (posted), Noise program (reviewed) (underground), Operator's respirable dust program (reviewed), Results of respirable dust samples (posted), Mine emergency evacuation and fire fighting program, Part 47 Hazard Communication records
Mine surface areas	Travel ways and active roadways, Communication installations, First aid kit, Potable water, Fuel storage, Ground control
Mine air courses and evaluation points	Ethel Fan, Mecca Fan, Melville Fan, EPs- 7, 9, 11, 12, North West Mains intake
Longwall Section (MMU 006)	Location of last open crosscut, Roof and ribs evaluated, Required ventilation controls, Dates, times, and initials, Rock dust application checked, Compliance with hearing conservation plans, Communications, First aid, Fire protection, Interview miners about smoking articles search program, Potable water, Sanitary facilities
Continuous Mining Sections (003, 004)	Roof and Ribs evaluated, Compliance with hearing conservation plans, Communications, Self-contained self-rescuers, Face Illumination, Fire protection, Interview miners about smoking articles search program, Potable water
Continuous Mining Sections (009, 010)	Compliance with hearing conservation plans, Communications, Self contained self rescuers, Face illumination, Fire protection, Interview miners about smoking articles search program, Potable water

Appendix F - Regular Inspection, April - June 2005 (Event No. 4103928)

The following items were not documented during this quarterly inspection:

Mine examination record books	Hazardous conditions postings and corrections, Fire door records, Record of Atmospheric monitoring system activations, Methane monitor calibration test, High voltage longwall equipment, Diesel records, Test of hoist safety catches, Required hoist rope test (Non-destructive), Recorded measurements for initial rope stretch on hoisting equipment, Emergency medical assistance review, Part 49 Training Records (Mine Rescue Teams), First aid training supervisory employees, Part 50 records (7000-1), Part 50 records (7000-2) (quarterly employment & production), All required noise exposure records, X-ray plan, Clean up program, Petitions for modifications (posted), Roof control plan (available), Mine map (reviewed), Records of certified and qualified persons (underground), Ventilation plan (posted), Respirable dust control plan (posted), Noise program (reviewed) (underground), Operator's respirable dust program (reviewed), Results of respirable dust samples (posted), Mine emergency evacuation and fire fighting program, Part 47 Hazard Communication records
Mine surface areas	Travel ways and active roadways, Fire fighting equipment surface, Ground control
Mine air courses and evaluation points	Ethel Fan, MP-1, EPs - 1, 7, 13, 16, 17, 18, 9 Headgate, 9 Headgate Longwall tailgate
Longwall Section (MMU 006)	Location of last open crosscut, Gas tests documented on face, Dates, times and initials on face, Compliance with hearing conservation plans, First aid, Fire protection, Interview miners about smoking articles search program, Observed search for smokers articles, Potable water, Sanitary facilities, Escapeway map
Continuous Mining Sections (003, 004)	Compliance with hearing conservation plans, Self-contained self-rescuers, Face illumination, Fire protection, Interview miners about smoking articles search program, 2 continuous miners, 2 roof bolters
Continuous Mining Sections (009, 010)	Compliance with hearing conservation plans, Communication, Interview miners about smoking articles search program, Face illumination, Fire protection, Potable water

Appendix G - Regular Inspection, July-September 2005 (Event No. 4108728)

The following items were not documented during this quarterly inspection:

Mine examination record books	Fire Suppression systems for diesel equipment (defects only), Diesel Equipment Inventory, Daily examination of hoist , Results of respirable dust samples collected (posted), Part 47 Hazard Communication records
Mine surface areas	Hoisting equipment
Mine air courses and evaluation points	MP-1, EPs - 1, 7, 14, 15, 16, 17, 18, 8 Headgate, North East Mains No. 7 six foot conveyor belt, Atmospheric monitoring system
Longwall Section (MMU 006)	Location of last open crosscut, Rock dust applications checked section, section scoops, Battery charging stations
Continuous Mining Sections (003, 004)	Battery charging stations, Power center, Feeder, Section returns
Continuous Mining Sections (009, 010)	Interview miners about smoking articles search program, Battery charging stations

Appendix H - Regular Inspection, October - December 2005 (Event No. 4113204)

The following items were not documented during this quarterly inspection:

Mine examination record books	Test of fire hydrants and fire hose, Record of atmospheric monitoring system alarm activations*, Monthly test of underground low and medium voltage circuit breakers*, Monthly test of underground high voltage circuit breakers*, Monthly examination of surface low and medium voltage circuit breakers*, Monthly examination of surface high voltage circuit breakers*, Monthly examination of surface electrical equipment*, Fire Suppression systems for diesel equipment (Defects only), Fire suppression systems for permanent diesel storage (defects only)*, Diesel Equipment Inventory, Recorded measurements for initial rope stretch on hoisting equipment, Respirable dust control plan (posted), Noise program (reviewed) (underground)*, Operator's respirable dust program (reviewed)*, Part 47 Hazard Communication records
Mine surface areas	Bath house, Explosives - used or stored, Haulage facilities (including belts), Ground control
Mine air courses and evaluation points	Ethel Fan, Mecca Fan, Melville Fan, EPs - 7, 16, 17, 18, EP - 4, 5a, 5b, 6a, 6b, 8, 10*, Air readings for EPs, 10 headgate* , 4 Right, 9 tailgate, 9 Headgate, 9 Headgate Longwall Belt electrical installation, 2 Section primary escapeway, Longwall Section primary escapeway, North East Mains No. 7 six foot conveyor belt, Mainline track from 3 way to Rum Creek*, Active tailgate, Haulage equipment*,
Longwall Section (MMU 006)	Location of last open crosscut, Face areas inspected for imminent dangers*, Required ventilation controls adequate, Gas tests documented on face*, Rock dust survey taken*, Compliance with dust control parameters, First aid*, Self-contained self-rescuers*, Polled miners as to self contained self rescuer donning procedures*, Sanitary facilities*, Off shifts, Battery charging station, Stagelader/Crusher, Pump cars
Continuous Mining Sections (003, 004)	Location of last open crosscut*, Roof and ribs evaluated*, Gas tests documented on face*, Dates, times, and initials*, Rock dust application checked*, Compliance with dust control parameters, Safety talks*, Sanitary facilities*, Off shifts, Battery charging stations, Power center
Continuous Mining Sections (009, 010)	Face illumination*, Off shifts, Both continuous miners*, All shuttle cars, Scoops, Battery charging stations, Power center

* Indicates items or areas documented in the Computer Inspection Tracking System were not consistent with the Weekly Activity Data reported.

Inconsistencies between the Computer Inspection Tracking System and the Weekly Activity Data are summarized in the table below:

Date	Computer Inspection Tracking System Areas Documented	Weekly Activity Data Documented
November 14, 2005	Mine Records, MMU 006, MMU 003/004	MSHA Office, Staff Meeting
November 17, 2005	MMU 009/010	Surface Areas at Mine
November 22, 2005	Mine Records	Annual Leave
December 14, 2005	Mine Evaluation Points	MSHA Office
December 20, 2005	Mine Outby Area	8-C Mine (Hanover Resources)

Appendix I – Citations Not Terminated by the Original Due Date

Violation No.	30 CFR	S&S	Date Issued	Original Term. Due Date	No. of Ext.	Date Term.	Days Past Due
7227846	75.503	Y	1/5/05	1/5/05	0	3/17/05	71
7227847	75.333(h)	N	1/6/05	1/6/05	0	1/19/05	13
7227850	48.9	N	1/12/05	1/13/05	0	1/19/05	6
7227851	48.9	N	1/12/05	1/13/05	0	1/19/05	6
7227853	75.400	Y	1/19/05	1/20/05	0	3/16/05	55
7227856	75.503	Y	1/25/05	1/25/05	0	3/28/05	62
7188515	77.1004(b)	Y	2/2/05	2/5/05	0	2/28/05	23
7188516	70.100(a)	Y	2/2/05	2/20/05	2	5/13/05	7
7188525	70.101	Y	3/29/05	4/8/05	0	4/28/05	20
7188538	75.1107-4(a)(2)(i)	N	5/16/05	5/17/05	0	5/20/05	3
7188539	75.515	Y	5/16/05	5/17/05	0	5/20/05	3
7188540	75.904	Y	5/17/05	5/18/05	0	5/20/05	2
7188541	75.904	Y	5/17/05	5/19/05	0	5/20/05	1
7188543	75.1100-3	Y	5/23/05	5/25/05	0	6/8/05	14
7188549	75.1403-6(b)(1)	N	5/31/05	5/31/05	0	7/28/05	58
7188550	75.1403-6(b)(1)	N	5/31/05	5/31/05	0	7/28/05	58
7188551	75.1403-6(b)(1)	N	5/31/05	5/31/05	0	6/8/05	8
7188552	75.1100-2(d)	N	5/31/05	5/31/05	0	6/8/05	8
7188553	75.340(a)	N	6/6/05	6/10/05	0	7/28/05	48
7188554	75.340(a)	N	6/6/05	6/10/05	0	7/28/05	48
7188555	75.340(a)	N	6/6/05	6/10/05	0	7/28/05	48
9967504	70.101	Y	6/6/05	6/27/05	1	9/14/05	1
9967506	70.101	Y	6/16/05	7/7/05	0	8/8/05	32
7188556	75.516	N	6/29/05	6/29/05	0	7/28/05	29
7188557	75.516-2(a)	N	6/29/05	6/30/05	0	7/28/05	28
7188558	75.370	Y	6/29/05	6/29/05	0	7/28/05	29
7188559	75.807	Y	6/29/05	6/30/05	0	7/28/05	28
7241418	75.383(a)	N	7/19/05	7/19/05	0	7/20/05	1
7241420	75.1200-1	N	7/22/05	7/22/05	0	7/26/05	4
7188562	75.1106-3(c)	Y	7/27/05	7/27/05	0	7/28/05	1
7188563	75.1107-1(a)(3)(ii)	N	7/27/05	7/27/05	0	7/28/05	1
7188566	75.1100-2(e)(1)	N	8/16/05	8/17/05	0	9/1/05	15
7188567	75.1100-2(d)	N	8/16/05	8/17/05	0	9/1/05	15
7188568	75.1100-2(e)(2)	N	8/16/05	8/17/05	0	9/1/05	15
7188569	75.1100-2(b)	N	8/16/05	8/17/05	0	9/1/05	15
7188570	75.333(c)(2)	N	8/16/05	8/18/05	0	9/1/05	14
7188581	75.903	N	9/12/05	9/12/05	0	9/26/05	14
7188582	75.1100-2(a)(2)	N	9/12/05	9/13/05	0	9/26/05	13
7188583	75.1722(b)	Y	9/12/05	9/12/05	0	9/26/05	14
9967551	70.101	Y	9/14/05	10/5/05	0	10/25/05	20
9967570	70.207(a)	N	9/15/05	10/5/05	0	10/19/05	14
7188565	70.101	Y	9/28/05	10/15/05	0	10/20/05	5
7244778	75.360(f)	N	10/12/05	10/12/05	0	11/2/05	21
7244803	75.202(a)	Y	11/28/05	11/29/05	0	12/12/05	13
7244804	75.807	N	11/28/05	11/28/05	0	12/12/05	14

Violation No.	30 CFR	S&S	Date Issued	Original Term. Due Date	No. of Ext.	Date Term.	Days Past Due
7244806	75.1100-3	Y	11/28/05	11/29/05	1	12/20/05	21
7244807	75.351(a)	N	11/28/05	11/29/05	0	12/12/05	13
7244808	75.370(a)(1)	Y	11/28/05	11/29/05	0	12/12/05	13
7244811	75.370(a)(1)	Y	12/12/05	12/21/05	1	1/12/06*	22
7244812	75.340(a)(1)(i)	N	12/12/05	12/15/05	0	12/21/05	6
7244813	75.370(a)(1)	Y	12/12/05	12/21/05	1	1/12/06*	22
7244815	75.400	Y	12/14/05	12/19/05	0	12/22/05	3
7244816	75.400	N	12/16/05	1/1/06	1	1/12/06*	12
7244817	75.503	Y	12/20/05	12/20/05	0	12/22/05	2
7244818	72.630(b)	Y	12/20/05	12/20/05	0	12/22/05	2
7244819	75.351(a)	N	12/20/05	12/21/05	0	12/22/05	1
7244820	75.370(a)(1)	Y	12/20/05	12/21/05	0	12/22/05	1
7244821	75.1722(c)	N	12/20/05	12/21/05	0	12/22/05	1
7244828	75.370(a)(1)	Y	1/9/06	1/10/06	0	**	
7244829	75.370(a)(1)	Y	1/9/06	1/10/06	0	**	
7244830	75.512	Y	1/9/06	1/10/06	0	**	
7244832	75.604(b)	Y	1/12/06	1/12/06	0	**	

*Shows date citation was extended on with a new termination due date on or after 01/19/06

**Indicates citation was not terminated on 01/19/06

Appendix J - Glossary of Terms

The terminology descriptions used here have been obtained from A Dictionary of Mining, Mineral, and Related Terms, U.S. Department of the Interior, 1968, and from persons having knowledge of the systems and/or procedures involved.

AMS - *Atmospheric Monitoring System (AMS)*. A network consisting of hardware and software meeting the requirements of Title 30 CFR 75.351 and 75.1103-2 and capable of: measuring atmospheric parameters; transmitting the measurements to a designated surface location; providing alert and alarm signals; processing and cataloging atmospheric data; and, providing reports. Early-warning fire detection systems using newer technology that provides equal or greater protection, as determined by the Secretary, will be considered atmospheric monitoring systems for the purposes of subpart 75.300.

Anemometer - An instrument for measuring air velocity. It consists of a small fan from three to six inches in diameter, which is rotated by the air current. Through gearing the revolutions of the fan are indicated on dials. Each revolution is considered as one foot distance the air current travels.

Belt drive - Refers to the electrical / mechanical unit that drives the conveyor. In this instant case, the belt drive units were at or near the dumping points of the conveyors.

Bottle Samples - Air samples, usually collected in 10-milliliter vacuum bottles.

Brow - Usually refers to the uppermost area of a mined coal seam or an area of roof material exposed above the coal rib during mining, i.e. 'overhanging brow'.

Carbon Monoxide (CO) - A colorless, odorless, very toxic gas that is formed as the product of incomplete combustion, and is formed during mine fires and after explosions.

Cleaned and Dusted - Normally refers to the removal of combustible materials along conveyor belts and applying rock dust after cleaning.

Crosscut - A small passageway driven at right angles to the main entry to connect it with a parallel entry or air course.

Cubic Feet Per Minute (CFM) - A measurement of the quantity of air moving through the mine; volumetric flow rate of air per unit time.

Dispatcher - A responsible person designated by the operator who controls or keeps track of the traffic on haulageways.

Dry-stacked - A stopping constructed by laying block without mortared joints with or without coating them with a sealant

Escapeways – Refers to at least two separate and distinct travelable passageways provided from each working section, and each area where mechanized mining equipment is being installed or removed, continuous to the surface escape drift opening or continuous to the escape shaft or slope facilities to the surface.

Feet Per Minute (FPM) – The flow rate (velocity) of air per unit time. Normally measured by using an anemometer.

Fire Hose Outlet – An attachment of connected fittings to which a fire hose could be readily connected; usually contains a valve for controlling the flow of water.

Headgate – In longwall mining, refers to the entries developed on the side of the longwall where the mined coal is loaded onto the conveyance.

Heading – Underground passage in mine, drift, or crosscut, being driven toward a definite objective.

Imminent Danger – The existence of any condition or practice in a coal or other mine which could reasonably be expected to cause death or serious physical harm before such condition or practice can be abated.

Incidence Rate – In utilizing information received under part 50, [r]ates of injury occurrence (incident rates or IR), developed on the basis of 200,000 hours of employee exposure (equivalent to 100 employees working 2,000 hours per year). The incidence rate for a particular injury category is based on the formula: $IR = (\text{number of cases} \times 200,000) \text{ divided by hours of employee exposure}$.

Inby – Toward the working face, or interior, of the mine; away from the shaft or entrance.

Mandoors – Personnel doors constructed of noncombustible material and used to maintain separation and permit travel between air courses. The distance between personnel doors shall be no more than 300 feet in seam heights below 48 inches and 600 feet in seam heights 48 inches or higher.

Mantrip – The method of conveyance for miners, normally to and from the working section.

Mean Entry Air Velocity – In exhausting face ventilation systems, the mean entry air velocity shall be at least 60 feet per minute reaching each working face where coal is being cut, mined, drilled for blasting, or loaded, and to any other working places as required in the approved ventilation plan. A lower mean entry air velocity may be approved in the ventilation plan if the lower velocity will maintain methane and respirable dust concentrations in accordance with the applicable levels. Mean entry air velocity shall be determined at or near the inby end of the line curtain, ventilation tubing, or other face ventilation control devices.

Mother Drive – Refers to the 9 Headgate longwall belt drive servicing the longwall section.

Outby – Nearer to the shaft; away from the face; toward the mine entrance. The opposite of inby.

Overcast – A permanent structure used to allow one air current to pass over another one.

Rib – The side of a pillar or the wall of an entry.

Rock dust, dust, or dusted – Refers to the application of rock dust containing less than 5 percent silica, to the surfaces of an underground coal mine, which when properly applied, will prevent the propagation of a coal dust explosion.

Spad – A means of marking an underground survey station that consists of a flat spike in which is drilled a hole for the threading of a plumb line.

Stoppings – Commonly a masonry wall erected across mine entries and crosscuts to direct the ventilating air current.

Survey Station – A reference point in surveying, marked by a readily seen indentation in a metal plate permanently set in concrete, or by a plug drilled in the roof in the underground workings.

Tailgate – In longwall mining, the side opposite the headgate.

Tail Piece – The terminal end of a conveyor and houses the tail pulley.

Take-Up Unit – Commonly refers to a hydraulic mechanism that maintains constant tension on a conveyor, eliminating slack and preventing slippage.