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UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Underground Coal Mine

Fatal Hoisting Accident
October 27, 2009

at

Eagle Mine
Newtown Energy, Inc.
Comfort, Kanawha County, West Virginia
I.D. No. 46-08759

Accident Investigators

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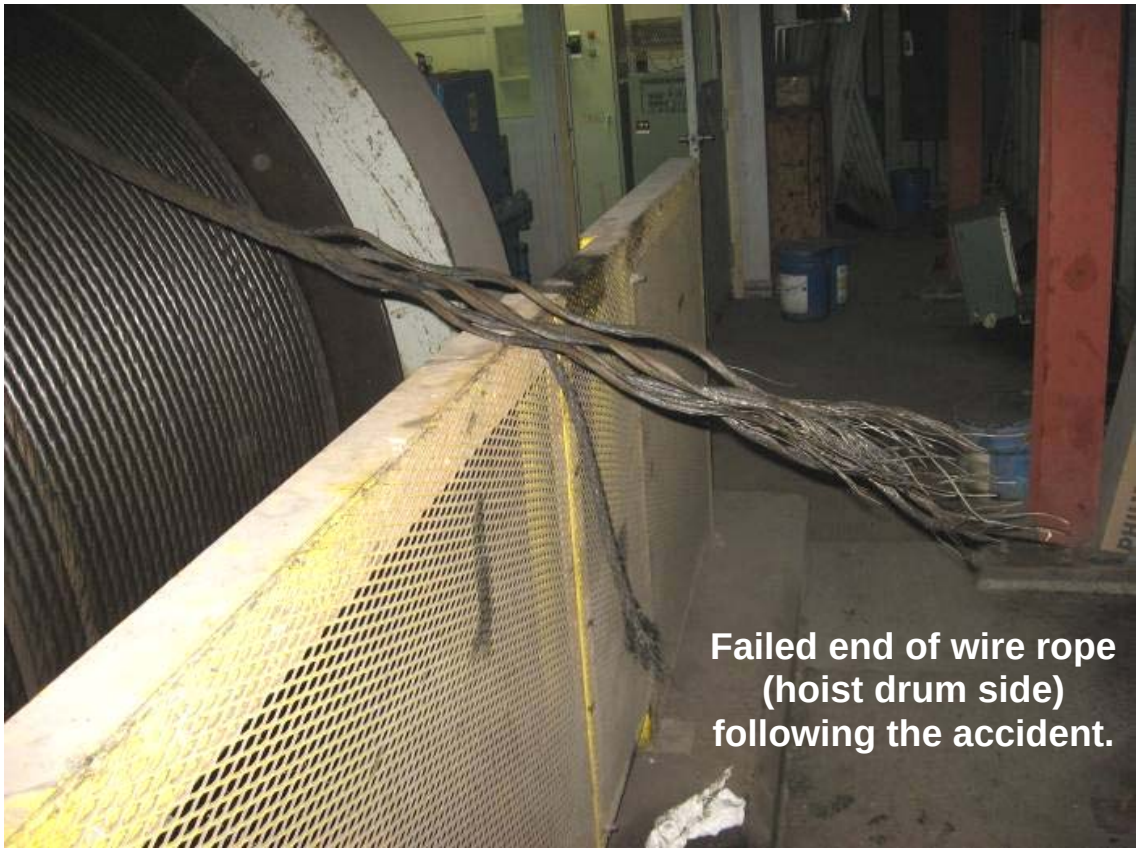


Failed end of wire rope (hoist drum side) following the accident.

Failed end of the wire rope (car side) following the accident.

OVERVIEW

On Tuesday, October 27, 2009, a 53 year old trackman with approximately 25 years of mining experience was fatally injured at the Eagle Mine, ID No. 4608759, Newtown Energy, Inc. While the victim was waiting near the bottom of the Eagle 1 Slope, the brakeman car along with a 14 ton locomotive and loaded rail car was being pulled up the slope to the surface. At about 420 feet from the collar of the slope, the rope attached to the brakeman car broke and the trip ran away. The victim was struck by the run away trip resulting in fatal injuries.

GENERAL INFORMATION

Eagle Mine is an underground coal mine located on Fields Creek Road, six miles off Route 1, near Winifrede, Kanawha County, West Virginia. Production began at the mine in 1969. It was operated separately by Carbon Fuel and U S Steel Mining Company until 1985. Wayne Processing Inc. re-opened the mine on February 1, 1999, and Newtown Energy, Inc. began operating the mine on March 2, 2000. The mine is accessed through a slope located at Fields Creek Road and a shaft located on Spice Lick off Joes Creek, 4.5 miles off Route 3 near Comfort, Boone County, West Virginia. The mine is ventilated with one blowing fan. The mine liberates approximately 1,000,000 cubic feet of methane every 24 hours. Coal is being extracted from the Eagle Coal Seam.

The mine employs approximately 200 persons, and is not represented by a labor organization. An average of 4,000 tons of coal is produced daily from three sections that utilize continuous mining machines. Coal is transported from the working sections to the surface via a series of belt conveyors. The mine produces coal two shifts per day, five days per week. The track is used to transport miners, supplies, materials, and equipment, into and out of the mine. The principal officers for the mine at the time of the accident were:

Robert E Ellis.....President
Richard Asebes..... Manager of Mines
Jamie Dotson.....Superintendent
Bobbie Harper.....General Mine Foreman
James Loving .....Safety Director

The last regular Safety and Health Inspection (E01) was completed on September 30, 2009. The non-fatal days lost (NFDL) injury incidence rate for 2009 for the mine was 7.31, compared to a National NFDL rate of 4.26 for a mine of this type.

DESCRIPTION OF THE ACCIDENT

On Monday, October 26, 2009, at approximately 11:30 p.m., Charles Dixon (victim) and Daniel Ewing, both trackmen, started their shift at the Eagle Slope Portal. They were assigned to go to the No. 2 Section and remove track, two crosscuts in length, and load the rails on a rail car. The rail car that was needed was located on the surface at the supply yard. Dixon rode the brakeman car to the bottom of the slope, retrieved a 14 ton locomotive that was located near the bottom of the slope and coupled it to the brakeman car. Ewing waited on the surface. When the locomotive arrived on the surface, Dave Morgan, third shift hoist operator, assisted Ewing in coupling the rail car to the locomotive. The brakeman car, the locomotive, and the rail car were sent to the bottom of the slope, and Ewing rode the brakeman car as it was being sent down.

Ewing met Dixon at the bottom of the slope and they uncoupled the locomotive and rail car and took them to the No. 2 Section. After the track was removed and the rails and other components of the track were loaded on the rail car, they were directed to take the rails to the surface where they could be stored.

Ewing and Dixon arrived at the bottom of the slope at approximately 6:45 a.m., and met with Morgan, who had conducted a pre-shift examination of the slope belt and was returning to the surface. The locomotive and rail car were to be taken to the surface, the rail car set in the supply yard, and the locomotive sent back to the bottom of the slope where it could be taken to be charged. Ewing and Morgan entered the brakeman car, Ewing in the front seat and Morgan in the second, and started up the slope. Dixon waited at the bottom of the slope near the hoist control station to take the locomotive to the charging station when it was sent back down. When the brakeman car travelled to a location approximately 420 feet from the surface, the rope broke and the trip ran away back down the slope. Morgan yelled to Ewing to push the button to engage the brakes. Ewing pushed the button and they both jumped from the car.

Richard Lambert, day shift hoist operator, and Mike Tabor, day shift beltman, were in the hoist control room waiting on their shift to start. Lambert saw a warning light on the control panel. He discovered that the slack rope switch had been engaged. They then discovered that the hoist rope had broken. Lambert used the mine phone and Tabor used the tracking phone to call the bottom of the slope; however, they did not receive a response. Lambert then notified mine management at the Spice Lick Portal. Tabor started down the slope and met Morgan coming out of the slope and assisted him to the surface.

Tabor went to the bottom of the slope and discovered extensive damage to the track, ventilation door, cables, brakeman car, locomotive, and rail car. The brakeman car, locomotive, and rail car de-railed and the rail car stopped

approximately 260 feet inby where the brakeman car normally stops. He found Ewing in a confused state looking for Dixon where the trip had de-railed. Dixon was located approximately 30 feet inby the locomotive, lying unresponsive on the mine floor next to the left rib. Tabor and Ewing then went to the waiting area on the 1 East track.

After learning of the accident, Rick Asebes, mine manager, Bobby Harper, mine foreman, and Larry Boggs, maintenance superintendent, drove from Splice Lick Portal to the Eagle Portal and went down the slope to the accident scene. Mike Herndon, foreman, and Sammy Gore, compliance coordinator, traveled to the accident scene. Wilson Goad, third shift foreman, and Josh Hager and Chris Holstein, general laborers, came to the accident scene as well.

Goad, who is an EMT, and others at the scene checked Dixon and no vital signs were detected. First aid was administered to Ewing and he was transported to the Spice Lick Portal by Gore and Herndon, via rail mounted personnel carrier. Once Ewing was on the surface, Gore and Herndon went back to the accident scene and Dixon was transported to the surface by Asebes, Gore, and Herndon.

Dixon was transported by the Whitesville Fire and Rescue Ambulance to the Whitesville Fire Station in Whitesville, West Virginia, and the State Medical Examiners Office transported him to the State Examiners office in South Charleston, West Virginia. Ewing and Morgan were transported by ambulance to Charleston Area Medical Center, General Division, in Charleston, West Virginia, where they were treated and released.

INVESTIGATION OF THE ACCIDENT

MSHA was notified of the accident through the National Call Center at 7:00 a.m., on October 27, 2009. A 103(j) Order was issued orally to the mine operator at 7:10 a.m., to protect the safety of all persons at the mine. MSHA accident investigators were dispatched to the mine and the 103(j) Order was reduced to writing and then modified to a 103(k) Order. The investigation was conducted in cooperation with the West Virginia Office of Miners' Health, Safety, and Training (WVMHST). A list of those persons participating in the investigation can be found in Appendix A of this report. Personnel from MSHA Technical Support and MSHA Educational Field Services participated in the investigation.

DISCUSSION

HOIST OPERATION AND WARNING DEVICES

The hoist could be operated in either manual or automatic mode. At the time of the accident, the hoist was being operated in automatic mode. In automatic mode, miners could push buttons at the top and bottom of the slope to bring the

hoist to the loading locations. Then, miners could push a button to raise or lower the hoist.

Visible and audible warning devices were located on the surface near the slope, near the bottom of the slope, and near the designated waiting area underground at the 1 East track. A sign was posted on a crib near the designated waiting area that stated "Mantrip waiting area. Stay clear of track while waiting for hoist car". The operator's policy was that when these devices were activated, miners at the bottom of the slope were to leave the danger zone and go to the designated waiting area away from the slope. According to Newtown management, this policy was orally communicated to miners during safety discussions. However, it was determined during interviews that not all miners were aware of the policy and the policy was not always complied with. The underground loading location, where the button was located to raise or lower the hoist, was at least 380 feet outby the underground designated waiting area. Miners normally positioned themselves in a dangerous location at the bottom of the slope when men and material were being hoisted into and out of the mine.

The visible warning devices were yellow-flashing lights, one on the surface and two underground. Two lights were located at the brakeman car designated parking positions where miners loaded, one on the surface, and one underground. The third light was located underground at the designated waiting area. When the hoist start button was actuated to lower the hoist, the lights flashed continuously until the trip arrived at its designated parking position and actuated the bottom approach limit switch which deenergized the hoist motor. The lights also flashed when the hoist was moving in the "up" direction.

Audible warning devices were buzzer type and located at two locations at the bottom of the slope, the brakeman car designated parking position and at the designated waiting area. When the hoist button was actuated, the warning device alarmed for 10 seconds.

The audible and visible warning devices located at the designated parking position underground were destroyed in the accident resulting in the system being inoperative. During interviews a statement was made that the visible warning devices functioned properly. Those interviewed could not remember if the audible device was working.

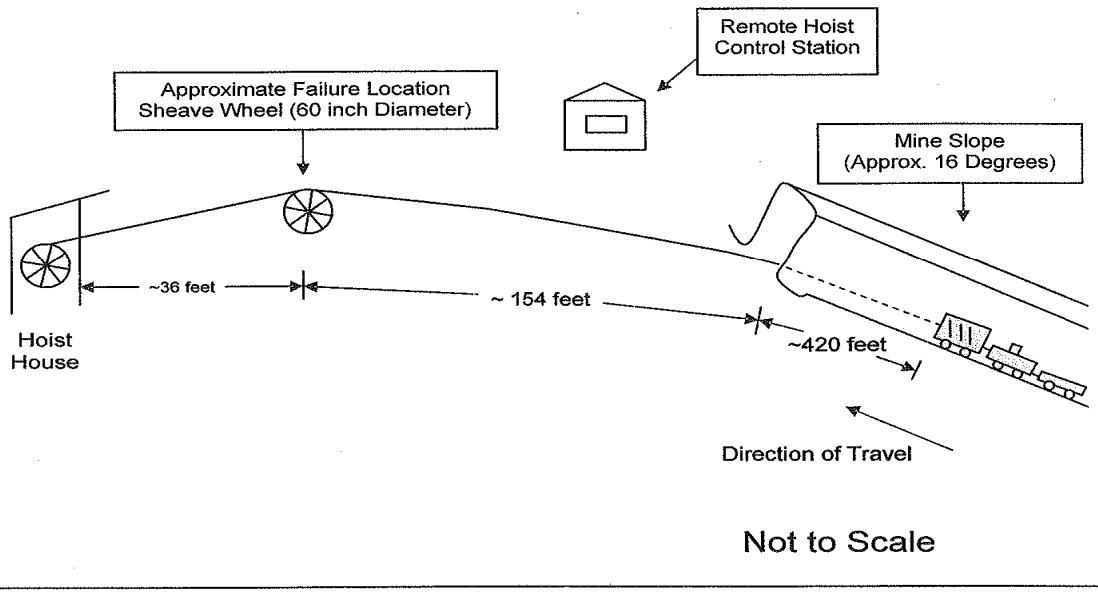
SLOPE AND HOIST EQUIPMENT

Slope

The slope entry is divided into two compartments by a vertical cinder block wall. The track is on the left side facing inby, and is used to hoist personnel and

material into and out of the mine. A conveyor belt is on the right side and is used to convey coal out of the mine. The track entry side of the slope was an alternate escapeway and was a mechanical escape facility. The zero distance point for the hoisting system was located at the sheave wheel approximately 36 feet from the outside of the hoist house. The slope collar is located approximately 154 feet from the sheave wheel. The slope dips at a 16° angle and is approximately 1,500 feet long to a track curve. The track curve is part of the slope and turns left when facing inby. The curve is a slight turn that is approximately 20°. After the center of the curve, the slope extends approximately 20 feet to the bottom of the slope. The 1 East track is located approximately 390 feet from the turn. When the accident scene was examined, all of the wreckage was located between the turn in the slope and the 1-East track.

Figure 1. Schematic of Hoisting System at Wire Rope Failure



An examination of the environmental conditions of the slope was conducted on October 30, 2009. Starting from the zero point in the hoisting system (sheave wheel), the following conditions were noted.

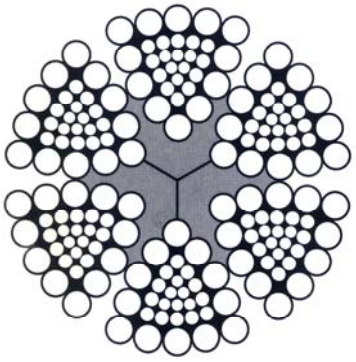
- 154 feet - Slope Collar
- 530 feet - Water between rails
- 619-635 feet - Wet between rails
- 740 feet - Water dripping from roof of slope
- 1180-1227 feet - Water dripping from roof
- 1230-1380 feet - Not very wet
- 1380-1410 feet - Water between rails
- 1530 feet - Dry (appears to have been rock dusted)
- 1750 feet - Curve in track (Stopping Point)

Hoist

The hoist was manufactured by Ottumwa Iron Works. It was refurbished in 1999 and upgraded in 2001. The hoist is equipped with overspeed, overwind, automatic stop controls, and two independent braking systems. The braking systems include the drive motor brake and jaw-type brake on the hoist drum. The jaw brake is gravity applied and electrically released. Overspeed is monitored by a Lilly Controller which is mechanically connected to the hoist drum and upon activation removes power to the hoist and sets the brakes in the system. The hoist speed is also programmed into the programmable logic control (PLC) system. The top hoist speed was approximately 400 feet per minute (fpm). The system also has current overload protection. Overwind was also provided by the Lilly controller, and overwind back-up (redundancy) was provided by magnetic switches (top and bottom) activated by the brakeman car. The hoist was also equipped with a slack rope switch located at the window of the hoist house and a switch located at the top of the drum to detect any piling up of the rope on the drum. If these switches were actuated, the drive motor was deenergized and the brakes are set.

Wire rope

The hoist wire rope, installed on June 22, 2007, was identified as a 1-1/8 inch diameter 6 X 30 STY G RL XXIP FC SL wire rope.



Cross Section of a 6X30 Type G fiber core Wire Rope

The breaking strength for this rope was listed as 70.1 tons in the Wire Rope Users Manual, 4th Edition. Company personnel provided a certificate from the Wire Rope Corporation of America indicating that the rope had an actual breaking strength of 78.1 tons. The minimum design factor required under Title 30 CFR Part 75.1431(a) was determined to be 5.4 based on a slope length of 1,600 feet. The weight of load being hoisted at the time of the accident, met the design requirements for the rope installed.

The rope was terminated with an open type zinc poured socket. After traveling over a sheave wheel located 36 feet from the outside of the hoist house, the load

end of the termination was connected to a brakeman car. The 60 inch (outside diameter) sheave wheel rotated on a lubricated shaft that was 58 inches long. The sheave wheel could travel freely along the entire length of the shaft, as the rope was spooled onto and off of the hoist drum.

Conveyance

The conveyance consisted of the brakeman car, locomotive, and loaded rail car. The battery powered locomotive was used to couple the loaded rail car to the brakeman car.

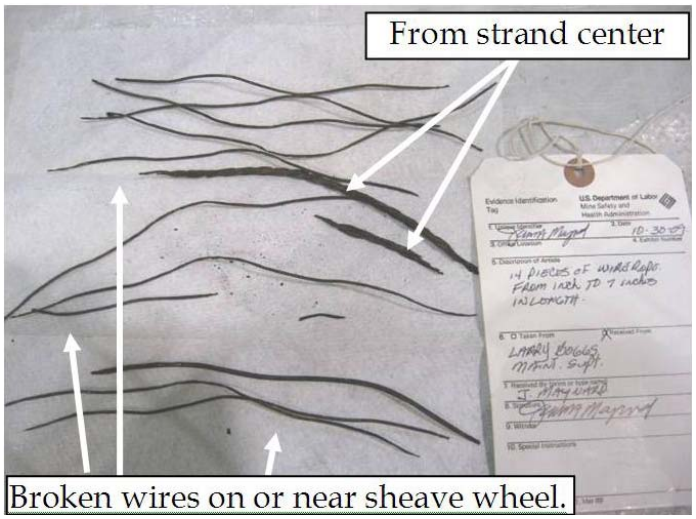
The brakeman car was a Sanford Day Model BSD brakeman car. It is equipped with six electromagnetic brakes that can be applied manually or automatically. When activated, the electromagnets are energized and clamp down onto both metal rails due to magnetic attraction. This provides a braking force that can stop the brakeman car and the rest of the conveyance up to a certain load. Visual evidence (slight wear markings on the tops of the rails) was present on the rail surfaces, indicating that the brakeman car's electromagnetic brakes had been applied approximately 500 feet from the slope collar. These marks continued intermittently for several hundred feet down the slope.

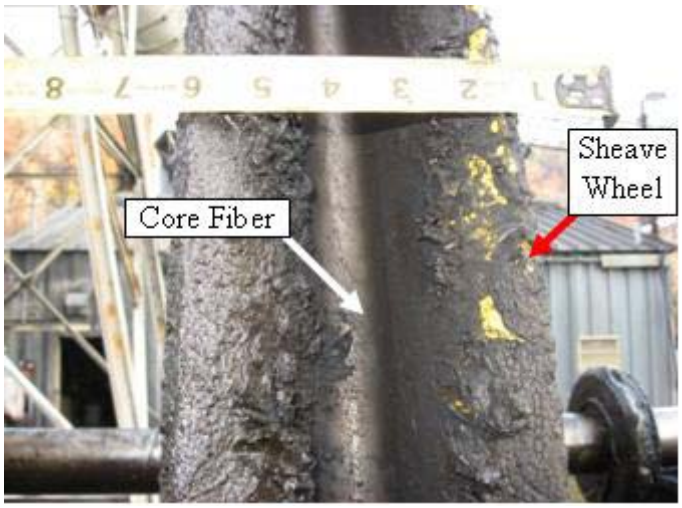
The weight of the conveyance exceeded the braking capacity of the brakeman car. The conveyance weight, which included the weight of the brakeman car, was 32.17 tons. Assuming the best possible conditions, including dry rails, the maximum possible load that the brakeman car could have stopped was 26.95 tons. Under the actual conditions present, the maximum load should not have exceeded 18.3 tons. This assumes a 20% safety factor, wet rail conditions, and an optimal brake reaction time of 0.43 seconds.

A visual examination was conducted on the brakeman car after it was removed from the mine and transported to the surface. The rollback switch functioned as designed. The overspeed centrifugal switches were also examined. The housings for both switches had been destroyed in the accident and the contacts for the switches were also destroyed or missing. One of the switches rotated freely and the other appeared to have a bent shaft which prevented it from turning completely. The "V" belts connecting the switches to the wheels were in place. A visual examination was conducted on the six wear bars located at each brake. All six wear bars showed evidence of wear. The control panel was extensively damaged in the accident. No determination could be made concerning the position of the "Up/Down" switch at the time of the accident. During normal operation, when the switch is in the Down Position, rollback is disabled so that the car can be lowered. However, the car could be hoisted in either direction with the switch in the Down direction.

WIRE ROPE FAILURE

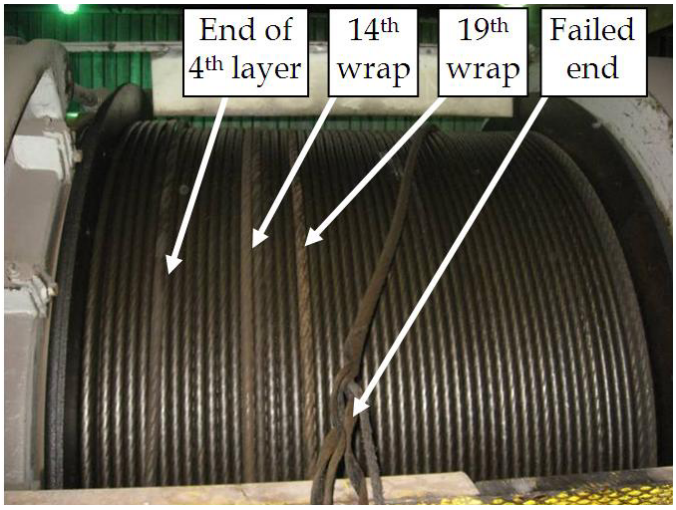
The wire rope failed at a point approximately 575 feet from the load attachment on the brakeman car as the trip was being pulled to the surface. The failure point occurred as the rope traveled over the sheave wheel located outside the hoist house. This was indicated by the number of broken wires found under the sheave wheel, the presence of core fibers, and small wire segments embedded in the lubricant on the sheave wheel, and the length of rope remaining on the hoist drum. Broken wires were gathered from the grease on the sheave and on the ground just below the sheave wheel. They included center strand pieces along with individual wires.





The hoist house and the wire rope remaining on the hoist drum were examined on the day of the accident. Three sections of the rope: the end of the 4th layer which extends to the failed end of the rope, a section approximately 14 wraps into the 3rd layer, and a section 19 wraps into the 3rd layer, were dry and showed

no evidence of lubrication. The failed end was wet (from rain water) and no evidence of lubrication was present on this section of rope.



The outer wires of each strand of the failed end were worn. Many of the wires were no longer round due to wear, abrasion, and corrosion.

The car side of the failure was examined in the mine the day following the accident. Approximately 575 feet of the hoist rope extended from the load termination at the brakeman car up the slope. The failed end had traveled uncontrolled down the slope after it broke. There was dirt and debris on the outer portion of the rope and there did not appear to be any lubricant present in the vicinity of the car side failure. The wires at the car side of the failure were examined and showed evidence of wear and pitting corrosion.

Matco Services Inc. (Matco) was contracted to provide a failure examination of the hoist rope. A laboratory evaluation was conducted December 1, 2009, on the hoist side portion of the failure and the additional wires (14 pieces) recovered from the mine. The car side of the portion of the failure was photographed at Matco. A detailed examination of the wire failures on the car side portion of the rope failure was not conducted. No laboratory examination was conducted because the end of this portion of rope connected to the car traveled uncontrolled down the slope, leaving behind a considerable number of broken wires along the slope. The Matco report summary describes that the wire rope failure was due to significant wire corrosion and wear.

NONDESTRUCTIVE TESTING (NDT) & VISUAL EXAMINATIONS

Code of Federal Regulations Title 30 requires wire ropes to be visually examined once every fourteen calendar days. If a visible condition results in a reduction of rope strength, that area of rope must be examined daily (§ 75.1433(a)). Also, at least once every six months, nondestructive tests or diameter measurements are required to be performed on wire ropes (§ 75.1433(c)).

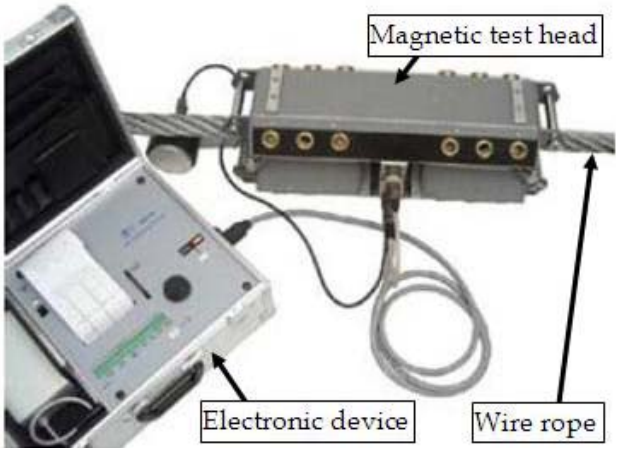
Wire ropes are required (§ 75.1434) to be removed from service, unless damaged or deteriorated sections are cut off, when any of the following conditions occurs:

(a) The number of broken wires within a rope lay length, excluding filler wires, exceeds either
    (1) Five percent of the total number of wires; or
    (2) Fifteen percent of the total number of wires within any strand;
(b) On a regular lay rope, more than one broken wire in the valley between strands in one rope lay length;
(c) A loss of more than one-third of the original diameter of the outer wires;
(d) Rope deterioration from corrosion;
(e) Distortion of the rope structure;
(f) Heat damage from any source;
(g) Diameter reduction due to wear that exceeds six percent of the baseline diameter measurement; or
(h) Loss of more than ten percent of rope strength as determined by nondestructive testing.

Wire Rope Nondestructive Testing (NDT)

NDT is performed by pulling the wire rope through a testing instrument or test head. NDT detects areas where flaws (broken wires, corrosion, etc.) are present in a wire rope. NDT is a relative test that compares the "best" section of rope to the "worst" section. The loss of metallic area reported is the loss relative to the best portion of the rope and should not be interpreted as the loss of metallic area relative to a "new" rope. Accordingly, the regulations require an initial or baseline measurement of a new rope (§ 75.1432), and frequent subsequent tests to track the deterioration of the wire rope during its service life (§ 75.1433(c)).

The NDT test head generates a magnetic field and detects damage and deterioration in the wire rope by measuring changes in the magnetic field. The magnetic test head is connected to an electronic device that records data electronically and prints a visual representation of collected data on a strip chart.

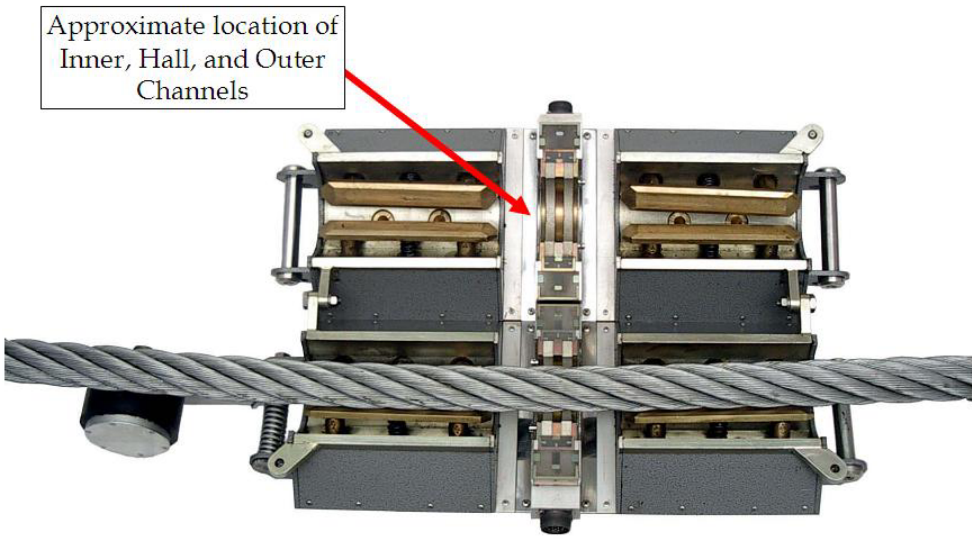


The mine operator contracted the services of Certified NDT Inc. (MSHA Contractor ID "WBC") to perform NDT. The test equipment used to examine this wire rope by Certified NDT took three measurements with three sensors or channels to analyze the wire rope.

Outer and Inner Channels [aka Local Flaw (LF) Channels]
The first two channels are the Outer and Inner Channels. These channels detect the flaws (broken wires, corrosion, etc.) in a wire rope. Certified NDT used either the outer channel or inner channel during each test.

Hall Channel [aka Loss of Metallic Area (LMA) Channel]
The third measurement channel is the Hall Channel and it is produced from a Hall sensor located near the center of the instrument. This channel measures the losses in the rope's cross-section caused by wear, corrosion etc. For each test, this channel is calibrated with a standardization rod of known area.

With the test head closed around a rope, the Inner sensor coil is located closest to the rope under test. The Hall sensor is the next closest to the rope and the Outer sensor coil is furthest away from a rope under test.



Certified NDT performed NDT on the hoist rope on five separate occasions after the rope was installed on June 22, 2007. For each test, Certified NDT made charts showing the Inner or Outer Channel and Hall Channel. Certified NDT also gave the mine operator a one-page report for each test.

Appendix B contains charts for six tests. These tests are labeled 1 through 6. For each test, two charts, chart A and chart B were recorded. Chart A for each test is the Inner or Outer channel, and chart B is the Hall channel. These charts were provided to MSHA by Newtown Energy, Inc., which requested the charts from Certified NDT following the accident.

The trace on each chart represents the data received from the test head as the wire rope travels through the test head. The data is recorded from left to right on the chart. The left edge of the data is the starting point of the test, and the right side represents the end of the test.

Damaged or deteriorated areas on the wire rope can be seen on the A charts where the trace becomes wider. For example, in Appendix B, the trace locations identified as "similar indications #1, #2, and #3" show areas where each trace is wider. These damaged or deteriorated areas are also called local flaws (LF).

The traces for the B charts move up or down when better or worse areas of the rope are detected, and should correspond to the areas where the A charts become wider or narrower. Loss of metallic area (LMA) is measured on the B charts. When the calibration information is known, accurate measurements of the high and low points (LMA) can be made.

Analysis of Certified NDT charts

Test 1 in Appendix B, performed on May 16, 2007, is the last test performed on the wire rope previously used on this hoist. This wire rope was retired on or about June 22, 2007. Tests 2 through 6 are the tests performed on the wire rope involved in this fatality. These tests were performed on November 5, 2007, April 11, 2008, October 1, 2008, April 3, 2009, and August, 17, 2009.

Test number	Test Date	Wire rope tested
1	5/16/2007	Previous wire rope
2	11/5/2007	Wire rope involved in fatality
3	4/11/2008	Wire rope involved in fatality
4	10/1/2008	Wire rope involved in fatality
5	4/3/2009	Wire rope involved in fatality
6	8/17/2009	Wire rope involved in fatality

Tests 2 and 3 were the first tests performed on the new wire rope and don't indicate significant damage or deterioration. Significant and similar damage and deterioration are identified in tests 1, 4, and 5. See "similar indications #1, #2, and #3" on Appendix B. These similarities show that the environmental conditions that caused deterioration to both wire ropes did not change. These environmental conditions included: water dripping onto the wire rope at the 1,180 to 1,227 foot mark in the slope, and water dripping on the wire rope at the 740 foot mark in the slope.

Test 6, the last test performed, does not show a progression of the damage or deterioration from tests 4 and 5. Rather, it shows practically no damage or deterioration. Test 6 resembles tests 2 and 3, the first tests on the new wire rope. Even though it was obvious that the charts from test 6 did not reflect the damage

and deterioration in the wire rope identified in the charts for the previous two tests, Certified NDT did not investigate the cause of this discrepancy, nor did it report this anomaly to the mine operator. Certified NDT failed to take action regarding the charts for test 6 that were obviously incorrect, inconsistent with previous tests, and showed that the condition of the wire rope improved.

Analysis of Certified NDT written reports

On the five written reports of the tests performed on the rope that failed (tests 2 through 6), Certified NDT listed the following LMA measurements: 1.21%, 2.43%, 3.85%, 5.12%, and 5.79%. On the same reports, Certified NDT also listed the following estimated losses of breaking strength (LBS): 1.33%, 2.92, 4.62%, 6.14%, and 6.95%. Furthermore, on each report, the contractor stated, "Based on the criteria in this regulation [30 CFR], this rope is in satisfactory condition". Certified NDT reported that the LMA and estimated LBS for test 6 were larger than those measured in previous tests. This finding is not substantiated by the charts that Certified NDT made following test 6. Certified NDT was negligent by providing reports to the mine operator for test 6 that where obviously inconsistent with charts for test 6.

The test 4 report was the first to mention damage and deterioration in the wire rope. This report states, "Anomalies indicative of abrasive wear, broken internal/external wires, and fretting corrosion were depicted in this hoist rope during this inspection." These same anomalies are noted in the reports for tests 5 and 6. Additionally, the report for test 5 states, "The area of greatest wear is an area approximately 425-600 feet above the conveyance." This result was not noted in the report for test 6. The failure point of the hoist rope in the accident was approximately 575 feet from the conveyance. None of the reports indicate that the contractor made visual examinations on the worst portion of the hoist rope or that caliper measurements of the rope diameter were taken on the area of greatest wear.

In the report for test 1, the LMA and estimated LBS are 8.15% and 9.78%, respectively. In this report, Certified NDT stated, "We recommend re-testing this rope within 60 days, or removing it from service." It also stated that this wire rope was in satisfactory condition. Certified NDT did not report conducting a visual examination on the worst area identified by the testing.

Analysis of Certified NDT electronic data

After analyzing all the charts that Certified NDT made and the reports that Certified NDT provided to the mine operator, MSHA requested Certified NDT's electronic data for all six tests following an interview conducted on March 16, 2010. Certified NDT provided electronic data to MSHA on or about July 8, 2010. Data was provided for only four of the six tests conducted. They included the tests on May 16, 2007, November 5, 2007 April 3, 2009 and August 17, 2009. Certified NDT subsequently provided the calibration data for these tests.

Appendix C contains the charts MSHA developed from this electronic data. Certified NDT stated that the real-time strip charts generated by the test equipment during NDT are only used to ensure electronic data is being collected by the test equipment. Certified NDT stated that these strip charts are not saved after NDT, but rather are discarded. Therefore, Certified NDT uses the electronic data to make new charts and write reports. Certified NDT stated that the written reports given to the mine operator are sent about one week after NDT is completed.

Test number	Test Date	Electronic Data Provided?	Corresponding charts in Appendix C
1	5/16/2007	Yes	Not in Appendix C[†]
2	11/5/2007	Yes	7
3	4/11/2008	No	NA
4	10/1/2008	No	NA
5	4/3/2009	Yes	8
6	8/17/2009	Yes	9

As in Appendix B, the A charts in Appendix C show LF, and the B charts show LMA. [†]For the May 16, 2007 test, the electronic data is generally consistent with the charts made by Certified NDT. For test 2, the electronic data shows a maximum LMA of 0.24% and an estimated LBS of 0.288%. For purposes of this analysis, LBS was calculated using the same method used by Certified NDT, that is, multiplying the LMA by a factor of 1.2.

For test 5, the electronic data provided for chart A was generally consistent with the test results provided to the mine operator. However, the electronic data for chart B was significantly different than the chart made by Certified NDT. This analysis of chart B shows a maximum LMA of at least 14.97% and estimated LBS of at least 17.96%. This estimated LBS exceeds the LBS retirement criterion of 10% (§ 75.1434(h)). Unfortunately, the contractor incorrectly reported a LMA of 5.12%, an estimated LBS of 6.14%, and that the wire rope was in satisfactory condition and in compliance with 30 CFR. Certified NDT did not report to the mine operator that the electronic data showed that the wire rope exceeded the retirement criterion, and not recommending that the wire rope be immediately removed from service.

For test 6, the electronic data shows a maximum LMA of 3.35% and an estimated LBS of 4.02%. This data is dramatically inconsistent with the data from the previous test, which shows a maximum LMA of 14.97% and estimated LBS of 17.96%, because it suggests that the wire rope gained a substantial amount of metal. This is a physical impossibility. Certified NDT failed to address obvious inconsistencies between the electronic data from tests 5 and 6, which should have alerted Certified NDT that its analyses were significantly flawed.

		Information given to mine operator by Certified NDT			MSHA analysis of Certified NDT electronic data			
Test	Test Date	Max %LMA	Max %LBS	Wire Rope in Compliance?	Max %LMA	Max %LBS	Wire Rope in Compliance?	Appendix C Chart
2	11/5/2007	1.21	1.33	Yes	0.24	0.29	Yes	7
3	4/11/2008	2.43	2.92	Yes	NEDP	NEDP	NEDP	NA
4	10/1/2008	3.58	4.62	Yes	NEDP	NEDP	NEDP	NA
5	4/3/2009	5.12	6.14	Yes	14.97*	17.96*	**No**	**8**
6	8/17/2009	5.79	6.95	Yes	3.35	4.02	**Yes**	**9**

NEDP = No Electronic Data Provided
***Values are at least this magnitude**

MSHA NDT of the Wire Rope

On October 30, 2009, MSHA Technical Support personnel conducted NDT on the remaining portion of the rope (hoist side of the failure). NDT was conducted to determine the condition of the remaining active length of rope at the time of the accident. The testing also provided the necessary information to identify and subsequently remove any deteriorated sections of the rope, so that a new load end termination could be installed and the damaged equipment could be safely recovered from the mine.

After testing approximately 360 feet of hoist rope, a severely deteriorated section of rope was encountered in which external broken wires caused the test head to hang up as the broken wires became jammed in the test head. The rope was stopped momentarily and the test head moved past the damaged area of rope. Testing continued until about 2,430 feet of rope had been nondestructively tested. The instrumentation was moved to the hoist house and a second test was conducted by drawing the hoist rope from the spool truck back onto the hoist. The hoist rope was marked for cutoff once 1,490 feet of rope had been put back onto the drum. The test was stopped after 2,150 feet of rope was tested. At this point, the NDT indicated a LMA of 35% from the best portion of rope tested (see Appendix D). This equates to an estimated LBS of 42% (using Certified NDT's formula). This is the deteriorated area that jammed in the test head during MSHA's first NDT. The hoist rope was visually examined at this point.

The worst portion identified by the MSHA NDT is the dry section of rope located 14 wraps into the third layer of rope on the drum. At the worst portion of rope identified by MSHA NDT, approximately 13 feet of rope was dry and not lubricated.

The outer wires of the rope were worn. Caliper measurement taken on the dry section of rope indicated diameters of 1.079, 1.084, 1.052, 1.047, and 1.066 inches. These caliper measurements were taken with the rope in an unloaded condition. Under a loaded condition (i.e. the brakeman car attached to the rope), the rope diameter measurements likely would have shown a smaller diameter.

Worst portion of rope identified by MSHA. No lubricant identified, broken wires and severe pitting corrosion.

In the worst portion of the rope, one of the strands was visibly damaged and the strand center was exposed. This center strand had no visible lubricant and exhibited broken wires and severe pitting corrosion. The outer wires of the rope, throughout this dry area, showed visible signs of pitting corrosion. Based on the MSHA NDT evaluation, caliper measurement, and visual examination, the worst portion of the hoist rope identified by MSHA NDT exceeded the retirement criteria listed in Title 30 CFR Part 75.1434(a)(1), (a)(2), (d), (g), and (h).

ENVIRONMENTAL CONDITIONS

With the Brakeman Car parked at the bottom of the slope and the load connection on the curve, the point of rope failure occurred in the vicinity where the water was dripping at the 1,180-1,227 feet mark. The water dripping at the 740 feet mark in the slope would correspond to the worst portion of the rope (35% LMA) identified by MSHA NDT.

VISUAL EXAMINATIONS – RECORD REVIEW

A review of the "Report of Daily Inspection of Hoisting Equipment" records was conducted from the date of accident to August 1, 2009. No damage to, or deterioration in, the wire rope was recorded in these record books. Also, no finding of improper lubrication was recorded in these examination books.

The oldest examination book had "Full 8-28-09" printed on the cover. The book also had the installation date of the rope documented on the cover as June 22, 2007 and three measurements: 11940 at 525 feet, 11785 at 1,167 feet, and 1190 at 1,750 feet respectively. The numbers 11940, 11785, and 1190 are the initial caliper measurements of 1.1940, 1.1785, and 1.1900 inches respectively. The average of these three measurements produces a baseline of 1.1875 inches. The cover of this book also had "Retire-1116" printed on the cover. If 1.1875 inches is multiplied by 0.94, a result of 1.11625 is obtained. Title 30 CFR Part 75.1434 (g) states that unless rope damage or deterioration is removed by cutoff, wire ropes shall be removed from service when the diameter reduction due to wear exceeds six percent of the base line diameter measurement. Therefore, if caliper measurements were taken on a section of wire rope that exhibited wear to the outer wires, 1.116 inches would be an appropriate number to remove that section by cutoff, or retire the entire rope.

The review of the examination books indicated that the rope was cleaned on five occasions. These dates included August 3 and 31, September 14 and 28, and

October 12, 2009. Each time the rope was cleaned, the task was completed on the 3rd shift by Morgan. The wire rope is cleaned to remove dirt, debris, and old lubrication. Afterward, it should be re-lubricated. No notations were made in the examination books that indicated the rope was lubricated after it was cleaned. The examination book indicates that the last bimonthly brake test on the brakeman car was conducted by Boggs on September 21, 2009. No notations were made in the examination book that indicated any adjustments to the brakes were made. The final NDT conducted by Certified NDT on August 17, 2009, was not documented in the examination book. On the day of the accident, the examination book indicated that the daily visual examination was conducted by Morgan at 4:30 a.m., several hours before sunrise.

VISUAL EXAMINATIONS OF THE HOIST WIRE ROPE

Rope examinations were conducted daily by Morgan. These examinations did not detect obvious and significant damage to, and deterioration in, the wire rope. Also, the examinations did not detect significant areas of improper lubrication. The rope was examined on the surface between the collar of the slope and the sheave wheel. The rope was examined while the conveyance was lowered into the slope at approximately 200 feet per minute (fpm). With the examination being conducted at this fixed location, stress locations could not be properly examined where the rope leaves the drum, at drum crossovers, and at change-of–layer regions. An adequate examination for structural damage, corrosion, and improper lubrication could not be properly conducted while the rope was traveling at 200 fpm.

Guide rollers were installed on the mine floor and coal rib at approximately 20 foot intervals for the wire rope to roll on to prevent wear from dragging along the mine floor and coal rib. Eighteen of these rollers (approximately 20%) were either frozen, missing, or had the cable guides missing. These conditions were causing excessive wear and damage to the rope.

The damage to the rollers appeared to have occurred over a period of at least several weeks. Pre-shift examinations were conducted in the slope 3 times a day by numerous examiners. The damaged rollers were obvious and the damaged rollers were not reported to management. No notations relating to damaged or worn rollers were recorded in the Pre-shift Mine Examiner's Report.

TRAINING

30 CFR does not require any training that would instruct wire rope examiners on the proper procedures to examine wire ropes.

Ron Petty, President of Certified NDT, performed all tests on the wire rope. He has been performing NDT since 1989, and has been performing about 200 tests a year at both mine and non-mine facilities. Petty has certifications and qualifications in ultrasonic, magnetic particle, electromagnetic methods, visual,

and penetrant forms of NDT. The NDT equipment Petty used on this wire rope was a Meraster MD120 supplied by a company in Poland, Zawada NDT. Mr. Petty spent several weeks in Poland receiving training on how to use this NDT equipment.

OTHER CERTIFIED NDT OBSERVATIONS

On each report, Certified NDT incorrectly stated the cross sectional area for a new wire rope is 0.482 in^2. The rope manufacturer states that the cross sectional area is 0.637 in^2.

The calibration information listed by Certified NDT on the reports given to the mine operator is significantly different than the calibration shown on the electronic data that Certified NDT provided to MSHA. The reports all show a calibration voltage of 0.47 mV, but the electronic data show calibration voltages for tests 2, 5, and 6 were 3.5 mV, 0.2 mV, and 0.2 to 0.3 mV respectively.

Certified NDT used a test head that has a distance wheel; however, the distance wheel was not used for any testing dating back to May 2007.

Certified NDT provided its "Electromagnetic Wire Rope Examination Procedure" following MSHA's second request for information. The procedures are dated November 1992, but state that they use the guidelines and recommendations in the 1993 edition of the American Society of Test Materials (ASTM) E1571 standard. The Examination Procedure also states that ASTM E1571 1993 "shall be considered as part of this procedure." ASTM E1571 1993 did not exist in November 1992 because it was issued 10 months later on September 15, 1993. The Table of Contents for Certified NDT's "Electromagnetic Wire Rope Examination Procedure" lists seven sections. Sections 3.0 Examination Standardization, 4.0 Equipment, and 5.0 Time of Inspection, are not in the document even though they are listed in the Table of Contents. Sections 6.0 Personnel and 7.0 Records are provided, however, all of Section 7.0 is numbered as if it is in Section 9.0, a Section that does not exist. Section 8.0, "Calibration Procedures," was provided as the last page of the document. The calibration procedures provided address records and laboratory calibration with steel rod reference standards, and does not address the critical field calibration of a wire rope.

ASTM E1571 1993 states, "It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use." During an interview, Petty stated that he visually examines the wire rope: (1) in areas where NDT indicates strength losses close to 10%, (2) if he sees an abrupt change in the traces for LMA and/or LF, or (3) if there are dramatic differences from the previous test. Tests 5 and 6 met these criteria but Petty did not visually examine the wire rope. The manufacturer of Petty's NDT instrumentation recommends periodic visual

inspection of ropes and that one should be able to observe and successively see the increasing broken wires and other defects in the wire rope from test to test.

Certified NDT stated that the Outer Channel of the instrumentation was consistent with MSHA's instrument Local Flaw (LF) Channel. The instrument manufacturer and owner of the company, Mr. Kazimierz Zawada, was contacted and reported that the Outer Channel is designed to only be used with the Inner Channel to estimate the depth of a defect in a rope cross section.

ROOT CAUSE ANALYSIS

An analysis was conducted to identify the most basic causes of the accident that were corrected through reasonable management controls. The following root causes were identified.

Root Cause: Certified NDT did not report the true condition of the wire rope and did not follow prudent examination practices. Rather, Certified NDT reported that the wire rope complied with 30 CFR, even though the test data showed that the wire rope met the retirement criteria in 30 CFR. Newtown Energy did not provide adequate oversight of the NDT performed by Certified NDT.

Corrective Actions: Certified NDT revised its written wire rope examination procedures. These written procedures now list proper field standardization of test equipment, appropriate conditions that necessitate a visual inspection of the wire rope, when rope diameter measurements will conducted, and a requirement to protect strip charts from deterioration, as well as retain strip charts until the wire rope is retired. The revised written procedures also state that the testing of the rope will comply with the current version of ASTM E1571 "Standard Practice for Electromagnetic Examination of Ferromagnetic Wire Rope".

Furthermore, for two years after MSHA's report is released, Certified NDT will notify MSHA at least 7 calendar days prior to each non-destructive testing it performs on a wire rope at a mine site, in order to allow MSHA to monitor and evaluate any such testing.

Newtown Energy developed written procedures to review the NDT test results they receive from NDT contractors. Newtown Energy trained miners in these new procedures. Newtown Energy has contracted the services of Rotesco Inc. to perform future NDT on the hoist wire rope.

Root Cause: The mine operator did not have an effective program to properly conduct visual examinations for structural damage, corrosion, improper lubrication, wear and broken wires at stress points were not performed. The examinations conducted failed to detect obvious and significant damage, deterioration, and improper lubrication.

Corrective Actions: Newtown Energy developed written visual examination procedures. The procedures require the examiner who performs the 14 day examination to examine the hoist wire rope at an inspection speed no greater than 50 feet per minute, and to examine the rope in a well-lighted area. The procedures require the examiner to comply with the provisions of 30 CFR 75.1433(a) and (d). The procedures require the examiner to record that the examination was conducted, as well as any of the conditions described in 30 CFR 75.1433(a), in a record book titled "14 Day Wire Rope Exam." Mine management reinstructed examiners on proper wire rope examinations.

Newtown Energy also developed written hoist wire rope safety precautions. These precautions require the following. Baseline measurements will be taken with an electronic caliper on three hundred foot increments for new wire ropes. The baseline measurements will be performed after the rope has stretched but before wear begins, and will always be taken within three weeks after installation. The baseline measurements will be recorded in a hoist book. The first NDT will be performed within one month after the installation of a new wire rope, and will be performed a least once every six months thereafter. In addition to the 14-day wire rope examination, a visual examination of the normally used portion of the wire rope will be performed every day the slope hoist is operated and recorded in the hoist book. This visual examination will be performed by dropping the hoist car to the bottom at a speed no greater than 100 feet per minute. The rope will be examined near the sheave wheel outside where the examiner can see the top and bottom side of the rope.

Root Cause: The mine operator did not have an effective policy to ensure that miners did not ride on a conveyance whose weight exceeded the braking capacity of the brakeman car.

Corrective Actions: Newtown Energy developed a written policy regarding personnel and supply conveyances. The policy prohibits anyone from riding the brakeman car when the conveyance is used to drop or pull supplies or equipment, or when the brakeman car is attached to any other car. The policy also requires at least one person to be in the seat that has access to the emergency stop switch when personnel are being hoisted up or down the slope. The policy states that this person must be trained in the use of the emergency stop switch. Newtown Energy trained miners in this new policy.

Root Cause: The mine operator did not have an effective policy, procedure, or program to ensure that miners remain in safe locations at the bottom of the slope when men and material were being hoisted into and out of the mine.

Corrective Actions: Newtown Energy established a new waiting area at the bottom of the slope where miners could position themselves when the hoist was in

operation. Newtown Energy instructed the miners where to position themselves when the hoist was in operation.

Additionally, Newtown Energy developed new written procedures regarding personnel and supply conveyances. The procedures require that personnel enter or exit the brakeman car only after it has come to a complete stop. Also, the procedures prohibit personnel from being in the track slope or track bottom when the conveyance is being hoisted. Approaches to the bottom track area will be clearly marked with signs and visible warning lights, and the slope is equipped with flashing warning lights as the conveyance is in movement. A one minute delay with alarms will be implemented to allow personnel to have time to move to safety. When the conveyance is not in use it will be parked on the surface with the switch thrown in the direction of the yard.

CONCLUSION

The accident occurred when the slope hoist rope broke resulting in a runaway of the brakeman car, mine locomotive and loaded rail car down a 16 degree, 1,750 foot slope. The victim was at the bottom of the slope when he was struck by the conveyance. Certified NDT did not report that the wire rope exceeded the retirement criterion of 10% loss of strength. The mine operator did not perform adequate wire rope examinations for structural damage, corrosion, improper lubrication, wear and broken wires at stress points. Also, the mine operator did not have an effective policy to prevent miners from riding a conveyance whose weight exceeded the braking capacity of the brakeman car. Furthermore, the operator did not have an effective program to ensure miners were positioned in safe locations when near the slope bottom while a conveyance is being hoisted.

Approved By:

Robert G. Hardman
District Manager

10/14/2010
Date

ENFORCEMENT ACTIONS

1. A 103(j) Order, No. 8097474 was issued and modified to a 103(k) Order No. 8097475, to ensure the safety of all persons in the mine during investigation of the affected area and equipment.

2. A 104(d)(1) Citation, No. 8111174, was issued for a violation of 75.1433(c), to Certified NDT, Inc or Ronald Petty d/b/a Certified NDT, Inc. Certified NDT failed to conduct adequate nondestructive tests (NDT) in that it failed to report to the mine operator the extent of the damage and deterioration of the hoist wire rope. In its April 3, 2009 NDT, Certified NDT data indicated that the wire rope had lost at least 17.96% of its strength, but reported to the mine operator that the strength loss was only 6.14%. Certified NDT was aware that the retirement criterion in 30 CFR 75.1434 is more than 10% loss of strength. After its final NDT on August 17, 2009, Certified NDT data indicated the wire rope had lost 4.02% of its strength, but reported that the loss of strength was 6.95%. In addition, the chart made by Certified NDT following its final test on August 17, 2009 showed the wire rope had less damage and deterioration than it did on April 3, 2009. On October 27, 2009, the hoist rope failed at a point approximately 575 feet from the conveyance, resulting in an accident in which one miner was fatally injured and two miners received non-fatal injuries. MSHA performed NDT after the accident and measured a loss of metallic area (LMA) of 35%. Certified NDT equates 35% LMA to a loss of strength of 42%. The Certified NDT wire rope inspection reports also do not indicate that any visual examinations were conducted on the worst portion of hoist rope or that any caliper measurements of the rope diameter were taken on the area of greatest wear identified by Certified NDT. Certified NDT engaged in aggravated conduct constituting more than ordinary negligence. This violation is an unwarrantable failure to comply with a mandatory standard. "Certified NDT, Inc. or Ronald Petty d/b/a Certified NDT, Inc. are both identified as operators to whom this citation is issued because state records indicate that Certified NDT, Inc., the operator assigned contractor ID WBC, has been dissolved.

3. A 104(d)(2) Order, No. 8111172, was issued for a violation of 75.1433(a), to Newtown Energy, Inc. The operator failed to conduct adequate visual examinations along the entire active length of the hoist wire rope for structural damage, corrosion, improper lubrication, and wear and broken wires at stress points. The examinations were conducted from a fixed location, where: (1) the operator did not examine for wear and broken wires at sheaves, where the rope leaves the drum, at drum crossovers, and change of layer regions; and (2) structural damage, corrosion, improper lubrication, and wear and broken wires could not be seen because the rope was moving at 200 feet per minute (fpm), which is too fast to see these types of damage

and deterioration. On October 27, 2009 one miner was fatally injured and two miners received non-fatal injuries when the hoist wire rope broke and the brakeman car, locomotive, and loaded rail car traveled approximately 1,200 feet down a 16 degree slope and struck a miner located in the track entry at the bottom of the slope resulting in a fatal injury. Two other miners also received non-fatal injuries. A visual examination of the rope by MSHA after the accident showed obvious and extensive wear, surface pitting corrosion, broken wires, and no lubrication at several locations along the rope including the location where the rope failed. On February 2, 2008, MSHA issued citation 7276630 to the operator for a violation of this same standard. The operator engaged in aggravated conduct constituting more than ordinary negligence. This violation is an unwarrantable failure to comply with a mandatory standard.

4. A 104(d)(2) Order, No. 8111171, was issued for a violation of 75.1434, to Newtown Energy, Inc. The operator failed to remove the hoist wire rope from service when it exceeded several retirement criteria. The number of broken wires exceeded: (1) five percent of the total number of wires, and (2) fifteen percent of the total number of wires in any strand. On October 27, 2009 one miner was fatally injured and two miners received non-fatal injuries when the hoist wire rope broke and the brakeman car, locomotive, and loaded rail car traveled approximately 1,200 feet down a 16 degree slope and struck a miner located in the track entry at the bottom of the slope resulting in a fatal injury. Two other miners also received non-fatal injuries. A visual examination of the rope by MSHA after the accident showed obvious and extensive surface pitting corrosion. MSHA performed diameter measurements after the accident and found that the diameter had reduced 11.8% from the baseline diameter measurement. The operator engaged in aggravated conduct constituting more than ordinary negligence. This violation is an unwarrantable failure to comply with a mandatory standard.

5. A 104(d)(2) Order, No. 8111175, was issued for a violation of 75.1403, to Newtown Energy, Inc. The operator failed to maintain rollers installed to prevent friction, wear, and damage to the hoist wire rope. On October 27, 2009 one miner was fatally injured and two miners received non-fatal injuries when the hoist wire rope broke and the brakeman car, locomotive, and loaded rail car traveled approximately 1,200 feet down a 16 degree slope and struck a miner located in the track entry at the bottom of the slope resulting in a fatal injury. Two other miners also received non-fatal injuries. An examination by MSHA following the accident showed that eighteen (approximately 20%) of the rollers were either frozen, missing, or had the cable guide missing. The damage to the rollers was obvious, extensive, and had existed for several shifts. Safeguard 8070461 was issued on April 16, 2009 because of frozen rollers. The operator engaged in aggravated conduct

constituting more than ordinary negligence. This violation is an unwarrantable failure to comply with a mandatory standard.

6. A 104(d)(2) Order, No. 8111176, was issued for a violation of 75.360(b)(1), to Newtown Energy, Inc. The operator failed to conduct an adequate preshift examination in the track haulageway in that the examiner did not detect and subsequently correct the hazardous condition created by eighteen rollers being frozen, missing, or having the cable guide missing. On October 27, 2009 one miner was fatally injured and two miners received non-fatal injuries when the hoist wire rope broke and the brakeman car, locomotive, and loaded rail car traveled approximately 1,200 feet down a 16 degree slope and struck a miner located in the track entry at the bottom of the slope resulting in a fatal injury. Two other miners also received non-fatal injuries. An examination by MSHA following the accident showed damage to the rollers that was obvious, extensive, and had existed for several shifts. The operator engaged in aggravated conduct constituting more than ordinary negligence. This violation is an unwarrantable failure to comply with a mandatory standard.

7. A 104(d)(2) Order, No. 8111177, was issued for a violation of 75.1400(c), to Newtown Energy, Inc. The operator allowed two miners to travel on a slope hoist conveyance that did not have effective brakes for an emergency situation. On October 27, 2009 one miner was fatally injured and two miners received non-fatal injuries when the conveyance ran away down the slope. Interviews conducted during the fatal accident investigation revealed that it was a common practice for miners to ride in the brakeman car when the conveyance weight exceeded the capability of the brakes to stop and hold the conveyance. The operator engaged in aggravated conduct constituting more than ordinary negligence. This violation is an unwarrantable failure to comply with a mandatory standard.

8. A Safeguard notice, No. 8111226, was issued pursuant to 30 CFR 75.1403, to Newtown Energy, Inc. On October 27, 2009 one miner was fatally injured and two miners received non-fatal injuries when a hoist wire rope broke causing the hoist conveyance to run away down the slope. The conveyance weight exceeded the capability of the brakes to stop and hold the conveyance. This is a notice to provide safeguard(s) requiring the hoist conveyance to consist of only the brakeman car when miners are being hoisted.

9. A Safeguard notice, No. 8111170, was issued pursuant to 30 CFR 75.1403 to Newtown Energy Inc. A fatal accident occurred at this mine on October 27, 2009, involving a runaway brakeman car, locomotive, and loaded rail car. The hoist wire rope broke and the brakeman car, locomotive, and loaded rail ar traveled approximately 1,200 feet down a 16 degree slope and struck a miner located in the track entry at the bottom of the slope resulting in a fatal

injury. Two other miners received non-fatal injuries. This is a notice to provide safeguard(s) requiring visual and audible alarms be installed and maintained to warn all persons working or traveling near the top or bottom of the slope when a conveyance is being hoisted. The visual alarm shall operate continuously while a conveyance is being hoisted. The audible alarm will give a 15 second warning before the hoist is put in motion. All miners working on the surface and in the track entry at the bottom of the slope, who may be in danger of being struck by a runaway conveyance, shall exit the entry when the alarms are active. All miners located in the slope, on the track side, shall be located in a shelter hole while the conveyance is in motion.

APPENDIX A

List of persons furnishing information and/or present during the investigation:

Eagle Mine

Robert Ellis ..... President
Richard Asebes ..... Manager of Mines
Jamie Dotson ..... Superintendent
Bobbie Harper ..... General Mine Foreman
James Loving ..... Safety Director
Mike Tabor ..... Compliance Coordinator
Christopher Pence ..... Counsel for Eagle Mine
Sammy Gore ..... Compliance Foreman
Larry Boggs ..... Maintenance Superintendent
David Morgan ..... Hoist Operator
Daniel Ewing ..... Trackman
Wilson Goad ..... Shift Foreman
Richard Lambert ..... Hoist Operator
Michael Taylor ..... Beltman

Certified NDT Inc.

Ron Petty ..... President

West Virginia Office of Miners' Health, Safety, and Training

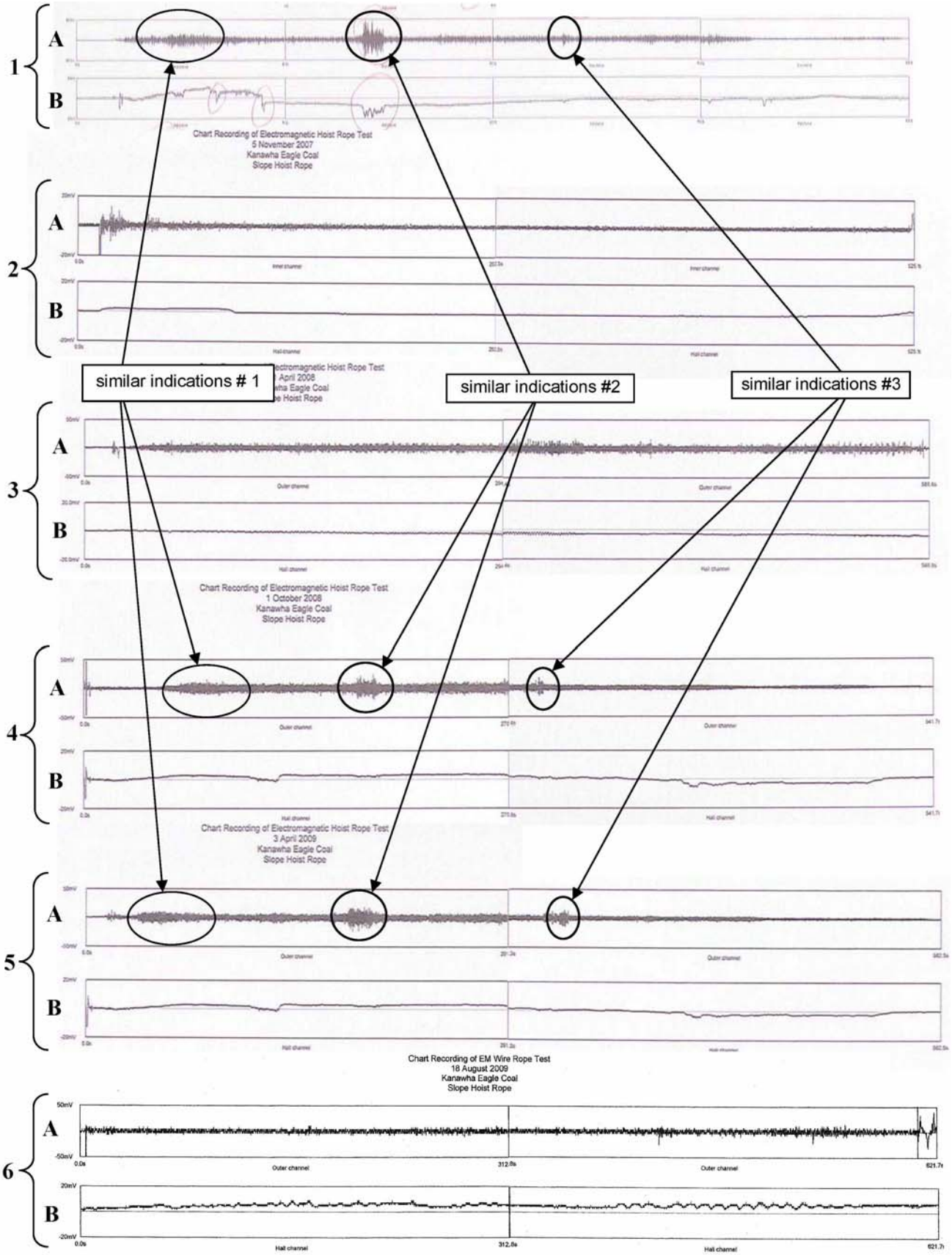
Ron Wooten ..... Director
Terry Farley ..... Administrator
Elaine Skorich ..... Assistant Attorney General
Eugene White ..... Inspector-at-Large
John Kinder ..... Assistant Inspector-at-Large
Mike Pauley ..... District Inspector
Dan Jerrell ..... District Inspector
Rondey Leake ..... Electrical Inspector
Randall Vance ..... Electrical Inspector
Kendal Smith ..... Electrical Inspector
Randy Smith ..... Electrical Inspector
Monte Hieb ..... Electrical Inspector
Randall Cox ..... Electrical Inspector

Mine Safety and Health Administration

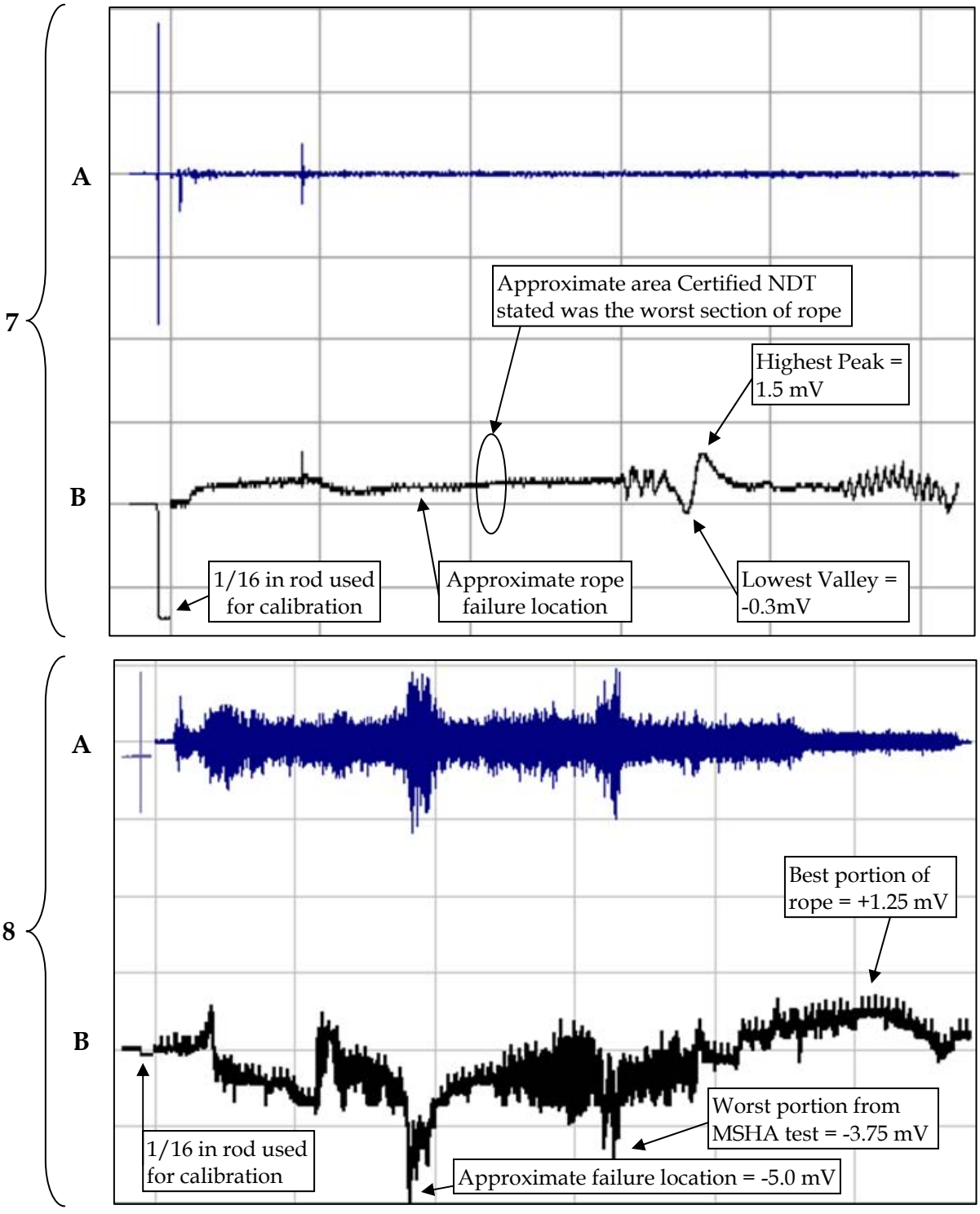
James Maynard ..... Coal Mine Safety and Health Inspector
Richard Kline ..... Assistant District Manager, Technical Programs
Michael Dickerson ..... Staff Assistant

Larry Cook ..... Supervisory Electrical Engineer
Joe Presley ..... Coal Mine Safety and Health Inspector
George Nelson ..... Coal Mine Safety and Health Inspector
Michael Snyder ..... MSHA, Technical Support
Jerry Taylor ..... MSHA, Technical Support
Dean Skorski ..... MSHA, Technical Support

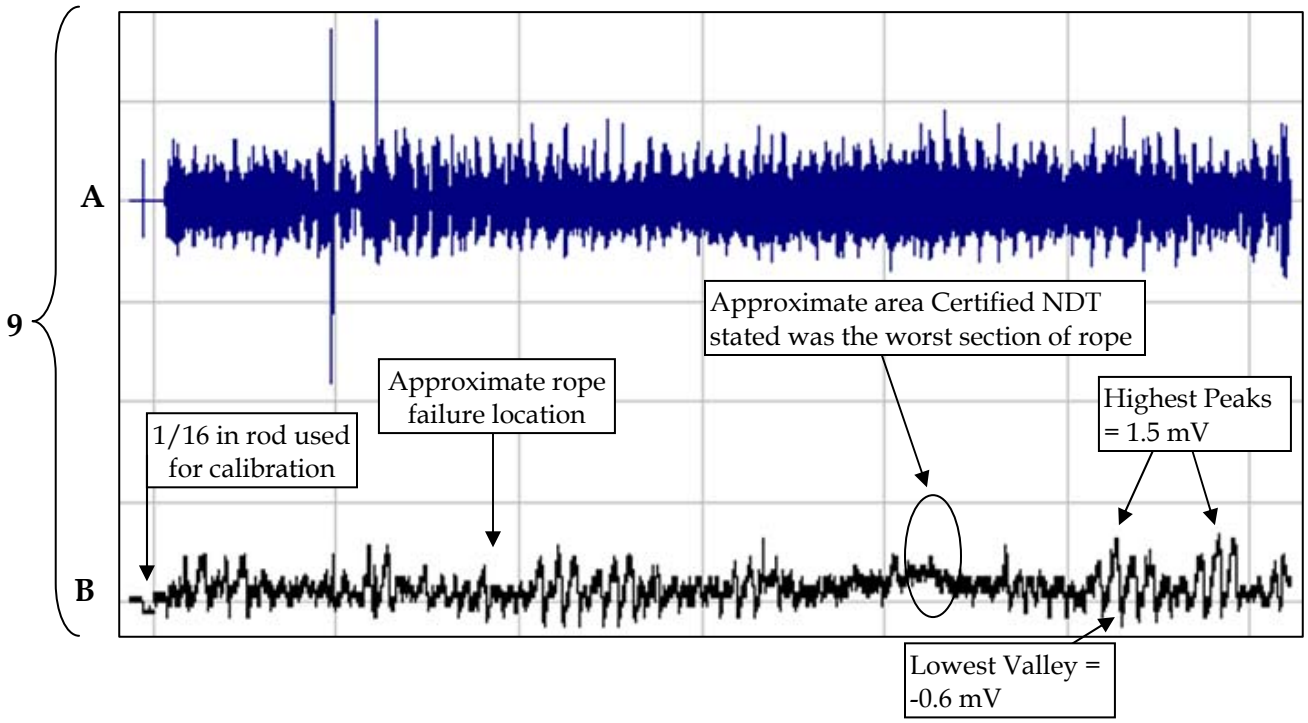
APPENDIX B
Certified NDT Strip Charts



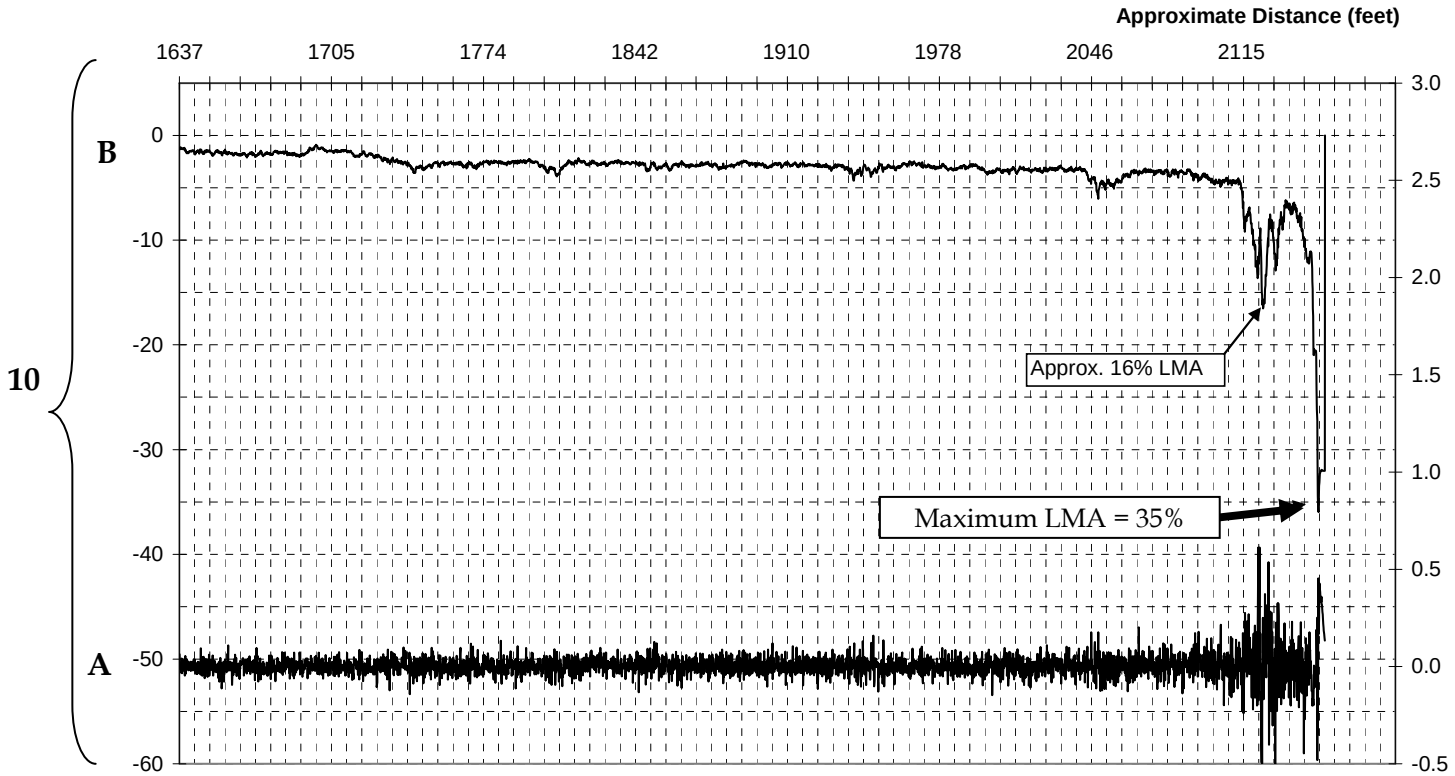
APPENDIX C
Certified NDT Electronic Data Charts



APPENDIX C Cont'd.
Certified NDT Electronic Data Charts



APPENDIX D
MSHA NDT Charts



APPENDIX E
Victim Information

Accident Investigation Data - Victim Information
Event Number: 6 2 8 4 2 9 0

U.S. Department of Labor
Mine Safety and Health Administration

Victim Information: 1

1. Name of Injured/Ill Employee:	2. Sex	3. Victim's Age	4. Last Four Digits of SSN:	5. Degree of Injury:
Charles E. Dixon	*M*	*53*	*7173*	*01 Fatal*

6. Date(MM/DD/YY) and Time(24 Hr.) Of Death:
a. Date: 10/27/2009 b.Time: 10:00

7. Date and Time Started:
a. Date: 10/26/2009 b.Time: 23:30

8. Regular Job Title: *053 Trackman*

9. Work Activity when Injured: *090 Travel (to/from work location)*

10. Was this work activity part of regular job? Yes | X | No

11. Experience	Years	Weeks	Days	b. Regular Job Title:	Years	Weeks	Days	c: This Mine:	Years	Weeks	Days	d. Total Mining:	Years	Weeks	Days
a. This Work Activity:	*6*	*0*	*0*		*6*	*0*	*0*		*6*	*0*	*0*		*25*	*0*	*0*

12. What Directly Inflicted Injury or Illness?
077 Struck by underground mining machine

13. Nature of Injury or Illness:
370 Multiple injuries

14. Training Deficiencies:
Hazard: | | New/Newly-Employed Experienced Miner: | | Annual: | | Task: | |

15. Company of Employment:(If different from production operator)
Operator

Independent Contractor ID: (if applicable)

16. On-site Emergency Medical Treatment:
Not Applicable: | | First-Aid: | | CPR: | | EMT: | | Medical Professional: | | None: | |

17. Part 50 Document Control Number: (form 7000-1)

18. Union Affiliation of Victim: *9999 None (No Union Affiliation)*

Victim Information:

1. Name of Injured/Ill Employee:	2. Sex	3. Victim's Age	4. Last Four Digits of SSN:	5. Degree of Injury:

6. Date(MM/DD/YY) and Time(24 Hr.) Of Death:

7. Date and Time Started:

8. Regular Job Title:

9. Work Activity when Injured:

10. Was this work activity part of regular job? Yes | | No | |

11. Experience:	Years	Weeks	Days	b. Regular Job Title:	Years	Weeks	Days	c: This Mine:	Years	Week	Days	d. Total Mining:	Years	Weeks	Days
a. This Work Activity:															

12. What Directly Inflicted Injury or Illness?

13.Nature of Injury or Illness:

14. Training Deficiencies:
Hazard: | | New/Newly-Employed Experienced Miner: | | Annual: | | Task: | |

15. Company of Employment: (If different from production operator)

Independent Contractor ID: (if applicable)

16. On-site Emergency Medical Treatment:
Not Applicable: | | First-Aid: | | CPR: | | EMT: | | Medical Professional: | | None: | |

17.Part 50 Document Control Number: (form 7000-1)

18. Union Affiliation of Victim:

Victim Information:

1. Name of Injured/Ill Employee:	2. Sex	3. Victim's Age	4. Last Four Digits of SSN:	5. Degree of Injury:

6. Date(MM/DD/YY) and Time(24 Hr.) Of Death:

7. Date and Time Started:

8. Regular Job Title:

9. Work Activity when Injured:

10. Was this work activity part of regular job? Yes | | No | |

11. Experience:	Years	Weeks	Days	b. Regular Job Title:	Years	Weeks	Days	c: This Mine:	Years	Week	Days	d. Total Mining:	Years	Weeks	Days
a. This Work Activity:															

12. What Directly Inflicted Injury or Illness?

13. Nature of Injury or Illness:

14. Training Deficiencies:
Hazard: | | New/Newly-Employed Experienced Miner: | | Annual: | | Task: | |

15.Company of Employment:(If different from production operator)

Independent Contractor ID: (if applicable)

16. On-site Emergency Medical Treatment:
Not Applicable: | | First-Aid: | | CPR: | | EMT: | | Medical Professional: | | None: | |

17. Part 50 Document Control Number: (form 7000-1)

18. Union Affiliation of Victim:

MSHA Form 7000-50b, Dec 1994

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