
Virginia Department of Mines, Minerals & Energy
Division of Mines

Accident Investigation Report
Underground Coal Mine

Fatal Machinery Accident Investigation Report
February 21, 2014

SunCoke Energy-Jewell Mining

Dominion Coal Corporation
Mine No. 30
Mine Index No. 14293AH
Linn Camp, Buchanan County, Virginia

CONTENTS

Introduction/General Information	2	Roof Control Plan.....	16
Commentary	3	Conclusion	17
Statements From Mine Personnel	6	Enforcement Action	18
Physical Factors	7	Recommendations	19
Testing Equipment at Mine.....	9	Appendix	21
Testing Remote at Lab.....	13		

**FATAL MACHINERY ACCIDENT
FATALITY INVESTIGATION REPORT
DOMINION COAL CORPORATION
MINE NO. 30**

INTRODUCTION

On Friday, February 21, 2014, Arthur David Gelentser, III, age 24, continuous mining machine operator, was fatally injured when he was pinned between the tail of the remote controlled continuous mining machine and the coal rib on H-Section. Mr. Gelenster was tramming the continuous mining machine through the last open crosscut in the No. 2 Entry in order to resume mining operations in the No. 1 Entry. Mr. Gelentser was pinned between the conveyor boom of the machine and the coal rib on the right inby side of the crosscut.

GENERAL INFORMATION

The Dominion Coal Corporation, Mine No. 30, extracts coal from the Red Ash seam in Buchanan County, Virginia. It has three drift portals located on Linn Camp, four drift portals located near Slate Creek, and averages 42 to 44 inches in height. The mine is ventilated with two main blowing fans located at the Linn Camp and Slate Creek drift openings. Mine personnel and supplies are transported underground by battery-powered rubber tire personnel carriers. The mine currently has two active sections, designated as H and A section. Coal is produced on the two sections using remote controlled continuous mining machines, shuttle cars, battery-powered scoops, and roof bolting machines. The mine produces approximately 1,724 tons of raw coal daily. A-Section is developing the A-5 Panel located right off of the A-Block Submains. The H-Section is advancing seven entries on the Submains B development and is located approximately 12,400 feet from the surface. Coal is transported from the section working faces to a system of belt conveyors for transport to the surface. The mine employs 85 mine personnel and operates a day and a second shift for production and a third shift for general work and maintenance. A regular inspection initiated on February 11, 2014, was in progress at the mine. The mine was licensed on February 28, 2007.

Photographs, measurements, survey, mapping, and personnel interviews were obtained during the investigation. Additional tests were conducted and information collected from the continuous mining machine's electronic control system memory by a Joy Manufacturing field representative. An accident scenario reenactment was conducted by MSHA District 5 personnel, MSHA Technical Support personnel, the Virginia Division of Mines' Emergency Response Team with assistance provided by Dominion Coal Corporation, Mine No. 30 personnel.

COMMENTARY

Mr. Arthur Gelentser started work on the second shift at the normal time of 1:30 p.m. on February 21, 2014, along with the H-Section and A-Section production crews. A brief safety meeting was held on the surface prior to entering the mine. Mr. Gelentser and the H-Section production crew traveled to the H-Section entering the mine at approximately 1:40 p.m. The tracking system reported that this crew was seen at the third crosscut underground at 1:40 p.m. The production crew consisted of seven employees, supervised by Mr. Kenneth Harris, Jr., section mine foreman. The crew arrived on the H-Section to hot seat with the day shift production crew, as normal. The second shift mantrip was stopped in the No. 4 Entry where the men exited and traveled to their equipment to resume production at approximately 2:20 p.m. Mr. Harris and Mr. Kevin Duty, section electrician, took the mantrip to the section power center located in the No. 5 Entry to place it on charge.

The day shift completed mining operations in the connecting crosscut of the No. 4 Entry left crosscut and was mining in the No. 4 Entry face when the second shift arrived. The second shift production activities proceeded routinely with Mr. Gelentser operating the radio remote controlled continuous mining machine. Mr. Gelentser had resumed mining operations in the No. 4 Entry partial cut left by the day shift mining operations when Mr. Harris arrived and discussed the mining plan with Mr. Gelentser. Mr. Harris departed and traveled to the No. 1 Entry working place where he marked the centerline for mining. He left the No. 1 Entry and took an air measurement for the left air split before traveling to the No. 5 Entry working place to mark the centerline for a projected crosscut turn.

During this time, Mr. Duty was operating his maintenance personnel carrier and arrived back on the section with his tools and a water pump which was needed to replace a water pump installed in a water pool in the No. 5 Entry. While coal production continued in the No. 4 Entry working place, Mr. Duty worked on the water pump in the No. 5 Entry one crosscut in by the section power center located one crosscut out by the last open line of crosscuts on the H-Section and one crosscut in by the section power center.

Mr. Gelentser completed mining operations in the No. 4 Entry face and repositioned the continuous mining machine in the No. 4 Entry right crosscut and finished the cut (second cut in the crosscut). Mr. James Parnell, shuttle car operator, arrived and spoke briefly with Mr. Gelentser before leaving the No. 4 Entry right cut to park his shuttle car in the No. 4 Entry right crosscut located one crosscut out by the last open line of crosscuts.

While Mr. Gelentser trammed the continuous mining machine back from the No. 4 Entry working place, Mr. Parnell traveled to the No. 1 Entry where he installed the ventilation curtain in preparation for mining operations. Mr. Gelentser trammed the continuous mining machine to a location out by the No. 4 Entry intersection in the last open line of crosscuts. Mr. Richard Smith and Mr. James Pruitt, roof bolting machine operators, assisted Mr. Gelentser with clearing the miner trailing cable slack from the haulway, and then moved the Fletcher dual boom roof bolting machine into the No. 4 Entry working

place to begin roof bolting operations. Mr. Gelentser then proceeded to tram the miner from the No. 4 Entry toward the No. 1 Entry working place.

At this time, Mr. Parnell had traveled back at the No. 3 Entry where he met Mr. Jeff Keen, shuttle car operator. Mr. Keen had parked his shuttle car in the No. 3 Entry outby the intersection and was positioned to help with the miner cable as the machine trammed to No. 1 Entry. Mr. Parnell and Mr. Keen remained inby the No. 3 Entry intersection in the clear as the continuous mining machine approached their location. Mr. Gelentser was walking approximately 5 feet behind the conveyor boom of the continuous mining machine as the machine passed by Mr. Keen and Mr. Parnell in the No. 3 Entry. Mr. Gelentser stopped the continuous mining machine briefly and told Mr. Parnell to travel to the No. 4 Entry intersection and stay there to keep the miner cable out of the haulway. Mr. Gelentser dropped the second rope of miner cable slack in the No. 3 Entry and continued tramping the miner towards the No. 1 Entry. The cutting cable slack remained attached to the conveyor boom with the last cable strap.

As Mr. Gelentser was tramping the miner to No. 1 Entry, Mr. Parnell was positioned at the left inby corner of the No. 4 Entry intersection and Mr. Keen remained inby the No. 3 Entry intersection to help keep the miner cable from pulling into the haulway.

Mr. Keen noticed the continuous miner cable stopped moving indicating the continuous miner had stopped tramping. He estimated three or four minutes passed by with the miner stopped. Mr. Keen assumed the miner stopped moving because a reoccurring startup problem had occurred again. For the past three days, the continuous miner had been failing to start back after being intentionally stopped using the emergency stop function or loss of radio signal. The startup problem occurred randomly during operation of the miner and required the circuit breaker be reset at the machine's control panel or at the section power center. After resetting the circuit breaker, the onboard computer system would reboot generally taking three to four minutes to start back. The machine problem resulted in minor production delays. The preceding day shift production report indicated 20 minutes of delays caused by the continuous mining machine being shut off. The startup problem had not occurred during the second shift mining operations in the No. 4 Entry working places.

When Mr. Harris completed the centerline in the No. 5 Entry working place, he traveled outby to the No. 5 Entry intersection. When he arrived, he did not hear any sound to indicate the continuous mining machine was running. He asked Mr. Parnell why they were not running. Mr. Parnell said that the miner must have quit again. Mr. Harris could not see the continuous mining machine in the last open crosscut from his position in the No. 5 Entry due to a dip in the mine floor.

Mr. Harris instructed Mr. Keen to go and find out what was wrong with the continuous mining machine and see if he needed an electrician to assist him. Mr. Keen traveled towards the No. 1 Entry working place. When Mr. Keen arrived in the No. 2 Entry left crosscut, he found Mr. Gelentser pinned against the right rib with the continuous mining machine's conveyor boom located in the No. 2 Entry left crosscut. Mr. Keen

immediately ran back towards the No. 4 Entry in a panic, yelling that Mr. Gelentser was pinned by the miner.

Mr. Parnell informed the roof bolters in the 4-Right crosscut of the accident and immediately traveled outby in the No. 4 Entry to the section feeder, turned the feeder off, and called Scott Deel outside to report the accident using the secondary mine telephone. Mr. Harris immediately traveled to Mr. Gelentser's location at the accident scene and observed him pinned between the rib and the conveyor boom of the continuous miner. As others became aware of the accident, Mr. Duty immediately traveled to Mr. Gelentser's location using his maintenance personnel carrier while Mr. Parnell traveled to gather the first aid equipment and the section mantrip. Mr. Harris proceeded to the primary escapeway telephone to report the accident to surface personnel and arrange emergency transportation.

Arriving at the accident scene, Mr. Duty observed that continuous miner's pump motor was off and the conveyor boom had Mr. Gelentser entrapped against the right rib. Mr. Duty proceeded to free the remote control station which was partially caught by the conveyor boom. Mr. Duty was able to free the remote box and energized the continuous mining machine. Mr. Duty moved the boom away to free Mr. Gelentser. At this time, Mr. Parnell arrived with the first aid supplies and the Automatic External Defibrillator (AED).

Mr. Gelentser was positioned on the mine floor and first aid treatment was initiated. He was not responsive; and when his vital signs were assessed, only a faint pulse was thought to have been detected. Cardiopulmonary Resuscitation (CPR) was initiated immediately. The AED was placed on Mr. Gelentser's chest and following analysis, the AED voice prompted to continue chest compressions. Mr. Gelentser was immobilized on a backboard and transported to the surface using the section mantrip. The AED remained in operation and CPR was sustained by Mr. Riley and Mr. Parnell as he was transported to the surface. Mr. Cyphers operated the mantrip as Mr. Gelentser was being transported from the H-Section to the surface (a travel time of approximately 35 minutes). Arriving on the surface, Mercy Ambulance Service transported Mr. Gelentser to Clinch Valley Medical Center, Richlands, Virginia, where he was pronounced dead.

STATEMENTS FROM MINE PERSONNEL AND OTHER FACTORS

The following statements from mining personnel were provided during interviews held by MSHA and Division of Mines' representatives on February 24 and 26, 2014, at the MSHA District 5 field office in Oakwood, Virginia.

1. There was no eye witness to the accident.
2. According to mine personnel arriving at the accident scene, the pump motor on the continuous mining machine was not running when Mr. Gelentser was discovered. The onboard computer diagnostics indicated code M1263 – “Hardware Detected Loss in Radio Communications”.
3. Mine personnel stated the continuous mining machine was operating normally prior to the accident without any delays. For the past three days, the continuous miner had been failing to start back after being intentionally stopped using the emergency stop function or loss of radio signal. The startup problem occurred intermittently during operation of the miner. When the problem occurred, the circuit breaker had to be reset either at the machine's control panel or at the section power center. After the circuit breaker was reset, the onboard computer system would reboot, which generally took three to four minutes for the miner to start back. Mine management was aware of the startup problem and troubleshooting work to correct the condition had been conducted. The startup problem had previously resulted in minor production delays. Mine personnel stated that the startup problem had not occurred during the second shift mining operations in the No. 4 Entry working places prior to the accident occurring.
4. Mr. Duty stated once he freed the remote control station from the conveyor boom, he only had to reset the emergency stop switch to restart the miner. He stated he only swung the conveyor boom away from Mr. Gelentser and did not tram the continuous mining machine at all.
5. There was no neck strap attached to the remote control unit involved in the accident. According to interviews of the employees, it was common for Mr. Gelentser to not use a neck strap while using the remote control.
6. Mr. Gelentser normally walked behind the continuous mining machine when it was being trammed. Mr. Gelentser normally walked in a stooped over position on the section instead of crawling. This position is commonly called duck walking.
7. When asked, none of the interviewed employees indicated that they had ever witnessed Mr. Gelentser operating the miner from an unsafe position.

PHYSICAL AND OTHER FACTORS

The investigation revealed the following:

1. The accident occurred at approximately 3:37 p.m. on February 21, 2014. The accident occurred in the No. 2 Entry left crosscut developed between the No. 1 Entry and the No. 2 Entry in the last open line of crosscuts on the H-Section approximately 30 feet left from survey station No. 3636.
2. The continuous mining machine was being trammed by Mr. Gelentser from the No. 4 Entry working place to the No. 1 Entry. Mr. Gelentser had completed the No. 4 Entry partial cut that was not completed by the day shift. Mr. Gelentser then mined a 20-foot deep miner cut in the No. 4 Entry right crosscut before proceeding to tram the continuous mining machine from the No. 4 Entry working place. Mr. Gelentser then proceeded to tram the continuous mining machine across the section in the last open line of crosscuts to the No. 1 Entry working place to resume mining.
3. Physical evidence and mine personnel statements confirmed Mr. Gelentser was caught and entrapped between the conveyor boom tail area of the continuous mining machine and the right inby coal rib in the No. 2 Entry left crosscut which was the connecting crosscut developed between the No. 1 Entry and No. 2 Entry. There was an area on the right inby rib where the rock dust on the coal appeared to have been scuffed off indicating Mr. Gelentser's location at the time of the accident.
4. Mr. Gelentser was discovered in the No. 2 Entry left crosscut with his body position kneeling down or crouched down on his feet with his back against the right inby coal rib. The conveyor boom had his left knee pushed against his chest area and the remote control station was positioned between his knees. The conveyor boom had a section of the remote control station caught requiring it to be forced free. His right knee was on the mine floor free from contact with the boom.
5. The cutting head and conveyor pan of the continuous mining machine were raised in the tramping position above the mine floor, and the conveyor boom was turned towards the right inby coal rib.
6. During the post-accident reenactment, the conveyor boom was turned towards the right rib of the No. 2 Entry left crosscut to the full extent (45 degrees). The measurement between the tail of the conveyor boom and the coal rib was $5 \frac{9}{16}$ inches measured at the estimated location of Mr. Gelentser's body at the time of the accident. The exact location of the conveyor boom at the time of the accident could not be determined. However, mine personnel stated that the conveyor boom was positioned towards the inby rib to keep the cable out of the haulway while the continuous mining machine was being trammed towards the No. 1 Entry.
7. The mine floor conditions were wet and muddy although the floor had no uneven areas or other irregularities. There was a dip in the floor in the No. 3 Entry intersection in the last open line of crosscuts and water was pooled in the dip.

8. The remote controlled continuous mining machine was a Joy Machinery Company / Joy Manufacturing – Model 14CM10-11AX continuous miner, Serial No. JM6490. The nominal input voltage to the machine was 995 volt, 3-phase alternating current, 60 hertz.
9. The radio remote control station was a Joy Mining Machinery Model No. TX3 Permissible Radio Transmitter manufactured by Matric Limited, Serial No. 155609AM013.
10. The remote control station had a Koehler cap light battery attached on the left side of the unit.
11. Once the accident had occurred, the initial delay in responding to the accident may have been increased by the employees knowledge of the reoccurring problem with rebooting the continuous mining machine's onboard computer diagnostics system and thinking that was why the continuous miner was not moving.
12. There was a slight contour or curve along the inby right coal rib where the No. 2 Entry left crosscut that occurred during the development of the crosscut. The crosscuts are projected and developed at a 90 degree angle at this mine. The continuous mining machine was located where the cutting of the roof rock had been decreased from the previous cut. This off-set in the roof line was located approximately two feet toward the No. 2 Entry from the conveyor boom and decreased the height in the crosscut approximately 6 inches.
13. The No. 2 Entry left crosscut had been turned and developed from the No. 2 Entry working place to connect the No. 1 Entry working place. The crosscut had been developed off centers to the right of the centerline approximately 5 feet. When the development of the crosscut was brought back on centers, it created a curve in the inby rib line. This condition could have caused Mr. Gelentser to turn the miner to left while trammng the machine through the crosscut causing him to become caught by the conveyor boom as the machine turned.
14. The mining height in the No. 2 left crosscut at the location of the continuous mining machine was approximately 44 inches.
15. Illumination in the area was not a factor. The mine roof and coal ribs were rock dusted well. When the machine was energized for testing by the investigating team following the accident, the area lights on the machine were all operable indicating the area would have been provided with adequate illumination for visibility.
16. A cable hook was installed near the end of the conveyor boom of the continuous mining machine to attach the cable handling straps. During trammng operations, nylon straps attached to the trailing cable slack are attached to the boom hook to pull the cable along with the machine as it is trammed. This allows the trailing cable to be positioned out of the path of the machine. One of these straps with a loop of cable cutting slack was still attached to the cable hook at the time of the accident.
17. The event data was retrieved from the AED unit. The data indicated that the machine ran for 53 ½ minutes.
18. A review of the company's training records indicated that the victim had received task training on the operation of the remote control continuous mining machine. The victim had also received training regarding the approved roof control plan.

19. The weekly underground electrical examination records were complete, up-to-date, and in compliance.
20. The daily pre-shift and on-shift mine examinations records were complete and found in compliance.
21. The day shift daily production records for the date of the accident on February 21, 2014, completed by Phillip Ward, section foreman, indicated 20 minutes downtime for the “miner cutting off on the operator”. The day shift indicated only minor delays and the production report indicated 7.5 miner cuts were mined (113 feet total coal produced).
22. It was determined that at the time of the accident the mine’s tracking system was not functioning properly in the face area of H-Section. While this did not contribute to the accident, a violation was written based on the facts that the system was not maintained according to manufacturer specifications and valuable data concerning the accident was lost.

TESTING REMOTE AND CONTINUOUS MINING MACHINE AT THE MINE SITE:

Tests were conducted by the accident investigation team at the accident location during the initial visit to the scene and a follow-up visit. Functional testing of the remote control system and the continuous mining machine at the accident location demonstrated that the machine and remote control system functioned properly with no problems observed. During this examination, the checklist provided by Joy Manufacturing was used and the following conditions were observed:

Joy Appendix A6 – Remote Control System and Machine Performance Test Checklist

Item or function to be checked	Checked	N/A
Document the part number, serial number, and approval number of victim’s remote control; and spare remote control if used for performance testing	Part# 100510082 Serial# 155609AM013 Approval# 2G-4096-0	No spare remote
Record address/frequency of remote control	900 MHz	
Document method of carrying remote control	Hand carry by operators	
Check condition of all rubber switch boots	All rubber boots in good condition	
Determine if unapproved alterations were made to the remote control (e.g. switch extenders, taped up interlocks, etc.)	No visual evidence of any alterations	
Verify operation of the e-stop switch is unobstructed	Operated correctly in both directions	
Verify the machine cannot be restarted with remote e-stop depressed	Machine would not start with e-stop depressed	
Verify the remote control has to go through a “restart” process if the remote control e-stop is pressed	Two hand restart required after e-stop depressed	

Verify the machine has to go through a “restart” process if the remote control e-stop is pressed	Machine has to go through a restart process to restart machine	
Verify all remote control switches perform their intended function with concentration on area involved in the accident	Operated all switches function and performed their intended function	
Determine if controls are on/off or proportional	yes	
Verify that all switches return to neutral position when released, if designed to do so	Operated all switches and they returned to the neutral position	
Determine the sensitivity of critical switches on remote control (e.g. how much movement from neutral is required to activate machine function)	All within the normal operating movement	
Determine if the remote control has a “stuck button” check during power on sequence	Depress conveyor swing and machine would not start	
Verify that all LEDs and/or displays operate properly on the remote control	All LEDs operated properly	
Document what features of the machine remain energized (e.g. pump, lights, methane monitor, etc.) when the remote control e-stop is depressed as opposed to when the machine is intentionally stopped, or when power to the remote control is lost	Lights and Methane Monitor	
Verify the tram enable feature operates by attempting to tram without activation of the enable switch	Would not tram without enabling the tram enable switch	
Determine the remote control tram enable feature “timeout” time (e.g. 5 seconds?)	2-3 seconds	
Determine the remote control shift key “timeout” time, if applicable		N/A
Verify that the machine’s pump drops out upon loss of power of remote control by turning remote off or unplugging battery and verifying machine does not move upon re-energization	Unplugged battery and machine pump dropped out	
Verify machine does not drop out with shaking of the remote control, movement of power cord, or power connectors	Shake and rotated and machine did not drop out	
Verify that the machine’s pump drops out upon loss of signal from remote control by taking remote control out of range, and record the distance (e.g. 150 feet)	Traveled approximately 90 feet outby boom and around corner before machine lost signal	
Verify if any other remote control safety features such as a tilt switch or dead man switches, etc., if present, are operational, and determine their sensitivity		N/A
Determine how many speeds the machine has	3 speeds	

Verify if the machine has speed cut-back, for example, when the cats are split or in forward direction with the cutter head on	Speed cut back while cutter head operating	
Measure and time the tram speed of the machine for all available speeds	1st speed – 16 FPM 2nd speed – 34 FPM 3rd speed – 92 FPM	
Measure and time the tram rotational speed of the machine for all available speeds		
Measure the swing speed of the conveyor boom from full left to full right, center to left, and center to right, and vice-versa, if applicable	Full left to full right - 12 seconds Full right to full left - 19 seconds Center to full left - 8 seconds Full left to center - 4 seconds Center to full right - 5 seconds Full right to center - 7 seconds	
Determine amount of machine movement after release of switch and upon pressing of e-stop	None in low speed Minimum in 3 speed	
Verify that all on-board machine e-stops are operational (e.g. they all shut down the pump motor.)	2 e-stops, 1 on right side and 1 on left side, both shut down the pump motor	
Verify remote control system does not work when manual/remote switch on machine is turned to “manual”	Switched to manual and remote station would not start machine	
Verify on-board machine controls function properly (e.g. for freeing victim). This should be done in a safe area such as a crosscut.	No on-board controls except control switches	
Verify that all lights are operational	2 area lights on operators side (right) – both operating 1 area light on offside (left) – not operating 1 spot light on operator side - operating 1 spot light on offside -- operating	
Evaluate potential for cross activation of the remote control system with a remote control from another machine (e.g. different address/frequency)	Only 1 machine on section and no spare remote stations	

Evaluate potential for cross activation of the remote control system with a spare remote control for the same machine (e.g. same address/frequency)	No spare remote station	
Evaluate potential for interference with any other RF sources that may have been in use at the time of the accident (e.g. walkie-talkies)	Place walkie-talkie on machine to near machines remote antenna. Started machine and keyed several walkie-talkies at the same time and no interference with any function on machine	
Determine if victim's position could have presented an orientation concern		

The continuous mining machine was outfitted with an onboard computerized control system built by Joy Mining Machinery and called Joy Network Architecture (JNA). This system performs numerous diagnostic checks and records computer events. The information from this system was used to determine the machine functions (movement, shutdown, etc.) and to establish a timeline of events. However, exact times could not be determined due to the fact that the system battery that provided power for the internal clock was faulty at the time of the accident. Each time the machine was re-energized after having the power shut off, the internal clock defaulted to 01/01/09 00:00:00 and began counting up. The following are highlights of important information determined by downloading the data:

1. At the time of the accident, the internal clock read 01:15:00, thus indicating the miner had not been de-energized and reset for 1 hour and 15 minutes.
2. The miner stopped due to a loss in communication with the remote.
3. At 01:14:02, the tram was enabled on the miner and remained enabled for 58 seconds until the loss in communication.



4. There were no other events recorded until 01:30:43 when Mr. Duty initiated start up in order to swing the boom and free Mr. Gelentser.



TESTING REMOTE AT THE LABS

On April 8, 2014, DM representatives traveled to Matric Electronics in Seneca, PA for the testing of the lightweight remote control box (remote) involved in the Dominion 30 fatality. The remote was examined and tested by Russ Cataldo, II, supervisor at Matric Electronics, in the presence of MSHA and DM representatives. The following is a summary of the examination and test:

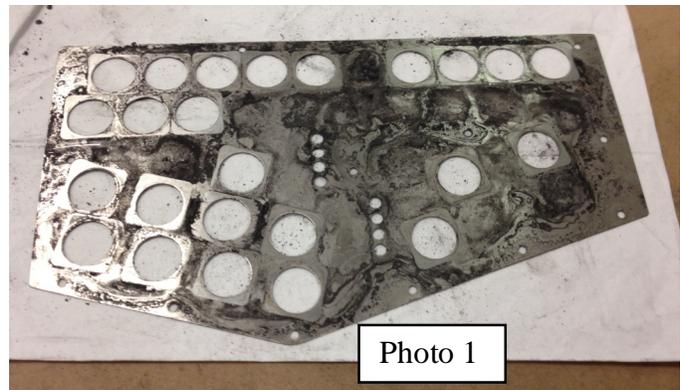
1. The overall appearance of the remote was examined and the following conditions were noted:
 - a. Left tram lever was bent slightly to the right.
 - b. Right handle was broken.
 - c. All switch rubber boots appeared to be in good condition.
2. Each of the control switches were operated to check for sticking. None of the switches malfunctioned.
3. Mr. Cataldo noted that the battery connected to the remote was a Lithium Ion and he thought the remote was only approved to use a lead acid type battery. The approval drawings were checked and any approved cap light battery can be used.
4. Mr. Cataldo stated that the locking pins on the remote PTO where the remote cord connects were worn.
5. The battery was connected to the remote and was checked to see if the unit would power up and if all of the display lights would work. Also, the remote cord was checked. The remote was operating on channel 1. No deficiencies.

6. The remote was connected to the test bench that supplies power and operating functions. The remote powered up and connected to the JNA test unit (JNA).
7. The serial number was verified on the remote plate with the serial number on the JNA display.
8. The eight lights were checked for operation; no deficiencies.
9. Each of the 24 switches on the remote was operated to verify the function and orientation was correct on the JNA. Each switch operated correctly.
10. The remote was connected to a computer to determine the calibration of the neutral position of each of the 24 switches. The tolerance range of switches was ± 7 . All of the switches were within the tolerances range.
11. Each switch was operated to full range to determine the calibration values. All switches were within the tolerance range.
12. The remote back cover was removed to verify if the remote had any alternation. All parts appeared to be approved. The remote was very clean on the inside with no evidence of tampering.

After all of the tests and inspection, no functional deficiencies were discovered.

On April 9, 2014 DM representatives traveled to MSHA Tech Support for the inspection of the lightweight remote control box (remote) involved in the Dominion 30 fatality. The following is a summary of the inspection. The remote was disassembled to verify if the remote was built according to the approval.

1. The front plate was removed to allow the removal of the 24 switches. (see photo 1 and photo 2)
2. All of the switches were removed from their sockets. Several of the switches had an accumulation of coal around the magnet. The previous day test revealed no deficiencies in the function of the switches. (see photo 2 and photo 3)
3. The Shear up and down had the most accumulation. (see photo 2 and photo 3)



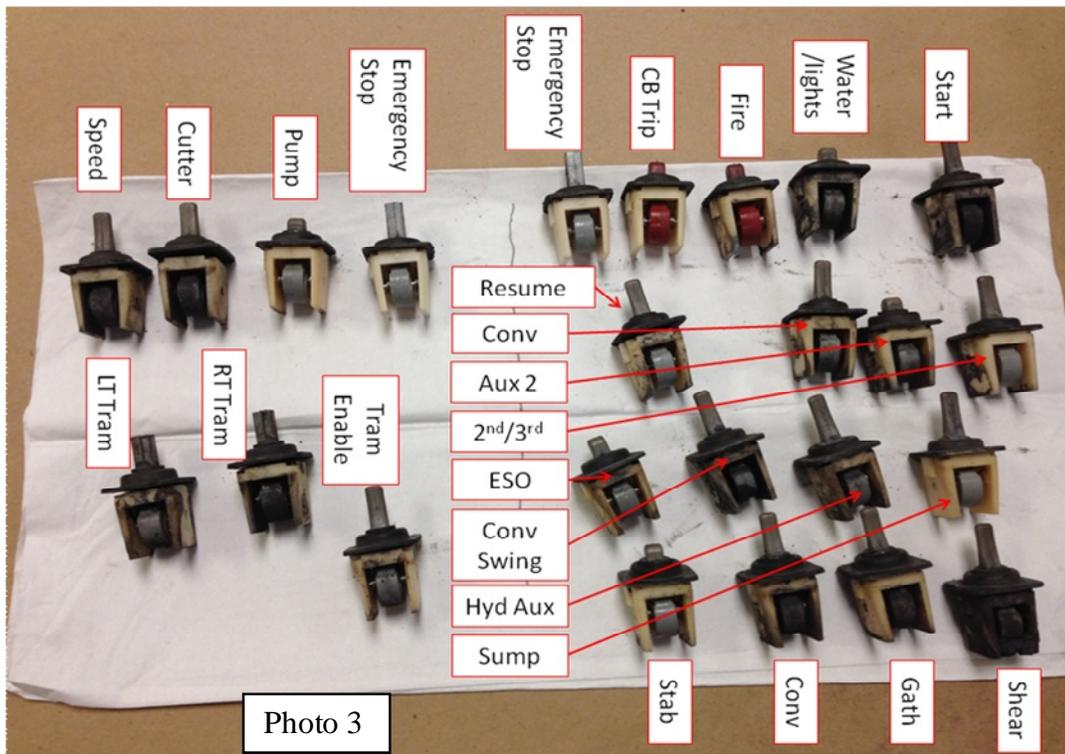


Photo 3

4. The back cover was removed and the circuit board was removed from the remote. (see photo 4)
5. Each of the electronic components was verified with the approved drawings on file at MSHA Tech Support to verify the model number, value, and size. No discrepancies were found. (see photo 5)
6. Measurements of the components were verified with the approval drawings. No discrepancies were found.
7. The circuits on the printed circuit board were verified with the approval drawings. No discrepancies were found.



Photo 4

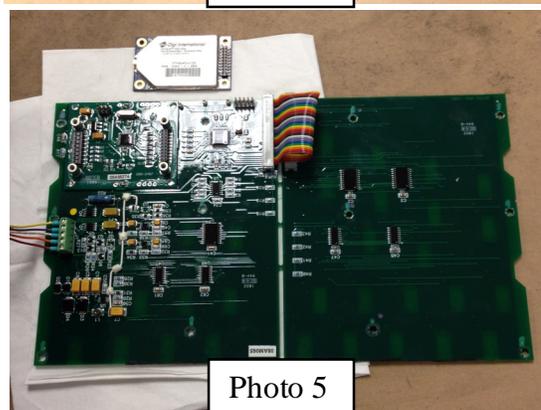


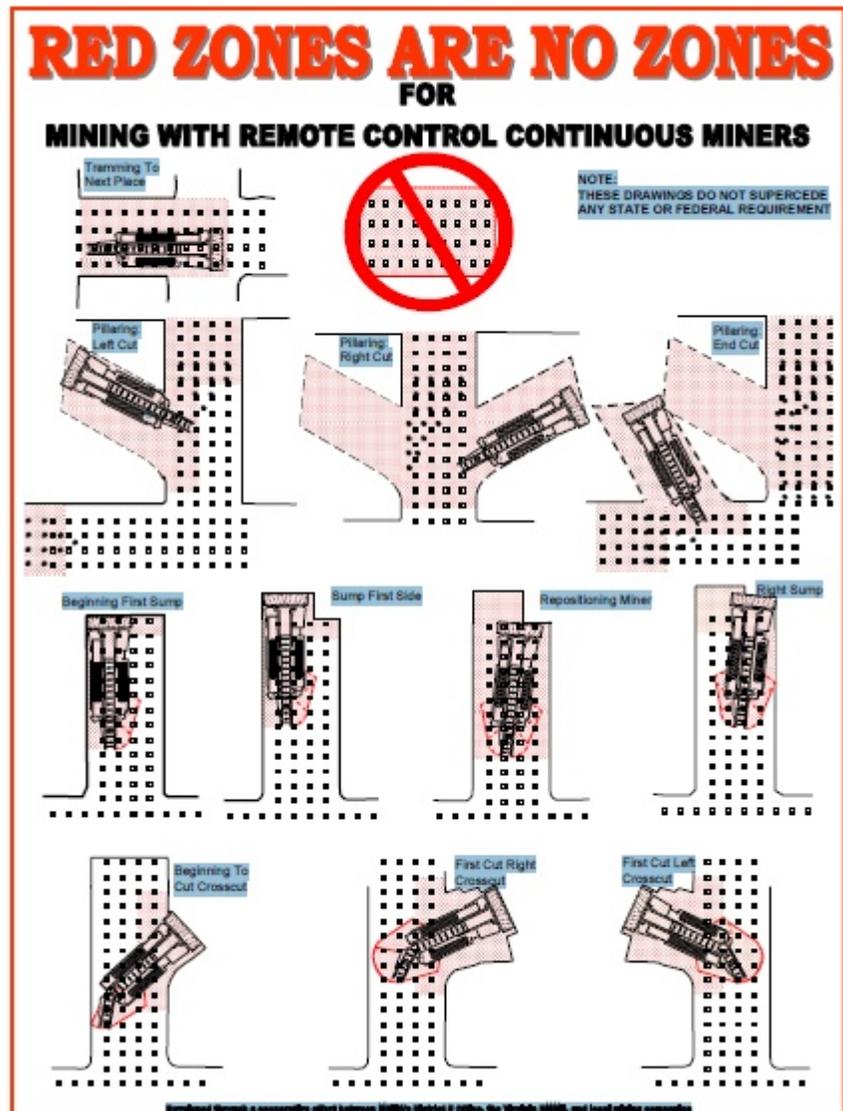
Photo 5

Roof Control Plan

Safety precautions for remote control operation of continuous mining machines were included in the approved roof control plan in effect at the time of the accident. The following applicable provision was specified in the plan, under Section I - Operation Procedures of Continuous Mining Machines - Statement 3, "At anytime the continuous mining machine is being trammed, no person shall be positioned between the continuous mining machine and the coal rib while trampling the machine from place to place or while repositioning the machine during the cutting / loading cycle. All persons shall remain in a safe location away from pinch points created by either the continuous mining machine and / or other equipment."

Red Zones

All of the interviewed employees were questioned specifically about the "Red Zone" restrictions. "Red Zone" is a common term used in coal mining to identify areas around remote control continuous miners where crushing hazards exist. Figure 1 is an illustration of red zone areas commonly posted at coal mines. The miners stated that they had been trained by the mine operator and knew about "Red Zones" and no one indicated that they had ever witnessed Mr. Gelentser operate the miner while he was located in a red zone.



CONCLUSION

On February 21, 2014, at approximately 3:37 p.m., an underground machinery accident occurred at the Dominion Coal Corporation, Mine No. 30. Mr. Arthur David Gelentser, III, continuous mining machine operator, received fatal injuries as a result of being caught between the conveyor boom tail of the continuous mining machine and the right inby coal rib while tramming the 14CM10-11AX remote controlled continuous mining machine through the No. 2 Entry left crosscut to resume mining operations in the No. 1 Entry working place located on the H-Section.

The investigation determined that, for undetermined reasons, Mr. Gelentser apparently placed himself in a pinch point (red zone) between the right inby coal rib of the crosscut and the conveyor boom tail area of the continuous mining machine while the machine was being trammed. The continuous miner lost the radio remote signal and shut down when Mr. Gelentser became entrapped against the coal rib with the conveyor boom tail.

The accident was caused by failure to follow provisions of the mine's approved roof control plan which states: "At anytime the continuous mining machine is being trammed, no person shall be positioned between the continuous mining machine and the coal rib while tramming the machine from place to place or while repositioning the machine during the cutting / loading cycle. All persons shall remain in a safe location away from pinch points created by either the continuous mining machine and / or other equipment."

ENFORCEMENT ACTION

The following enforcement action was taken as a result of the investigation:

- Order of Closure No. RDW0008314 was issued under §45.1-161.91.A.(ii) of the Coal Mine Safety Laws of Virginia on the H Section to preserve the scene of the accident pending an investigation. The order of closure also included the operation of the continuous mining machine located on the A Section pending examination and testing. The order was modified to permit mine maintenance work on the H Section and to repair an obstructed emergency stop switch on the A Section continuous mining machine. The order was later corrected upon completion of the underground part of the accident investigation.
- Order of Closure No. RDW0008338 was issued under §45.1-161.91.A.(i) Referencing §45.1-161.109.C of the Coal Mine Safety Laws of Virginia for an imminent danger that was created when the continuous mining machine operator positioned himself in a pinch point between the continuous mining machine's conveyor boom and the right inby coal rib, while tramming the machine from place to place.
- An action plan was submitted for approval addressing additional safety precautions to be taken to ensure safe continuous mining machine operations with respect to red zones, pinch points, and established procedures for emergency actions in the event of accidental entrapment. The action plan was applicable to all continuous mining machines operated at the mine.

RECOMMENDATIONS

1. Proximity detection systems are available for installation on continuous mining machines.
2. Training on “RED ZONES” should be conducted frequently for all mining personnel who operate or work near continuous mining machines.
3. Mining machine operators should be stationed away from “RED ZONES” and in a safe location while tramming the machine from place to place or while repositioning in the area being mined.
4. Low tram speed should be used when the left and right traction drives are operated independently (splitting the crawlers) while tramming or repositioning continuous mining machines.
5. Another person should be immediately available to assist the continuous mining machine operator when the machine is being moved or repositioned.
6. The “Right Choice”, a safety video developed by the Virginia Department of Mines, Minerals, and Energy, which addresses continuous mining machine operator safety, can be reviewed during various types of training and retraining classes.

SIGNATURE SHEET

This report is hereby submitted by Chris Whitt and approved by Randy Moore:

Chris Whitt 7/31/14

Chris Whitt, Emergency Manager **Date**

Randy Moore 7/31/14

Randy Moore, Chief **Date**

APPENDIX

VICTIM DATA SHEET

PERSONS PRESENT DURING THE INVESTIGATION

MINE LICENSE INFORMATION

SECTION DIAGRAMS AT TIME OF ACCIDENT

PICTURES OF ACCIDENT SCENE

VICTIM DATA SHEET

Name:	Arthur (D.J.) David Gelentser, III
Occupation:	Continuous Mining Machine Operator
Date of Birth:	November 21, 1989
Total Mining Experience:	Five years and 26 weeks
Experience with Present Company:	Two years and 26 weeks
Employment at Present Operation:	One year and three weeks
Certification History:	Underground General Coal Miner Surface General Coal Miner Gas Detection

PERSONNEL

The following personnel provided information and/or were present during the investigation:

Virginia Division of Mines

Tim E. Lyall	Mine Inspector
Opie S. McKinney	Mine Inspector Supervisor
Terry Ratliff	Mine Inspector
Rusty Ward	Mine Inspector
Chris Whitt	Emergency Manager

Mine Safety and Health Administration

James A. Kiser	Assistant District Manager
Michael B. Colley	Supervisory Coal Mine Safety and Health Inspector
Delmer Hess	Supervisory Coal Mine Safety and Health Inspector
Terry Sheffield	Staff Assistant
Russell A. Dresch	Electrical Engineer
Stephen B. Dubina	Electrical Engineer
Mark A. Tuggle	Coal Mine Safety and Health Inspector (Roof Control / Impoundments)
Mark C. Hlywa	Coal Mine Safety and Health Inspector
Paul E. Smith	Coal Mine Safety and Health Inspector

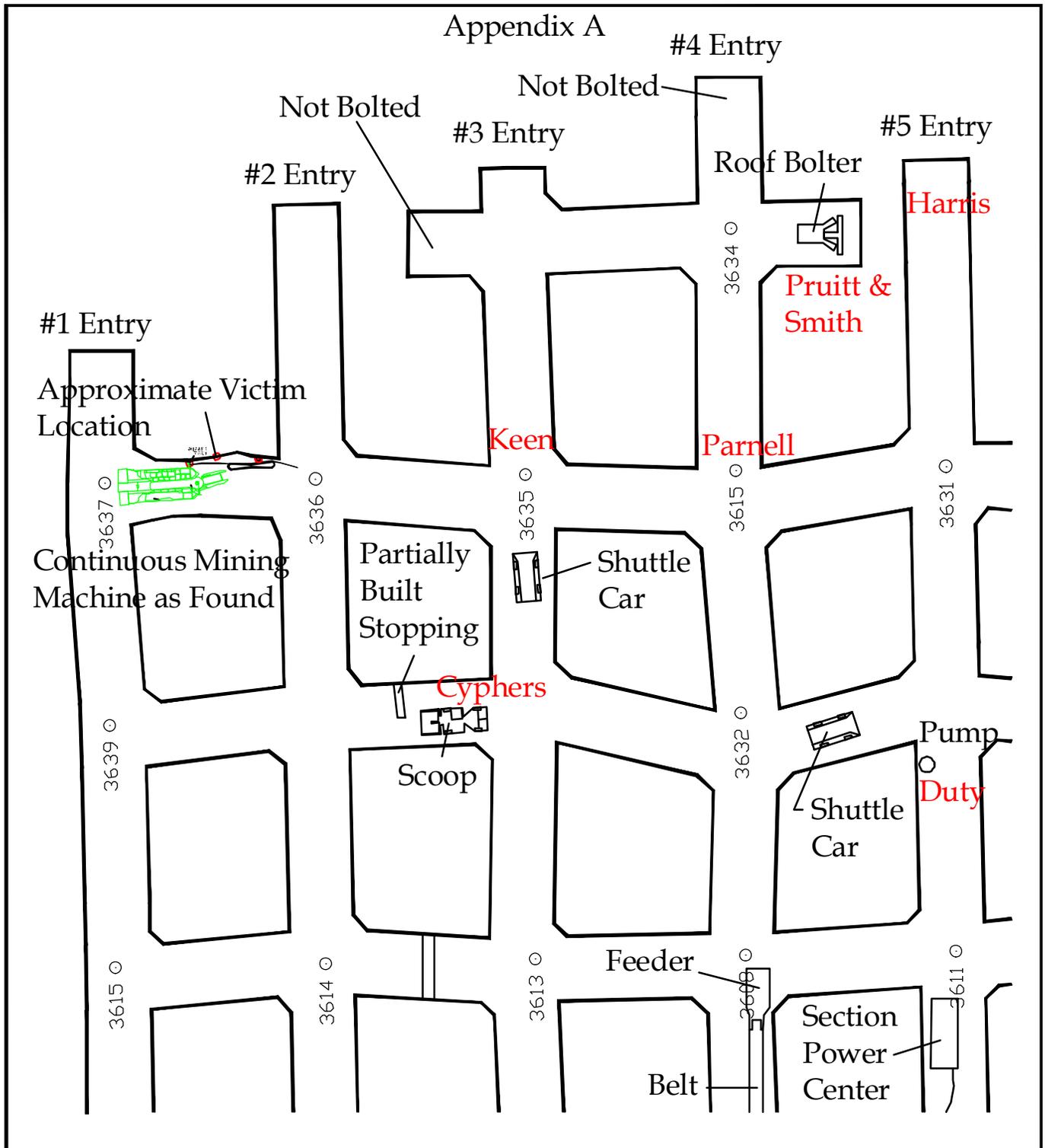
SunCoke Incorporated / Dominion Coal Corporation

Patrick Artrip	Assistant Chief Engineer
Charles Auville	Mine Foreman
Casey Colley	Superintendent
Carl Coleman	Safety Inspector
Scotty Deel	Shift Foreman 2nd
John Kegley, Jr.	General Manager-Coal
Jason Lawson	Chief Electrician
Greg Ratliff	Mentor
Todd Smith	Maintenance Foreman 2nd Shift
Tim Thompson	Manager of Health and Safety
Roger Vandyke	Draftsman

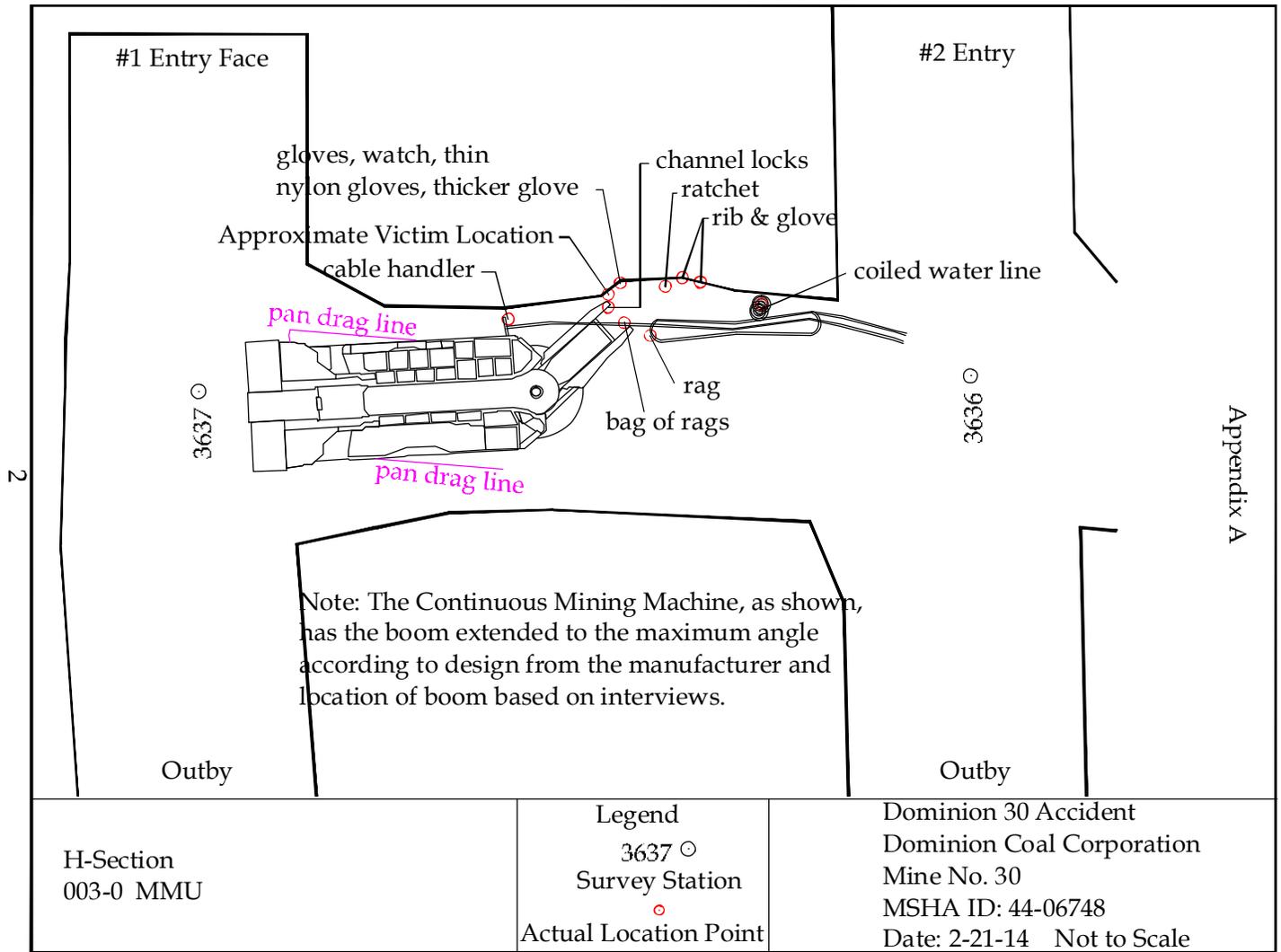
MINE LICENSE INFORMATION

Official Corporation	SunCoke Energy Incorporated
Official Business Name of Operator	Dominion Coal Corporation, Mine No. 30
Person with Overall Responsibility	Casey B. Colley
Person in Charge of Health and Safety	Casey B. Colley

Appendix A



<p>H-Section 003-0 MMU</p>	<p>Legend 3634 ○ Survey Station Miners Names/ Location</p>	<p>Dominion 30 Accident Dominion Coal Corporation Mine No. 30 MSHA ID: 44-06748 Date: 2-21-14 Drawing Not to Scale</p>
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H-Section
003-0 MMU

Legend
 3637 ○
 Survey Station
 ●
 Actual Location Point

Dominion 30 Accident
 Dominion Coal Corporation
 Mine No. 30
 MSHA ID: 44-06748
 Date: 2-21-14 Not to Scale





