Peabody

PEABODY ENERGY

701 Market Street
St. Louis, Missouri 63101-1826
314.342.3400

December 3, 2004

To whom it may concern,

The attached document captures Peabody Energy comments submitted to MSHA concerning the proposed rule for high voltage miners. As you know, Peabody was the first company to receive a PFM for the use of high voltage miners in the U.S. and we now operate nearly one-half of all high voltage continuous miners in this country. Our experience with this new technology has been very positive from a safety standpoint and we believe it represents an important step forward for the industry.

However, some of the onerous requirements for the existing petitions have caused other companies not to employ these important advancements because the production advantages are offset by impractical cable handling practices contained in the petitions. We refer you to our comments regarding sections 75.827, 75.828 and 75.833 of the proposed rule. Many of the commenters at the public hearings have objected to the need for wearing electrician's gloves when handling the 2,400 volt cable and were opposed to hanging the cable instead of treating it like a regular trailing cable.

Overall, the rule, when modified, will allow for the safe operation of high voltage machines in the nation's mines. The electrical protections included in the cable and related controls will improve the safety for miner operators and helpers when compared to the current low and medium voltage systems. Many of the commenters who spoke in opposition to the proposed use of high voltage in the face areas had no experience with this new technology. They had difficulty with the counterintuitive concept that higher voltage could be safer for them. However, the facts as presented by JOY Mfg. and Dr. Novak from Virginia Tech must be allowed to overrule the unfounded fears of the few.

Please consider our comments as you develop the final rule and we ask you to recognize that those of us who are working with this technology are best suited to respond to the proposal. I look forward to a practical and safe outcome from the process and thank you for the opportunity to play an active role.

Sincerely,

David A. Beerbower
Vice President – Safety
Peabody Energy

DAB:bap

Peabody Energy Corporation
High Voltage Continuous Miner – Proposed Rules
Discussion & Issues Document

Proposed Rule No.	Proposed Rule	Issue	Position
18.54(e)	*Onboard ungrounded, three-phase power circuit.* A continuous mining machine designed with an onboard ungrounded, three-phase power circuit must: (1) Be equipped with a light that will indicate a grounded-phase condition; (2) Have the indicator light installed so that it can be observed by the operator from any location where the continuous mining machine is normally operated; and (3) Have a test circuit for the grounded-phase indicator circuit to ensure that the circuit is operating properly. The test circuit must be designed so that when activated, it does not require removal of any electrical enclosure cover or create a double-phase –to ground fault.	This is a new requirement for high voltage mining machines. High voltage shearing machines have operated without this requirement without problems. This requirement creates a shock hazard for our work force and does not provide additional protection. The small ungrounded system onboard the miner does not have sufficient capacitive coupling to create problems. The capacitive coupling to ground on this system without the grounded phase detection does not allow sufficient current to flow to create a shock hazard when a phase is contacted. The grounded phase detection circuit allows lethal current to flow then a phase conductor is contacted. The protective circuits and the enclosure design on the shearer and continuous mining machines provide protection when insulation fails without hazards to personnel. This is an unneeded requirement that may provide better protection for the machine but creates a shock hazard for the work force.	18.54 (e) and all references to this section in the proposed rule should be eliminated. This is an unnecessary requirement that may provide better protection for the machine but creates a shock potential for our work force when trouble shooting these circuits.

Peabody Energy Corporation
High Voltage Continuous Miner – Proposed Rules
Discussion & Issues Document

Proposed Rule No.	Proposed Rule	Issue	Position
75.824 (a) (1) (i)	(a) Trailing cable protection. The trailing cable extending to the high-voltage continuous mining machine must be provided with short circuit, overload, ground-fault, and undervoltage protection by a circuit-interrupting device of adequate interrupting capacity and voltage as follows: (1) Short-circuit protection. (i) The current setting must be either the setting specified in approval documentation or 75 percent of the minimum available phase-to-phase short-circuit current, whichever is less;	This requirement penalizes mines with strong power systems and could restrict them from using smaller trailing cable that would afford the same protection as required in the proposed rules.	This rule should allow the operator to use the setting specified in the approval documentation or 75 percent of the minimum available phase-to-phase short-circuit current. Strike the phrase "whichever is less". This would allow the design of systems that may utilize smaller cables of sufficient length and reduce injuries from handling cables.
75.824 (c)	(c) Onboard Power Circuits. When a grounded-phase indicator light on a high-voltage continuous mining machine indicates a grounded-phase fault, the following procedures must be implemented: (1) The continuous mining machine must be moved immediately to a location with a properly supported roof; and (2) The grounded-phase must be located and corrected prior to placing the continuous mining machine back into operation.	Reference comments under 18.54 (e).	75.824 (c) and references to this section should be removed.
75.825 (d)	(d) Barriers and covers. All compartments that provide access to high-voltage conductors or parts, must have barriers and covers to prevent miners from contacting energized high-voltage conductors or parts.	This appears to require that both a cover and a barrier be installed.	All compartments that provide access to energized high-voltage conductors or parts must have barriers **or** covers to prevent miners from contacting energized high conductors or parts.
75.825 (f)	Interlocks. Each cover or removable barrier providing access to high-voltage conductors or parts must be equipped with at least two interlock switches. Removal of any of these covers or barriers exposing energized high-voltage conductors or parts must cause the interlock switches to automatically de-energize	Covers and barriers can be designed to prevent entry using a single interlock switch. Interlock switches have always been a source of exposure to miners while trouble-	The requirement should not dictate how the interlocks should be designed, but only that interlocks are provided to remove the hazard.

Proposed Rule No.	Proposed Rule	Issue	Position
75.825 (f) cont'd	the incoming high-voltage to the power center.	shooting failed switches. Some power centers are designed with a circuit breaker in a separate incoming high voltage compartment. This incoming compartment has interlock switch(s) to open the incoming pilot wire and is separated from the other compartments with covers or barriers. Existing petitions allow this breaker to remove power in other compartments (instead of the outby breaker) when an interlock switch in another compartment is opened. This allows trouble-shooting low voltage items in a safer manner, and doesn't trip other high voltage circuits fed from this high voltage cable. This provides the same or better protection. When a high voltage disconnect switch is used instead of a circuit breaker it should be allowed to by-pass the interlock switches in compartments other than the incoming high voltage compartment when the switch is in the "open and grounded position".	The requirement should allow each removable cover or barrier that provides access to energized conductors or parts shall be interlocked to remove all power in that compartment before the compartment can be entered, except as noted in 75.825 (e) (1) and 75.825 (e) (2).
75.827	Insulation and guarding of trailing cables (a) Trailing cable installation. The portion of the high-voltage cable from the power center to the following locations must be	The cables for the 2400-volt systems use a 5000-volt rated cable with an additional jacket, shielding and semi-	75.827 should only include portion 75.827 (c) (1) (ii) and (d) and change 75.827 (c) (1) (i) to read: From the

Proposed Rule No.	Proposed Rule	Issue	Position
75.827 cont'd	either supported on insulators, or located in an unused entry that is provided with barricade tape and warning signs to warn mobile equipment operators against traveling into the entry: (1) To the last open crosscut during advance mining; (2) To 150 feet outby any pillar workings during second mining; or (3) To 150 feet of the continuous mining machine when the machine is used in outby areas or trammed in or out of the mine or from section to section. (b) Temporary storage of cables. Temporary lacing of the cable into a sled or crosscut in areas specified in paragraphs (a)(1) to (a)(3) of this section is permitted. Warning signs and barricade tape must be placed around the sled or at the entrances to the crosscut to restrict mobile equipment travel. (c) Guarding. (1) The high-voltage cable must be guarded in the following locations: (i) Between the power center and the first cable insulator, if supported, or between the power center and where the cable enters into the unused entry; (ii) From the entrance gland for a minimum distance of 10 feet outby the last strain clamp on the continuous mining machine; and, (iii) At any location where the cable may be damaged by moving equipment. (2) Guarding must be constructed using nonconductive flame- resistant material or grounded metal. (d) Suspended cables and cable crossovers. (1) When equipment must cross any portion of the high-voltage trailing cable in or inby the last open crosscut, the cable must be protected from damage by either: (i) Suspending it from the mine roof; or	conductor tape. The protection provided at the power center exceeds required protection for other cables at the power center. This cable leaving the power center it is the safest cable on the section and should not be required to meet additional unneeded requirements. The requirements of 75.827 are too excessive. This requirement will greatly reduce the use of this substantial safer system. If this requirement is plumaged into law then it will send a signal to operators and manufactures that new developments in safety and production may not be utilized due to regulations. Dr. Novak's assessment will defend this position.	power center coupling for a minimum distance of 10 feet inby the power center.

Peabody Energy Corporation
High Voltage Continuous Miner – Proposed Rules
Discussion & Issues Document

Proposed Rule No.	Proposed Rule	Issue	Position
75.827 cont'd	(ii) Protecting it by using a commercially available cable crossover. (2) The crossover must have the following specifications: (i) A minimum length of 33 inches; (ii) A minimum width of 17 inches; (iii) A minimum height of 3 inches; (iv) A minimum cable placement area of two and one half-inches (2 \1/2\") high by four and one-quarter inches (4 \1/4\") wide; (v) Made of nonconductive material; (vi) Made of material with a distinctive color. The color black must not be used; and (vii) Made of material that has a minimum compressive strength of 6,400 pounds per square inch (psi).		
75.828	Trailing cable handling and pulling. (a) Handling. Miners must not handle the energized trailing cable unless they are wearing properly tested and rated insulating gloves as specified in Sec. 75.833. If mitts, hooks, tongs, slings, aprons, or other personal protective equipment are used to handle energized cables, high-voltage insulating gloves must be used in conjunction to provide protection against shock hazards. (b) Pulling. The trailing cable must be de-energized prior to being pulled by any equipment other than the continuous mining machine. Cable manufacturers' recommended pulling procedures must be followed when pulling the trailing cable with such equipment.	Issue is the same as for 75.827 This cable is as safe or safer than low and medium voltage cables and should not be treated differently than any other trailing cable on the section.	75.828 (a) should read, "Miners must not handle energized high voltage trailing cables unless they are wearing any type of work gloves in good condition or using devices such as mitts, hooks, tongs, or slings". 75.828 (b) should be eliminated.

Peabody Energy Corporation
High Voltage Continuous Miner – Proposed Rules
Discussion & Issues Document

Proposed Rule No.	Proposed Rule	Issue	Position
75.829	Tramming continuous mining machines in and out of the mine, and from section to section. (a) Conditions of use. When tramming the continuous mining machine in and out of the mine, and from section to section, the following requirements apply: (1) The power source must not be located in areas where permissible equipment is required; (2) The continuous mining machine must not be used for mining or cutting purposes. This provision applies when using power sources specified in paragraphs (c)(1), (c)(2), and (c)(3) of this section; (3) Low-, medium-, and high-voltage cables must comply with Sec. 75.600-1, 75.907, and 75.826, respectively; and (4) The energized high-voltage cable must be mechanically secured on-board the continuous mining machine. This provision applies only when using power sources specified in paragraphs (c)(2) and (c)(3) of this section. (b) Testing prior to tramming. Prior to tramming the continuous mining machine-- (1) A qualified person must activate the ground-fault and ground-wire monitor test circuits of the power sources specified in paragraph (c) of this section to ensure that they pass a functional test. Corrective actions and recordkeeping resulting from these tests must be in accordance with Sec. 75.832(f) and (g), respectively. (2) Where applicable, a responsible person must activate the test circuit for the grounded-phase detection circuit on the continuous mining machine to ensure that the detection circuit is functioning properly. Corrective actions resulting from this test must be in accordance with Sec.	The movement of the step-up transformer should have the same provisions as the movement of the step-up transformer used with a generator. This is allowed by attaching the unit via a "tow-bar and in close proximity to the continuous mining machine". In many cases, this will be safer than placing the step-up transformer on top of the machine.	Change 75.829 (c) (2) (iii) (A) should be changed to allow the step-up transformer to be connected by a tow-bar and in close proximity to the continuous mining machine.

Proposed Rule No.	Proposed Rule	Issue	Position
75.829 cont'd	75.832(f). (c) Power sources. In addition to the power center specified in Sec. 75.825, the following are acceptable power sources that may be used to tram the continuous mining machine. (1) Medium-voltage power source. A medium-voltage power source that supplies 995 volts through a trailing cable (See Figure 1 of this section). The medium-voltage power source must-- (i) Not be used to back-feed the high-voltage circuits of the continuous mining machine; (ii) Comply with all applicable requirements for medium-voltage circuits in 30 CFR part 75; and (iii) Not be moved when energized if the power source is a portable transformer (2) Onboard step-up transformer. A temporary transformer that steps up the low- or medium-voltage to high voltage (See Figure 2 in this section). The temporary transformer must comply with the following: (i) The input trailing cable supplying either low- or medium- voltage to the step-up transformer must comply with the applicable sections of 30 CFR part 75; (ii) The high-voltage circuit supplying power to the continuous mining machine must comply with Sec. 75.824. (iii) The step-up transformer enclosure must be-- (A) Securely mounted on-board the continuous mining machine and installed to minimize vibration; (B) Grounded using all of the following methods:		

Proposed Rule No.	Proposed Rule	Issue	Position
75.829 cont'd	(1) Connected to the incoming ground wire of the low-or medium- voltage trailing cable. (2) Bonded by a No. 1/0 A.W.G. or larger external grounding conductor to the continuous mining machine frame. (3) Bonded by a No. 1/0 A.W.G. or larger external grounding conductor to the metallic shell of cable couplers; and (C) Equipped with at least two interlock switches on every removable cover and an externally accessible emergency stop switch to remove input power. (3) Diesel-generator set. A high-voltage diesel-generator set (See Figures 3 or 4 in this section) must comply with the following: (i) Contain a neutral grounding resistor(s) rated for the maximum voltage created when ground-fault conditions occur and to limit the ground-fault current to no more than 0.5 ampere. Neutral grounding resistor(s) must be located: (A) Between the wye connected generator neutral and the generator frame; and (B) Between the wye connected transformer secondary and the transformer frame, when a transformer is used. (ii) Have a No. 1/0 A.W.G. or larger external grounding conductor to ground the continuous mining machine frame to the following: (A) The frame of the generator; (B) The frame of the transformer, when used; and		

Proposed Rule No.	Proposed Rule	Issue	Position
75.829 cont'd	(C) The metallic shell of each cable coupler. (iii) Be connected by a tow-bar and in close proximity to the continuous mining machine to prevent free movement of the generator set; (iv) Have each three-phase output circuit equipped with a device with no intentional time-delay that causes the circuit breaker to trip and to shut-down the diesel engine when a phase-to-frame fault of 0.125 ampere or greater occurs. The ground-fault protection must use a single window-type current transformer that encircles all three phase-conductors. The equipment grounding conductor(s) must not pass through the ground-fault current transformer. (v) Have each three-phase output circuit provided with short- circuit and undervoltage protection, in accordance with Sec. Sec. 75.824(a)(1) and 75.824(a)(3), respectively. (vi) Have a test circuit for the ground-fault device specified in paragraph (c)(3)(v) of this section that injects no more than 50 percent of the current rating of the neutral grounding resistor through the current transformer. When the test circuit is activated, the circuit-interrupting device must open. (vii) Have a legible label(s) placed on each instantaneous trip unit or near each circuit interrupting device showing the maximum circuit interrupting device setting(s).		

Peabody Energy Corporation
High Voltage Continuous Miner – Proposed Rules
Discussion & Issues Document

Proposed Rule No.	Proposed Rule	Issue	Position
75.830	Splicing and repair of trailing cables. (a) Splices and repairs. Splices and repairs to high-voltage trailing cables must comply with the following: (1) Be made only by a qualified person trained in the proper methods of splicing and repairing high-voltage trailing cables; (2) Be made in a workman-like manner; and (3) Be made in accordance with Sec. 75.810. (b) Permanent cable repair. Only MSHA-approved high-voltage kits which include instructions for outer-jacket repairs and splices are acceptable for permanent cable repair. (c) Splicing limitations. Splicing of the high-voltage trailing cable within 35 feet of the continuous mining machine is prohibited.	There is no specific definition that constitutes the scenario where cable damage requires a cable splice or simply a cable repair.	A reference to the MSHA Program Policy Manual cited in section 75.603 should be used to identify whether cable damage requires a splice or repair.
75.832 (a), (b), (c)	Frequency of examinations; recordkeeping. (a) Continuous mining machine examination. At least once every 7 days, a qualified person must examine high-voltage continuous mining machines to determine that electrical protection, equipment grounding, permissibility, cable insulation, and control devices are properly installed and maintained. (b) Ground-fault test. At least once every 7 days, and prior to tramming the high-voltage continuous mining machine, a qualified person must activate the ground-fault test circuit required in Sec. 75.824(a)(2)(vii) and in Sec. 75.829(b)(1) to verify that it will cause the corresponding circuit-interrupting device to open. (c) Ground-wire monitor test. At least once every 7 days, and prior to tramming the high-voltage continuous mining machine, a qualified person must examine and test each high-voltage continuous mining machine ground-wire monitor circuit to verify that it will cause the corresponding circuit-	This regulation requires testing and examination occur every 7 days. To keep consistency with other electrical regulations, this requirement should be change to a weekly basis.	75.832 (a), (b), (c) should be changed from a 7 day frequency to a weekly frequency.

Proposed Rule No.	Proposed Rule	Issue	Position
75.832 (a), (b), (c) Cont'd	interrupting device to open.		
75.832 (d) (1) & (2)	(d) Trailing cable inspections. (1) Once each production day, a qualified person must de-energize and inspect the entire length of the high-voltage trailing cable from the power center to the continuous mining machine. The inspection must include the outer jacket repairs, all splices, and areas where guarding is required. (2) At the beginning of each production shift, a responsible person designated by the mine operator must de-energize the high-voltage trailing cable and visually inspect for damage to the outer jacket, from the continuous mining machine to the following locations: (I) The last open crosscut; (ii) Within 150 feet of the working place during retreat or second mining; or (iii) Up to 150 feet of the continuous mining machine when the machine is used in outby areas.	Due to the superior design and construction of this cable it should be treated as any other trailing cable in the section.	Section 75.832 (d) (1) and 75.832 (d) (2) should be eliminated.
75.833	High-voltage insulating gloves used for handling high- voltage trailing cables. (a) Each mine operator must make high-voltage insulating gloves available to miners handling energized high-voltage trailing cables. (b) High-voltage insulating gloves must have a voltage rating of at least Class 1 (7,500 volts) that meets or exceeds ASTM F496-02a, ``Standard Specification for In-Service Care of Insulating Gloves and Sleeves" (2002). The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You may inspect a copy at any of the following locations: MSHA Coal Mine Safety and Health District office; at the Office of	High voltage gloves are designed to work on bare energized high voltage conductors and parts. They are not designed to handle 2400-volt cables that have shielding, semi-conductor coverage, two outer jackets and rated for twice the operating voltage. Requiring a cable rated for twice the operating voltage, two outer jackets, and other circuit protection systems off set the need for high voltage gloves. Work gloves in good condition are designed for this type	75.833 should be eliminated because it is already covered in Section 75.828.

Proposed Rule No.	Proposed Rule	Issue	Position
75.833 Cont'd	Standards, Regulations, and Variances, 1100 Wilson Boulevard, Arlington, VA; or at the National Archives and Records Administration (NARA). For more information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. You may also purchase a copy from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428-2959. (c) The rubber glove portion of the high-voltage glove must be air-tested at the beginning of each shift to ensure its effectiveness. (d) Both the leather protector and rubber insulating gloves must be visually examined before each use for signs of damage or defects. (e) Damaged rubber gloves must be removed from the underground area of the mine or destroyed. Leather protectors must be maintained in good condition or replaced. (f) The high-voltage insulating gloves must be electrically tested every 30 days in accordance with publication ASTM F496-02a, ``Standard Specification for In-Service Care of Insulating Gloves and Sleeves" (2002), as incorporated by reference in paragraph (b) of this section.	of service and should be used. If high voltage gloves are used, MSHA should allow the use of a protector such as coated jersey gloves for damp locations and the glove-testing period should be changed to six months.	