

December 17, 2003

In the matter of
Jim Walters Resources, Inc.
No. 4 Mine
I.D. No. 01-01247

Petition for Modification

Docket No. M-2003-055-C

PROPOSED DECISION AND ORDER

On July 29, 2003, a petition was filed seeking a modification of the application of 30 CFR 75.1002 to Petitioner's No. 4 Mine, located in Tuscaloosa County, Alabama. The Petitioner alleges that the alternative method outlined in the petition will at all times guarantee no less than the same measure of protection afforded by the standard.

MSHA personnel conducted an investigation of the petition and filed a report of their findings and recommendations with the Administrator for Coal Mine Safety and Health. After a careful review of the entire record, including the petition, and MSHA's investigative report and recommendation, this Proposed Decision and Order (PDO) was issued.

Finding of Fact and Conclusion of Law

The alternative method proposed by the Petitioner (as amended by the recommendations of MSHA) will at all times guarantee no less than the same measure of protection afforded the miners under 30 CFR 75.1002.

On the basis of the petition and the findings of MSHA's investigation, Jim Walter Resources, Inc. is granted a modification of the application of 30 CFR 75.1002 to its No. 4 Mine.

ORDER

Wherefore, pursuant to the authority delegated by the Secretary of Labor to the Administrator for Coal Mine Safety and Health, and pursuant to Section 101(c) of the Federal Mine Safety and Health Act of 1977, 30 U.S.C., Sec. 811(c), it is ordered that Jim Walters Resources, Inc.'s Petition for Modification of the application of 30 CFR 75.1002 in the No. 4 Mine is hereby:

GRANTED, for the use of the 2400-volt high-voltage continuous miner(s) at the Jim Walters Resources, Inc., No. 4 Mine conditioned upon compliance with the following terms and conditions:

1. The nominal voltage of power circuits shall not exceed 2400-volts.
2. The nominal voltage of the control circuits shall not exceed 120-volts.
3. Each output circuit from the power center shall be equipped with an MSHA approved ground-wire monitoring system. Each receptacle shall be interlocked with the ground-wire monitor circuit such that the circuit-interrupting device will open when the trailing cable is disconnected from the power center receptacle.
4. The trailing cable extending to the high-voltage continuous mining machine must be protected against short-circuits, overloads, ground-faults, and undervoltage by a circuit-interrupting device of adequate interrupting capacity as follows:
 - (a) Trailing cable protection:
 - (1) Short-circuit protection.
 - (i) The current setting must be either the setting specified in the approval documentation or 75 percent of the minimum available phase-to-phase short-circuit current available at the continuous miner, whichever is less.

(ii) The time-delay setting must be either the setting specified in approval documentation or 0.05 second, whichever is less.
 - (2) Ground-fault protection.
 - (i) The ground-fault current shall be limited by a neutral grounding resistor to not more than 0.5 ampere.
 - (ii) A ground-fault device must cause de-energization of the circuit at not more than 0.125 ampere. The time-delay setting of the device must not exceed 0.05 second.

- (iii) A look-ahead circuit must detect a ground condition and prevent the circuit-interrupting device from closing.
 - (iv) A backup ground-fault device must cause de-energization of the circuit at not more than 40 percent of the voltage developed across the neutral grounding resistor when a ground fault occurs with the neutral grounding resistor open. The time delay setting of the backup device must not exceed 0.25 second.
 - (v) A thermal device must detect a sustained ground fault current in the neutral grounding resistor and de-energize the incoming power. The device must operate at either 50 percent of the maximum temperature rise of the grounding resistor, or 150° C (302° F), whichever is less. The thermal protection must not be dependent upon control power and may consist of a current transformer and overcurrent relay in the grounding resistor circuit.
 - (vi) A single window-type current transformer that encircles all three-phase conductors must be used to activate the ground-fault current device specified in Paragraph (a) (2) (ii) of this section. The equipment grounding conductor(s) must not pass through the current transformer.
 - (vii) A test circuit for the ground-fault device specified in Paragraph (a) (2) (ii) of this section must inject 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.
- (3) Undervoltage protection.
The undervoltage device must operate on a loss of voltage, de-energize the circuit, and prevent the equipment from automatically restarting.

- (b) Circuit-interrupting devices must not re-close automatically.
- (c) If a ground-fault indicator light on a high-voltage continuous mining machine indicates a ground-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 ground fault must be located and corrected prior to placing the continuous mining machine back into operation.
- (d) All components that provide short-circuit protection shall have an interruption rating in accordance with maximum short-circuit currents available in by that circuit interrupting device(s), and shall be rated for the maximum phase-to-phase voltage of the circuit.
- (e) Installation and guarding of trailing cables.

Trailing cable installation.

The portion of the high-voltage trailing cable from the power center to the following locations must be either supported on insulators or located in an unused entry that is barricaded from vehicular travel and provided with warning signs:

- (1) The last open crosscut during advance mining;
 - (2) Within 150 feet of the working place during retreat or second mining; or
 - (3) Up to 150 feet of the continuous mining machine when the machine is used in outby areas to cut overcasts, underpasses, sumps; to clean rock falls, and for other similar functions.
- (f) Temporary storage.
Paragraph (4) (e) of this section does not preclude the temporary lacing of cable into a sled or a crosscut. The sled or crosscut used for this purpose must be barricaded against vehicular or foot travel and equipped with high-voltage warning signs.

- (g) Guarding.
The high-voltage trailing cable must be guarded in the following locations using grounded metal or nonconductive flame-resistant material:
- (1) Between the power center and the first cable insulator, if supported, or where the cable enters the used entry;
 - (2) From the entrance gland for a minimum distance of 10 feet outby the last strain clamp on the continuous mining machine; and
 - (3) At any location where the trailing cable may be damaged by moving equipment.
- (h) Suspended cable or cable crossover.
When equipment must cross any portion of the high-voltage trailing cable, the cable must be either:
- (1) Suspended from the mine roof; or
 - (2) Protected by a cable crossover with the following characteristics:
 - (i) Have a minimum length of 33 inches;
 - (ii) Have a minimum width of 17 inches;
 - (iii) Have a minimum height of 3 inches;
 - (iv) Have a cable placement area that is a minimum of two and one half inches ($2\frac{1}{2}$ ") high by four and one quarter inches ($4\frac{1}{4}$ ") wide;
 - (v) Use nonconductive material for the crossover;
 - (vi) Use material for the crossover that is colored a highly distinctive color. The color black shall not be used; and
 - (vii) The material for the crossovers shall have a minimum tensile strength of 6400 pounds per square inch.

5. Trailing cable design.

The high-voltage trailing cable shall be designed as follows:

- (a) The high-voltage trailing cable shall have 100 percent semi-conductor tape shielding and metallic braid shielding coverage over each power conductor;
- (b) The protective jacket shall consist of two layers, an outer and inner protective jacket;
- (c) The color black shall not be used for either of the two protective insulation layers;
- (d) The innermost layer of the two layered insulation jackets shall be colored a distinctive color from the outer jacket to allow easy recognition of damaged areas to the outer protective jacket insulation;
- (e) Be MSHA-accepted as flame-resistant under part 18 or approved under subpart k of part 7; and
- (f) Meet either the requirements of 75.804 or be a type SHD cable with a center ground-check conductor not smaller than No. 16 A.W.G. stranded conductor.

6. Trailing cable handling and pulling.

- (a) Miners must not handle the energized trailing cable unless they are wearing properly tested and rated insulating gloves as specified in Item #11. 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) 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.

7. Splicing and repair of cables.

Splices and repairs to high-voltage trailing cables shall comply with the following:

- (a) Be made only by a qualified person as provided in 30 CFR 75.153 who has received hands-on training in the proper methods of splicing and repairing these high-voltage trailing cables;
- (b) Be made in a workman-like manner and in accordance with the instructions of the manufacturer of the repair materials;
- (c) Be made in accordance with 30 CFR 75.810. The outer jacket of each splice or repair shall be vulcanized with flame-resistant material or made with a kit that has been accepted by MSHA as flame-resistant. Each splice or major repair shall be made so that all cable components are replaced with similar components. Repairs are considered major if there is any damage to the metallic shielding, semi-conductor tape, inner conductor insulation, or conductors. Minor repairs to the outer cable jacket may be made by using tape accepted by MSHA as flame-resistant;
- (d) Permanent tape-type splices in any high-voltage trailing cable are prohibited. Only MSHA approved high-voltage splice kits containing outer jacket repairs and splices will be acceptable; and
- (e) Splicing of the high-voltage trailing cable within 35 feet of the continuous miner is prohibited.

7. Power centers.

- (a) The power center(s) supplying power to the high-voltage continuous mining machine shall be equipped with a main disconnecting device installed to de-energizes the primary of all transformers when the device is in the open position.
- (b) All compartments that provide access to energized high-voltage conductors or parts must have the following:
 - (1) barriers and covers that prevent miners from contacting high-voltage conductors or parts; and
 - (2) A caution label(s) to warn miners against entering the compartment(s) before de-energizing the incoming high-voltage circuits.

- (c) The power center must also be equipped with a disconnecting device that de-energizes the trailing cable when the device is in the open position.
- (d) Each disconnecting device must be designed and installed as follows:
 - (1) Rated for the maximum phase-to-phase voltage of the circuit in which they are installed;
 - (2) Rated for the full-load current of the circuit that is supplied power through the device;
 - (3) Can be determined by visual observation that the contacts are open without removing any cover;
 - (4) Marked to clearly identify the circuit it disconnects;
 - (5) Grounds all power conductors on the load side when the device is in the "open" position;
 - (6) Can be locked in the "open" position; and,
 - (7) Capable of interrupting the full-load current of the circuit, or designed to cause automatic de-energization of the current prior to opening the disconnecting device.
- (e) The control circuit must be interlocked with the main disconnecting device in the power center so that:
 - (1) When the primary disconnecting device is in the "open" position, the control circuit can only be powered through an auxiliary switch in the test position; and,
 - (2) When the primary disconnecting device is in the "closed" position, the control circuit can be powered only through an auxiliary switch in the normal position.
- (f) Each cover or removable barrier providing access to energized high-voltage conductors or parts must be equipped with at least two interlock switches. Removal of any of these covers must automatically de-energize the incoming high-voltage to the power center.

- (g) The power center must be equipped with an emergency stop switch that de-energizes the incoming high-voltage in the event of an emergency.
 - (h) The power center must be equipped with a grounding stick to discharge the high-voltage capacitors and circuits. The power center must have a label readily identifying the location of the grounding stick. The grounding stick must be stored in a dry location.
9. Electrical work; troubleshooting and testing.
- (a) Electrical work on all circuits associated with high-voltage continuous mining machines must be performed only by persons qualified under 30 CFR 75.153.
 - (b) Prior to performing electrical work on the high-voltage trailing cable and the continuous mining machine, except for troubleshooting and testing the energized circuits and equipment as provided for in paragraph (e) of this section, a qualified person must:
 - (1) Open the circuit disconnecting device;
 - (2) Disconnect the cable coupler;
 - (3) Connect the cable coupler to a grounding receptacle:
 - (i) A dust cover must be used on the receptacle from which the cable was disconnected.
 - (ii) When troubleshooting, the de-energized high-voltage cable may be disconnected from the grounding receptacle only for that period of time necessary to locate and determine the fault condition. The high-voltage cable must be reconnected to the grounding receptacle prior to work being performed to correct the defective condition.
 - (4) Lock out the cable coupler with a padlock. When more than one qualified person is performing work, each person must install an individual padlock; and

- (5) Tag the cable coupler to identify the circuit or equipment on which work is being performed. Each person working on the circuits must tag the coupler.
- (c) Prior to performing electrical work on the power center containing high-voltage components and parts, except for troubleshooting and testing of energized circuits and equipment as provided for in paragraph (e) of this section, a qualified person must:
- (1) Open the main disconnecting device;
 - (2) Verify that the contacts of the main disconnecting device are grounded;
 - (3) Lock out the disconnecting device with a padlock. When more than one qualified person is performing work, each person must install an individual padlock;
 - (4) Tag the disconnecting device to identify the circuit on which work is being performed. When more than one qualified person is performing work, each person must tag the disconnecting device; and
 - (5) Discharge all high-voltage capacitors before any work is performed inside any compartment of the power center.
- (d) Each padlock and tag must be removed only by the person who installed them, except that, if that person is unavailable at the mine, the lock and tag may be removed by a person authorized by the mine operator, provided:
- (1) The authorized person is qualified under paragraph (a) of this section; and
 - (2) The operator ensures that the person who installed the lock and tag is aware of the removal before that person resumes work on the affected circuit or equipment.

(e) Before troubleshooting and testing a low-or medium-voltage circuit contained in an enclosure with exposed high-voltage conductors or parts, the high-voltage circuit must be de-energized, grounded, locked-out, and tagged in accordance with paragraphs (b) or (c) of this section, whichever is applicable. Troubleshooting and testing energized circuits must be performed only:

- (1) On low and medium voltage circuits;
- (2) To determine voltages and currents; and
- (3) By persons qualified to perform electrical work under paragraph (a) of this section and who wear protective gloves in accordance with the following table:

CIRCUIT VOLTAGE	TYPE OF GLOVE REQUIRED
Greater than 120-volts (nominal) (not intrinsically safe)	Rubber insulating gloves with leather protectors
40-volts to 120-volts (nominal) (both intrinsically safe and non-intrinsically safe)	Either rubber insulating gloves with leather protectors or dry work gloves
Greater than 120-volts (nominal) (intrinsically safe)	Either rubber insulating gloves with leather protectors or dry work gloves

10. Frequency of examination; recordkeeping.

- (a) At least once every 7 days, a person qualified in accordance with 30 CFR 75.153 must test and examine high-voltage continuous mining machines to determine that electrical protection, equipment grounding, permissibility, cable insulation, and control devices are being properly installed and maintained.
- (b) At least once every 7 days, a person qualified in accordance with 30 CFR 75.153 must activate the ground-fault test circuit required in Item 4(a)(2)(vii) to verify that it will cause the corresponding circuit-interrupting device to open.

- (c) At least once every 7 days, a person qualified in accordance with 30 CFR 75.153 must examine and test each high-voltage continuous mining machine ground-wire monitor circuit to verify that it will cause the corresponding circuit-interrupting device to open.
- (d) Trailing cable must be inspected as follows:
 - (1) Once each day, a person qualified in accordance with 30 CFR 75.153 must inspect the entire length of the de-energized 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; and
 - (2) At the beginning of each production shift, a responsible person designated by the mine operator must visually inspect for damage the outer jacket of the high-voltage trailing cable from the last open crosscut to the continuous mining machine.
- (e) If the continuous mining machine is equipped with a grounded-phase detection circuit, the test circuit must be activated at the start of each production shift to ensure that the detection circuit is functioning properly.
- (f) When examinations or tests of equipment described in Items (a) through (e) of this section reveal a potential fire, electrical shock, ignition, or operational hazard, the equipment must be immediately removed from service until such condition(s) is corrected.
- (g) Record of tests.

At the completion of examinations and tests required under Paragraphs (a), (b), and (c) of this section, the person conducting such examinations and tests must certify by signature and date that they have been conducted. A record must be made of any unsafe condition found and any corrective action taken. Certifications and records must be kept for at least one year and must be made available for inspection by authorized representatives of the Secretary and representatives of miners.

11. High-voltage insulating gloves must:
 - (a) Have a voltage rating of at least Class 1 (7500-volts) that meets or exceeds ASTM F496-02a, "Standard Specification for In-Service Care of Insulating Gloves and Sleeves" (2002);
 - (b) Be air tested (rubber gloves only) at the beginning of each shift to ensure their effectiveness;
 - (c) Be visually examined before each use for signs of damage or defects;
 - (d) Be removed from the underground area of the mine or destroyed when damaged or defective; and
 - (e) Be electrically tested every 30 days in accordance with publication ASTM F496-02a.

12. Trimming continuous mining machines into and out of the mine, and from section to section.
 - (a) When trimming the continuous mining machine into and out of the mine and from section to section, if the power center specified in item 8 is not used, one of the power sources specified in paragraph (c) of this section must be used. Additionally, the following requirements apply:
 - (1) Trimming must not occur in areas where permissible equipment is required;
 - (2) The continuous mining machine must not be used for mining or cutting purposes;
 - (3) Low-, medium-, or high-voltage cables must comply with 30 CFR 75.600-1, 30 CFR 75.907, and 30 CFR 75.826, respectively; and
 - (4) The energized high-voltage cable must be mechanically secured on-board the continuous mining machine.
 - (b) Prior to moving the continuous mining machine:

- (1) The power sources specified in Paragraph (c) of this section must pass a functional test of the ground-fault and ground-wire monitor circuits. The tests must be performed by a qualified electrician who meets the requirements of 30 CFR 75.153. A record of each test must be maintained and made available to authorized representatives of the Secretary and representatives of the miners; and
 - (2) The test circuit for the grounded-phase detection circuit on the continuous mining machine, if applicable, must be activated to ensure a grounded-phase condition does not exist.
- (c) Power sources.
- The following alternative sources of electrical power may be utilized to energize the tram motors, essential hydraulic systems and machine controls for the purpose of tramping the continuous miner into, out of or around the mine if they meet the requirements set forth below:
- (1) Portable transformer that supplies medium-voltage through a trailing cable. The portable transformer must:
 - (i) not be used to back-feed the high-voltage circuits;
 - (ii) comply with all applicable requirements for low- and medium-voltage circuits in 30 CFR 75; and
 - (iii) not be moved when energized.
 - (2) Onboard step-up transformer.

A temporary transformer that steps up the low- or medium- voltage to high-voltage 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 75;

- (ii) The high-voltage circuit supplying power to the continuous mining machine must meet the requirements specified in Item 4 (a) and (d) above;
 - (iii) The transformer enclosure must be connected to the incoming ground-wire of the low-or medium-voltage trailing cable and be bonded to the frame of the continuous mining machine by a No. 1/0 or larger A.W.G. grounding conductor. The metallic shell of the cable coupler must be externally grounded by a No. 1/0 or larger A.W.G. grounding conductor to the frame of the transformer enclosure or the mining machine;
 - (iv) The transformer enclosure must be securely mounted on-board the continuous mining machine and installed to minimize vibration; and
 - (v) Be equipped with cover switches and an emergency stop switch to remove input power.
13. All electrical protective equipment used to handle energized high-voltage trailing cables must be provided by the mine operator.
14. The petitioner's alternative method must not be implemented until all personnel who perform maintenance on the high-voltage continuous miner system have received training in high-voltage safety, testing, and maintenance procedures. Also, all personnel who work in proximity of the high-voltage equipment or who move high-voltage equipment or cables must be trained in high-voltage safety procedures. The training must be "hands on" specific, and must be incorporated into the Part 48 training plan and in the annual refresher training plan for the mine. A record of this training must be maintained and made available to authorized MSHA representatives and to other interested parties.

15. The high-voltage continuous mining system must not be put into service until after MSHA has inspected the equipment and determined that it is in compliance with all the above terms and conditions.
16. Within 60 days after this PDO becomes final, the Petitioner must submit proposed revisions for its approved 30 CFR Part 48 Training Plan to the Coal Mine Safety and Health District Manager. These proposed revisions must include, but are not limited to, task training, hazard training, specialized training for qualified persons under 30 CFR 75.153, and annual refresher training. In addition, the following must be adopted:
 - (a) Safety precautions for the handling and use of high-voltage trailing cables, for all miners assigned to work in the area of the high-voltage trailing cable; and
 - (b) Specialized training for qualified electricians that will be required to repair, maintain and/or trouble-shoot the high-voltage trailing cable or equipment. This training must focus on the requirements of this modification.

Any party to this action desiring a hearing on this matter must file in accordance with 30 CFR 44.14, within 30 days. The request for hearing must be filed with the Administrator for Coal Mine Safety and Health, 1100 Wilson Boulevard, Arlington, Virginia 22209-3939.

If a hearing is requested, the request must contain a concise summary of position on the issues of fact or law desired to be raised by the party requesting the hearing, including specific objections to the proposed decision. A party other than Petitioner who has requested a hearing shall also comment upon all issues of fact or law presented in the petition, and any party to this action requesting a hearing may indicate a desired hearing site. If no request for a hearing is filed within 30 days after service thereof, the Decision and Order will become final and must be posted by the operator on the mine bulletin board at the mine.

John F. Langton
Acting Deputy Administrator
For Coal Mine Safety and Health