

In the matter of  
Dakota Mining, Inc.  
No. 2 Mine  
I.D. No. 46-08589

Petition for Modification  
  
Docket No. M-2002-027-C

PROPOSED DECISION AND ORDER

On March 13, 2002, a petition was filed seeking a modification of the application of 30 CFR 75.1002 to Petitioner=s No. 2 Mine located in Boone County, West Virginia. 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 is 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, Dakota Mining, Inc. is granted a modification of the application of 30 CFR 75.1002 to its No. 2 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 Dakota Mining, Inc.=s Petition for Modification of the application of 30 CFR 75.1002 in the No. 2 Mine is hereby:

GRANTED, for the 2,400-volt continuous miners used throughout the No. 2 Mine, conditioned upon compliance with the following terms and conditions:

1. The portable transformer that supplies power to the 995-volt tramming motors, essential hydraulic pump motors and control circuitry on the continuous miner when the miner is trammed into, out of, or around the mine must not be used to back-feed the 2,400-volt circuits on the continuous miner. The portable transformer used to power the continuous miner for tramming must not be moved when energized.
2. The nominal voltage of power circuits shall not exceed 2,400 volts.
3. The nominal voltage of the control circuits shall not exceed 120 volts.
4. The ground-fault current shall be limited by a neutral grounding resistor to not more than 0.5 ampere. Should the 0.5 ampere current limit create problems locating a ground-fault in the high-voltage trailing cable, the neutral grounding resistor may be adjusted to limit the ground-fault current to not more than 1.0 ampere. The 1.0 ampere setting cannot be implemented until MSHA inspects the neutral grounding resistor and determines that the neutral grounding resistor and all ground-fault relays are properly adjusted to provide proper protection. Current transformers used for the ground-fault protection shall be the single-window type and shall be installed to encircle all three-phase conductors.
5. High-voltage circuits shall be protected against short circuits, overloads, ground faults, and undervoltage by a circuit interrupting device of adequate interrupting capacity.
6. The trailing cable for the 2,400-volt continuous miner circuit shall be provided with instantaneous ground-fault protection set at not more than 0.125 ampere. The ground-fault protection device shall be equipped with an impedance-measuring feature, ALook-Ahead@ circuit, to guard against closing the circuit breaker on a circuit that has an existing ground-fault condition.

7. The neutral grounding resistor shall be provided with backup ground-fault protection that will deenergize the primary of the transformer if a ground fault occurs with the neutral grounding resistor open. This protection shall be set at 40% of the maximum voltage that could appear across the neutral grounding resistor during a ground fault. A time delay for coordination with downstream ground-fault protection devices shall be set at the lowest practical value that permits reliable coordination; however, in no case shall the time delay exceed 0.25 second.
8. Each ground-fault current device shall be provided with a test circuit that will inject a current of 50 percent or less of the current rating of the grounding resistor and cause each corresponding circuit-interrupting device to open. The test circuit shall not subject the equipment to an actual phase-to-ground fault condition.
9. Each ground-fault test circuit shall be actuated weekly by a person qualified in accordance with 30 CFR 75.153 to perform electrical work on all circuits and equipment and this qualified person shall also activate the emergency stop button and verify that the corresponding devices open. This qualified person shall also activate weekly the ground-monitor circuit for the high-voltage trailing cable and verify that the circuit-interrupting device for the high-voltage continuous miner opens and deenergizes the high-voltage trailing cable that supplies power to the continuous miner.
10. The neutral grounding resistor shall be provided with protection that will deenergize the incoming high-voltage circuit supplying power to the power center if the grounding resistor is subjected to a sustained ground fault. The thermal protection shall 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 shall not be dependent upon control power and may consist of a current transformer and overcurrent relay in the grounding resistor circuit.
11. The trailing cable for the continuous miner shall be provided with instantaneous short-circuit protection set at no more than the setting(s) specified for each conductor size and cable length listed in the continuous miner approval documentation or 75 percent of the minimum phase-to-phase short-circuit current available at the continuous miner, whichever is less.

The short-circuit protective device shall contain no intentional time delay and shall be based on the maximum asymmetrical starting current or have a time delay of no more than 0.05 second and be based on the maximum symmetrical starting current. The time delay settings shall not exceed the settings specified in the approval documentation.

12. 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.
13. The miner high-voltage trailing cable shall be provided with undervoltage protection which operates on loss of voltage to cause and maintain the interruption of power to the circuit to prevent automatic restarting of the equipment.
14. Circuit interrupting devices shall not reclose automatically.
15. The high-voltage trailing cable shall be guarded or hung on well-installed insulators. The requirement of guarding or hanging high voltage trailing cable does not preclude the temporary lacing of slack cable resulting from a power center move onto a sled or into a crosscut. That sled or crosscut may be located somewhere between the power center and the last open crosscut and be positioned and barricaded against vehicular or foot travel and equipped with high-voltage warning signs.
  - (a) If guarded, guarding made of grounded metal or nonconductive flame-resistant conduit material shall be provided to minimize the possibility of miners contacting the high-voltage trailing cable and to protect the high-voltage trailing cable from damage. The guarding must extend outby from the high-voltage miner cable entrance gland for a distance of a minimum of 10 feet outby the high-voltage trailing cable strain clamp. In addition, the high-voltage trailing cable shall be guarded at the following locations:
    - (1) At the power center for a distance of 10 feet; and
    - (2) At any location on the working section where it may be damaged by moving equipment.

- (2) If hung, the high-voltage trailing cable shall be installed on well-installed insulators from the power center to the last open crosscut during advance mining and not more than 150 feet from any pillar workings during retreat or second mining.
  - (3) When other equipment cables must cross the portion of continuous miner high-voltage cable located in or inby the last open crosscut, the high-voltage trailing cable shall be either suspended from the mine roof, suspended a minimum of six and one half (6-2) feet above the mine floor, or the cable shall be protected by a cable crossover. Cable crossovers shall not be routinely used. Their use shall be reserved for infrequent instances where multiple machine cables are crossed/entangled and must be reordered or for emergency egress while extracting a pillar. If used, cable crossovers must:
    - (1) Have a minimum length of 33 inches;
    - (2) Have a minimum width of 17 inches;
    - (3) Have a minimum height of 3 inches;
    - (4) Have a cable placement area that is a minimum of two and one half inches (2 2@) high by four and one quarter inches (4 1/4") wide;
    - (5) Use nonconductive material for the crossover; and
    - (6) Use material for the crossover that is colored a highly distinctive color. The color black shall not be used.
    - (7) Have a minimum compressive strength of 6400 pounds per square inch.
16. The high-voltage trailing cable shall be designed as follows:
- (a) The high-voltage trailing cable shall be designed to have 100 percent semi-conductor tape shielding or metallic braid shielding coverage over each power conductor;
  - (b) The protective jacket shall consist of two layers, an outer and inner protective jacket insulation;

- (c) The color black shall not be used for either of the two protective insulation layers; and
  - (d) The inner-most 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.
17. Splices and repairs to high-voltage trailing cables shall comply with the following:
- (a) Splices and repairs in high-voltage trailing cables shall 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) Each splice or repair made underground in a high-voltage trailing cable shall be made in a workman-like manner and in accordance with the instructions of the manufacturer of the repair materials, and as provided for in 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.
  - (c) Temporary and/or permanent tape-type splices in any high-voltage trailing cable are prohibited. Only MSHA approved permanent splice kits containing outer jacket boots, either heat and/or cold application types, will be acceptable.
  - (d) Only four (4) permanent splices will be allowed at any one time for the portion of the high-voltage trailing cable that extends from the continuous miner outby for a distance of 300 feet. Splicing of the high-voltage trailing cable within 35 feet of the continuous miner is prohibited.
18. Once each day a qualified person, as required by 30 CFR 75.153, shall inspect the entire length of the high-voltage trailing cable from the section power center to the continuous miner. The inspection shall include

inspecting the integrity of the outer jacket of the high-voltage trailing cable, all permanent splices, and those areas where additional protective guarding is required. Any defects detected during such inspection shall be immediately corrected.

19. The section power center shall be equipped with a main disconnecting device installed to deenergize the primary of all transformers supplying high-voltage power when the device is in the open position. The high-voltage trailing cable extending to section equipment shall be equipped with a disconnecting device and/or cable couplers installed to deenergize the trailing cable when the device is in the open position.
20. The compartment for the disconnecting device and the compartment(s) that provide access to energized conductors or parts shall be provided with caution label(s) to warn miners against entering the compartment(s) before deenergizing and grounding the high-voltage circuits. Before any work is performed inside any compartment(s) all capacitor storage devices located within the compartment(s) shall be discharged and grounded. A grounding device for discharging capacitor storage devices shall be provided and stored in a dry location. A label shall be installed and maintained at the grounding device storage location to readily identify its location.
21. Disconnecting devices shall comply with the following:
  - (a) Disconnecting devices shall be rated for the maximum phase-to-phase voltage of the circuit in which they are installed, and shall be rated for the full load current of the circuit that is supplied power through the device.
  - (b) Each disconnecting device shall be designed, installed and maintained so that:
    - 1) It can be determined by visual observation that the contacts are open without removing any cover;
    - 2) All load power conductors can be grounded when the device is in the Aopen@ position;
    - 3) The device can be locked in the Aopen@ position; and,
    - 4) If a cable coupler is used as the disconnecting device, connect the load power conductor in the high-voltage cable to the

grounded frame of the enclosure by means of the grounding receptacle provided and place the dust cover on the enclosure from which the cable was disconnected.

- (c) Disconnecting devices, except those installed in explosion-proof enclosures, shall be capable of interrupting the full-load current of the circuit or designed and installed to cause the current to be interrupted automatically prior to the opening of the contacts of the device.
  - (d) Disconnecting devices installed in explosion-proof enclosures shall be maintained in accordance with the approval documentation.
  - (e) A sign shall be located near each visible disconnecting device which clearly identifies the circuit it disconnects.
22. The control circuit for each power center shall be interlocked with the primary disconnecting device in the power center so that:
- (a) When the primary disconnecting device is in the Aopen@ position, the control circuit can only be powered through an auxiliary switch in the test position; and
  - (b) When the primary disconnecting device is in the Aclosed@ position, the control circuit can be powered only through an auxiliary switch in the normal position.
23. Cover interlock switch(s) and an emergency stop switch shall be provided and maintained on the section power center to automatically deenergize the incoming high-voltage power circuit to the section power center in the event of an emergency or when a cover of the power center that provides access to energized high-voltage conductors or parts is removed. Cover interlock switch(s) shall be provided and maintained on the high-voltage continuous mining machine to automatically deenergize the incoming high-voltage power circuit to the continuous miner when a cover of the continuous miner that provides access to energized high-voltage conductors or parts is removed.
24. The control circuit of each 2,400-volt output circuit shall be located in a properly deadfronted compartment. The deadfronted compartment shall be arranged so that

miners can trouble shoot or test in the control circuit compartment(s) without being exposed to energized high-voltage conductors or parts.

25. Barriers shall be provided and covers shall be arranged so that miners can work in the 2,400-volt section of the power center without being exposed to any energized conductors or parts that exceed 150 volts RMS, including capacitors, when the primary disconnecting switch is in the Aopen and grounded@ position.
26. Barriers shall be provided and covers shall be arranged so that miners can work in the control compartments of the power center/continuous miner without being exposed to energized conductors or parts that exceed 150 volts RMS, regardless of the position of the main disconnect switch.
27. Barriers shall be provided and covers shall be arranged so that miners can test and troubleshoot low- and medium-voltage circuits in the power center without being exposed to any energized high-voltage conductors or parts, including capacitors, regardless of the position of the primary disconnecting switch.
28. Barriers shall be provided and covers shall be arranged so that miners can test and troubleshoot low- and medium-voltage circuits in the continuous mining machine without being exposed to any energized high-voltage conductors or parts, regardless of the position of the machine disconnect switch.
29. Trouble-shooting and testing of energized circuits shall be limited to the following:
  - (a) Trouble-shooting and testing of energized circuits shall be conducted only on low- and medium-voltage circuits; and
  - (b) Trouble-shooting and testing of energized low- or medium-voltage circuits and equipment shall be performed only by persons qualified in accordance with 30 CFR 75.153 to perform electrical work on all circuits and these persons shall wear rubber insulating gloves rated at least for the nominal voltage of the low- or medium-voltage circuit or equipment while trouble-shooting or testing.
30. Trouble-shooting and testing of low- and medium-voltage circuits and equipment shall only be performed to determine voltage and current levels or waveforms.

31. A ground-fault indicator light shall be installed and maintained on the continuous miner that can be readily observed by the miner operator from any location that the continuous miner can be operated. When the ground-fault indicator light indicates a ground-fault on any of the ungrounded AY@ 995-volt circuits that supply three-phase power to the left and right hand gathering head motors, dust collector motor or pump motor or the ungrounded AY@ 270-volt circuit that supplies three-phase power to the SCR panel assemblies for the left and right traction motors, the following maintenance procedures shall be implemented immediately:
- (a) The continuous miner shall be trammed only to a well supported area; and
  - (b) The ground-fault shall be located and corrected prior to the continuous miner being placed back into operation.

A test circuit for the ground-fault indicator system shall be provided and a functional test of the system shall be conducted at the beginning of each production shift. The ground-fault indicator system shall be wired in a manner that prevents by-passing this safety feature.

32. Each output circuit from the section power center shall be equipped with a 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.
33. Each ground-wire monitor and associated circuits shall be examined and tested at least weekly to verify proper operation and to verify that they will cause their circuit interrupting device to open.
34. Before any electrical work (including testing, troubleshooting, and fault finding) is performed inside any compartment of the section power center containing exposed high-voltage components or parts, including capacitors, person(s) qualified to perform work on all circuits (as provided for in 30 CFR 75.153) shall:
- (1) Determine that the contacts of the primary disconnecting device in the power center are open and grounded;

- (2) Lock-out and tag the primary disconnecting device; and,
  - (3) Assure that all 2,400-volt capacitors have been discharged and grounded.
35. Before any electrical work (including testing, troubleshooting, or fault finding) is performed on the high-voltage continuous miner, a qualified person (as provided for in 30 CFR 75.153) shall:
- (4) Determine that the contacts of the machine disconnecting device are Aopen@ and all affected conductors are Agrounded@; and,
  - (5) Lockout and tag the disconnecting device in this position.
36. Before any electrical work (including testing, troubleshooting, or fault finding) is performed on the high-voltage trailing cable, a qualified person (as provided for in 30 CFR 75.153) shall:
- (a) Determine that the contacts of the proper disconnecting device are Aopen@ and all affected conductors are Agrounded@ or, when a cable coupler is used as a disconnecting device, determine that the high-voltage trailing cable is deenergized and disconnected from the enclosure;
  - (b) Lockout and tag the disconnecting device in this position; and
  - (c) If a cable coupler is used as the disconnecting device, connect the phase conductors in the high-voltage trailing cable to the grounded section power center frame by means of the grounding receptacle provided and place a dust cover on the enclosure receptacle from which the cable was disconnected.
37. Each person performing work on circuit(s) or equipment shall place his name and a brief description of work to be performed on the tag that is attached to the visual disconnecting device.
38. Each padlock(s) and tag shall be removed only by the person(s) who installed them, except that if that person is unavailable, the lock and tag may be removed by a person authorized by the operator. The authorized person must be qualified to perform electrical work on all circuits and equipment, as required by 30 CFR

75.153, and must determine that the removal of the lock and tag does not pose a hazard to miners.

39. During normal operations of making unit power moves, either advancement or retreat, or when it becomes necessary to move additional slack high-voltage trailing cable from the power center to the last open crosscut, the high-voltage trailing cable shall be deenergized, locked-out and tagged, prior to the high-voltage trailing cable being handled. The input high-voltage power cable shall be deenergized and locked-out and tagged prior to a power center move being made.
40. During mining operations the 2,400-volt continuous miner trailing cable shall only be connected to the working section power center. When the high-voltage cable inadvertently comes out of a hanger between the power center and the last open crosscut, the cable may be reinstalled in the hanger while energized provided the person handling the cable is wearing properly tested, Class 1, insulated gloves (minimum 7,500-volts rating).
41. With the exception of the continuous miner trailing cable, handling of any other energized high-voltage power cable in the mine is prohibited.
42. Miners shall not handle or move the energized high-voltage trailing cable located in or inby the last open crosscut unless they are wearing properly tested, Class 1 rated insulated gloves (minimum 7,500-volts rating).
43. When wet and muddy conditions exist on the operating section, other electrical protective equipment such as, tongs or hotsticks, may be used in conjunction with the properly rated insulated gloves while handling the energized high-voltage trailing cable located inby the section power center
44. Electrical personal protective equipment shall be visually inspected before each use for signs of damage or defects.
45. Rubber gloves shall be field air tested before each use to ensure their effectiveness. Damaged or defective protective equipment shall not be used and shall be destroyed immediately and removed from the mine by the completion of the shift on which the equipment was found to be defective. Personal protective equipment shall be electrically tested and stored in accordance with the schedule listed in 30 CFR 75.705-8. These

tests are to be conducted as described in a nationally recognized standard, such as ASTM 496-91.

46. The petitioner=s alternative method shall 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 shall be trained in high-voltage safety procedures. The training shall be Ahands on@ specific, and shall be incorporated into the Part 48 training plan and in the annual refresher training plan for the mine. A record of this training shall be maintained and made available to authorized MSHA representatives and to other interested parties.
47. The high-voltage continuous mining system shall 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.
48. Within 60 days after this Proposed Decision and Order becomes final, the Petitioner shall submit proposed revisions for its approved 30 CFR Part 48 Training Plan to the Coal Mine Safety and Health District Manager in which the District the mine is located. These proposed revisions shall 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 shall 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 shall 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 shall 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.

Allyn C. Davis  
Acting Deputy Administrator  
for Coal Mine Safety and Health