Title 34
Legislative Rule
Board of Coal Mine Health & Safety

~~WEST VIRGINIA ADMINISTRATIVE REGULATIONS~~

~~DEPARTMENT OF MINES~~

~~CHAPTER 22-C~~

SERIES 4

SUBJECT: Rules and Regulations Governing the Movement of Mining Equipment Within Coal Mines in the State of West Virginia

Section 1. General 1.1 Scope - Title

1.01 Authority - These Rules and Regulations are issued under authority of West Virginia Code, Chapter ~~22~~ 22, Article ~~2A~~ 6, Section ~~4~~ 4, of the West Virginia Code.

1.02 Effective Date - These Rules and Regulations were promulgated on the ___ day of _____ 1979, and became effective on the 19 day of July 1979.

1.03 Filing Date - These Rules and Regulations were filed in the office of the Secretary of State on the 19th day of June 1979.

1.04 Scope - These Rules and Regulations are applicable to govern the movement of mining equipment in underground coal mines, with the exception of ordinary sectional movements, as defined in Section 2(c).

Section 2. "Definitions"

(A). The term "transport" shall mean (a) equipment that is pulled by either a self-propelled battery powered or track mounted vehicle, or (b) equipment that has been loaded on a flat car, skid or other similar equipment and is pulled or carried from one location to another.

(B). The term "trammed" shall mean equipment energized with A.C. or D.C. Electrical Power which is moved from one location to another by a person manually operating such equipment.

(C). The term "Ordinary Sectional Movement" shall mean the movement of

self-propelled face equipment freely across and in the immediate area of a section. This includes the movement of battery powered equipment to and from the established section supply station and the movement of equipment powered by a trailing cable to the entire length of the trailing cable while attached to a distribution box or fuse nip. The movement of such equipment within 24 inches of adequately guarded energized trolley or feeder wires at the established section supply station and access roadways to the section supply station are included. All other movements of equipment in entries where energized trolley or feeder wires are present or within 12 inches of energized high voltage cables located outby the section transformer are excluded.

(D). The term "top of locomotive" shall mean the flat surface which covers the entire length of the locomotives; with the exception of locomotives equipped with cable reels, whereas the top of the cable reel will be designated as the top of the locomotive.

Section 3. Track Mounted Equipment That May Continue to Operate Normally.

3.1 Track mounted equipment such as locomotives, mine cars, rock dust tank cars, compressors and other equipment designed to operate on track haulageways that create no greater than ordinary risk of fire while being operated may continue operating normally.

Section 4. Specific Types of Equipment and Related Types of Equipment That Cannot be Moved With Persons Inby on the Same Ventilation Air Current.

4.1 Continuous miners, loading machines, cutting machines, shuttle cars, self-propelled coal drills, crusher feeders and equipment that exceed the height, width, or length of the locomotive or mine car normally used shall not be transported in track haulage entries where energized D.C. powered trolley or feeder wires are present with any person inby while in the

same ventilating air current passing over such equipment being transported, except those persons actively engaged in the transporting of such equipment listed above.

Prior to starting and during the transporting of such aforementioned equipment the following listed procedures shall apply and necessary equipment shall be provided:

1. Equipment listed above being transported on flat cars, skids, or other similar equipment shall be cleaned of accumulated combustible materials, properly secured to transporting vehicle and effectively insulated on the top side next to the trolley or feeder wire.
2. Prior to any equipment being transported, a postive ground shall be established and continuously maintained between such machine and ground system.
3. Heads and/or booms of all equipment being transported shall have all hydraulic pressure released and heads and/or booms shall be secured.
4. When necessary, equipment assemblies shall be removed to provide required clearance.
5. Adequate size locomotives shall be used while transporting mining equipment.
6. A. Within eight (8) hours prior to such equipment being transported the entire length of the travel route, where such equipment is to be transported, shall be examined by a certified foreman or fireboss.
   B. Within three (3) hours after such equipment has been transported the entire length of the travel route, where such equipment has been transported shall be examined by a certified foreman or fireboss.
   C. Such examinations in paragraph A and B above shall be recorded

by such foreman in a book kept for that purpose.

7. Prior to an equipment move, a visual examination shall be made by a certified electrician of all circuit breakers that will be utilized along the route of travel. Necessary settings of all such circuit breakers to be utilized, shall be made by a certified electrician.
8. A minimum of 12 inches of radius clearance shall be provided between such equipment being transported and high voltage cables and insulated D.C. power cables unless high voltage power cables and/or insulated D.C. power cables are de-energized or adequately protected.
9. An operative means of communications shall be maintained between the move crew transporting such equipment, and the dispatcher, if one is employed, or a designated qualified person on the surface.
10. An experienced machine operator of the type of equipment being moved shall be provided to move such equipment if it becomes necessary to energize the equipment during the move.
11. Except as provided in paragraph (12) below, a qualified person shall be located where electrical power can be immediately de-energized while the equipment is being transported.
12. Should it be necessary for any person to be located inby the equipment being moved to control the electrical power, such person shall be provided with a gas mask or equivalent and has been trained in its use, also the above mentioned person shall have a readily available vehicle, operative communications, and immediate access to an isolated intake air escapeway before such person goes inby such equipment to control the power, he shall have been familiarized as to the escapeways in the area he may be located in at the time. If an isolated intake air escapeway is not provided in the area where a person must be inby

the equipment being transported, then the person shall be given ample time to establish the power and return to the outby side of the equipment being moved, before such equipment proceeds any further.

13. When a locomotive is operating on the boom end of the equipment being transported or where there are other conditions that may present a hazard to the locomotive operator because of being in close proximity to the equipment being moved, a flat car, mine car, or similar equipment shall be provided between the locomotive and moving equipment.

14. No person shall be assigned to an equipment move crew that does not possess a miners certificate as an underground miner.

15. A light and equipment move notification instructions shall be located at all portals where men enter the mine. Except for emergency moves, written instructions as to the date, time, and destination of each equipment move shall be posted 24 hours prior to such equipment move in the vicinity of the equipment move light in a specific location at the mine where all persons may read. Such aforementioned written instructions shall be signed by a certified foreman. Immediately prior to the equipment moves, including emergency equipment moves the conspicuous light shall be turned on and off by a certified foreman and such light shall remain on for the duration of the equipment move. Should an unintentional delay occur, such as fan outage, work stoppage, etc. while such intended equipment move is posted, another 24 hour notification period is not required, provided, all persons who may be affected by such equipment move shall be notified.

16. The following fire protection equipment and tools shall be provided with each equipment move:

    (a) 3-20 lb. fire extinguishers and 250 lbs. rock dust or 4-20 lbs.

fire extinguishers (such extinguishers shall be placed where they are readily accessible and on the outby side of the equipment being move).

(b) 1 ball peen hammer.

(c) 1 mine axe.

(d) 1 wire bell wrench.

(e) 1 set of come-a-longs with sufficient clamps to perform trolley wire maintenance.

(f) 2-12 inch adjustable wrenches.

(g) Adequate supply of trolley wire splices and bells.

(h) A lifting jack and/or lifting jacks sufficient in size to lift such equipment being transported.

(i) 1 hack saw.

(j) Assortment of wood blocks.

(k) 1 pair insulated wire cutters.

(l) 1 pair of wireman's gloves.

(m) 1 sledge hammer.

(n) 1-10 unit first-aid kit.

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Section 5. Transporting Mining Equipment In Track Haulage Entries With Battery Powered Locomotives.

5.1 Mining equipment may be transported in track haulage entries with track mounted battery powered locomotives while persons are inby such equipment being transported in the same ventilating air current passing over such equipment, provided:

1. When trolley and feeder wires are present, a certified electrician shall be designated to de-energize such trolley and feeder wire in the area where such equipment is to be moved. De-energizing devices in the trolley and feeder wire system shall be opened, locked out with an approved device and suitably tagged by a

designated certified electrician. A designated certified electrician shall be the person who removes the danger tags, locking devices, and restores the electrical power to the trolley and feeder wires after the equipment move has passed through that specific area. Mining equipment and supplies that do not exceed the height, width, or length of a mine car or locomotive will be moved under the requirements of Section 7 and Section 8 of these regulations.

2. A. Within three hours (3) prior of such equipment move, the entire length of the equipment travel route shall be examined by a certified foreman or fireboss.

   B. Within three hours (3) after such equipment has been transported the entire length of the travel route, where such equipment has been transported shall be examined by a certified foreman or fireboss.

   C. Such examination shall be recorded by such foreman in a book kept for that purpose.

   D. Prior to energizing trolley and/or feeder wires in the area where such equipment has been moved, an examination of the area shall be made by a certified foreman and all hazardous conditions found during his examination shall be corrected.

3. A readily available vehicle, capable of transporting an injured person shall be provided on the outby side of the equipment being moved.

4. Operative means of communications shall be maintained between the equipment move crew and (1) a dispatcher, if one is employed, or (2) a designated qualified person on the surface and (3) the section and/or sections inby the moving equipment that are in the ventilating air current passing over such equipment.

5. Such equipment being moved shall be cleaned of accumulated combustible

materials and properly secured.

6. Battery locomotives used to transport such equipment shall be cleaned of accumluated combustible materials. Battery tops shall be cleaned prior to equipment moves.
7. Battery terminals shall be insulated between the top of the battery and battery cover to prevent accidental short circuiting.
8. Batteries shall be examined for proper voltage prior to equipment moves.
9. Heads and/or booms of all equipment being transported shall have all hydraulic pressure released and heads and/or booms shall be tightly secured.
10. When necessary, equipment assemblies shall be removed to provide required clearance.
11. Adequate size locomotives shall be used to transport mining equipment.
12. A minimum of 12 inches of radius clearance shall be maintained between the equipment being moved, and the energized high voltage cable and energized insulated D.C. feeder wire paralleling the entry along the route of travel. In areas where the aforementioned 12 inches of radius clearance cannot be maintained, the high voltage cable and D.C. feeder cable shall be adequately guarded, however, if 6 inches of clearance cannot be maintained between the equipment being moved and the high voltage cables and D.C. insulated feeder wire, they shall be de-energized, and suitably tagged and locked out by a certified electrician. Provided, however, where it becomes necessary for equipment to pass under any high voltage cable and/or insulated D.C. feeder wire, where the required clearance cannot be maintained, the aforementioned high voltage cables and/or insulated

D.C. feeder wires shall be either channeled above the level of the roof line, or de-energized.

13. When a locomotive is operating on the boom end of the equipment being moved or where there are other conditions that may present a hazard to the locomotive operator because of being in close proximity to the equipment being moved, a flat car, mine car or like equipment of sufficient length shall be provided between the locomotive and moving equipment.

14. An experienced machine operator of the type of equipment being moved shall be provided to move such equipment if it becomes necessary to energize the equipment during the move.

15. No person shall be assigned to an equipment move crew that does not possess a miners certificate as an underground miner.

16. Prior to the shift such equipment is scheduled to be moved the date, time, route of travel, and destination of equipment moves shall be posted on the mine bulletin board and a representative of the miners at that mine shall be notified at the time of posting.

17. When such equipment move is made where de-energized trolley and/or feeder wires are present, the following tools and equipment shall be provided:

    (a) 3-20 lb. fire extinguishers and 250 lbs. of rock dust or 4-20 lb. fire extinguishers (such fire extinguishers shall be placed where they are readily accessible and on the outby side of the equipment being moved).

    (b) 1 ball peen hammer.

    (c) 1 mine axe.

    (d) 2-12 inch adjustable wrenches.

    (e) A lifting jack and/or lifting jacks sufficient in size to lift such equipment being moved.

(f) Assortment of wood blocks.

(g) 1-10 unit first-aid kit.

* (h) 1 wire bell wrench.

* (i) Adequate supply of trolley wires, splices and bells.

* (j) 1 hack saw.

* (k) 1 pair insulated wire cutters.

* (l) 1 sledge hammer.

* (m) 1 set of come-a-longs with sufficient clamps for trolley wire maintenance.

* Items h,i,j,k,l, and m, do not apply if trolley or feeder wire is not present in the entry where equipment is transported.

Section 6. Track Equipment, Such as Track Cleaners, and Requirements.

6.1 Track equipment, such as track cleaners, track drills and cutting machines, that do not create any greater than ordinary risk of fire may operate normally, provided:

1. No less than 12 inches of radius clearance is maintained between trolley or feeder wires while such aforementioned equipment is being transported or trammed.

2. Within eight hours (8) prior to such equipment move trolley wire crossovers and switches located on the equipment travel route shall be examined for proper clearance by a certified foreman or fireboss and the following necessary safety precautions implemented.

A. (1) When such aforementioned equipment passes under energized trolley or feeder wires of high voltage cables at crossovers and switches and 12 inches of radius clearance cannot be provided such trolley or feeder wires, or high voltage cables shall be adequately guarded to prevent accidental contact.

(2) However, where it becomes necessary for the equipment to pass

under bare trolley or feeder wire and 6 inches of clearance cannot be maintained the wire may be either de-energized and locked out with an approved device and tagged out by a certified electrician or remain energized and all people inby on the same ventilating current of air brought outby the move area.

B. Where it becomes necessary for the equipment to pass under high voltage cables and/or insulated D.C. feeder wires and the 6 inches of required clearance cannot be maintained, the aforementioned high voltage cables and/or insulated D.C. feeder wires shall either be channeled above the level of the roof line, or de-energizing by locking out and tagging out by a certified electrician.

3. Booms on the track cleaners shall be insulated on the trolley and feeder wire side and a means installed on the track cleaner to prevent the boom from moving from side to side.

4. Operative means of communication shall be maintained between the operating, transporting or tramming crew and the dispatcher, if one is employed, or a designated qualified person on the surface.

When any of the above criteria cannot be complied with, no person, except such persons directly involved with the above equipment, shall be permitted to be inby such equipment on the same ventilating split of air.

6.2 Track mounted roof bolting machines, that do not create any greater than ordinary risk of fire, may be transported or trammed normally, provided:

1. No less than 12 inches of radius clearance is maintained between trolley or feeder wires while such aforementioned equipment is being transported or trammed.
2. Within eight hours (8) prior to such equipment move trolley wire

crossovers and switches located on the equipment travel route shall be examined for proper clearance by a certified foreman or fireboss and the following necessary safety precautions implemented.

A. (1) When such aforementioned equipment passes under energized trolley or feeder wires or high voltage cables at crossovers and switches and 12 inches or radius clearance cannot be provided such trolley or feeder wires, or high voltage cables shall be adequately guarded to prevent accidental contact.

(2) However, where it becomes necessary for the equipment to pass under bare trolley or feeder wires and 6 inches of clearance cannot be maintained the wire may be either de-energized and locked out with an approved device and tagged out by a certified electrician or remain energized and all people inby on the same ventilating current of air brought outby the move area.

B. Where it becomes necessary for the equipment to pass under high voltage cables and/or insulated D.C. feeder wires and the 6 inches of required clearance cannot be maintained, the aformentioned high voltage cables and/or insulated D.C. feeder wires shall either be channeled above the level of the roof line, or de-energized by locking out and tagging out by a certified electrician.

3. Operative means of communications shall be maintained between the operating, transporting or tramming crew and the designated qualified dispatcher, if one is employed, or a designated person on the surface.

4. While roof bolting operations are being performed and energized trolley and/or feeder wires are present, such trolley and/or feeder wires shall be adequately guarded to prevent accidental contact.

When any of the above criteria cannot be complied with, no person except such persons directly involved with the above moving equipment shall be permitted to be inby such equipment while on the same ventilating split of air.

6.3 Prior to operating, transporting or tramming of track mounted equipment listed under 6.1 and 6.2 the following fire protection and tools shall be provided:

(a) 2-20 lb. fire extinguishers (such fire extinguishers shall be placed where they are readily accessible and on the outby side of the equipment being moved).

(b) A lifting jack and/or lifting jacks sufficient in size to lift such equipment being trammed.

(c) 1 mine axe.

(d) 1 wire bell wrench.

(e) Adequate supply of trolley wire splices and bells.

(f) 1 hack saw.

(g) Assortment of wood blocks.

(h) 1 pair insulated wire cutters.

(i) 1 pair wireman's gloves.

(j) 1 sledge hammer.

(k) Trolley wire insulating material.

(l) 2 adjustable wrenches.

(m) 1 set of come-a-longs with sufficient clamps to perform trolley wire maintenance.

(n) 1-10 unit first-aid kit.

Section 7. Mining Equipment and Disassembled Mining Machine Parts That May Be Transported With Certain Requirements.

7.1 Mining equipment or disassembled parts of mining equipment may be transported at any time in mine cars, provided such equipment or disassembled

parts of mining equipment does not protrude above the height of such mine car.

7.2 Mining equipment or disassembled parts of mining equipment may be transported at any time on flat cars, supply cars, or skids provided:

1. Such equipment is tightly secured.
2. Such equipment being transported does not exceed the height, width and length of the mine car or top of the locomotive normally used in the specific area of such mine. If it is necessary for such equipment to pass under the trolley wire, feeder wire or high voltage cables in the specific location on the haulage road, such D.C. power and high voltage cables shall be de-energized or adequately protected to prevent accidental contact with trolley wire, feeder wire and high voltage cables.

Section 8. Transporting Mining Supplies.

8.1 Mining supplies may be transported in mine cars, provided, such supplies being transported do not protrude above the height of the mine car being used to transport supplies.

8.2 Mining supplies may be transported on flat cars, supply cars, or skids provided:

1. Such supplies being transported are tightly secured.
2. Such supplies do not exceed the height, width, or length of the mine car or top of the locomotive used in the specific area of such coal mine or twelve (12) inches of radius clearance is continuously provided between such supplies being transported and the trolley wire, feeder wire and all high voltage cables.

8.3 Pipe, mine haulage rails, structural steel and other similarly related equipment shall be excluded from the length requirements while being transported.

Section 9. Tramming of A.C. Electrical Equipment

9.1 Electrical A.C. equipment may be trammed in entries with persons inby on the same ventilating split of air provided:

1. The equipment shall be cleaned of accumulated combustible materials.
2. When necessary, equipment assemblies shall be removed to provide necessary clearance.
3. Prior to the movement of equipment the following examinations shall be made and recorded in a book, for that purpose, by a certified electrician.
   (a) Ground System and Monitoring System
   (b) Instantaneous trip setting
   (c) Undervoltage protection
   (d) Ground phase relay
   (e) Equipment electrical switches
4. A. Within eight (8) hours prior to such equipment being transported the entire length of the travel route, where such equipment is to be transported, shall be examined by a certified foreman or fireboss.
   B. Within three (3) hours after such equipment has been transported the entire length of the travel route where such equipment has been transported shall be examined by a certified foreman or fireboss.
   C. Such examinations shall be recorded by such foreman in a book kept for that purpose.
5. When energized trolley and feeder wires are present, a certified electrician shall be designated to de-energize such trolley and feeder wire in the area where such equipment is to be moved. De-energizing devices in the trolley and feeder wire system shall be opened, locked out with an approved device and suitably tagged by a designated certified electrician. A designated certified electrician shall be the person

who removes the danger tags, locking devices, and restores the electrical power to the trolley and feeder wires after the equipment move has passed through that specific area. Prior to energizing trolley and/or feeder wires in the area where such equipment has been moved, an examination of the area shall be made by a certified foreman and all hazardous conditions found during his examination shall be corrected.

6. A qualified person shall be located where electrical power on such equipment can be immediately de-energized in case of an emergency.
7. A minimum of 12 inches of radius clearance shall be maintained between the equipment being moved and the energized high voltage cable and energized insulated D.C. feeder wire paralleling the entry along the route of travel. In areas where 12 inches of radius clearance cannot be maintained the high voltage cable and D.C. feeder cable shall be adequately guarded, however, if 6 inches of clearance cannot be maintained between the equipment being moved and the high voltage cables and D.C. insulated feeder wire, the high voltage cables or D.C. insulated feeder wire shall be de-energized, and suitably tagged and locked out by a certified electrician. Provided, however, where it becomes necessary for equipment to pass under high voltage cables and/or insulated D.C. feeder wire where the required clearance cannot be maintained the aforementioned high voltage cable and/or insulated D.C. feeder wire shall be channeled above the level of the roof line or de-energized.
8. The assigned crew tramming such equipment shall work under the direct supervision of a certified foreman and such crew shall be throughly familiarized with the procedures that will be followed to move such equipment.

9. No person shall be assigned to a move crew that does not possess a miners certificate as an undergorund coal miner as prescribed by the West Virginia Mine Laws.
10. A designated qualified person shall tram the machine being moved.
11. Operative means of communications shall be maintained between the equipment move crew and (1) a dispatcher, if one is employed, or (2) a designated qualified person on the surface and (3) the section and/or sections inby the moving equipment that are in the ventilating air current passing over such equipment.
12. All persons located inby such equipment being trammed shall have immediate access to an isolated intake air escapeway. All persons located inby the equipment being trammed shall be notified of the move and be instructed as to the location of the isolated intake air escapeway prior to the equipment move.
13. A vehicle capable of transporting an injured person shall be readily available on the outby side of such move.
14. The following fire protection equipment and tools shall be provided with each equipment move:
    (a) 1-20 lb. fire extinguishers and 250 lbs. rock dust or 4-10 lb. fire extinguishers (such fire extinguishers shall be placed where they are readily accessible and on the outby side of the equipment being moved).
    (b) 1 ball peen hammer.
    (c) 1 mine axe.
    (d) 2-12 inch adjustable wrenches.
    (e) A lifting jack and/or lifting jacks, sufficient in size to lift such equipment being trammed.
    (f) Assortment of wood blocks.
    (g) 1 hack saw.

(h) 1 sledge hammer.

(i) 1 pair wireman's gloves.

(j) 1-10 unit first-aid kit.

* (k) 1 set of come-a-longs with sufficient clamps to perform trolley wire maintenance.

* (l) 1 wire bell wrench.

* (m) Adequate supply of trolley wire splices and bells.

* (n) 1 pair insulated wire cutters.

* Items k, l, m, and n, do not apply if trolley wire is not present in the entry.

Section 10. Tramming of D.C. Electrical Equipment.

10.1 Electrical D.C. equipment may be trammed in entries with persons inby on the same ventilating split of air provided:

1. Prior to the shift such equipment is scheduled to be moved, the date, time, route of travel, and destination of the equipment move shall be posted on the mine bulletin board and a representative of the miners at that mine shall be notified.

2. A. Within eight (8) hours prior to such equipment being transported the entire length of the travel route, where such equipment is to be transported, shall be examined by a certified foreman or fireboss.

   B. Within three (3) hours after such equipment has been transported the entire length of the travel route where such equipment has been transported shall be examined by a certified foreman or fireboss.

   C. Such examinations shall be recorded by such foreman in a book kept for that purpose.

3. When necessary, equipment assemblies shall be removed to provide necessary clearance.

4. The equipment being trammed shall be cleaned of accumulated combustible materials.

5. Prior to moving the equipment, all trailing cables shall be examined by removing the cable from the the reel. All temporary splices in the cable shall be eliminated, and strain clamps and mounting brackets shall be checked for proper installation. During the movement of the equipment, the trailing cable shall remain off of the reel and the reel shall be sufficiently blocked to prevent rewinding. An external strain clamp shall be installed to protect the cable Junction point at the cable reel from cable strain.
6. The trailing cable shall be protected by a combination dual element fuse and circuit breaker. The size of the fuse and instantaneous trip setting of the sircuit breaker shall be determined from the following tables:

Table 1

TABLE 1.--List of maximum circuit-breaker instantaneous trip settings to protect a given length of cable for 300-volt system

Cable length (ft) / Cable Size(AWG)	300	400	500	600	700	800	900	1000	Maximum Allowab Setting
4.....	650	500	450	400	**	**	**	**	650
2.....	950	750	650	550	500	**	**	**	950
1.....	1100	900	750	650	600	500	**	**	1100
1/0.....	1300	1050	900	800	750	650	**	**	1300
2/0.....	1500	1250	1100	950	850	750	**	**	1500
3/0.....	1750	1450	1250	1100	1000	900	850	**	1750
4/0.....	1950	1650	1500	1300	1200	1100	1000	900	1950

TABLE 2.--List of maximum circuit-breaker instantaneous trip settings to protect a given length of cable for 600-volt system

Cable length (ft) / Cable Size(AWG)	300	400	500	600	700	800	900	1000	Maximum Allowab Setting
4.....	1000	850	750	650	**	**	**	**	1000
2.....	1200	1100	1000	900	800	**	**	**	1200
1.....	1250	1150	1100	1000	950	850	**	**	1250
1/0.....	1350	1250	1150	1100	1050	950	**	**	1350
2/0.....	1400	1300	1250	1200	1150	1100	1050	**	1400
3/0.....	1450	1350	1300	1250	1200	1150	1100	**	1450
4/0.....	1500	1400	1350	1300	1300	1250	1200	1150	1500

Table 3.---Short circuit protection; dual element fuses; current ratings; maximum values

Conductor Size(AWG or MCM)	Single conductor cable		Two conductor cable	
	Ampacity	Max. fuse rating	Ampacity	Max. fuse rating
14			15	15
12			20	20
10			25	25
8	60	60	50	50
6	85	90	65	70
4	110	110	90	90
3	130	150	105	110
2	150	150	120	125
1	170	175	140	150
1/0	200	200	170	175
2/0	235	250	195	200
3/0	275	300	225	225
4/0	315	350	260	300
250	350	350	285	300
300	395	400	310	350
350	445	450	335	350
400	480	500	360	400
450	515	600	385	400
500	545	600	415	450

If the equipment will not start or run at the above recommended settings, the settings may be increased to a level necessary to eliminate the problem provided the maximum allowable setting as indicated in Tables 1 and 2 are not exceeded.

7. Prior to moving the equipment, a certified electrician shall
   (a) Examine the instantaneous trip setting on circuit breakers
   (b) The fuse size
   (c) The grounding system
   (d) All electrical switches

Any defects found during the examination shall be corrected prior to moving the equipment. The results of the above required examinations shall be recorded in a book provided for that purpose.

8. The assigned crew tramming such equipment shall work under the direct supervision of a certified foreman and such crew shall be throughly familiarized with the procedures that will be followed to move such equipment.
9. A designated qualified person shall tram the machine being moved.
10. No person shall be assigned to a move crew that does not possess a miners certificate as an underground coal miner as prescribed by the West Virginia Mine Laws.
11. A qualified person shall be located where electrical power on such equipment can be immediately de-energized in case of an emergency.
12. Only one piece of equipment receiving D.C. power through a trailing cable may be trammed on one ventilating split of air at a time.
13. A vehicle capable of transporting injured persons shall be readily available.
14. Operative means of communications shall be maintained between the equipment move crew and (1) a dispatcher, if one is employed, or (2) a designated qualified person on the surface and (3) the section and/or sections inby the moving equipment that are in the ventilating air current passing over such equipment.
15. All persons located inby such equipment being trammed shall have

immediate access to an isolated intake escapeway. All persons located inby the equipment being trammed shall be instructed as to the location of the isolated intake air escapeway prior to the movement of such equipment.

16. A minimum of 12 inches of radius clearance shall be maintained between the equipment being moved and the energized high voltage cable and energized insulated D.C. feeder wire paralleling the entry along the route of travel. In areas where 12 inches of radius clearance cannot be maintained the high voltage cable and D.C. feeder cable shall be adequately guarded, however, if 6 inches of clearance cannot be maintained between the equipment being moved and the high voltage cables and D.C. insulated feeder wire, the high voltage cables or D.C. insulated feeder wire shall be de-energized, and suitably tagged and locked out by a certified electrician. Provided, however, where it becomes necessary for equipment to pass under high voltage cables and/or insulated D.C. feeder wire where the required clearance cannot be maintained the aforementioned high voltage cable and/or insulated D.C. feeder wire shall be channeled above the level of the roof line or de-energized.

17. When trolley and feeder wires are present, a certified electrician shall be designated to de-energize such trolley and feeder wire in the area where such equipment is to be moved. De-energizing devices in the trolley and feeder wire system shall be opened, locked out with an approved device and suitably tagged by a designated certified electrician. A designated certified electrician shall be the person who removes the danger tags, locking devices, and restores the electrical power to the trolley and feeder wires after the equipment

move has passed through that specific area. Prior to energizing trolley and/or feeder wires in the area where such equipment has been moved, an examination of the area shall be made by a certified foreman and all hazardous conditions found during his examination shall be corrected.

18. The following fire protection equipment and tools shall be provided with each equipment move:

(a) 1-20 lb. fire extinguishers and 250 lbs. rock dust or 4-20 lb. fire extinguishers (such extinguishers shall be placed where they are readily accessible and on the outby side of the equipment being moved).

(b) 1 ball peen hammer

(c) 1 mine axe.

(d) 2-12 inch adjustable wrenches.

(e) A lifting jack and/or lifting jacks, sufficient in size to lift such equipment being trammed.

(f) 1 hack saw.

(g) Assortment of wood blocks.

(h) 1 sledge hammer.

(i) 1 pair wireman's gloves.

(j) 1-10 unit first-aid kit.

* (k) 1 set of come-a-longs with sufficient clamps to perform trolley wire maintenance.

* (l) 1 wire bell wrench.

* (m) Adequate supply of trolley wire splices and bells.

* (n) 1 pair insulated wire cutters.

* Items k, l, m, and n, do not apply if trolley wire is not present.

Section 11. Movement of Disassembled Parts of Mining Equipment and Equipment In Off-Track Entries With Battery Powered Equipment.

11.1 Disassembled parts of mining equipment and mining equipment may be transported by battery powered equipment in off track entries while persons are inby such equipment on the same ventilating air current, provided 12 inches of radius clearance is provided from insulated energized D.C. trolley feeder wires energized high voltage cables. If exposed un-insulated energized power wires are present in the immediate area where the battery equipment is moving the equipment or disassembled parts, no person, except those involved in the move, shall be permitted inby in the same ventilating air current.

When moving equipment of disassembled parts of mining equipment with men inby on the same ventilating air current the following procedures shall be followed:

1. A minimum of 12 inches of radius clearance shall be maintained between the equipment being moved and the energized high-voltage cable and energized, insulated D.C. feeder wire paralleling the entry along the route of travel. In areas where the aforementioned 12 inches of radius clearance cannot be maintained the high voltage cable and D.C. feeder cable shall be adequately guarded, however, if 6 inches of clearance cannot be maintained between the equipment being moved and the high voltage cables and D.C. insulated feeder wire and the high voltage cables or D.C. insulated wire shall be de-energized, and suitably tagged and locked out with an approved device by a certified electrician. Provided, however, where it becomes necessary for equipment to pass under high voltage cables and/or insulated D.C. feeder wire, where the required clearance cannot be maintained, the aforementioned high voltage cables and/or insulated D.C. feeder wire shall either be channeled above the level of the roof line or de-energized. When energized trolley and feeder

wires are present, a certified electrician shall be designated to de-energize such trolley and feeder wire in the area where such equipment is to be moved. De-energizing devices in the trolley and feeder wire system shall be opened, locked out with an approved device and suitably tagged by a designated certified electrician. A designated certified electrician shall be the person who removes the danger tags, locking devices, and restores the electrical power to the trolley and feeder wires after the equipment move has passed through that specific area. Prior to energizing trolley and/or feeder wires in the area where such equipment has been moved, an examination of the area shall be made by a certified foreman and all hazardous conditions found during his examination shall be corrected.

2. No person shall be assigned to an equipment move crew that does not possess a miners certificate as an underground miner.
3. The equipment move, and the move crew shall be under the direct supervision of a certified foreman.
4. Operative means of communication shall be maintained between the equipment move crew and the dispatcher, if one is employed, or a designated qualified person on the surface.
5. Prior to the shift such equipment is scheduled to be moved the date, time, route of travel, and destination of equipment moves shall be posted on the mine bulletin board and a representative of the miners at that mine shall be notified at the time of posting.
6. Within (8) hours prior to moving mining equipment the battery powered, off track equipment used in the equipment move shall be examined by a certified electrician, and such examination shall be recorded in a book kept for such purposes.

7. A. Within eight (8) hours prior to such equipment being transported the entire length of the travel route, where such equipment is to be transported, shall be examined by a certified foreman or fireboss.

   B. Within three (3) hours after such equipment has been transported the entire length of the travel route, where such equipment has been transported shall be examined by a certified foreman or fireboss.

   C. Such examinations shall be recorded by such foreman in a book kept for that purpose.

8. Equipment being moved shall be cleaned of combustible materials, and assemblies shall be removed if required for clearance.

9. An emergency vehicle capable of transporting an injured person shall be readily available.

10. The following equipment shall be provided during equipment moves:

   (a) 1-20 lb. fire extingishers and 250 lbs. rock dust or 4-20 lb. fire extinguishers (such extinguishers shall be placed where they are readily accessible and on the outby side of the equipment being moved).

   (b) 1 ball peen hammer.

   (c) 1 mine axe.

   (d) 2-12 inch adjustable wrenches.

   (e) A lifting jack and/or lifting jacks, sufficient in size to lift such equipment being trammed.

   (f) 1 hack saw.

   (g) Assortment of wood blocks.

   (h) 1 sledge hammer.

   (i) 1 pair wireman's gloves.

   (j) 1-10 unit first-aid kit.

   * (k) 1 set of come-a-longs with sufficient clamps to perform trolley wire maintenance.

* (l) 1 wire bell wrench.

* (m) Adequate supply of trolley wire splices and bells.

* (n) 1 pair insulated wire cutters.

* Items k, l, m, and n, do not apply if trolley or feeder wire is not present in the entry where equipment is transported.

Section 12. Construction Work and Requirements.

12.1 Construction work using various types of mining machines, including machines powered by battery will be permitted to be operated with men inby on the same air current providing the following provisions are followed:

1. Such mining equipment shall not operate where any bare exposed energized trolley or feeder wires are present.
2. When trolley and feeder wires are present, a certified electrician shall be designated to de-energize such trolley and feeder wire in the area where such equipment is operating. De-energizing devices in the D.C. trolley and feeder wire system shall be opened, locked out with an approved device and suitably tagged by a designated certified electrician. A designated certified electrician shall be the person who removes the danger tags, locking devices and restores the electrical power to the trolley and feeder wires in a specific area when the work has ceased or been completed.
3. A distance of 12 inches minimum clearance shall be maintained between the machine being operated and any energized high voltage cables and insulated D.C. feeder cable.
4. Operative communications shall be provided at the construction site while persons are working in the construction area.
5. Two 20 lb. fire extinguishers and 240 lbs. of rock dust (such extinguishers shall be placed where they are readily accessible on the outby side) and one 10-unit first-aid kit shall be provided at the construction site.

Section 13. Rehabilitation Work and Requirements.

13.1 Where rehabilitation work is being performed with person inby on the same ventilating split of air such as , cleaning of haulage roads, roof bolting, the cleaning of falls, the installation of structural materials and other related assignments similar to the aforementioned, and the use of face equipment is necessary to perform such work, the following procedures shall be followed:

1. A minimum of 12 inches of radius clearance shall be maintained between the equipment being operated and the energized high voltage cable and energized insulated D.C. feeder wire paralleling the entry. In areas where 12 inches of radius clearance cannot be maintained, the high voltage cable and D.C. insulated feeder cable shall be adequately guarded, however, if 6 inches of clearance cannot be maintained between the equipment being moved and high voltage cables or insulated D.C. feeder wire, the high voltage cables or insulated D.C. feeder wire shall be de-energized, and suitably tagged and locked out with an approved device by a certified electrician. Provided, however, where it becomes necessary for equipment to pass under high voltage cables and/or insulated D.C. feeder wire, where the required clearance cannot be maintained, the aforementioned high voltage cables and/or insulated D.C. feeder wire shall either be channeled above the level of the roof line or de-energized.
2. Operative communications shall be provided at the rehabilitation site while work is being performed.
3. When trolley and feeder wires are present, a certified electrician shall be designated to de-energize such trolley and feeder wire in the area where such equipment is to be moved. De-energizing devices in the trolley and feeder wire system shall be opened,

locked out and suitably tagged by a designated certified electrician. A designated certified electrician shall be the person who removes the danger tags, locking devices, and restores the electrical power to the trolley and feeder wires after the equipment has completed working within a specific area.

4. 3-20 lb. fire extinguishers and 240 lbs. rock dust and 1-10 unit first-aid kit shall be provided at the rehabilitation site.