

STATE OF WEST VIRGINIA
OFFICE OF
MINERS' HEALTH, SAFETY AND TRAINING

MINIMUM ROOF CONTROL PLAN

DATE: _____ WV PERMIT NO.: _____

COMPANY: _____ MINE NAME: _____

ADDRESS: _____

COUNTY: _____ MINE TELEPHONE NO.: _____

TYPE(S) OF PLAN: _____

AREA(S) COVERED BY THIS PLAN: _____

LABOR REP.: _____ COMPANY OFFICIAL: _____

DISTRICT INSPECTOR: _____

DEPTH OF COVER: _____ MINE(S) (ABOVE, BELOW): _____

@	@	@	@	@	@	@	@	@	@	@	@	@	@	@	@	@	@	@	@
@	@	@	@	@	@	@	@	@	@	@	@	@	@	@	@	@	@	@	@

/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/

~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~
~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~

MAIN ROOF _____

IMMEDIATE _____

MINING SEAM _____

BOTTOM _____

REASON(S) FOR REVISION: _____

INVESTIGATOR(S): _____

NOTE: The enclosed approved roof control plan is the minimum standards for roof support in the subject mine. This approval is based upon an investigation of the roof conditions and roof control practices in the mine by representatives of the Mine Safety and Health Administration and the West Virginia Office of Miners' Health, Safety & Training. Any comments concerning the roof control plan will be welcomed, if you desire assistance from our roof control personnel, please contact the Inspector-at-Large in the regional office.

Director or Authorized Representative
WV Office of Miners' Health, Safety & Training

Conventional Bolt System

(a) Minimum Length _____ Grade Steel _____
(b) Bolt Diameter _____ Hole Diameter _____

Anchorage Unit

Type _____

Installed torque _____

Materials Used in conjunction with roof bolts

All roof bolts and components shall be stored and handled in such a manner that will minimize rusting and/or damaging.

Roof Support Materials For Grouted Bolt Systems
(Tensioned or Non-Tensioned)

Resin or other Chemical Substance

Manufacturer _____ Manufacturer's _____
_____ Designation _____

Type _____

Type of Bolt System

Check Appropriate Box

1. Full Grout Bolt ☐

(a) Minimum Bolt Length _____ Grade Steel _____
(b) Bolt Diameter _____ Hole Diameter _____

2. Mechanical Anchor, resin-Assisted Tension Bolt System ☐

(a) Min. Length Bolt _____ Diameter _____ Grade Steel _____
(b) Min. Length Grout _____ Hole Diameter _____
(c) Installed Torque Range _____

3. Point Anchor and Tension Rebar Bolt System ☐

(a) Min. Length Bolt _____ Diameter _____ Grade Steel _____
(b) Min. Length Grout _____ Hole Diameter _____
(c) Installed Torque Range _____

SEQUENCE OF MINING & INSTALLATION OF SUPPORTS INCLUDING TEMPORARY SUPPORTS

PLAN DRAWINGS SHOWING SEQUENCE OF MINING INCLUDING PILLAR MINING WHERE APPLICABLE, SEQUENCE OF INSTALLATION AND SPACING OF SUPPORTS INCLUDING TEMPORARY SUPPORTS AND MAXIMUM WIDTH OF ENTRIES, ROOMS, INTERSECTIONS, CROSSCUTS AND PILLAR LIFTS ARE ATTACHED. CHANGES SHALL NOT BE MADE IN THE MINING SYSTEM UNTIL THE PLAN HAS BEEN REVISED ACCORDINGLY.

WHERE SECOND MINING IS BEING DONE, MANAGEMENT SHALL SHOW ON A MINE MAP THE SEQUENCE OF RECOVERING PILLARS. PILLARING METHODS SHALL MAINTAIN A UNIFORM PILLAR LINE THAT ELIMINATES PILLAR POINTS AND PILLARS THAT PROJECT INBY THE BREAKLINE. WHEN CONDITIONS DICTATE THAT CHANGES BE MADE IN THE SEQUENCE OF PILLAR RECOVERY, SUCH CHANGES SHALL BE AUTHORIZED BY THE SUPERINTENDENT OR DESIGNATED MINE FOREMAN FOR THE SHIFT INVOLVED AND SHALL INCLUDE ADDITIONAL PRECAUTIONARY MEASURES TO BE TAKEN TO COMPENSATE FOR THE ABNORMAL CONDITIONS ENCOUNTERED.

ATRS PRECAUTIONS

THE ATRS SYSTEM, MAINTAINED IN PROPER WORKING CONDITION, IS ACCEPTABLE SUPPORT DURING ROOF-BOLTING OPERATIONS PROVIDED THAT SUCH SUPPORTS ARE PLACED FIRMLY AGAINST THE ROOF BEFORE THE ROOF BOLT OPERATOR PROCEEDS INBY PERMANENT SUPPORTS. WHERE THE AUTOMATED SUPPORTS CONSIST OF THE FLETCHER TYPE CROSSBAR, SUCH SUPPORT MAY BE INSTALLED A MAXIMUM OF 12 INCHES INBY THE LOCATION OF THE ROW OF BOLTS TO BE INSTALLED. NOTE: ATRS SYSTEMS OTHER THAN THOSE SHOWN IN THE EQUIPMENT LIST SHALL NOT BE USED WITHOUT PRIOR APPROVAL.

Entry Width_____Centers_____

Crosscut Width_____Centers_____

Room Width_____Centers_____

Room Crosscut Width_____Centers_____

NOTE: Pillars with a stability factor of less than 1.5 (as calculated by the ARMPS computer program) shall not be developed without prior approval.

TYPES OF FACE AND HAULAGE EQUIPMENT AND ROOF BOLTING MACHINES:

Safety Precautions To Be Taken

1. Where loose material is being taken down, a minimum of two temporary supports on centers of not more than 5 feet shall be installed between the miner and the material, unless such work can be done from an area supported adequately by permanent supports.
2. All posts, except breaker posts, shall have a wooden cap block, plank, or crossbar between them and the roof unless otherwise stated on the drawings.
3. Openings that create an intersection shall be permanently supported or a minimum of one row of temporary supports shall be installed on not more than 4-foot centers across the opening before any other work or travel in the intersection. This does not preclude preshift, onshift examinations.
4. A row of bolts is to be installed within ____ inches of the rib when conventional equipment is used and ____ inches of the rib when continuous miners are used before the first cut is made in a crosscut.
5. Test holes shall be drilled during installation of the first row of bolts at the beginning of each shift in each place and at intervals not to exceed ____ feet thereafter. These test holes are to be left open or incorporated into the bolting pattern by using bolts of at least 1 foot greater in length.
6. Roof bolts shall not be used as the sole means of roof support when underground working approach and/or mining is being done within 150 feet of the outcrop or highwall. Supplemental support shall consist of at least one row of posts on 4-foot spacing, maintained up to the loading machine operator, limiting roadway width to 16 feet. This does not apply to new openings being developed from the surface.
7. Where roof bolts or crossbars are being installed in an area where roof failure is indicated, at least two rows of temporary supports on not more than 5-foot centers shall be installed across the place so that work in progress is done between the installed temporary supports and permanent supports installed in sound roof. The distance between the permanent supports and the nearest temporary supports shall not exceed 5 feet. Where damaged roof bolts are being replaced in isolated instances without the use of an ATRS system, a minimum of two temporary supports shall be installed in a manner that will best protect the miners replacing such bolts.

8. A minimum 12 foot wide bench at 40 foot intervals shall be installed along all highwalls above intended mine openings and areas between openings where miners travel or are required to perform work. To minimize the possibility of being struck by falling material a steel constructed canopy, shall be provided at all intended drift and slope openings. A 10 foot cut may be taken with a remote control continuous miner to install the canopies under the edge of the highwall. The canopy shall be installed and secured against movement prior to installing roof supports. Canopies shall also be installed at any other drift or slope openings prior to being used by workers to enter or exit the mine. The canopy shall extend from the highwall for a distance which will provide for adequate protection from fall highwall material.
9. Where crossbars are installed along haulage roadways, they shall be provided with a means to prevent the crossbar from falling in the event the supporting legs become dislodged.
10. Supplemental roof support materials, tools and equipment necessary to install the materials shall be available on each working section or within four (4) crosscuts of each working section. These materials shall be a minimum of twenty (20) posts or jacks suitable to the mining height and twenty (20) roof bolts at least one (1) foot longer than those normally being used.
11. The appropriate offices that approved the plan shall be notified of unintentional falls in active workings which affect ventilation or the passage of men, or falls above the anchorage of the bolts.
12. Reflective material will be used to indicate the location of the last row of permanent roof supports. The reflective material will be round and arranged in such a position that would allow visual contact from all directions. In elevated heights, such shall be positioned at or near eye level and will be a minimum of four (4) inches in length.
13. An ATRS system shall be maintained and used on all roof bolting machines except, track mounted roof bolting machines and roof bolting machines used to bolt roof in overcast or cavities that require an ATRS system so large that it creates a hazard.

SAFETY PRECAUTIONS FOR RESIN GROUTED RODS

The use of resin-grouted rods in lieu of conventional-type roof bolts is approved for roof support at this mine provided the following criteria is complied with:

The relationship between hole dimension, bolt size, and the size and number of resin cartridges is critical to good performance; therefore, resin-grouted rods shall be installed in accordance with manufacturer's recommendations. Such recommendations shall not be in conflict with the following requirements:

1. All applicable safety precautions of the approved roof control plan pertaining to conventional-type roof bolting shall be followed.
2. The rods shall be installed in the same sequence as shown in drawings for conventional bolts, unless otherwise stated.
3. Resin-grouted rods and conventional roof bolts may both be used as roof support on the same section; however, they shall not be interspersed in the pattern of installation unless they are used as supplementary support.
4. Sufficient resin shall be used to assure that the holes are fully grouted. All resin bolts shall be installed with approved bearing plates firmly against the roof and roof-bolting machine operators shall wear eye protection while installing the rods.
5. Resin packages shall be protected from excessive heat or cold during storage, and shall not be used if manufacturer's recommended shelf life is exceeded. Broken or deteriorated cartridges shall not be permitted to accumulate in the mine.
6. The different types or makes of resin shall not be intermixed.